HUNTER
ENGINEERING

CIVIL AND SURVEY

Case #: 14-DR-2022

Review Cycle: 3

Status: Accepted

Reviewed By: GA

Date: 11/22/2022

This report has been accepted in principle, but has comments that can be addressed during final design

A copy of the corresponding Grading and Drainage plans has been attached to the end of this report

Preliminary Drainage Report
For
Scottsdale and Thunderbird
SEC of Thunderbird Rd and Scottsdale Rd
Scottsdale, Arizona 85260

October 2022

Prepared by:
Hunter Engineering, Inc.
10450 North 74th Street, #200
Scottsdale, AZ 85258

14-DR-2022
Revised 10/4/22

PRELIMINARY DRAINAGE REPORT
FOR

SCOTTSDALE AND THUNDERBIRD

SEC OF THUNDERBIRD RD AND SCOTTSDALE RD
SCOTTSDALE, ARIZONA 85260

PREPARED FOR

LGE DESIGN BUILD
1200 NORTH 52ND STREET
PHOENIX, AZ 85008

PREPARED BY

LARRY TALBOTT
HUNTER ENGINEERING, INC.
10450 NORTH 74TH STREET, #200
SCOTTSDALE, AZ 85258
(480) 991-3985

H.E. PROJECT NO. LGEC308

TABLE OF CONTENTS

SECTION	TITLE	PAGE NO.
1.0	Introduction……..	1
2.0	Existing Drainage Conditions……..	1
3.0	Proposed Drainage Concept……..……..	2
4.0	Finish Floor Elevation……..	3
5.0	Environmental Requirements……..	4
6.0	Conclusions……..	4
7.0	References…….	4

FIGURES	TITLE	LOCATION
1	Vicinity Map…….	Appendix A
2	FEMA Flood Map…….	Appendix A
3	Pre-Development Exhibit…….	Appendix A
4	Post-Development Exhibit……..	Appendix A
5	Topographic Plan…….....……..…	Appendix A
6	Conceptual Grading and Drainage Plan……..…….	Appendix A

APPENDIX	TITLE	
A	Figures	Appendix A
B	Drainage Calculations	Appendix B
C	Reference Information	Appendix C

1.0 INTRODUCTION

This preliminary drainage report has been prepared under a contract from LGE Design Build the developer of the Scottsdale and Thunderbird site. The purpose of this report is to provide a preliminary drainage analysis, required by the City of Scottsdale, to support this development. Preparation of this report has been done according to the procedures detailed in the City of Scottsdale's *Design Standards and Policy Manual*, (Reference 1).

This development project is located along the south side of Thunderbird/Redfield Road just east of Scottsdale Road within the City of Scottsdale, Maricopa County, Arizona. The proposed project is located within a developed site with multiple buildings, parking and drive areas and landscaping.

The existing parcel is bound by existing commercial/office developments and Desert Valley Church to the north, 76th Street (Miller Road alignment) to the east, the existing church facility to the south and an existing facility and Thunderbird/Redfield Road to the west. The site is specifically located in section 11, Township 3 North, Range 4 East, of the Gila and Salt River Base and Meridian. Figure 1, in Appendix A, and the image below illustrate the location of the project site in relation to the City of Scottsdale Street system. Access to the site is provided from Thunderbird/Redfield Road. See the

The development proposes the demolition of existing buildings, associated parking lots, storage areas and driveway and the construction of a new warehouse building. Site improvements will include construction of driveway entrances including a connecting driveway to the city park and ride facility to the west, a parking lot, sidewalk/hardscape, landscape areas, and supporting infrastructure including new storm water drainage system, water, sewer and fire line service. The overall project site is approximately 17 acres.

2.0 EXISTING DRAINAGE CONDITIONS

As shown on the Topographic Plan and Conceptual Grading Plan in Appendix A the proposed site is located on a developed parcel with existing buildings, parking and drive aisles, storage and landscape areas. It is part of a larger overall developed area with multiple uses including storage, a church facility, commercial and residential. This existing site outfalls to the existing church site to the south. The majority of it outfalls to the southeast with a small percentage of the site out falling to the southwest.

Basin 3

Multiple attempts were made to obtain existing drainage reports for the master developed area but none were available from the city records. From the site reconnaissance and survey there are three existing retention basins within the proposed site area. Existing Basin 1 is larger and about 2' deep near the center of the site and Existing Basin 2 is smaller about a 1' deep near the western boundary. There is a depressed area at the northwest corner of the site that outfalls into two existing parallel 12" storm drains. These storm drains outfall to an existing ~~basin~~ just west of our proposed site area ~~to a basin~~ along the southern and western boundary of the city facility site. Please see the Topographic Plan and Concept Grading and Drainage Plan in Appendix A.

Basin 3

Per city comments this ~~basin~~ may go away with any future expansion of the city's facilities and it has been requested this ~~this~~ site provide the volume for this future lost retention. Please see Section 3.3 below for discussion regarding Existing Basin 3.

The existing church site south of this project slopes to the south and therefore the stormwater flows from that site are routed away from this project. This is similar to the area west of the development site as it generally slopes to the west. There is an existing wall with no openings for stormwater conveyance between this site and the commercial development to the north so stormwater is blocked from entering from the north. Miller Road to the east has a swale along its west pavement edge which directs stormwater to the south.

The current FEMA Flood Insurance Rate Map (FIRM) for this area, map number 04013C1760 L with an effective date of October 16th, 2013, shows the entire project site is in a flood hazard Zone X. Zone X is defined as, "*Areas of 0.20% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.*"

3.0 PROPOSED DRAINAGE CONCEPT

The proposed drainage concept is presented in three parts: on-site drainage, off-site drainage conveyance, and storm water retention. These three sections make up sections 3.1, 3.2, and 3.3 respectively. The Conceptual Grading Plan in Appendix A provides a graphical illustration of the proposed drainage concept.

3.1 On-site Drainage

The onsite drainage will be conveyed into a proposed retention basin located at the southeast corner of the proposed site area. A drainage easement will be dedicated around the proposed basin. Drainage will be conveyed via roof drains and overland flow across the parking lot into curb openings and catch basins and then into the proposed storm drains which will outfall into the proposed shallow retention basin. Calculations for the retention basin are shown in Appendix B.

Since the existing site has two outfalls and the proposed retention basin location does not accommodate maintaining the existing west outfall the proposed site will provide additional retention for the western outfall portion of the site. See Storm Water Retention in Section 3.3.

Drainage for the proposed park and ride driveway to the west will be conveyed to a curb opening along the south side of the drive to match the existing low area of the driveway alignment. This stormwater will be conveyed into a retention basin where it will overtop and continue to the west as it has done historically. A scupper will be provided on the north side of the proposed drive in the existing low spot to allow historic flows to pass over the new driveway. Calculations for the retention basin are shown in Appendix B.

This proposed drive will cross an existing concrete channel on the east side of the city park and ride facility property. This is shown and designed as two similar box culverts as the existing upstream box culverts under Thunderbird/Redfield. The final box culvert design and sizing will be provided with the final plans.

The drainage elements are conceptually shown on the conceptual grading and drainage plans. Details and supporting calculations will be provided along with the final plans.

3.2 Off-site Drainage Conveyance

As discussed in Section 2 Existing Conditions above the flows have been cutoff by the existing improvement and therefore no significant off-site drainage impacts this site.

3.3 Storm Water Retention

Since this is a previously developed site stormwater storage requirements in the city of Scottsdale can be based on the greater of the pre-vs-post development storm water runoff volume, in addition to maintaining any existing volumes in any existing stormwater storage basins or the first flush retention volume. Whichever of these two volume requirements is greater.

in the proposed basin at the SE corner of the site

Technically, providing 100-yr, 2h retention in a basin will result in an overflow not exceeding the pre 100-yr, 6-hr storm at that basin. If the discharge point is changed, either the full 100-yr, 6hr volume from the contributing area needs to be retained in the other basin or a storage routing analysis need to be provided to compare pre vs post 100-yr, 6 hr discharge at the other basin
This section needs to be revised accordingly.

Since the existing site has two outfalls with about 15% of the site currently out falling to the southwest corner of the site. The proposed retention basin location does not accommodate maintaining the existing west outfall. Therefore, retaining the entire site for either of the pre-vs-post or first flush retention volume could increase the outfall to the southeast. Therefore, the standard 100yr-2hr retention volume will be provided for the portion of the site that currently outfalls to the west. This should prevent any additional outfall to the east.

The eastern outfall portion of the site will be designed for the greater of the pre-vs-post or first flush retention volume and the western outfall portion of the site will be designed for the 100yr-2hr design storm.

The required Pre-Vs-Post retention volume for the east outfall is the difference between the post development retention requirements and the pre development retention requirements plus the existing stormwater volume provided on the eastern outfall site. This results in a Pre-Vs-Post requirement of 5,436 cf plus the Existing Basin 1 onsite retention volume of ~~32,670~~ cf which results in a total Pre-Vs-Post requirement of 37,677 cf.

32,241

The standard retention volume for the west outfall portion of the site is 18,545 cf. Therefore, the total west standard and east pre-vs-post retention for the site is 56,222 cf. This is greater than the first flush volume for the overall site of 32,670 cf. Therefore, the combined west standard and east pre-vs-post govern. Supporting calculations are included in Appendix B.

The volume requirement of 56,222 cubic-feet will be satisfied by the proposed surface retention basin located at the southeast corner of the developed site. The ponding depth in the retention basin will not exceed 1.10 ft and will be bled off via the proposed drywells within the required 36 hours. Overflow from this basin will continue to the south as sheet flow at the same grades as it has done historically Supporting calculations are included in Appendix B.

Due to the necessary storm drain system and the shallow basin depth the storm drains will enter the basin below grade and will bubble up to fill the basin. In order to avoid standing water in the storm drain system a drywell will be connected to the bubbler catch basin to drain the system for vector control.

Existing Basin 3 is the existing basin on the west side of the city's facility at the northwest corner of the site. It was stated in the water department comments that this basin may need to be removed in the future. Since the proposed site development is now retaining the 100yr-2hr storm event for the western outfall portion of the site this basin will no longer be needed by this development.

See comment above

Percolation time calculations are provided in Appendix B.
The calculations are based on an initial estimated percolation rate of 0.1 cfs. The actual number of drywells may be adjusted once the first drywell is installed and proper percolation rate is measured

14-DR-2022
11/4/22

Another shallow retention basin is proposed for the proposed west drive to the city park and ride facility. This basin is to also retain the greater of the pre-vs-post or first flush retention volume for the proposed drive area. The pre-vs-post volume is 580 cf and the first flush volume is 1,104 cf and therefore the first flush governs. Overflow for the basin will continue to the west of the basin as it has done historically. This basin will not exceed 0.50 ft therefore no bleed off mechanism is required.

4.0 FINISH FLOOR ELEVATIONS

The proposed finish floor elevation of 1429.50 is safe from flooding for the 100-year design flows. It is well above the proposed retention basin high water and is also more than 14" above the existing extreme outfall for this site of 1424.76± located at the southeast corner of the site off Miller Road. In addition to the above ultimate outfall the site can also outfall to the southwest at an elevation of 1425.87 which is also well below the proposed finish floor.

5.0 ENVIRONMENTAL REQUIREMENTS

As the site will be disturbing more than one acres,

An NOI and SWPPP plan and report need to be submitted along with final plans or before any grading or demolition activities can commence onsite.

6.0 CONCLUSIONS

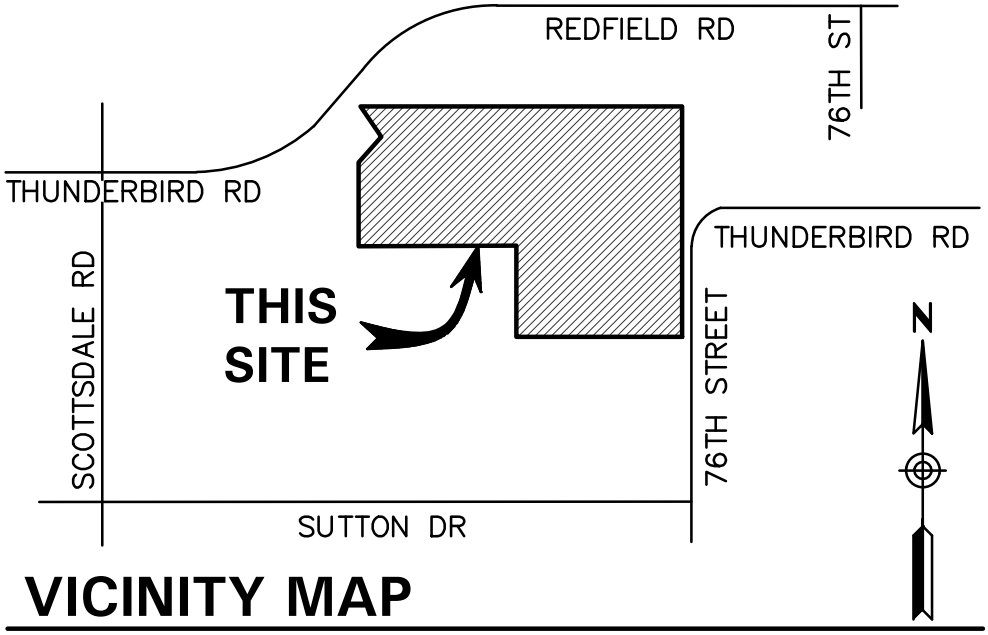
Based on the results of this study, it can be concluded that:

- The site will retain the development retention requirements for the greater of the Pre-Vs-Post and first flush storm events,
- The proposed finished floor elevation is protected from inundation of the 100yr-2hr design storm.

7.0 REFERENCES

1) City of Scottsdale Design Standards & Policies Manual, January 2018.
2) Drainage Design Manual for Maricopa County, Arizona, Hydrology, December 2018.
3) Drainage Design Manual for Maricopa County, Arizona, Hydraulics, December 2018.

APPENDIX A
FIGURES



VICINITY MAP

VICINITY MAP
FIGURE 1

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 — 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
42 75 000m N	1000-meter Universal Transverse Mercator grid ticks, zone 12
6000000 M	5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
July 19, 2001 September 30, 2005

October 16, 2013 - to incorporate previously issued letters of map revision, to update corporate limits, to change base flood elevations, to add base flood elevation, to add roads and road names, to change floodway, to add special flood hazard areas, to advance suffix, and to add floodway.

MAP LEGEND

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 1760 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1760	L
PARADISE VALLEY, TOWN OF	040049	1760	L
PHOENIX, CITY OF	040051	1760	L
SCOTTSDALE, CITY OF	045012	1760	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
04013C1760L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

FIRM PANEL

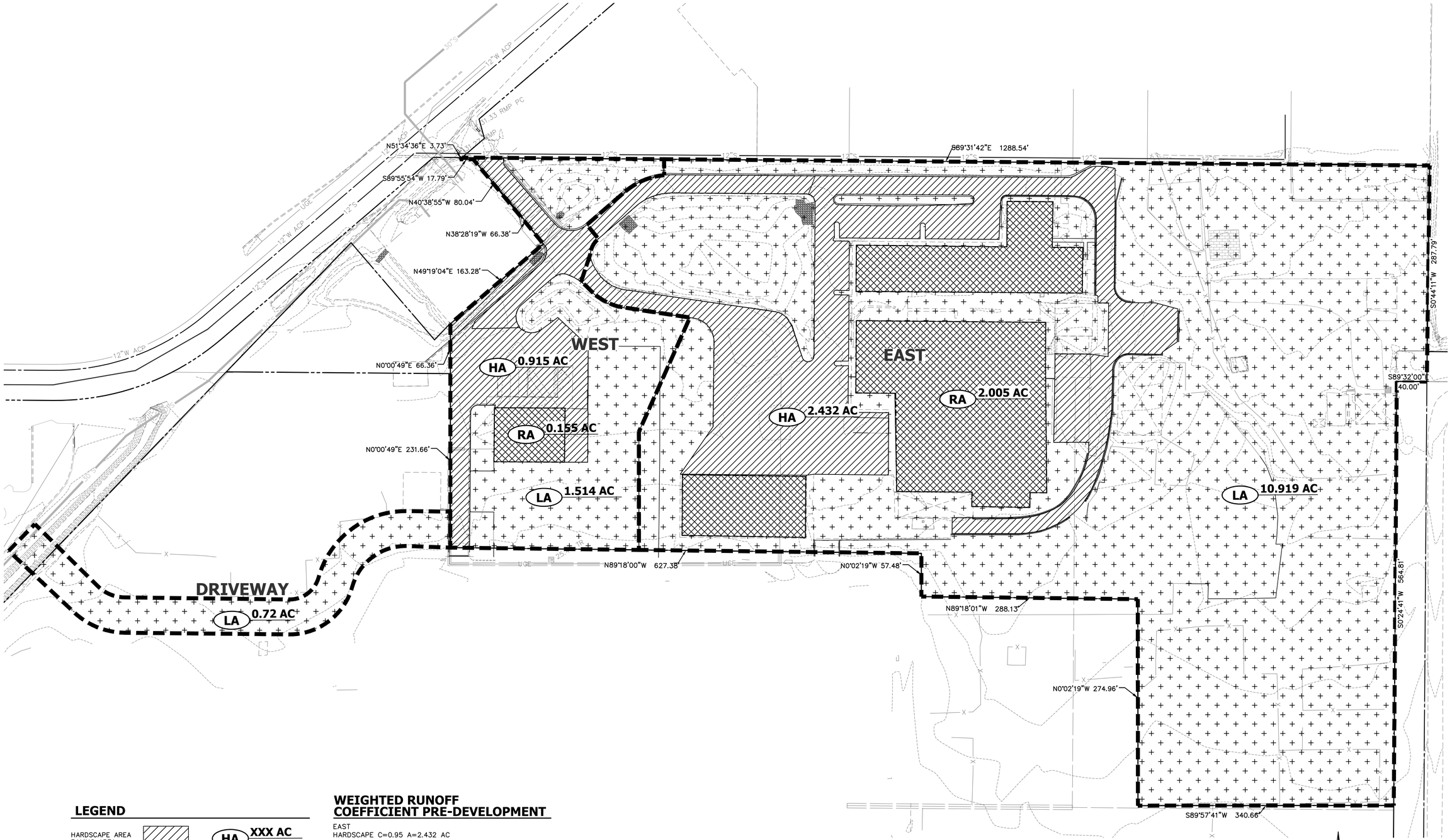
FIGURE 2

H:\...\EEC308\Drainage\FEMA\LG08-FEMA MAP.dwg, 10/5/2022 4:37:33 PM, dchoy

14-DR-2022
11/4/22

PORTION OF PANEL SHOWING SITE
FIGURE 2

~~14-DR-2022~~
11/4/22



LEGEND

HARDSCAPE AREA PAVING AREA	HA XXX AC
LANDSCAPING AREA	LA XXX AC
ROOF AREA	RA XXX AC

WEIGHTED RUNOFF COEFFICIENT PRE-DEVELOPMENT

EAST
HARDSCAPE C=0.95 A=2.432 AC
LANDSCAPE C=0.85 A=10.919 AC
ROOF C=0.95 A=2.005 AC
WEIGHTED C=0.88

WEST
HARDSCAPE C=0.95 A=0.915 AC
LANDSCAPE C=0.85 A=1.514 AC
ROOF C=0.95 A=0.155 AC
WEIGHTED C=0.87

DRIVEWAY
LANDSCAPE C=0.85 A=0.720 AC
WEIGHTED C=0.85

NO.	DATE	REVISION	BY

PURPOSE: 3RD CONCEPTUAL SUBMITTAL

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M. TALBOTT
10/31/22
ARIZONA, U.S.A.

PRE-DEVELOPMENT EXHIBIT FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
AR ZONA811
Arizona Blue Stake, Inc.
CALL 811 OR CLICK ARIZONA811.COM

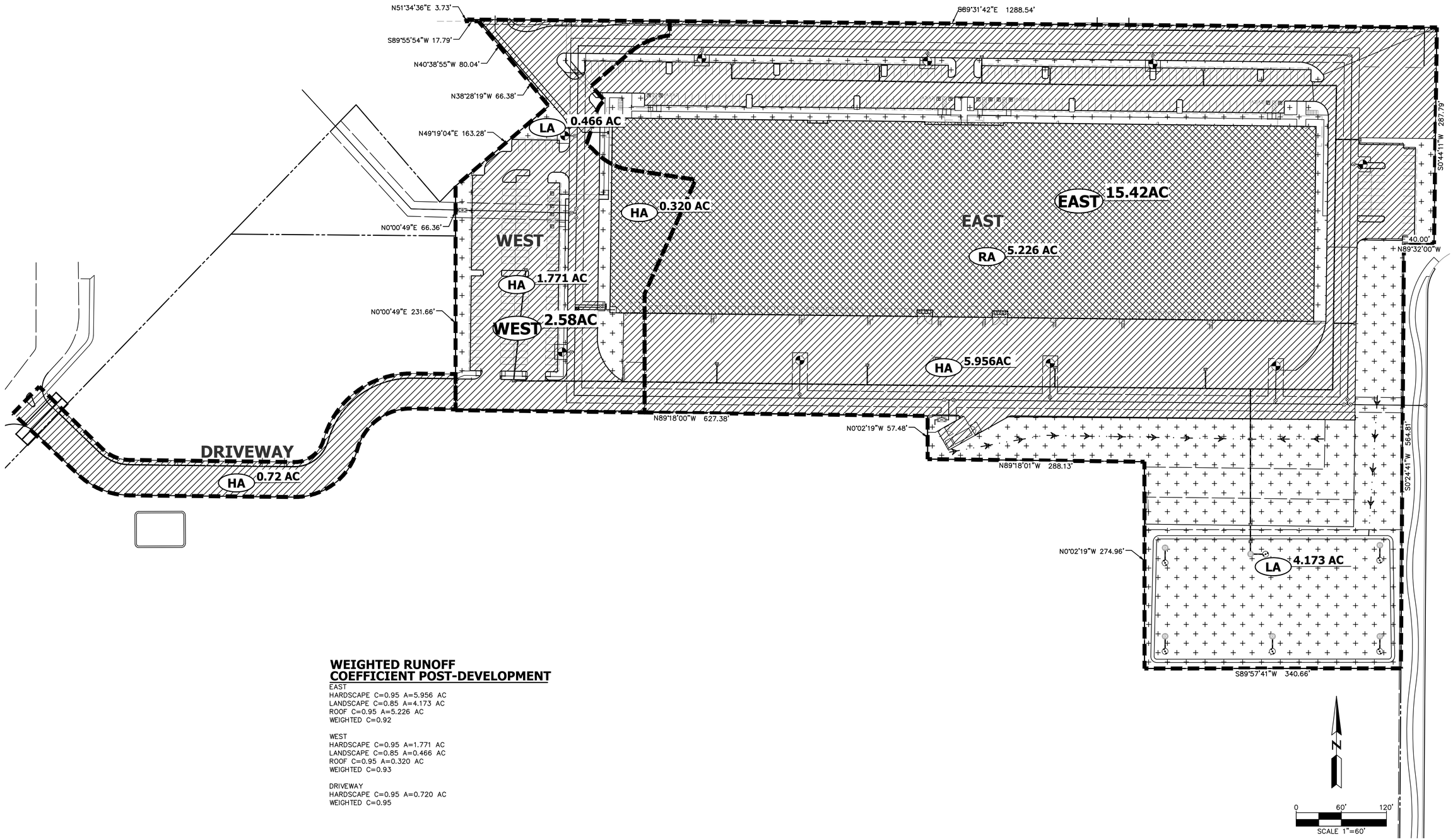
THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

HE NO.: LGEC308
SCALE: 1"=60'

SHEET: 1

14-DR-2022
11/4/22



WEIGHTED RUNOFF COEFFICIENT POST-DEVELOPMENT

EAST
HARDSCAPE C=0.95 A=5.956 AC
LANDSCAPE C=0.85 A=4.173 AC
ROOF C=0.95 A=5.226 AC
WEIGHTED C=0.92

WEST
HARDSCAPE C=0.95 A=1.771 AC
LANDSCAPE C=0.85 A=0.466 AC
ROOF C=0.95 A=0.320 AC
WEIGHTED C=0.93

DRIVEWAY
HARDSCAPE C=0.95 A=0.720 AC
WEIGHTED C=0.95

NO.	DATE	REVISION	BY

PURPOSE: 3RD CONCEPTUAL SUBMITTAL

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M. TALBOTT
10/31/22
ARIZONA, U.S.A.

POST-DEVELOPMENT EXHIBIT FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
ARIZONA811
BLUE STAKE, INC.
CALL 811 OR CLICK ARIZONA811.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

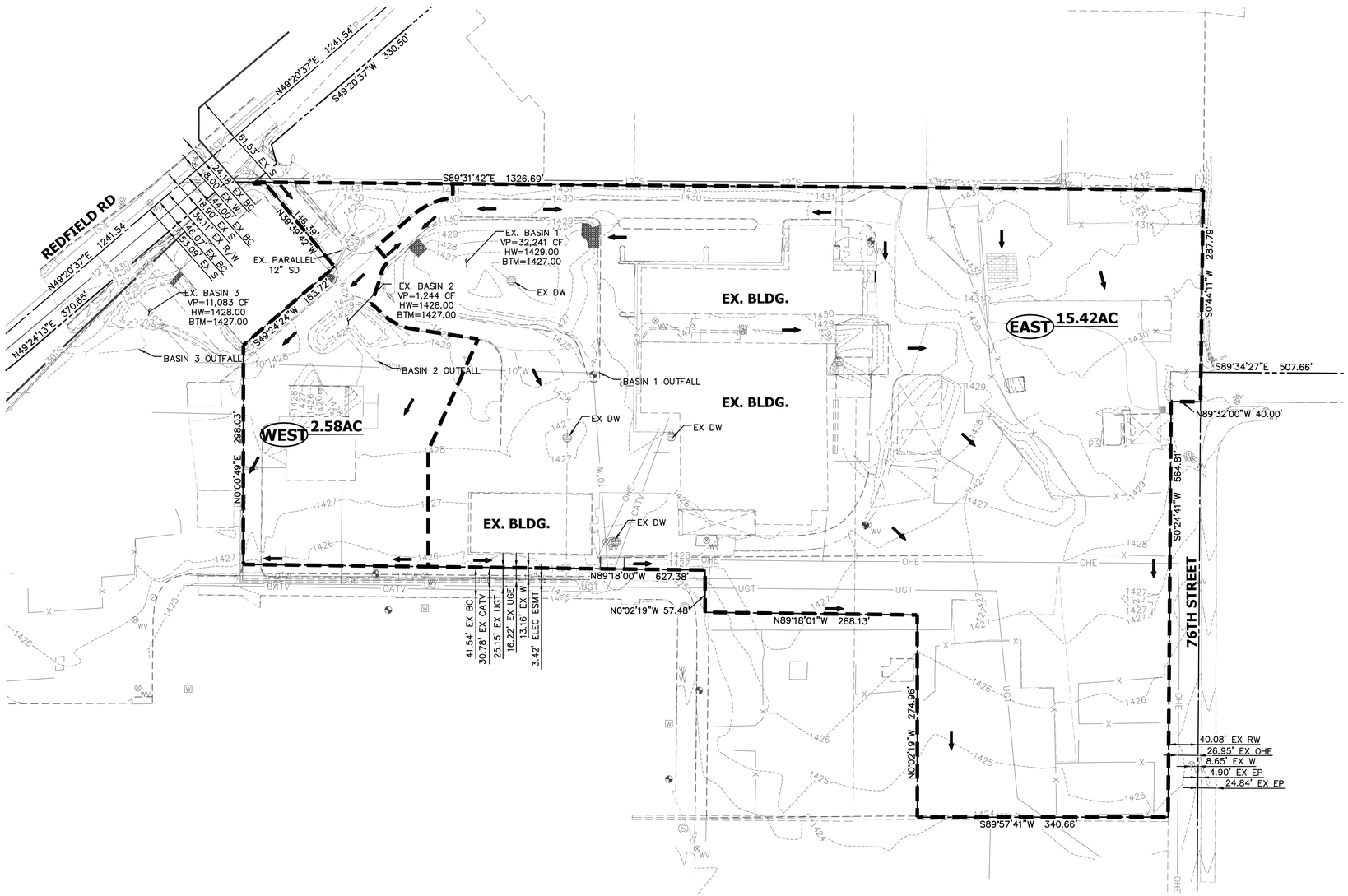
HE NO.: LGEC308
SCALE: 1"=60'

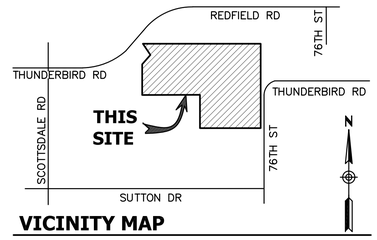
SHEET: 1

14-DR-2022
11/4/22

H:\LGEC308\Drawings\LGEC308 Post-C.dwg, 10/3/2022 4:31:51 PM, dcleary

TOPOGRAPHIC PLAN
FOR
SCOTTSDALE AND THUNDERBIRD
SEC OF SCOTTSDALE AND THUNDERBIRD
SCOTTSDALE, ARIZONA





VICINITY MAP

DEVELOPER
LGE DESIGN BUILD
1200 N 52ND ST
PHOENIX, ARIZONA 85008
PHONE: (480) 966-4001
CONTACT: BLAKE WELLS
EMAIL: BWELLS@LGEDESIGNGROUP.COM

ARCHITECT
LGE DESIGN GROUP
1200 N 52ND ST
PHOENIX, ARIZONA 85008
PHONE: (480) 966-4001
CONTACT: MIKE RUSSO
EMAIL: MRUSSO@LGEDESIGNGROUP.COM

CIVIL ENGINEER
HUNTER ENGINEERING, INC.
10450 N. 74TH STREET, SUITE #200
SCOTTSDALE, ARIZONA 85258
PHONE: (480) 991-3985
FAX: (480) 991-3986
CONTACT: LARRY TALBOTT, P.E.
EMAIL: LTALBOTT@HUNTERENGINEERINGPC.COM

NO.	DATE	REVISION	BY

PURPOSE: 3RD CONCEPTUAL SUBMITTAL

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M. TALBOTT
Date Signed 10/6/22
ARIZONA U.S.A.

TOPOGRAPHIC PLAN FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
ARIZONA811.COM
CALL 811 OR CLICK ARIZONA811.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

HE NO.: LGEC308
SCALE: 1"=80'

SHEET: 1

14-DR-2022
11/4/22

G:\LGEC308\Concept\308 TOPOGRAPHIC PLAN.dwg, 10/6/2022 8:53:17 AM, ByBrett

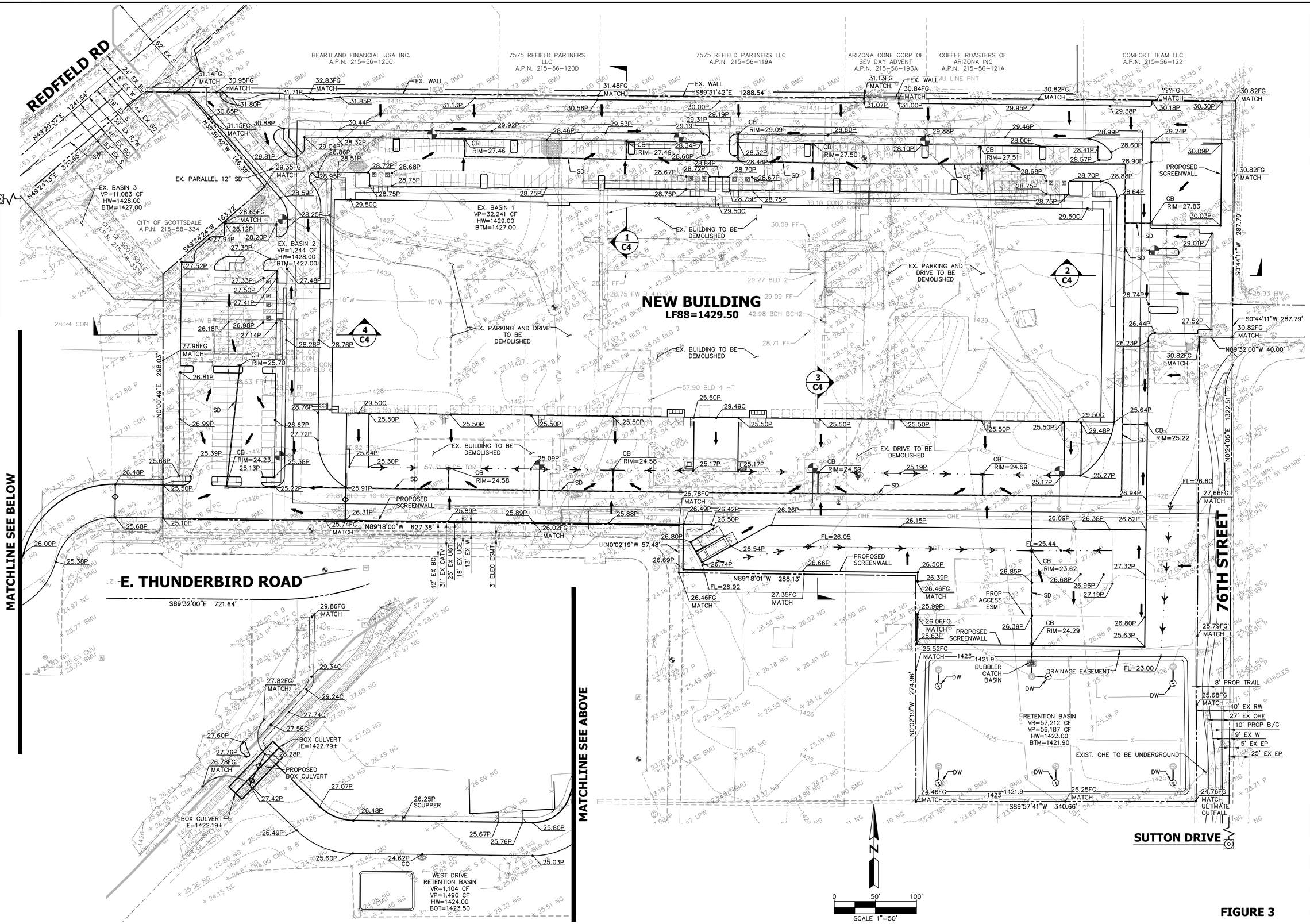


FIGURE 3

NO.	DATE	REVISION	BY

PURPOSE: **3RD CONCEPTUAL SUBMITTAL**

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M. TALBOTT
Expires 10/01/22
ARIZONA, U.S.A.

CONCEPTUAL GRADING AND DRAINAGE FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
AR ZONA811 STRUCTURE STAKE, INC.
CALL 811 OR CLICK AZBLUESTAKE.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

HE NO.: LGEC308
SCALE: 1"=50'

SHEET: **C2**

14-DR-2022
11/4/22

G:\LGEC\DRC\Drawings\LGEC\PLN\DRC.dwg, 10/5/2022 4:35:18 PM, dchris

APPENDIX B
DRAINAGE CALCULATIONS

Weighted Runoff Coefficient Calculation

Cw=[(C1*A1)+(C2*A2)+(C3*A3)…+(Cn*An)] / Total Area

Project: LGEC308 Calc'd By: HLG

Date: 10/6/2022 Chck'd By: LMT

EAST

Post Development

C_1=	0.95	Paving	A_1=	5.956	Acres
C_2=	0.85	Landscape	A_2=	4.173	Acres
C_3=	0.95	Roof	A_3=	5.226	Acres
			Total=	**15.36**	Acres

Cw= 0.92

Pre- Development

C_1=	0.95	Paving	A_1=	2.432	Acres
C_2=	0.85	Landscape	A_2=	10.919	Acres
C_3=	0.95	Roof	A_3=	2.005	Acres
			Total=	**15.36**	Acres

Cw= 0.88

WEST

Post Development

C_1=	0.95	Paving	A_1=	1.771	Acres
C_2=	0.85	Landscape	A_2=	0.466	Acres
C_3=	0.95	Roof	A_3=	0.320	Acres
			Total=	**2.56**	Acres

Cw= 0.93

Pre- Development

C_1=	0.95	Paving	A_1=	0.245	Acres
C_2=	0.85	Landscape	A_2=	2.179	Acres
C_3=	0.95	Roof	A_3=	0.155	Acres
			Total=	**2.58**	Acres

Cw= 0.87

DRIVEWAY

Post Development

C_1=	0.95	Paving	A_1=	0.720	Acres
C_2=	0.85	Landscape	A_2=	0.000	Acres
C_3=	0.95	Roof	A_3=	0.000	Acres
			Total=	**0.72**	Acres

Cw= 0.95

Pre- Development

C_1=	0.95	Paving	A_1=	0.000	Acres
C_2=	0.85	Landscape	A_2=	0.720	Acres
C_3=	0.95	Roof	A_3=	0.000	Acres
			Total=	**0.72**	Acres

Cw= 0.85

Retention Basin Calculations

Vr=C*(D/12)*A*43,560, C=Weighted, D=2.22

Design Storm: 100-year, 2-hour

A = 18.00	Acres		Project Number:	LGEC308
D = 2.22	inches Standard and Pre-Vs-Post		Date:	10/6/2022
D = 0.5	inches First Flush			
C = Weighted	Pre-Vs-Post			
C = 0.9	Standard			
C = 1	First Flush			

Volume Required

Full Site First Flush Required

Site	Area (ac)	C (First Flusth)	D	Vr (cf)	
First Flush	**18.00**	**1.00**	**0.50**	**32,670**	CF

East Pre-Vs-Post

Pre-Developed

Site	Area (ac)	C (Weighted)	D	Vr (cf)	
Pre-Developed	**15.36**	**0.88**	**2.22**	**108,754**	CF

Post-Developed

Site	Area (ac)	C (Weighted)	D	Vr (cf)	
Post-Developed	**15.36**	**0.92**	**2.22**	**114,190**	CF
			Pre-Vs-Post =	**5,436**	CF

Existing Retention Basin 1

Elevation	Area (sqft)	Depth (ft)	Volume (ft3)	Total (ft3)	
1429	26457				
		1	21781	**21,781**	CF
1428	17104				
		1	10460.5	**32,241**	
1427	3817				
			Total Volume of Basin =	**32,241**	CF

Total Required Pre-Vs-Post **37,677** CF

West Standard Retention

Site	Area (ac)	C (First Flusth)	D	Vr (cf)	
West	**2.56**	**0.90**	**2.22**	**18,545**	CF

East Pre-Vs-Post =	**37,677**	CF
West Standard Retention =	**18,545**	CF
Total Pre-Vs-Post and Standard =	**56,222**	CF

14-DR-2022
11/4/22

Total Pre-Vs-Post and Standard =	56,222	CF
Total First Flush =	32,670	CF
Toal Design Retention =	56,222	CF

Proposed Retention Basin Volume

Elevation	Area (sqft)	Depth (ft)	Volume (ft3)	Total (ft3)	
1423.00	54106				
		1.1	57212	**57,212**	CF
1421.90	49916				
			Total Volume of Basin =	57,212	CF

Total Volume Provided =	57,212	**CF**
Total Volume Required =	56,222	**CF**
Excess =	990	**CF**

Driveway Retention Basin Requirements

Site	Area (ac)	C (First Flusth)	D	Vr (cf)	
First Flush	0.61	1.00	0.50	1,104	CF

Driveway Pre-Vs-Post

Pre-Developed

Site	Area (ac)	C (Weighted)	D	Vr (cf)	
Pre-Developed	0.72	0.85	2.22	4,932	CF

Post-Developed

Site	Area (ac)	C (Weighted)	D	Vr (cf)	
Post-Developed	0.72	0.95	2.22	5,512	CF
			Pre-Vs-Post =	580	CF

Design is greater of Pre-Vs-Post and First Flush

Pre-Vs-Post =	580	CF
First Flush=	1,104	CF
Driveway =	1,104	CF

Driveway Retention Basin Volume Provided

Elevation	Area (sqft)	Depth (ft)	Volume (ft3)	Total (ft3)	
1424.00	3194				
		0.5	1490	**1,490**	CF
1423.50	2764				
			Total Volume of PBasin =	1,490	CF

Total Volume Provided =	1,490	**CF**
Total Volume Required =	1,104	**CF**
Excess =	385	**CF**

14-DR-2022
11/4/22

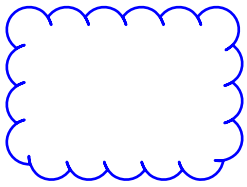
Percolation Calculations

Project: LGEC308 Calc'd By: HLG
Date: 10/6/2022 Chck'd By: LMT

Drywell Percolation Calculations

Design Percolation Rate **0.10** cfs

Basin ID	Number of Drywells	Drywell Perc. Rate (cfs)	Drywell Perc. Rate (cfh)	Basin Volume (cf)	Dry-Up Time (hr)
Basin	6	0.6	2160	56,222	**26**



APPENDIX C
REFERENCE INFORMATION

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.6121°, Longitude: -111.9199°
Elevation: 1432.47 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.190** (0.158-0.232)	**0.248** (0.208-0.302)	**0.334** (0.277-0.405)	**0.401** (0.332-0.485)	**0.491** (0.399-0.591)	**0.559** (0.450-0.668)	**0.630** (0.498-0.752)	**0.700** (0.544-0.834)	**0.796** (0.603-0.950)	**0.868** (0.645-1.04)
10-min	**0.289** (0.240-0.353)	**0.378** (0.317-0.460)	**0.508** (0.422-0.617)	**0.610** (0.504-0.738)	**0.747** (0.606-0.900)	**0.850** (0.684-1.02)	**0.959** (0.758-1.15)	**1.07** (0.827-1.27)	**1.21** (0.917-1.45)	**1.32** (0.981-1.58)
15-min	**0.359** (0.297-0.437)	**0.469** (0.393-0.570)	**0.630** (0.523-0.764)	**0.756** (0.625-0.915)	**0.926** (0.752-1.12)	**1.05** (0.848-1.26)	**1.19** (0.939-1.42)	**1.32** (1.03-1.57)	**1.50** (1.14-1.79)	**1.64** (1.22-1.96)
30-min	**0.483** (0.401-0.589)	**0.631** (0.529-0.768)	**0.848** (0.704-1.03)	**1.02** (0.842-1.23)	**1.25** (1.01-1.50)	**1.42** (1.14-1.70)	**1.60** (1.26-1.91)	**1.78** (1.38-2.12)	**2.02** (1.53-2.41)	**2.21** (1.64-2.63)
60-min	**0.598** (0.496-0.728)	**0.781** (0.655-0.950)	**1.05** (0.872-1.27)	**1.26** (1.04-1.52)	**1.54** (1.25-1.86)	**1.76** (1.41-2.10)	**1.98** (1.57-2.37)	**2.20** (1.71-2.62)	**2.50** (1.90-2.99)	**2.73** (2.03-3.26)
2-hr	**0.698** (0.587-0.829)	**0.903** (0.765-1.08)	**1.20** (1.01-1.42)	**1.43** (1.19-1.69)	**1.74** (1.44-2.05)	**1.98** (1.61-2.32)	**2.22** (1.78-2.59)	**2.47** (1.94-2.88)	**2.80** (2.16-3.27)	**3.05** (2.30-3.58)
3-hr	**0.779** (0.658-0.955)	**0.999** (0.845-1.23)	**1.30** (1.10-1.59)	**1.54** (1.28-1.87)	**1.88** (1.54-2.27)	**2.15** (1.74-2.58)	**2.43** (1.93-2.91)	**2.73** (2.13-3.25)	**3.13** (2.37-3.73)	**3.45** (2.56-4.12)
6-hr	**0.941** (0.807-1.12)	**1.18** (1.01-1.41)	**1.51** (1.29-1.79)	**1.78** (1.50-2.09)	**2.13** (1.77-2.50)	**2.40** (1.97-2.81)	**2.69** (2.18-3.13)	**2.99** (2.37-3.49)	**3.39** (2.62-3.94)	**3.70** (2.79-4.32)
12-hr	**1.05** (0.896-1.24)	**1.32** (1.13-1.56)	**1.66** (1.41-1.96)	**1.93** (1.63-2.27)	**2.29** (1.92-2.69)	**2.57** (2.13-3.01)	**2.86** (2.33-3.34)	**3.15** (2.54-3.67)	**3.54** (2.78-4.14)	**3.84** (2.96-4.53)
24-hr	**1.23** (1.07-1.44)	**1.56** (1.36-1.82)	**2.00** (1.74-2.34)	**2.35** (2.03-2.74)	**2.85** (2.44-3.31)	**3.23** (2.74-3.74)	**3.64** (3.06-4.22)	**4.05** (3.36-4.69)	**4.63** (3.77-5.36)	**5.09** (4.08-5.91)
2-day	**1.30** (1.12-1.52)	**1.66** (1.43-1.93)	**2.16** (1.85-2.51)	**2.55** (2.18-2.96)	**3.10** (2.62-3.60)	**3.53** (2.96-4.09)	**3.98** (3.31-4.63)	**4.45** (3.66-5.19)	**5.10** (4.12-5.94)	**5.61** (4.46-6.57)
3-day	**1.39** (1.21-1.61)	**1.78** (1.55-2.06)	**2.34** (2.03-2.69)	**2.78** (2.40-3.20)	**3.41** (2.93-3.92)	**3.91** (3.33-4.49)	**4.44** (3.75-5.11)	**4.99** (4.18-5.77)	**5.78** (4.76-6.68)	**6.41** (5.21-7.44)
4-day	**1.49** (1.31-1.71)	**1.90** (1.67-2.18)	**2.51** (2.21-2.88)	**3.01** (2.63-3.44)	**3.71** (3.23-4.24)	**4.28** (3.70-4.89)	**4.89** (4.19-5.59)	**5.54** (4.70-6.36)	**6.46** (5.40-7.42)	**7.21** (5.96-8.31)
7-day	**1.68** (1.47-1.93)	**2.14** (1.88-2.47)	**2.84** (2.48-3.26)	**3.40** (2.96-3.90)	**4.20** (3.63-4.82)	**4.85** (4.16-5.55)	**5.54** (4.71-6.35)	**6.27** (5.29-7.22)	**7.31** (6.09-8.44)	**8.16** (6.71-9.44)
10-day	**1.81** (1.59-2.08)	**2.32** (2.04-2.66)	**3.07** (2.68-3.51)	**3.67** (3.19-4.19)	**4.52** (3.91-5.15)	**5.20** (4.47-5.92)	**5.93** (5.06-6.77)	**6.69** (5.67-7.66)	**7.77** (6.49-8.91)	**8.65** (7.14-9.95)
20-day	**2.24** (1.97-2.56)	**2.89** (2.54-3.29)	**3.81** (3.35-4.34)	**4.51** (3.95-5.13)	**5.47** (4.76-6.21)	**6.20** (5.38-7.05)	**6.95** (6.00-7.93)	**7.72** (6.62-8.82)	**8.75** (7.44-10.0)	**9.56** (8.05-11.0)
30-day	**2.63** (2.30-3.00)	**3.38** (2.97-3.85)	**4.46** (3.91-5.07)	**5.28** (4.62-5.99)	**6.39** (5.56-7.25)	**7.24** (6.28-8.22)	**8.12** (7.00-9.21)	**9.01** (7.72-10.2)	**10.2** (8.68-11.6)	**11.1** (9.39-12.7)
45-day	**3.04** (2.68-3.45)	**3.92** (3.46-4.44)	**5.16** (4.55-5.84)	**6.08** (5.35-6.89)	**7.31** (6.41-8.28)	**8.23** (7.19-9.33)	**9.18** (7.96-10.4)	**10.1** (8.74-11.5)	**11.4** (9.73-13.0)	**12.3** (10.5-14.1)
60-day	**3.36** (2.97-3.80)	**4.34** (3.84-4.90)	**5.70** (5.05-6.43)	**6.70** (5.91-7.56)	**8.00** (7.04-9.02)	**8.97** (7.86-10.1)	**9.95** (8.67-11.2)	**10.9** (9.46-12.3)	**12.2** (10.5-13.8)	**13.1** (11.2-15.0)

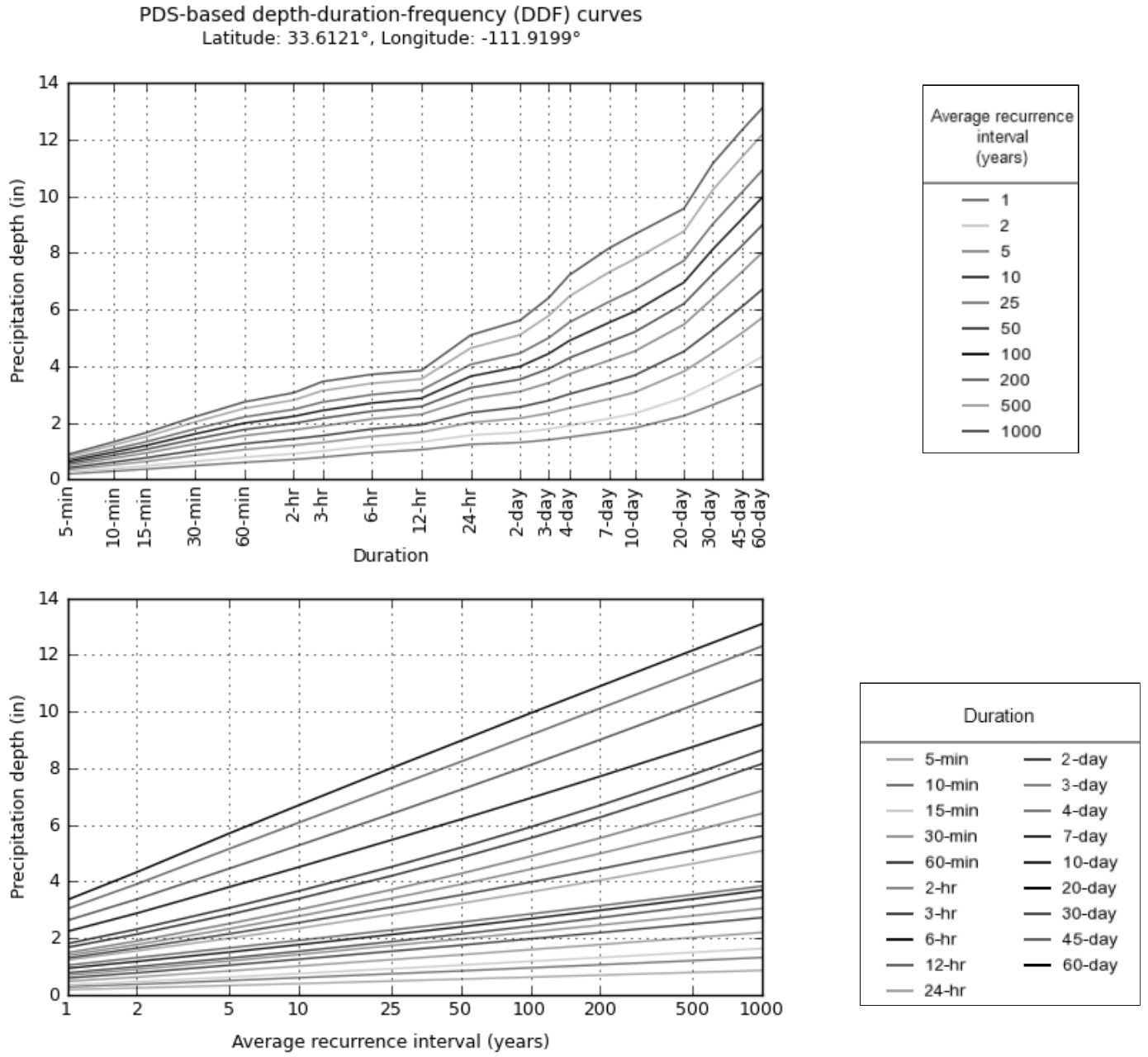
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



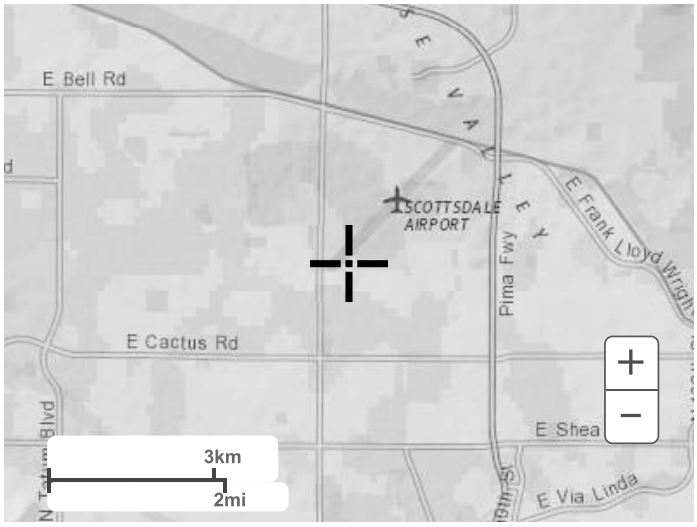
NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Mon Jul 18 18:41:49 2022

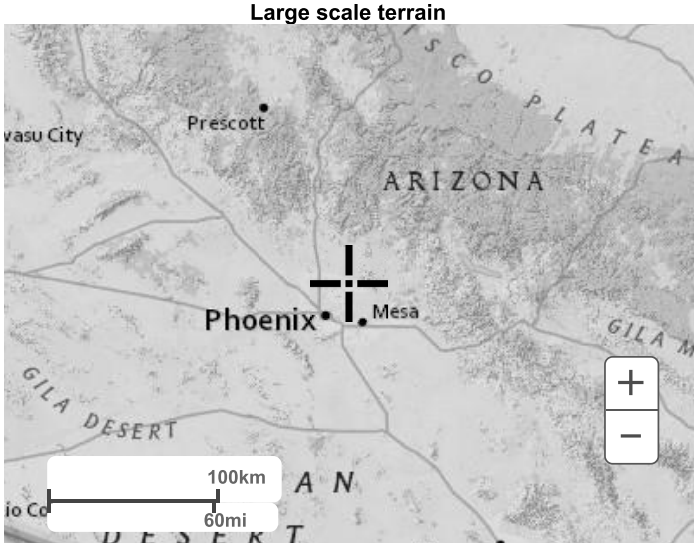
Back to Top

Maps & aerials

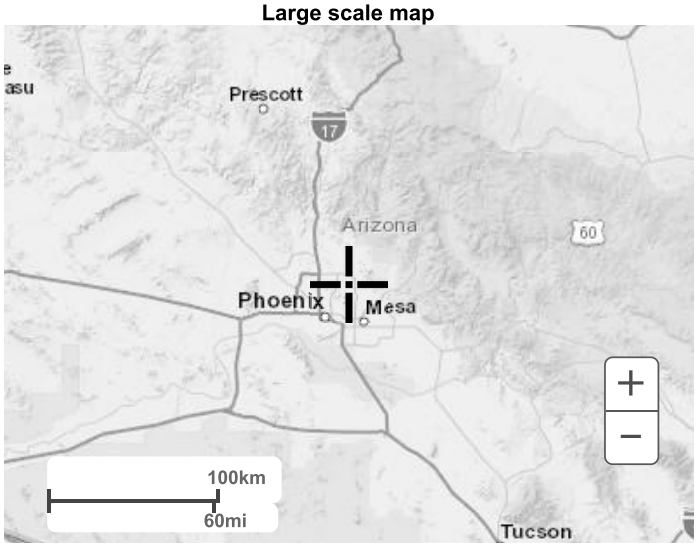
Small scale terrain



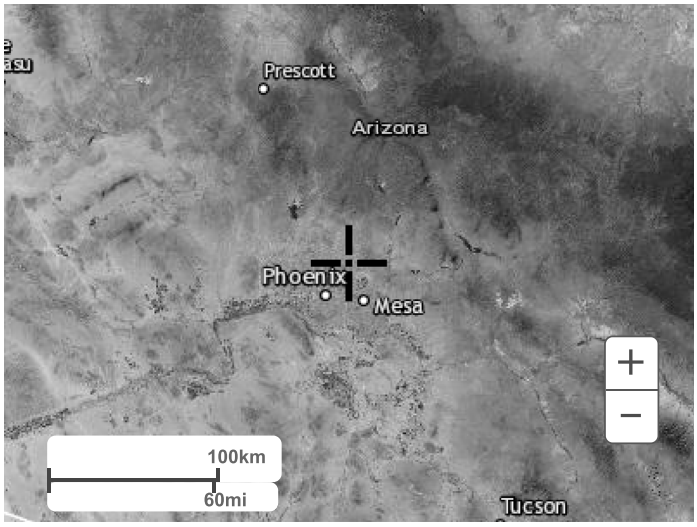
Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

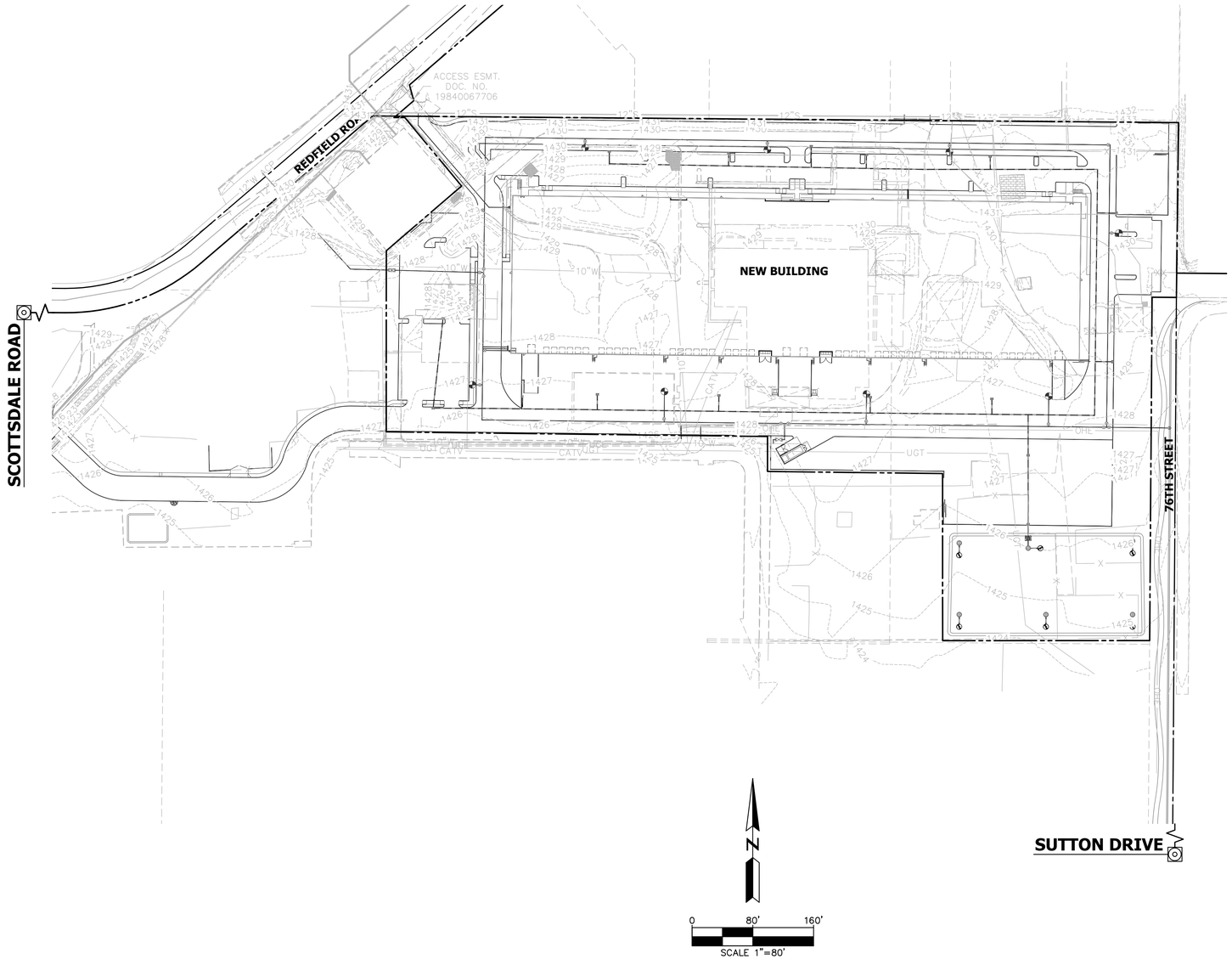
Disclaimer

CONCEPTUAL COVER
FOR
SCOTTSDALE AND THUNDERBIRD
SEC OF SCOTTSDALE AND THUNDERBIRD
SCOTTSDALE, ARIZONA

A PORTION OF NORTHWEST QUARTER OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

SHEET INDEX

	CIVIL	SHEET
CONCEPTUAL COVER SHEET	C1	1
CONCEPTUAL GRADING & DRAINAGE PLAN	C2	2
CONCEPTUAL UTILITY PLAN	C3	3
CONCEPTUAL TYPICAL SECTIONS	C4	4



DEVELOPER

LGE DESIGN BUILD
1200 N 52ND ST
PHOENIX, ARIZONA 85008
PHONE: (480) 966-4001
CONTACT: BLAKE WELLS
EMAIL: BWELLS@LGEDESIGNGROUP.COM

ARCHITECT

LGE DESIGN GROUP
1200 N 52ND ST
PHOENIX, ARIZONA 85008
PHONE: (480) 966-4001
CONTACT: MIKE RUSSO
EMAIL: MRUSSO@LGEDESIGNGROUP.COM

CIVIL ENGINEER

HUNTER ENGINEERING, INC.
10450 N. 74TH STREET, SUITE #200
SCOTTSDALE, ARIZONA 85258
PHONE: (480) 991-3985
FAX: (480) 991-3986
CONTACT: LARRY TALBOTT, P.E.
EMAIL: LTALBOTT@HUNTERENGINEERINGPC.COM

EXISTING LEGEND

CENTERLINE
RIGHT OF WAY
PROPERTY LINE
EASEMENT
MAJOR CONTOUR 1175
MINOR CONTOUR 1170
STORM PIPE SD
WATERLINE W
SANITARY SEWERLINE SS
ELECTRICAL RISER E
WATER METER
WATER VALVE
FIRE HYDRANT
STREET LIGHT
STORM DRAIN MANHOLE D
SANITARY SEWER MANHOLE S
SPOT GRADE 1012.64 GUT
CONCRETE
SPOT GRADE (90.30FF)

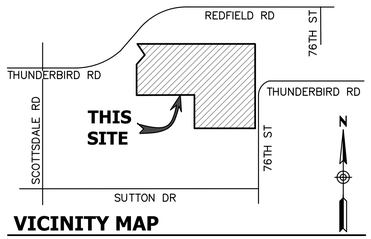
PROPOSED LEGEND

CONTOUR 76
EASEMENT
STORM PIPE
SECTION CALLOUT 1 / C4.1
DIRECTION OF SLOPE
CATCH BASIN
GRADE BREAK
CONCRETE
CONCRETE
SPOT GRADE 90.30C
FLOOD PLAIN

FLOOD PLAIN DESIGNATION

COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE USE DEPTH)
04013C	1760 10-16-13	L	7/20/2021	ZONE X	N/A

ENGINEER'S CERTIFICATION: THE LOWEST FLOOR ELEVATION(S) AND/OR FLOOD PROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A ONE-HUNDRED YEAR STORM, AND ARE IN ACCORDANCE WITH CITY OF SCOTTSDALE REVISED CODE, CHAPTER 37 - FLOODWAYS & FLOOD PLAINS ORDINANCE.



VICINITY MAP

BENCHMARK

MCDOT BENCHMARK POINT NAME 26034-1 DESCRIBED AS A BRASS CAP IN HANDHOLE, STAMPED "CITY OF SCOTTSDALE" 0.5' BELOW GRADE, LOCATED AT THE INTERSECTION OF SCOTTSDALE ROAD & THUNDERBIRD ROAD.
NAVD88 DATUM=1427.04

BASIS OF BEARING

BASIS OF BEARING FOR THIS SURVEY IS A MEASURED BEARING OF SOUTH 89°32'00" EAST, ALONG THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

UTILITY NOTE

WATER SERVICE FOR THIS SITE IS PROVIDED BY EPCOR WATER. SEWER SERVICE IS PROVIDED BY THE CITY OF SCOTTSDALE

LEGAL DESCRIPTION

PARCEL NO. 1:
ALL OF SECTION 11, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.
EXCEPT ALL URANIUM, THORIUM AND OTHER MATERIALS DETERMINED TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIAL AS RESERVED TO THE UNITED STATES OF AMERICA IN QUIT CLAIM DEED RECORDED IN DOCKET 1185, PAGE 139
PARCEL NO. 2:
THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA
EXCEPT THAT PART LYING WITHIN THAT CERTAIN TRACT OF LAND CONVEYED TO THE CITY OF SCOTTSDALE RECORDED IN DOCKET 5231, PAGE 207 AND
EXCEPT ALL URANIUM, THORIUM AND OTHER MATERIALS DETERMINED TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIAL AS RESERVED TO THE UNITED STATES OF AMERICA IN QUIT CLAIM DEED RECORDED IN DOCKET 1185, PAGE 139
NOTE: DESCRIPTION TO BE FURNISHED AND APPROVED PRIOR TO THE CLOSING OF THIS TRANSACTION.

APN:

215-56-333C
175-04-002A

SITE AREA:

783,925 S.F. (18.00 ACRES)

NO.	DATE	REVISION	BY

PURPOSE: 3RD CONCEPTUAL SUBMITTAL

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M. TALBOTT
10/01/22
ARIZONA, U.S.A.

COVER SHEET FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
AR ZONA811
CALL 811 OR CLICK ARIZONA811.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

HE NO.: LGEC308
SCALE: NTS

SHEET: C1

14-DR-2022
11/4/22

G:\LGEC308\Concept\C308CONCOV.dwg, 10/5/2022 4:34:23 PM, dmay

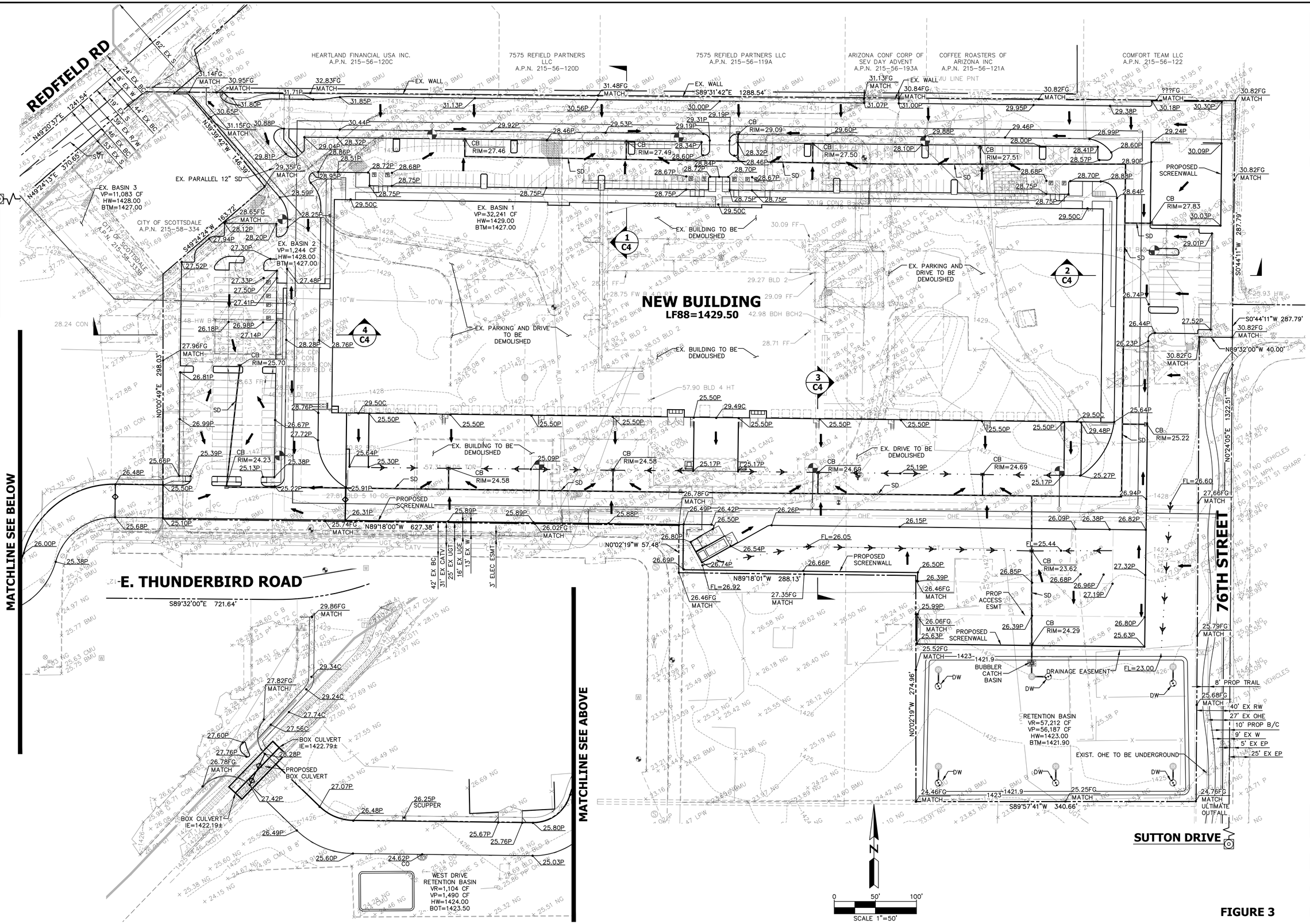


FIGURE 3

NO.	DATE	REVISION	BY

PURPOSE: **3RD CONCEPTUAL SUBMITTAL**

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M. TALBOTT
Expires 10/01/22
ARIZONA, U.S.A.

CONCEPTUAL GRADING AND DRAINAGE FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
AR ZONA811 STRUCTURE STAKE, INC.
CALL 811 OR CLICK AZBLUESTAKE.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

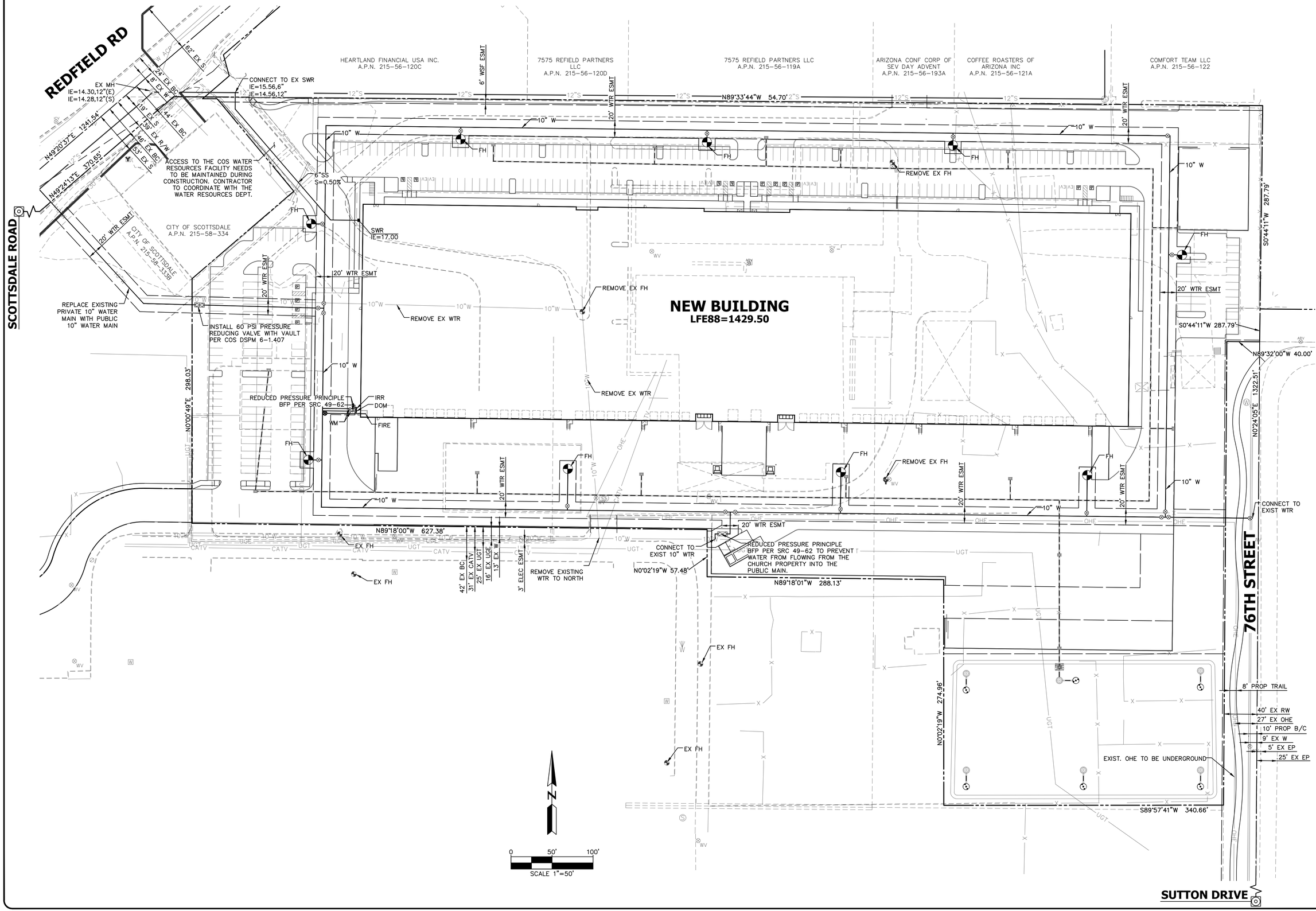
PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

HE NO.: LGEC308
SCALE: 1"=50'

SHEET: **C2**

14-DR-2022
11/4/22

G:\LGEC\DRC\Drawings\LGEC\PLN\DRC.dwg, 10/5/2022 4:35:18 PM, dchris



NO.	DATE	REVISION	BY

PURPOSE: **3RD CONCEPTUAL SUBMITTAL**

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M. TALBOTT
10/31/22
ARIZONA, U.S.A.

CONCEPTUAL UTILITY PLAN FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
AR ZONA811
BLUE STAKE, INC.
CALL 811 OR CLICK ARIZONA811.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

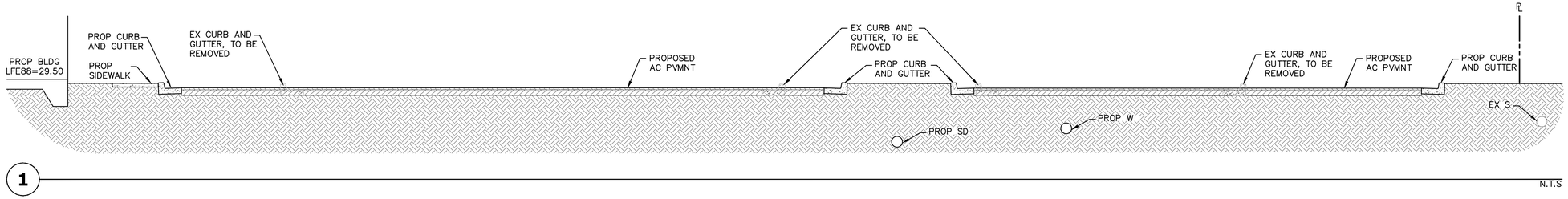
PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

HE NO.: LGEC308
SCALE: 1"=50'

SHEET:
C3

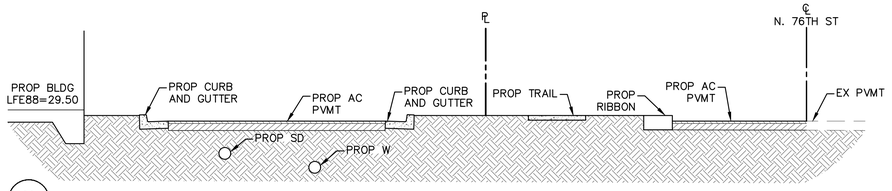
14-DR-2022
11/4/22

G:\LGEC\DR\Concept\LGEC3CNUTL.dwg, 10/31/2022 8:36:59 PM, dkhoy



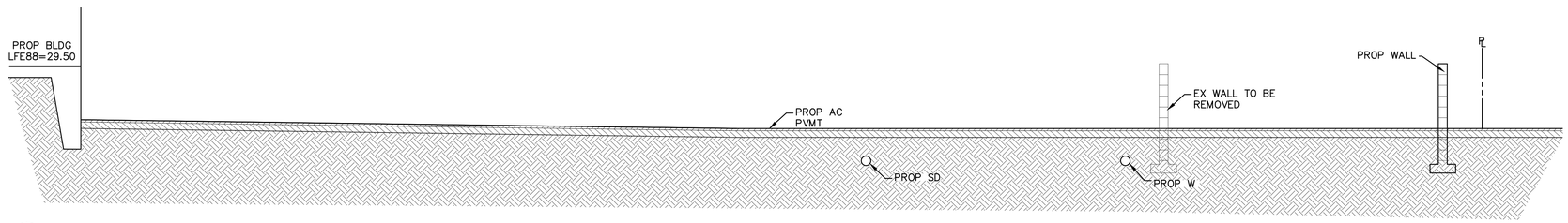
1

N.T.S



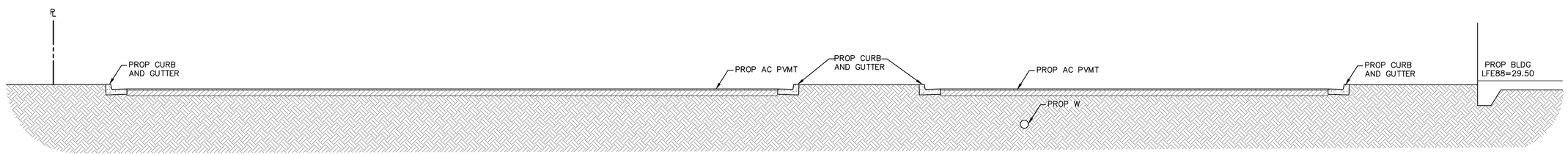
2

N.T.S



3

N.T.S



4

N.T.S

NO.	DATE	REVISION	BY

PURPOSE: 3RD CONCEPTUAL SUBMITTAL

DESIGN BY: WG
DRAWN BY: DC
CHECKED BY: LT

HUNTER ENGINEERING
CIVIL AND SURVEY
10450 NORTH 74TH STREET,
SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986

Registered Professional Engineer
CERTIFICATE NO.
42104
LARRY M.
TALBOTT
10/01/22
ARIZONA, U.S.A.

CONCEPTUAL TYPICAL SECTIONS FOR SCOTTSDALE AND THUNDERBIRD SEC OF SCOTTSDALE AND THUNDERBIRD SCOTTSDALE, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
AR ZONA811
Arizona Blue Stake, Inc.
CALL 811 OR CLICK AZBLUE811.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

PROJECT NAME: SCOTTSDALE AND THUNDERBIRD

HE NO.: LGEC308
SCALE: NTS

SHEET: C4

14-DR-2022
11/4/22