Drainage Reports
Abbreviated Water & Sewer Need Reports
Water Study
Wastewater Study
Stormwater Waiver Application

PRELIMINARY DRAINAGE REPORT

SONORAN PEAKS

118th Street and Ranch Gate
Scottsdale, AZ

Prepared For:

Sonoran Peaks LLC.
14901 N. Scottsdale Road, Suite 201
Scottsdale, AZ 85254
P: 480.443.2630

Registered Professional Engineer (Civil)
CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 11-08-18
ARIZONA, U.S.A.
EXPIRES 12-31-19

Prepared by:

SEG

Sustainability Engineering Group
8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Plan #
Case # 15-ZN-2018
Q-S #
☑ Accepted
☐ Corrections
MP 12/10/18
Reviewed By Date

Project Number: 171083

Date: July 25, 2018 (Zoning)
Revision Date: September 27, 2018 (Zoning)
Revision Date: November 8, 2018 (Zoning)

15-ZN-2018
11/14/2018

Case No.: 15-ZN-2018 **Plan Check No.: TBD**

Registered Professional Engineer (Civil)
CERTIFICATE NO 45621
ALI SAMIH FAKIH
Date Signed 11-08-18
ARIZONA U S A
EXPIRES 12-31-19

TABLE OF CONTENTS:

COVER SHEET 1

TABLE OF CONTENTS 2

1 INTRODUCTION 4

2 LOCATION AND PROJECT DESCRIPTION

2 1 LOCATION 4

2 2 EXISTING AND PROPOSED DEVELOPMENTS SURROUNDING THE SITE 4

2 3 EXISTING SITE DESCRIPTION 4

2 4 PROPOSED SITE DEVELOPMENT 5

2 5 FLOOD HAZARD ZONE 5

3 EXISTING DRAINAGE CONDITIONS

3 1 OFF-SITE DRAINAGE 5

3 2 ON-SITE DRAINAGE 5

3 3 HISTORICAL OUTLETS 5

4 PROPOSED STORM WATER MANAGEMENT

4 1 DESIGN INTENT 6

4 2 DESIGN STORM REQUIREMENTS 6

4 3 CHARACTERISTICS OF BASINS 6

4 4 STORMWATER RETENTION 7

4 4 1 Required Storage 8

4 4 2 Proposed Storage 8

4 4 3 Storage Discharge 8

4 5 PIPE CAPACITY CALCULATIONS 8

4 6 STREET CAPACITY CALCULATIONS 8

4 7 STORM DRAIN INLET CALCULATIONS 8

4 8 CHANNEL CALCULATIONS 8

5 FLOOD SAFETY FOR DWELLING UNITS

5 1 FINISHED FLOOR ELEVATIONS 9

6. ADEQ WATER QUALITY REQUIREMENTS

6.1 NOTICE OF INTENT 9

7. CONCLUSIONS

7.1 OVERALL PROJECT: 9

7.2 PROJECT PHASING: 9

8. WARNING AND DISCLAIMER OF LIABILITY

9. REFERENCES

LIST OF FIGURES:

FIGURE 1 - Vicinity and Location Map
FIGURE 2 - FIRM
FIGURE 3 - Drainage Map

APPENDIX:

APPENDIX I – Rainfall Data
APPENDIX II - Calculations
APPENDIX III - Excerpt of Sereno Canyon – 118th Street Plans
APPENDIX IV - 404 Evaluation.
APPENDIX V - Preliminary Grading & Drainage Plan

1. INTRODUCTION

This Preliminary Drainage Report supports the rezoning request (from R1-130 ESL to R1-43 ESL and O/S (Tract E)) and represents the storm water analysis for the 118th and Ranch Gate residential development proposed in Scottsdale, Arizona. The purpose of this report is to provide the hydrologic and hydraulic analyses, required by the City of Scottsdale, to support the proposed subdivision. This report includes discussions and calculations defining the storm water management concepts for collection, conveyance, and retention systems necessary to comply with the drainage requirements of the City of Scottsdale and Maricopa County. Preparation of this report has been done in accordance with the requirements of the City of Scottsdale Design Standards & Policies Manual (DS&PM) 2018 [1], and the Drainage Design Manuals for Maricopa County, Arizona, Volumes I[2] and Volume II[3].

2. LOCATION AND PROJECT DESCRIPTION

2.1 LOCATION:

The project property consists of five (5) parcels of land located at the NEC of 118th Street and Ranch Gate Road. The total project area contains approximately 2,990,583 SF (68.65 AC) gross. It is further defined as follows:

- Parcel Description: A portion of the east half of Section 3, Township 4 North, Range 5 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona
- Parcel ID numbers: APN: 217-02-018A, 217-02-018B; 217-02-019C: 217-02-019D; and 217-02-019E

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets.

2.2 EXISTING AND PROPOSED DEVELOPMENTS SURROUNDING THE SITE:

The site is bounded as follows:

North: An undeveloped parcel of Goldie Brown Pinnacle Peak Ranch Unit 2 subdivision; zoned R1-130 ESL

East: Undeveloped state trust land.

South: Ranch Gate Road is directly adjacent with Troon Canyon Estates subdivision across, zoned R1-130 ESL

West: 118th Street is directly adjacent with the Yearling Estates subdivision across; zoned R1-130 ESL

2.3 EXISTING SITE DESCRIPTION:

This site is vacant desert land generally sloping form the northeast (elevation 2730 +/-) to the southwest (elevation 2670 +/-) at an average of approximately 3% in the buildable area with a change in elevation of approximately of 60 feet. A 50-foot high hill with slopes to 33% exists near the northeast side of the site. Refer to **FIGURE 3** for contours of the overall project.

2.4 PROPOSED SITE DEVELOPMENT:

The proposed development for the site includes single-family homes, local streets, drainage facilities and open space. The gross area for the site is approximately 66 acres. Site access is provided via 118th street. The proposed development includes drainage infrastructure to collect, store, and convey flood water runoff.

2.5 FLOOD HAZARD ZONE:

As defined by the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona, and Incorporated Areas, Community number 045012, Panel number 1330 of 4425, as shown on Map Number 04013C1330L dated October 16, 2013, this site is designated as **Zone "X"- Shaded,** having a 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile, and areas protected by levees from 1% annual chance flood.

Refer to **FIGURE 2** for the FIRM.

3. EXISTING DRAINGE CONDITIONS

3.1 OFF-SITE DRAINAGE:

Off-site hydrology affecting the northern and eastern site boundaries was performed using the Rational Method in accordance with the City Manual [1] and the FCDMC Hydrology Manual [2]. Drainage sub-basins were delineated based on the existing topography. Times of concentration and rainfall intensities were derived following the procedures presented in the Hydrology Manual. In addition, the runoff coefficients (C-values) that were used are 0.69 (existing conditions) for the 100-year event. Refer to Appendix II for Rational Method peak flow calculations.

In addition, there are several culverts that convey offsite flow under 118th Street. SEG obtained the Sereno Canyon – 118th Street plans [Ref. 2] which contained all the 118th culverts 100-year flows. Refer to Appendix III for excerpts of Sereno Canyon -118th Street plans. These culvert flows will be verified via calculation for the Preliminary Plat submittal.

Drainage information is summarized on the Existing Conditions Drainage Map in Appendix II.

3.2 ON-SITE DRAINAGE:

The site generally drains from the north to the south with an average slope of approximately 3%. The flows concentrate in several channels including two 404 washes that exit the site at two locations along Ranch Gate Road. A portion of the site approximately 2.83 acres in size is conveyed northeasterly exiting in the adjacent state trust land. See Section 3.3 below for Historical Outlet information.

A preliminary Department of the Army jurisdictional determination (JD) has been received for this site. Refer to Appendix IV.

3.3 HISTORICAL OUTLETS

There are three existing historical outlets from the project site as follows:

- HO-1 is an existing culvert under Ranch Gate Road approximately 405 feet east of 118th Street.

- Four culverts cross 118th Street contributing runoff of 22 cfs, 101 cfs, 10 cfs, and 105 cfs respectively from south to north based on the Soreno Canyon Road plans in Appendix III (238 cfs total).
- Minor flows from off-site north of the project plus the on-site contributing area produce approximately 204 cfs of runoff.
- Total existing flow to HO-1 is approximately 442 cfs.

- HO-2 is an existing culvert under Ranch Gate Road approximately 225 feet east of HO-1.
  - Minor off-site flows from east of the project plus the on-site contributing area produce approximately 85.7 cfs of runoff.

- HO-3 is located at the northeast corner of the project, flow is conveyed to the northeast.
  - On-site contributing area produces approximately 11.05 cfs of runoff.

4. PROPOSED STORM WATER MANAGEMENT

4.1 DESIGN INTENT:

The site has been designed in accordance with the regulatory requirements contained in the City of Scottsdale Design Standards and Policies Manual [1]. Supplemental design criteria to address technical drainage issues not contained in the City Manual were derived from the Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology (Hydrology Manual) [2], and the Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics (Hydraulics Manual) [3], as accepted by the City of Scottsdale.

Off-site flows from the north and east discussed in Section 3.1 above will be conveyed via existing or relocated on-site channels as necessary. These flows are directed to their natural receiving 404 washes.

On-site drainage will be handled within street sections, onsite channels, or retention basins as necessary. On-site retention will be provided as allowed by site configuration within open space with three (3) foot maximum depth basins. Total discharge of the storm water will occur within thirty-six (36) hours. First Flush treatment storage will be provided in the proposed retention basins with outflow orifice protected by an engineering filter berm or rim elevations of inlet grates set at the required first flush high-water elevation to allow sediment to settle out.

4.2 DESIGN STORM REQUIREMENTS

The site is in an ESL zone, is currently undeveloped and will require storage for the 100-yr 2-hr storm event based on disturbed area using a C-value of 0.61 for the R1-43 zone. Modified Rational Pond Routing will be used to verify required storage volumes for this Zoning case.

The On-site hydrology will be completed during the Preliminary Plat case submittal using the FCDMC DDMSW HEC-1 in accordance with the City Manual[1] and the FCDMC Hydrology Manual[2].

4.3 CHARACTERISTICS OF BASINS:

The proposed basins are a combination of R1-43 residential lots, open spaces, and road rights-of-way (tracts) 40 feet wide with 28' wide roadways Based on Figure 4 1-4 of the DS&PM, runoff coefficients for the 100-year storm event used are as follows

- C=0 45 for undisturbed natural desert or desert landscape, slopes less than 10%
- C=0 80 mountain slopes greater than 10%
- C=0 61 for R1-43 disturbed, slopes 10% or less
- C=0 85 for R1-43 disturbed, slopes greater than 10%

HYDROLOGIC ANALYSIS The hydrologic analysis is determined using the procedures in the City of Scottsdale Design Standards & Policies Manual and the Drainage Design Manual for Maricopa County, Arizona, Volume I The Rational Method was utilized to compute the on-site peak discharges The following established the Rational Method equation and the basic input data required

$Q=C_{wt}IA$

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

4 4 STORMWATER RETENTION

Option 1 First Flush storage required is calculated in accordance with COS– DS&PM Required Retention (Acre-Feet) = (0 5"/12)*A*(C_{wt})

Option 2 100-Yr, 2-hour stormwater storage required for basins without outflow structures is calculated In accordance with the COS – DS&PM Required Retention (Acre-Feet) = (P/12)*A*C

Where P = 100 Yr 2 Hr Precipitation in Inches (Ref Isopluvial from DS&PM, Appendix 4-1D, pg 11 and NOAA Atlas 14 table)
A = Area (Acres) Disturbed Area
C = C_w

Option 3 Based on Pond routing limiting the basin outflows to existing condition flow rates

4 4 1 REQUIRED STORAGE

Required storage is calculated in accordance with City of Scottsdale requirements for the three options above Refer **to Appendix II** for calculations These options are summarized in Table 1 below

Table 1: Summary of Storage Requirements

	FIRST FLUSH	100-YR; 2-HR	POND ROUTING	PROVIDED RETENTION
Basin ID	Vreq (C.F.)	Vreq (C.F.)	Vreq (C.F.)	Vprov (C.F.)
1	20,580	72,419	17,712	27,019
2	0	94,827	12,336	12,342
3	11,465	50,323	10,266	19,196
4	7,984	38,427	6,595	50,061
5	28,454	16,428	12,904	161,322
TOTAL:	68,483	272,424	59,813	269,940

4.4.2 PROPOSED STORAGE

Open retention basins will be used for this project. In accordance with COS design requirements, an open basin is limited to three (3) feet maximum depth with maximum side slopes of 4:1 and include an emergency overflow outlet.

- The volume for open basins is calculated using the area-sum volume method based on design contours. Refer to calculations in **Appendix II** for available volumes.

A summary of available retention volumes is provided in Table 1 above.

Based on the pond routing option (and first flush options), each basin has adequate volume to store the required amount. Outlet calculations will be provided to limit the flow to existing conditions flow rates.

4.4.3 STORAGE DISCHARGE:

Retention basin discharge will be designed using either bleeder pipes or drywells as required to provide total discharge within 36-hours.

4.5 PIPE CAPACITY CALCULATIONS:

These calculations will be provided in the Final Drainage Report

4.6 STREET CAPACITY CALCULATIONS:

The City of Scottsdale DS&PM, Section 4-1 requires that runoff for a 10-year storm be contained within the curbs and that the 100-year storm has a maximum depth confined within the right-of-way.

These calculations will be provided in the Final Drainage Report

4.7 STORM DRAIN INLET CALCULATIONS

These calculations will be provided in the Final Drainage Report

4.8 CHANNEL CALCULATIONS

105 cfs enters the site from the west side of 118th Street via a culvert at approximately the mid-point of the frontage. A section for the 404 wash near Lot 17 was cut at a conservatively confined location (see Preliminary Grading and Drainage Plan in Appendix IV). FlowMaster calculations indicate the top of water surface is approximately 52' wide with a 1.27' depth of flow. This will not affect Lot 17 as the wash becomes more confined adjacent to the buildable area.

Additional channel calculations for the 105 cfs culvert under 118th Street and the existing channel to HO-2 are also provided in Appendix II.

Refer to **Appendix II** for calculations.

5. FLOOD SAFETY FOR DWELLINGS

5.1 FINISHED FLOOR ELEVATIONS

All proposed building finished floor elevations will be set a minimum of 14 inches above emergency overflow points, and a minimum of 12 inches above the 100-year high-water elevation of any adjacent streets and drainage paths. This will ensure that each building will be well above the 100-year water level.

6. ADEQ WATER QUALITY REQUIREMENTS

6.1 NOTICE OF INTENT

The total disturbed area of this site is approximately 53.1 acres. The Arizona Department of Environmental Quality requires that any site over an acre is required to submit an NOI. An NOI will be submitted to ADEQ for this site after the first submittal of the construction documents as this site disturbance is over 1 acre.

7. CONCLUSIONS

7.1 OVERALL PROJECT:

1. The finish floor elevations will be designed a minimum of 12 inches above the 100-year water surface in adjacent streets and drainage paths and a minimum of 14 inches above the low top of curb of the lot.
2. Storm water storage is provided in accordance with City of Scottsdale requirements and shall discharge within 36 hours in accordance with City of Scottsdale requirements.
3. First flush treatment will be provided.

7.2 PROJECT PHASING:

As a residential development the infrastructure will be constructed in a single phase to accommodate dwelling unit growth. The dwelling units will be phased based on consumer demand.

8. WARNING AND DISCLAIMER OF LIABILITY

RE: following page.

9. REFERENCES

1. *Design Standards & Policies Manual, City of Scottsdale – 2018*

2 *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, Flood Control District of Maricopa County, Fourth Edition, August 15, 2013*

3 *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, Flood Control District of Maricopa County, August 15, 2013*

GRADING & DRAINAGE LANGUAGE

WARNING AND DISCLAIMER OF LIABILITY

The City's Stormwater and Floodplain Management Ordinance is intended to minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding.

The Stormwater and Floodplain Management Ordinance identifies floodplains, floodways, flood fringes and special flood hazard areas. However, a property outside these areas could be inundated by floods. Also, much of the city is a dynamic flood area; floodways, floodplains, flood fringes and special flood hazard areas may shift from one location to another, over time, due to natural processes.

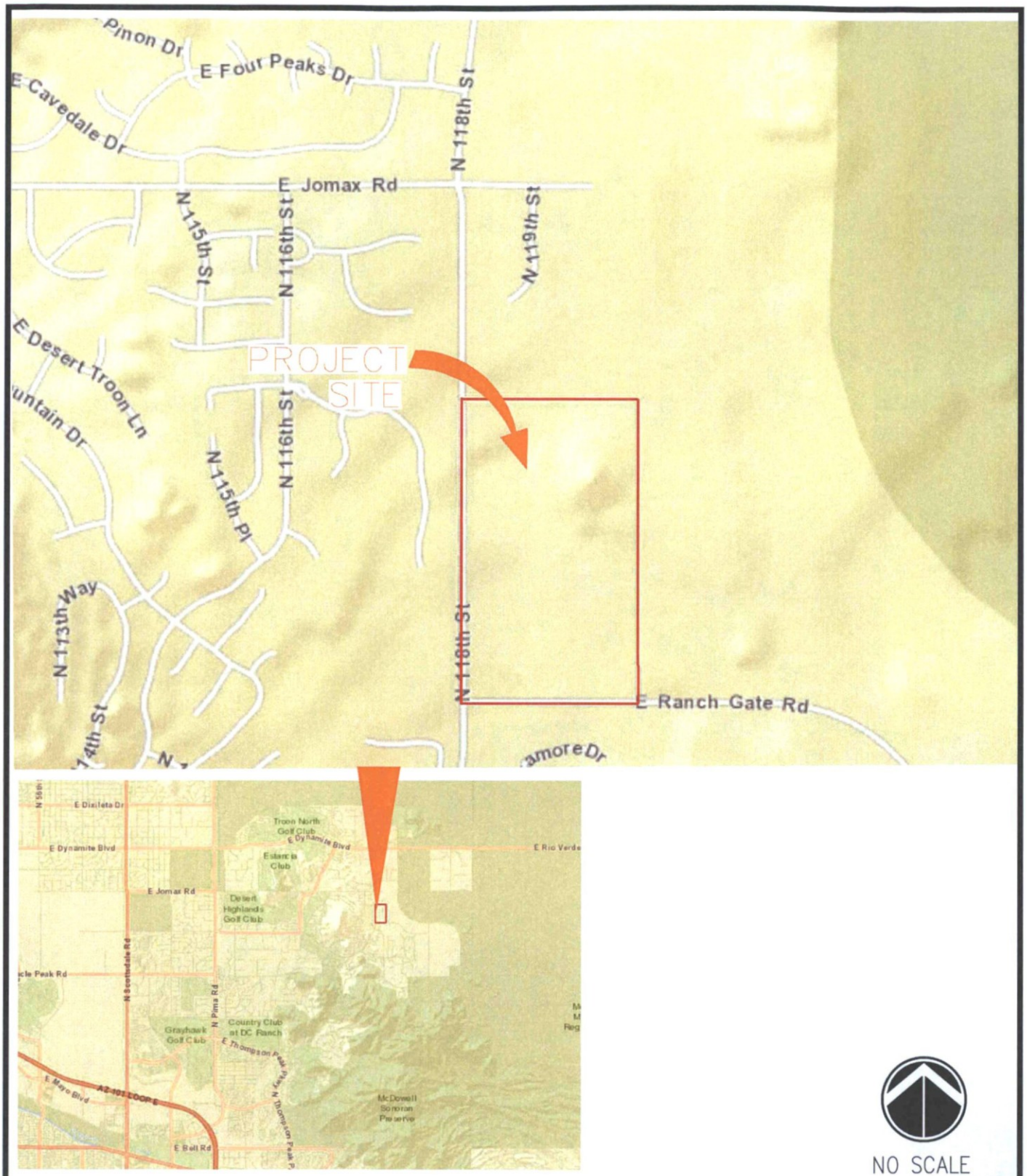
WARNING AND DISCLAIMER OF LIABILITY

The flood protection provided by the Stormwater and Floodplain Management Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by constructed or natural causes. The Stormwater and Floodplain Management Ordinance does not create liability on the part of the city, any officer or employee thereof, or the federal, state or county government for any flood damages that result from reliance on the Ordinance or any administrative decision lawfully made thereunder.

Compliance with the Stormwater and Floodplain Management Ordinance does not ensure complete protection from flooding. Flood-related problems such as natural erosion, streambed meander, or constructed obstructions and diversions may occur and have an adverse effect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above.

Plan Check #	Owner	Date



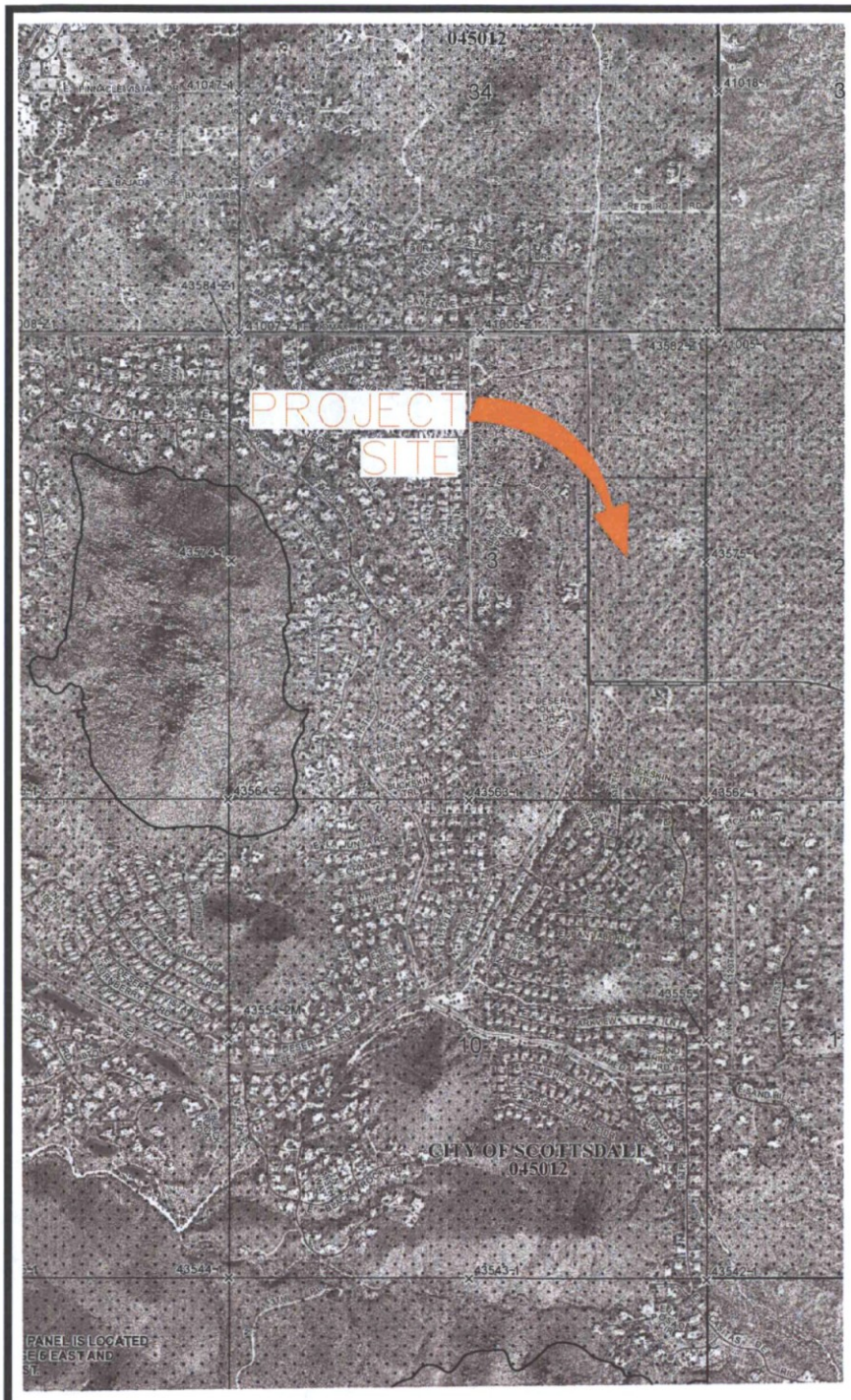
SEG

8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226

118TH STREET AND RANCH GATE ROAD VICINITY AND LOCATION MAP

FIGURE 1

FILE: h:\seg\lyle anderson\118 & east ranch gate rd\cad\seg 118&ranchgate – fig1–location.dwg



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1330L

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 1330 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SCOTTSDALE, CITY OF	045012	1330	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
04013C1330L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

1" = 2000'

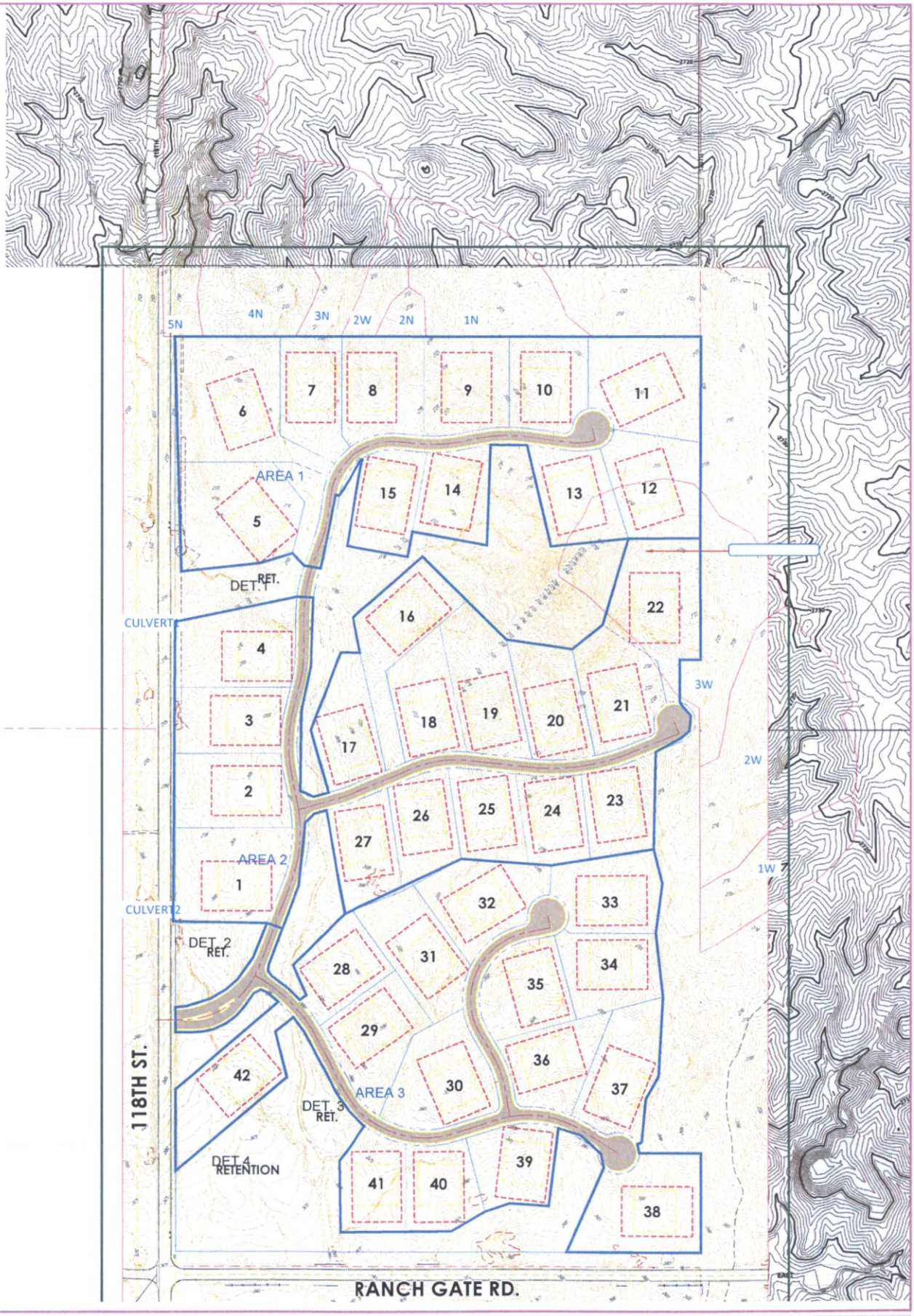
SEG

8280 E GELDING DR □101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226

118TH STREET AND RANCH GATE ROAD FLOOD INSURANCE MAP

FIGURE 2

FILE: h:\seg\lyle anderson\118 & east ranch gate rd\cad\seg 118&ranchgate – fig2–fema.dwg



PROJECT
118TH AND RANCH GATE

LOCATION
N 118TH STREET & RANCH GATE ROAD
SCOTTSDALE, AZ 85xxx

PRELIMINARY
DRAINAGE MAP

SEG

8280 E GELDING DR 101 SCOTTSDALE ARIZONA 85260
WWW.AZSEG.COM TEL 480 656 7226

PLAN 1

DATE 12/09/2017

APPENDIX I

Design Parameters

2. A rainfall runoff model using the USACE's HEC 1 Flood Hydrograph Package (generally used for watersheds that are larger than 160 acres, irregular in shape and contour, or if routing of flows is necessary).

B. **Watershed Conditions**

Watersheds are subject to change. Grading and drainage plans shall consider all watershed conditions that would result in the greatest peak discharge rate, to:

1. Size drainage facilities, and
2. Determine lowest floor elevations.

C. **Split-Flow Conditions**

Projects in northern parts of Scottsdale must address split-flow channel conditions where applicable. These splits in the alluvial channels usually include highly erosive soils and are generally unstable and unpredictable. In setting lowest floor elevations relative to upstream splits, assume that 100% of the flow could go either direction in any given flood event. For infrastructure design, the estimate of the actual split, based on a hydraulic analysis of the current channel cross sections, must include a minimum safety factor of 30% of the total flow. If there are extenuating factors affecting the stability of the split, the safety factor should be increased accordingly.

D. **Environmentally Sensitive Lands**

For special considerations regarding Environmentally Sensitive Lands, refer to the City Zoning Ordinance and DSPM Chapter 2 Section 2-2. Modification of natural watercourses with a flow of 50 cfs or greater are addressed in the City Zoning Ordinance.

E. **The Rational Method**

1. Precipitation. Precipitation input is rainfall intensity, "i," and can be obtained directly from NOAA 14.
2. Time of Concentration. Time of concentration "t_c" is the total time of travel from the most hydraulically remote part of the watershed to the concentration point of interest. The calculation of "t_c" must follow FCDMC Hydrology Manual procedures.
3. Runoff Coefficients. Use Fig. 4-1.5, Runoff Coefficients for Use with Rational Method, or equivalent to obtain the runoff coefficients or "C" values. Composite "C" values for the appropriate zoning category or weighted average values calculated for the specific site are both acceptable approaches.

RUNOFF COEFFICIENTS – "C" VALUE

LAND USE	STORM FREQUENCY		
Composite Area-wide Values	2-25 Year	50 Year	100 Year
Commercial & Industrial Areas	0.80	0.83	0.86
Residential Areas – Single Family, slopes 10% or less			
R1-190	0.33	0.50	0.53
R1-130	0.35	0.51	0.59

R1-70	0.37	0.52	0.60
R1-43	0.38	0.55	0.61
R1-35	0.40	0.56	0.62
R1-18	0.43	0.58	0.64
R1-10	0.47	0.62	0.70
R1-7	0.51	0.66	0.80
R1-5	0.54	0.69	0.86
Residential Areas – Single Family, slopes greater than 10%			
R1-190	0.65	0.74	0.82
R1-130	0.68	0.76	0.84
R1-70	0.69	0.77	0.85
R1-43	0.70	0.77	0.85
R1-35	0.70	0.78	0.85
R1-18	0.71	0.79	0.86
R1-10	0.75	0.82	0.88
R1-7	0.81	0.86	0.91
R1-5	0.85	0.89	0.92
Townhouse (R-2, R-4)	0.63	0.74	0.94
Apartments & Condominiums (Condos) (R-3, R-5)	0.76	0.83	0.94
Specified Surface Type Values			
Paved streets, parking lots (concrete or asphalt), roofs, driveways, etc.	0.90	0.93	0.95
Lawns, golf courses, & parks (grassed areas)	0.20	0.25	0.30
Undisturbed natural desert or desert landscaping (no impervious weed barrier)	0.37	0.42	0.45
Desert landscaping (with impervious weed barrier)	0.63	0.73	0.83
Mountain terrain - slopes greater than 10%	0.60	0.70	0.80
Agricultural areas (flood irrigated fields)	0.16	0.18	0.20
Gravel floodways and shoulders	0.68	0.78	0.82

FIGURE 4-1.5 RUNOFF COEFFICIENTS FOR RATIONAL METHOD

F. **HEC-1 Model**

1. Minimum submittals
   a. A printout of the input data.
   b. A schematic (routing) diagram of the stream network.
   c. The runoff summary output table, including drainage basin name, area, 2, 10, and 100- year flow values.
   d. Electronic input file(s) on compact disc (CD) or digital versatile/video disc (DVD).
   e. Supporting documentation and source material for parameter selection.

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.7172°, Longitude: -111.8246°
Elevation: 2681.03 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	0.240 (0.200-0.296)	0.314 (0.263-0.387)	0.423 (0.349-0.518)	0.504 (0.414-0.616)	0.611 (0.494-0.743)	0.691 (0.553-0.836)	0.771 (0.607-0.931)	0.851 (0.660-1.03)	0.956 (0.725-1.16)	1.04 (0.771-1.26)
10-min	0.366 (0.305-0.450)	0.478 (0.399-0.588)	0.643 (0.531-0.789)	0.767 (0.630-0.937)	0.930 (0.752-1.13)	1.05 (0.841-1.27)	1.17 (0.924-1.42)	1.30 (1.00-1.56)	1.46 (1.10-1.76)	1.58 (1.17-1.92)
15-min	0.454 (0.378-0.558)	0.592 (0.495-0.729)	0.798 (0.659-0.978)	0.951 (0.780-1.16)	1.15 (0.932-1.40)	1.30 (1.04-1.58)	1.46 (1.15-1.76)	1.61 (1.25-1.94)	1.80 (1.37-2.18)	1.96 (1.46-2.38)
30-min	0.611 (0.509-0.752)	0.798 (0.667-0.982)	1.07 (0.887-1.32)	1.28 (1.05-1.56)	1.55 (1.26-1.89)	1.76 (1.40-2.12)	1.96 (1.54-2.36)	2.16 (1.68-2.61)	2.43 (1.84-2.94)	2.64 (1.96-3.21)
60-min	0.756 (0.630-0.930)	0.987 (0.825-1.22)	1.33 (1.10-1.63)	1.59 (1.30-1.94)	1.92 (1.55-2.34)	2.17 (1.74-2.63)	2.42 (1.91-2.93)	2.68 (2.08-3.23)	3.01 (2.28-3.63)	3.27 (2.42-3.97)
2-hr	0.870 (0.732-1.05)	1.13 (0.949-1.36)	1.49 (1.25-1.80)	1.77 (1.47-2.13)	2.15 (1.76-2.57)	2.43 (1.97-2.90)	2.72 (2.17-3.24)	3.01 (2.36-3.57)	3.39 (2.61-4.03)	3.69 (2.78-4.41)
3-hr	0.934 (0.786-1.14)	1.20 (1.01-1.47)	1.56 (1.31-1.90)	1.84 (1.53-2.24)	2.24 (1.83-2.71)	2.55 (2.06-3.07)	2.88 (2.29-3.46)	3.21 (2.51-3.85)	3.67 (2.79-4.40)	4.03 (3.00-4.84)
6-hr	1.13 (0.969-1.33)	1.42 (1.23-1.68)	1.80 (1.55-2.13)	2.11 (1.79-2.48)	2.52 (2.11-2.95)	2.85 (2.35-3.32)	3.18 (2.59-3.71)	3.52 (2.82-4.11)	3.97 (3.10-4.62)	4.32 (3.30-5.03)
12-hr	1.36 (1.18-1.58)	1.71 (1.48-1.99)	2.14 (1.85-2.49)	2.49 (2.13-2.89)	2.96 (2.51-3.43)	3.32 (2.78-3.84)	3.69 (3.05-4.27)	4.06 (3.32-4.70)	4.55 (3.64-5.29)	4.92 (3.87-5.76)
24-hr	1.65 (1.45-1.90)	2.10 (1.85-2.42)	2.74 (2.40-3.15)	3.25 (2.83-3.74)	3.97 (3.43-4.57)	4.56 (3.88-5.25)	5.18 (4.36-5.99)	5.83 (4.83-6.78)	6.75 (5.47-7.92)	7.50 (5.97-8.88)
2-day	1.89 (1.65-2.18)	2.42 (2.12-2.79)	3.20 (2.79-3.68)	3.84 (3.32-4.40)	4.73 (4.06-5.44)	5.46 (4.63-6.28)	6.23 (5.22-7.21)	7.05 (5.84-8.21)	8.22 (6.65-9.66)	9.16 (7.29-10.9)
3-day	2.04 (1.79-2.34)	2.62 (2.30-3.01)	3.49 (3.05-3.99)	4.20 (3.65-4.80)	5.23 (4.50-5.98)	6.06 (5.16-6.96)	6.97 (5.86-8.04)	7.94 (6.58-9.23)	9.32 (7.57-10.9)	10.5 (8.34-12.4)
4-day	2.19 (1.92-2.51)	2.82 (2.47-3.22)	3.78 (3.30-4.31)	4.57 (3.98-5.20)	5.72 (4.93-6.52)	6.67 (5.69-7.63)	7.70 (6.50-8.87)	8.82 (7.32-10.2)	10.4 (8.48-12.2)	11.8 (9.40-14.0)
7-day	2.52 (2.20-2.91)	3.25 (2.83-3.73)	4.36 (3.80-5.02)	5.30 (4.58-6.08)	6.66 (5.69-7.65)	7.79 (6.60-8.98)	9.02 (7.55-10.5)	10.4 (8.55-12.2)	12.3 (9.94-14.6)	14.0 (11.0-16.7)
10-day	2.77 (2.43-3.17)	3.56 (3.12-4.08)	4.77 (4.17-5.45)	5.76 (5.00-6.59)	7.21 (6.20-8.25)	8.40 (7.15-9.64)	9.70 (8.16-11.2)	11.1 (9.21-12.9)	13.1 (10.7-15.5)	14.8 (11.8-17.7)
20-day	3.52 (3.10-4.02)	4.55 (4.00-5.18)	6.04 (5.29-6.89)	7.22 (6.29-8.22)	8.86 (7.66-10.1)	10.2 (8.71-11.6)	11.5 (9.79-13.3)	13.0 (10.9-15.0)	15.0 (12.4-17.6)	16.6 (13.5-19.7)
30-day	4.19 (3.68-4.77)	5.41 (4.76-6.16)	7.19 (6.30-8.16)	8.57 (7.49-9.73)	10.5 (9.10-11.9)	12.0 (10.3-13.7)	13.6 (11.6-15.5)	15.2 (12.8-17.5)	17.5 (14.5-20.4)	19.3 (15.8-22.7)
45-day	5.01 (4.41-5.70)	6.48 (5.70-7.37)	8.61 (7.55-9.79)	10.2 (8.96-11.7)	12.5 (10.8-14.3)	14.3 (12.3-16.3)	16.1 (13.7-18.5)	18.0 (15.2-20.9)	20.7 (17.2-24.3)	22.9 (18.7-27.0)
60-day	5.67 (5.00-6.44)	7.36 (6.48-8.34)	9.74 (8.56-11.0)	11.5 (10.1-13.1)	13.9 (12.1-15.9)	15.8 (13.6-18.0)	17.7 (15.2-20.3)	19.7 (16.7-22.7)	22.4 (18.7-26.2)	24.5 (20.2-29.0)

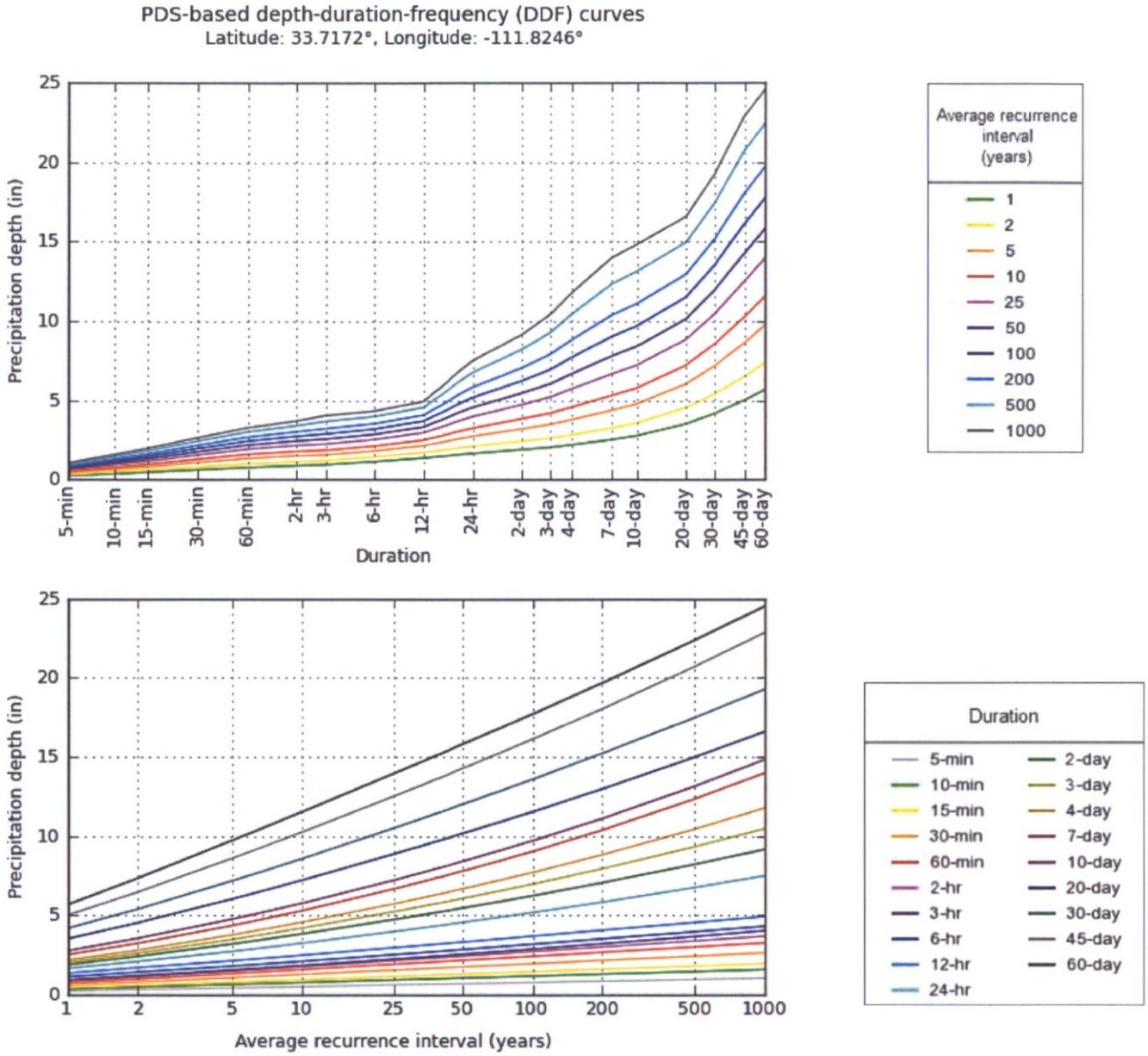
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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



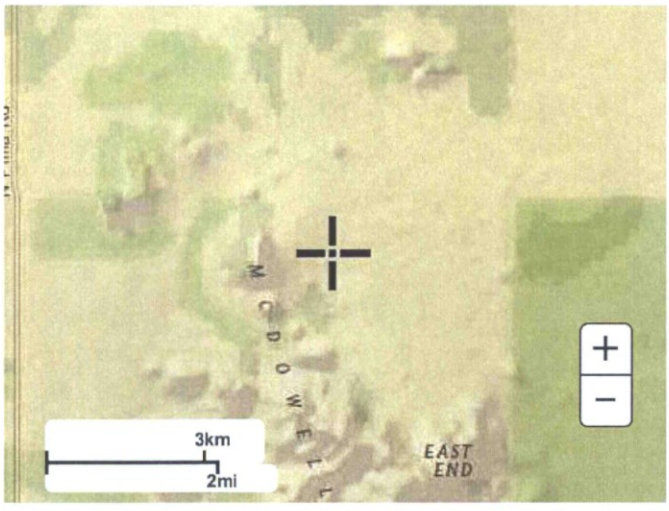
NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Fri Jun 22 17:03:41 2018

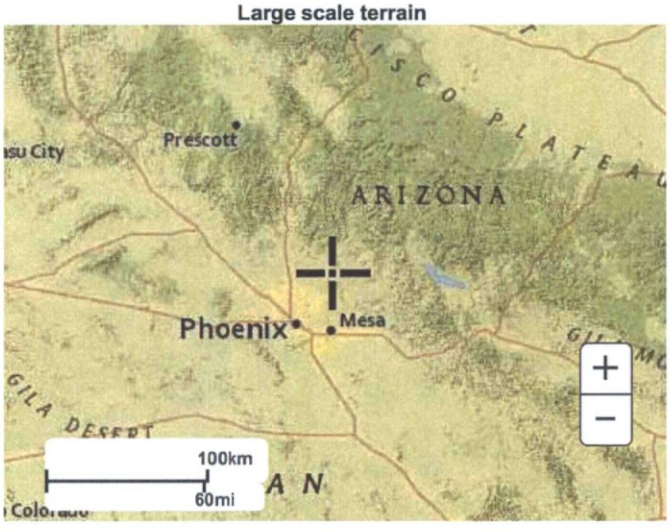
Back to Top

Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.7172°, Longitude: -111.8246°
Elevation: 2681.03 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/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	2.88 (2.40-3.55)	3.77 (3.16-4.64)	5.08 (4.19-6.22)	6.05 (4.97-7.39)	7.33 (5.93-8.92)	8.29 (6.64-10.0)	9.25 (7.28-11.2)	10.2 (7.92-12.3)	11.5 (8.70-13.9)	12.5 (9.25-15.1)
10-min	2.20 (1.83-2.70)	2.87 (2.39-3.53)	3.86 (3.19-4.73)	4.60 (3.78-5.62)	5.58 (4.51-6.79)	6.31 (5.05-7.63)	7.04 (5.54-8.50)	7.77 (6.03-9.37)	8.73 (6.62-10.6)	9.49 (7.04-11.5)
15-min	1.82 (1.51-2.23)	2.37 (1.98-2.92)	3.19 (2.64-3.91)	3.80 (3.12-4.64)	4.61 (3.73-5.61)	5.21 (4.17-6.31)	5.82 (4.58-7.02)	6.42 (4.98-7.74)	7.22 (5.47-8.72)	7.84 (5.82-9.52)
30-min	1.22 (1.02-1.50)	1.60 (1.33-1.96)	2.15 (1.77-2.63)	2.56 (2.10-3.13)	3.10 (2.51-3.78)	3.51 (2.81-4.25)	3.92 (3.08-4.73)	4.32 (3.36-5.21)	4.86 (3.68-5.87)	5.28 (3.92-6.41)
60-min	0.756 (0.630-0.930)	0.987 (0.825-1.22)	1.33 (1.10-1.63)	1.59 (1.30-1.94)	1.92 (1.55-2.34)	2.17 (1.74-2.63)	2.42 (1.91-2.93)	2.68 (2.08-3.23)	3.01 (2.28-3.63)	3.27 (2.42-3.97)
2-hr	0.435 (0.366-0.523)	0.563 (0.474-0.679)	0.746 (0.625-0.898)	0.886 (0.734-1.06)	1.07 (0.880-1.28)	1.22 (0.984-1.45)	1.36 (1.09-1.62)	1.50 (1.18-1.79)	1.69 (1.30-2.01)	1.84 (1.39-2.20)
3-hr	0.311 (0.262-0.380)	0.398 (0.336-0.488)	0.518 (0.435-0.633)	0.614 (0.510-0.746)	0.746 (0.611-0.901)	0.850 (0.687-1.02)	0.957 (0.762-1.15)	1.07 (0.837-1.28)	1.22 (0.929-1.46)	1.34 (0.999-1.61)
6-hr	0.188 (0.162-0.222)	0.237 (0.205-0.281)	0.301 (0.258-0.355)	0.352 (0.298-0.413)	0.421 (0.353-0.493)	0.476 (0.393-0.554)	0.532 (0.433-0.619)	0.588 (0.471-0.686)	0.662 (0.518-0.772)	0.721 (0.551-0.840)
12-hr	0.112 (0.098-0.131)	0.142 (0.123-0.165)	0.178 (0.154-0.207)	0.207 (0.177-0.240)	0.246 (0.208-0.285)	0.276 (0.231-0.319)	0.306 (0.253-0.354)	0.337 (0.276-0.390)	0.378 (0.302-0.439)	0.409 (0.321-0.478)
24-hr	0.069 (0.061-0.079)	0.088 (0.077-0.101)	0.114 (0.100-0.131)	0.135 (0.118-0.156)	0.166 (0.143-0.191)	0.190 (0.162-0.219)	0.216 (0.182-0.250)	0.243 (0.201-0.282)	0.281 (0.228-0.330)	0.312 (0.249-0.370)
2-day	0.039 (0.034-0.045)	0.050 (0.044-0.058)	0.067 (0.058-0.077)	0.080 (0.069-0.092)	0.099 (0.085-0.113)	0.114 (0.096-0.131)	0.130 (0.109-0.150)	0.147 (0.122-0.171)	0.171 (0.139-0.201)	0.191 (0.152-0.226)
3-day	0.028 (0.025-0.033)	0.036 (0.032-0.042)	0.048 (0.042-0.055)	0.058 (0.051-0.067)	0.073 (0.062-0.083)	0.084 (0.072-0.097)	0.097 (0.081-0.112)	0.110 (0.091-0.128)	0.129 (0.105-0.152)	0.145 (0.116-0.172)
4-day	0.023 (0.020-0.026)	0.029 (0.026-0.034)	0.039 (0.034-0.045)	0.048 (0.041-0.054)	0.060 (0.051-0.068)	0.069 (0.059-0.080)	0.080 (0.068-0.092)	0.092 (0.076-0.107)	0.109 (0.088-0.127)	0.123 (0.098-0.145)
7-day	0.015 (0.013-0.017)	0.019 (0.017-0.022)	0.026 (0.023-0.030)	0.032 (0.027-0.036)	0.040 (0.034-0.046)	0.046 (0.039-0.053)	0.054 (0.045-0.062)	0.062 (0.051-0.072)	0.073 (0.059-0.087)	0.083 (0.066-0.100)
10-day	0.012 (0.010-0.013)	0.015 (0.013-0.017)	0.020 (0.017-0.023)	0.024 (0.021-0.027)	0.030 (0.026-0.034)	0.035 (0.030-0.040)	0.040 (0.034-0.047)	0.046 (0.038-0.054)	0.055 (0.044-0.065)	0.062 (0.049-0.074)
20-day	0.007 (0.006-0.008)	0.009 (0.008-0.011)	0.013 (0.011-0.014)	0.015 (0.013-0.017)	0.018 (0.016-0.021)	0.021 (0.018-0.024)	0.024 (0.020-0.028)	0.027 (0.023-0.031)	0.031 (0.026-0.037)	0.035 (0.028-0.041)
30-day	0.006 (0.005-0.007)	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.012 (0.010-0.014)	0.015 (0.013-0.017)	0.017 (0.014-0.019)	0.019 (0.016-0.022)	0.021 (0.018-0.024)	0.024 (0.020-0.028)	0.027 (0.022-0.031)
45-day	0.005 (0.004-0.005)	0.006 (0.005-0.007)	0.008 (0.007-0.009)	0.009 (0.008-0.011)	0.012 (0.010-0.013)	0.013 (0.011-0.015)	0.015 (0.013-0.017)	0.017 (0.014-0.019)	0.019 (0.016-0.022)	0.021 (0.017-0.025)
60-day	0.004 (0.003-0.004)	0.005 (0.004-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.010 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.011-0.014)	0.014 (0.012-0.016)	0.016 (0.013-0.018)	0.017 (0.014-0.020)

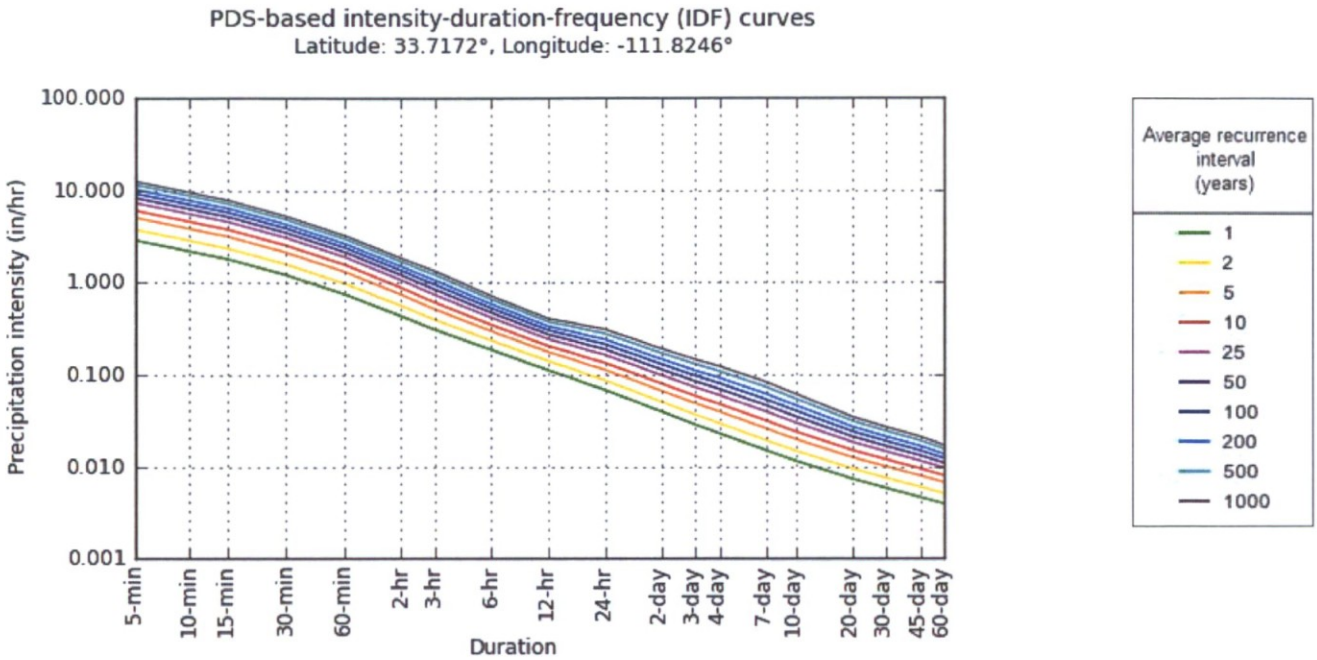
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

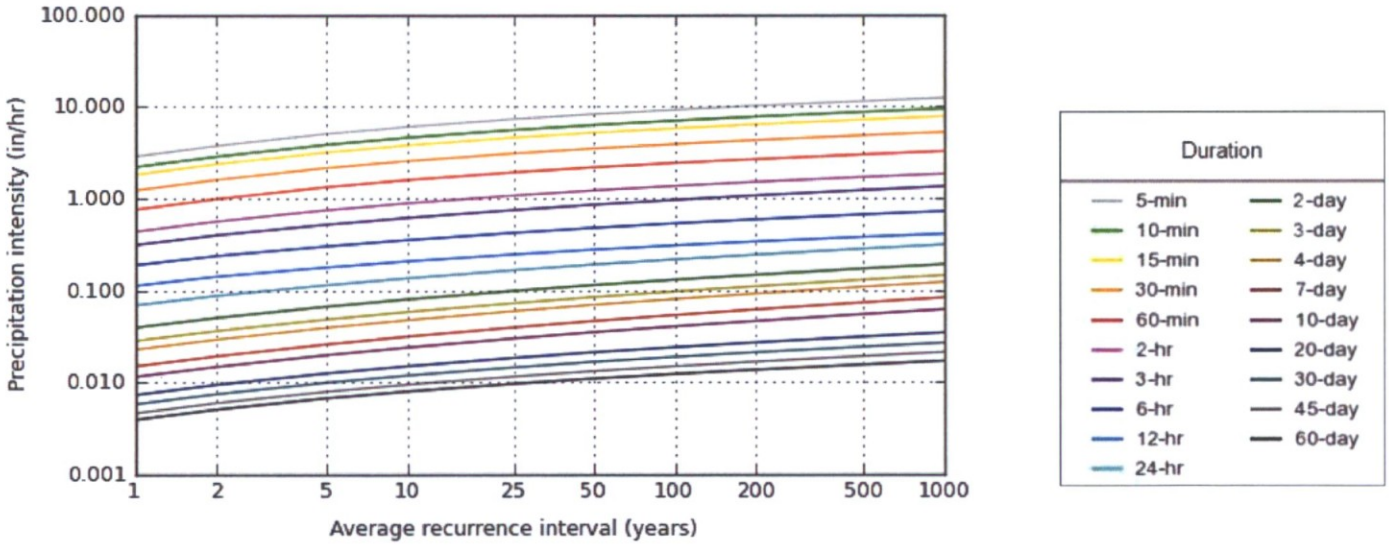
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper 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





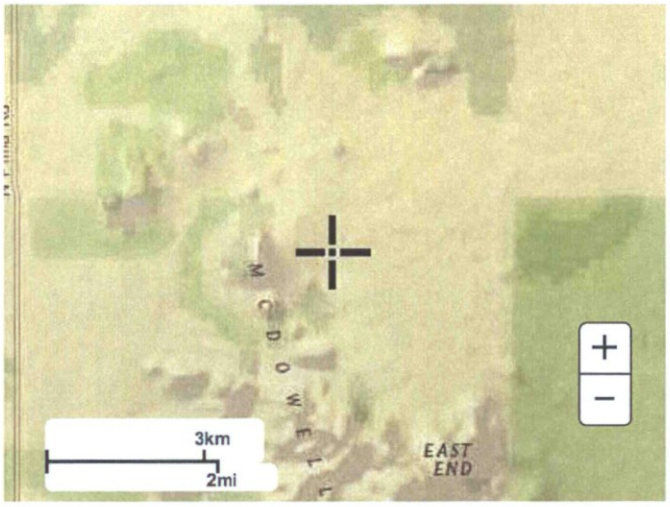
NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Fri Jun 22 17:04:55 2018

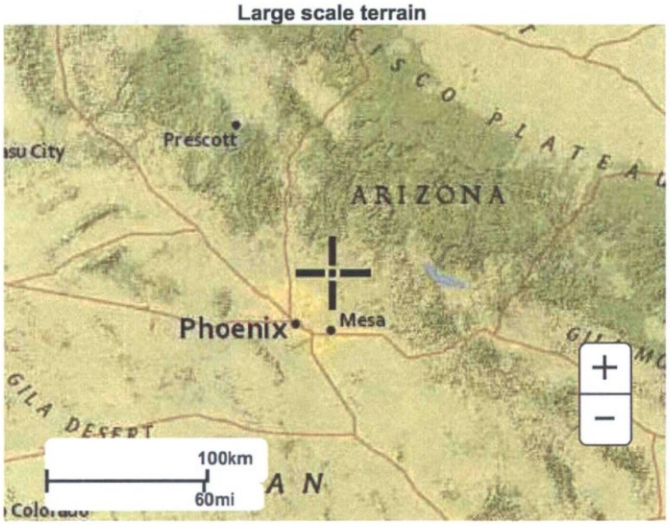
Back to Top

Maps & aerials

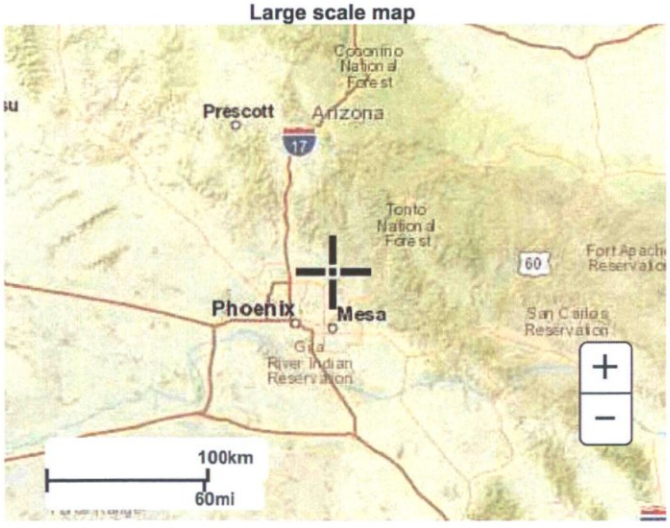
Small scale terrain



Large scale terrain



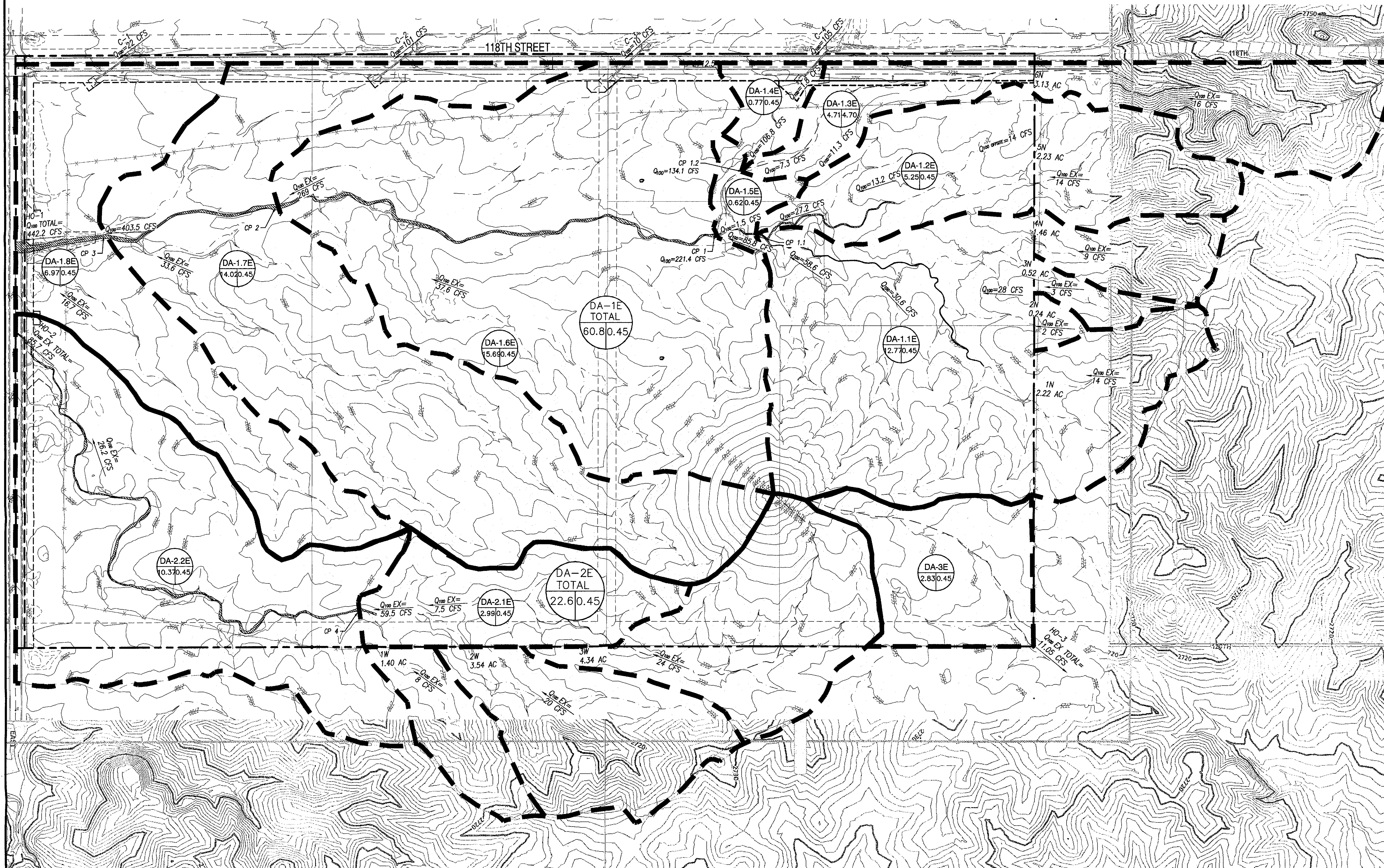
Large scale map



Large scale aerial

APPENDIX II

Calculations

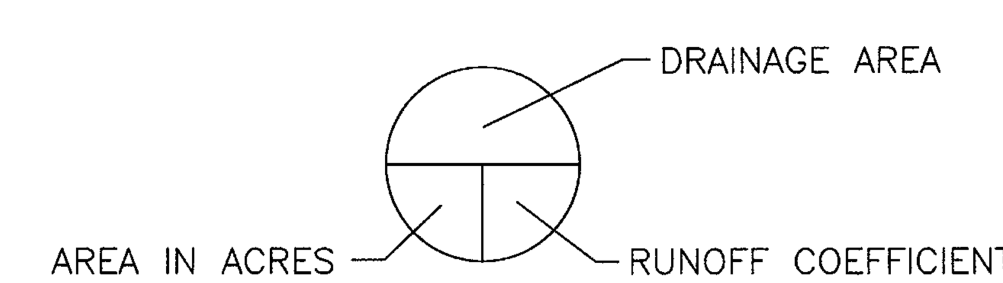


DRAINAGE AREA MAP

0' 100' 200' 300'

SCALE: 1" = 100'

NORTH



DRAINAGE AREA KEY

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

NOTE TO CONTRACTOR:
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE INTENDED TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING FEDERAL A.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS.
IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL APPLICABLE CODES AND TO INFORM THE OWNERS/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

Registered Professional Engineer (Civil)
CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 11-06-18
ARIZONA, U.S.A.
EXPIRES 12-31-18

SEG SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226 FAX 480.259.3534

PROJECT
LYLE ANDERSON RANCH GATE

LOCATION
118TH STREET AND RANCH GATE ROAD

DRAWN	CULVER
DESIGNED	CULVER
CHECKED	COUNSELL
PROJ. MGR.	FAKIH

DATE: 11/06/2018

ISSUED FOR: REZONING

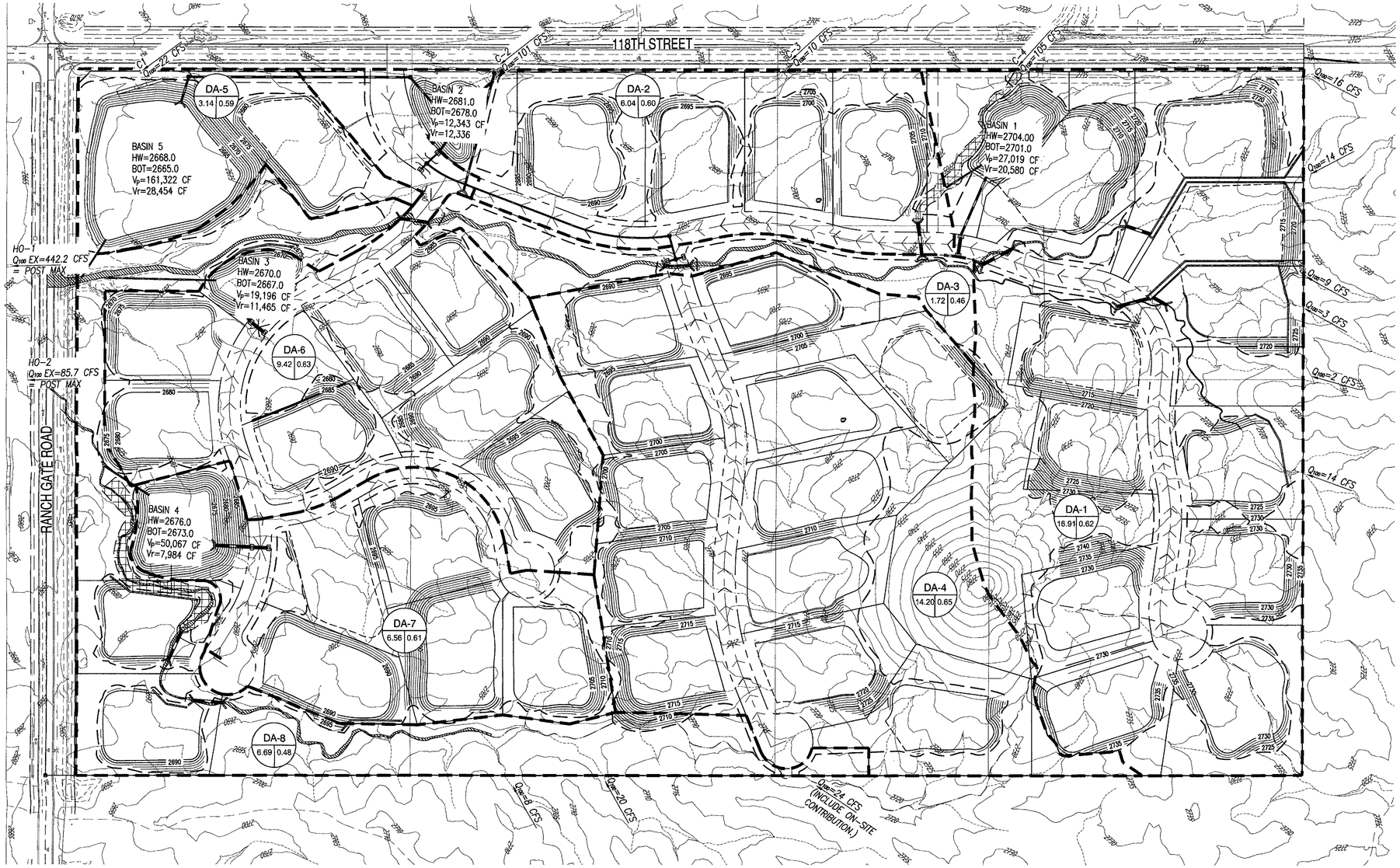
REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 171083

SHEET TITLE:
EXISTING CONDITIONS DRAINAGE AREA MAP

SHEET NO.: DAM-EX

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND THE PROPERTY OF SUSTAINABILITY ENGINEERING GROUP, AND SHALL REMAIN THEIR PROPERTY. THE USE OF THIS DRAWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH IT IS PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE.

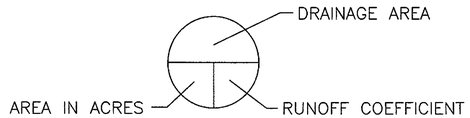


DRAINAGE AREA MAP

0' 100' 200' 300'

SCALE: 1" = 100'

NORTH



DRAINAGE AREA KEY

Call at least two full working days before you begin excavation. ARIZONA 811 Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 263-1100

NOTE TO CONTRACTOR:
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR CONSTRUCTION PURPOSES ONLY. IT IS LIMITED IN CONTENT TO WHAT IS BEST TO DEMONSTRATE THE DESIGN INTENDED TO BE BUILT. THE CONTRACTOR THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES INCLUDING FEDERAL A.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ADHERE TO COMPLY TO ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 11-06-18
ARIZONA, U.S.A.

EXPIRES 12-31-18

SEG SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW. AZSEG.COM TEL. 480.588.7226 FAX 480.289.3534

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND THE PROPERTY OF SUSTAINABILITY ENGINEERING GROUP, AND SHALL REMAIN THEIR PROPERTY. THE USE OF THIS DRAWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH IT IS PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE.

PROJECT: LYLE ANDERSON RANCH GATE

LOCATION: 118TH STREET AND RANCH GATE ROAD

DRAWN — CULVER
DESIGNED — CULVER
CHECKED — COUNSELL
PROJ. MGR. — FAKIH

DATE: 11/06/2018

ISSUED FOR: REZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 171083

SHEET TITLE: PROPOSED CONDITIONS DRAINAGE AREA MAP

SHEET NO.: DAM-POST

SUMMARY OF RATIONAL METHOD PEAK FLOW HYDROLOGY
enter Project Name here

CP Concentration Point	Sub- basin Area (ac)	Water Course Length ft	High Elevation ft	Low ft	Roughness, Kb	C Weighted Runoff Coefficient			i Intensity (in/hr)			Tc Time of Concentration (min)			Q Peak Flow Rate (cfs)		
						Return Period			Return Period			Return Period			Return Period		
						10-Year	50-Year	100-Year	10-Year	50-Year	100-Year	10-Year	50-Year	100-Year	10-Year	50-Year	100-Year
1W	1 40	497 771436	2724	2702	0 1464 (C)	0 55	0 66	0 69	5.3	7 7	8 7	7 6	6 6	6.3	4	7	8
2W	3 54	675 2925871	2728	2704	0 1363 (C)	0 55	0 66	0 69	4 8	7	8	9 5	8.2	7 8	9	16	20
3W	4 34	778 1363734	2746	2712	0 1341 (C)	0 55	0 66	0 69	4 8	7	8	9 4	8 1	7 7	11	20	24
1N	2 22	387 268849	2736	2722	0 1413 (C)	0 55	0 66	0 69	5 5	7 9	8 9	6 9	6	5 7	7	12	14
2N	0 24	115 3450466	2736	2724	0 1657 (C)	0 55	0 66	0 69	6	8.3	9.3	5	5	5	1	1	2
3N	0 52	345 3620972	2738	2722	0 1571 (C)	0 55	0 66	0 69	5 7	8 1	9 1	6.3	5 5	5 2	2	3	3
4N	1 46	425 1917839	2740	2720	0 1459 (C)	0 55	0 66	0 69	5 5	7 9	9	6 7	5 9	5 6	4	8	9
5N	2 23	481 7786798	2748	2722	0 1413 (C)	0 55	0 66	0 69	5 5	7 9	9	6 8	5 9	5 6	7	12	14
6N	3 13	818 9886412	2752	2722	0 1376 (C)	0 55	0 66	0 69	4 5	6 6	7 6	10 6	9 1	8 7	8	14	16

Reference Drainage Design Manual for Maricopa County Hydrology February 10 2011

Notes

T_c = Time of concentration = $11\ 4L^{0.5}K_b^{0.52}S^{-0.31}i^{-0.38}$ (Equation 3 2 Papadakis and kazan equation 1987)

L = Length of the longest flow path miles

S = Watercourse slope feet/mile

K_b = Watershed resistance coefficient = $m\log_{10}A + b$ where A= drainage area in acres m and b values from (Table 3 1)

Q = Peak discharge = C*I*A cfs (Equation 3 1)

i = Average rainfall intensity in in/hr lasting for a T_c Determined using the I D F curve from the NOAA Atlas 14 PRECIPITATION FREQUENCY ESTIMATES

C = Runoff coefficient per Undeveloped Desert Rangeland land use category per Table 3 2

EXISTING CONDITIONS RUNOFF

DA - 1E (to HO-1)

$T_c=11.4L^{0.5}K_b^{0.52}S^{-0.31}i^{-0.38}=$		**0.316 Hours**	**18.99 Min.**
L=	0.65 MILES		
K_b=	0.1054	*m* $\log_{10}$A+b=	
S=	154.32 FT/MILE		
i=	5.320 IN/HR	From NOAA	
m =	-0.025	From Table 3.1 of FCDMC Hydrology Manual (Type C)	
b=	0.15	From Table 3.1 of FCDMC Hydrology Manual (Type C)	
A=	60.80 ACRES		

Q=CiA	**145.5552 CFS**
C=	0.45
i=	5.320 IN/HR
A=	60.80 ACRES

DA - 2E (to HO-2)

$T_c=11.4L^{0.5}K_b^{0.52}S^{-0.31}i^{-0.38}=$		**0.278 Hours**	**16.70 Min.**
L=	0.56 MILES		
K_b=	0.1161	*m* $\log_{10}$A+b=	
S=	203.57 FT/MILE		
i=	5.610 IN/HR	From NOAA	
m =	-0.025	From Table 3.1 of FCDMC Hydrology Manual (Type C)	
b=	0.15	From Table 3.1 of FCDMC Hydrology Manual (Type C)	
A=	22.60 ACRES		

Q=CiA	**57.0537 CFS**
C=	0.45
i=	5.610 IN/HR
A=	22.60 ACRES

DA - 3E (to HO-3)

$T_c=11.4L^{0.5}K_b^{0.52}S^{-0.31}i^{-0.38}=$		**0.105 Hours**	**6.28 Min.**
L=	0.12 MILES		
K_b=	0.1387	*m* $\log_{10}$A+b=	
S=	330.65 FT/MILE		
i=	8.680 IN/HR	From NOAA	
m =	-0.025	From Table 3.1 of FCDMC Hydrology Manual (Type C)	
b=	0.15	From Table 3.1 of FCDMC Hydrology Manual (Type C)	
A=	2.83 ACRES		

Q=CiA	**11.0540 CFS**
C=	0.45
i=	8.680 IN/HR
A=	2.83 ACRES

Worksheet for Irregular Section - 404 with 105 cfs adjacent to Lot 17

Project Description

Fnction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0 00189	ft/ft
Discharge	105 00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
-0+45	3 00
-0+25	1 00
-0+03	0 00
0+03	0 00
0+21	1 00
0+51	3 00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(-0+45 3 00)	(0+51 3 00)	0 020

Options

Current Roughness Weighted Method	Pavlovskii s Method
Open Channel Weighting Method	Pavlovskii s Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	1 27	ft
Elevation Range	0 00 to 3 00 ft	
Flow Area	39 50	ft²
Wetted Perimeter	52 90	ft
Hydraulic Radius	0 75	ft
Top Width	52 83	ft
Normal Depth	1 27	ft

Worksheet for Irregular Section - 404 with 105 cfs adjacent to Lot 17

Results

Critical Depth		0 98	ft
Critical Slope		0 00711	ft/ft
Velocity		2 66	ft/s
Velocity Head		0 11	ft
Specific Energy		1 38	ft
Froude Number		0 54	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0 00	ft
Length	0 00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0 00	ft
Profile Description		
Profile Headloss	0 00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1 27	ft
Critical Depth	0 98	ft
Channel Slope	0 00189	ft/ft
Critical Slope	0 00711	ft/ft

Cross Section for Irregular Section - 404 with 105 cfs

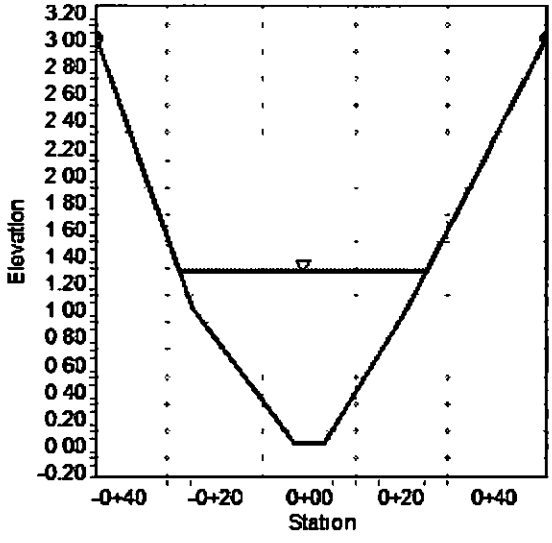
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0 00189	ft/ft
Normal Depth	1 27	ft
Discharge	105 00	ft³/s

Cross Section Image



EXISTING CONDITIONS FLOW (Q-100)					
CONTROL POINT	DRAINAGE AREA ID	AREA (AC)	Cwt	I (in/hr)	Q-100 (cfs)
	1N	2.22	0.69		14
	2N	0.24	0.69		2
	3N	0.52	0.69		3
	4N	1.46	0.69		9
OFF-SITE N		**4.44**			**28.0**
	DA-1.1E	12.77	0.45	5.32	30.6
OFF-SITE N	5N	**2.23**	0.69		**14**
	DA-1.2E	5.52	0.45	5.32	13.2
CP-1.1	sub-total	**24.96**			**85.8**
OFF-SITE N	6N	3.13	0.69		16
	DA-1.3E	4.71	0.45	5.32	11.3
	C-4				105.0
	DA-1.4E	0.77	0.45	5.32	1.8
CP-1.2	sub-total	**8.61**			**134.1**
	DA-1.5E	**0.62**	0.45	5.32	**1.5**
CP-1	total	**34.2**			**221.4**
	C-3				**10.0**
	DA-1.6E	15.69	0.45	5.32	37.6
CP-2	total	**49.88**			**269.0**
	C-2				101.0
	DA1.7E	14.02	0.45	5.32	33.6
CP-3	total	**63.9**			**403.5**
	C-1				**22.0**
	DA-1.8E	6.97	0.45	5.32	16.7
HO-1		**70.87**			**442.2**
	1E	1.4	0.69		8
	2E	3.54	0.69		20
	3E	4.34	0.69		24
	DA-2.1E	2.99	0.45	5.61	7.5
CP-4	sub-total	**12.27**			**59.5**
	DA-2.2E	10.37	0.45	5.61	26.2
HO-2	total	**22.64**			**85.7**

Allowable Outflow for Pond Routing

Q allowable is based on Total drainage area to retention basin with an existing C-value of 0.45, Tc = 15 minutes.

Drainage Area ID	Total Area (acres)	C_w (-)	intensity (in/hr)	Q-100 (cfs)
RETENTION BASIN 1				
DA-1	16.91	**0.45**	5.82	44.29
Basin 1 Totals:	**16.91**	**0.45**	5.82	44.29
RETENTION BASIN 2				
DA-2	6.04	**0.45**	5.82	15.82
DA-4	14.20	**0.45**	5.82	37.19
Basin 2 Totals:	20.24	**0.45**	5.82	53.01
RETENTION BASIN 3				
DA-6	9.42	**0.45**	5.82	24.67
Basin 3 Totals:	9.42	**0.45**	5.82	24.67
RETENTION BASIN 4				
DA-7	6.56	**0.45**	5.82	17.18
Basin 4 Totals:	6.56	**0.45**	5.82	17.18
RETENTION BASIN 5				
DA-5	3.14	**0.45**	5.82	8.22
Basin 5 Totals:	3.14	**0.45**	5.82	8.22
Totals	**53.13**			**139.15**

REQUIRED STORAGE: 100-yr Event BASIN 1

Tc (min.)	I100	A (ac)	C	Q(in) (cfs)	Q (out) (cfs)	Qi-QoxTcx60 (cf)
5	9.28	16.91	0.62	97.29	44.29	15901.01
10	7.04	16.91	0.62	73.81	44.29	17711.26
15	5.82	16.91	0.62	61.02	44.29	15055.24
30	3.92	16.91	0.62	41.10	44.29	-5745.48
60	2.42	16.91	0.62	25.37	44.29	-68105.65
120	1.36	16.91	0.62	14.26	44.29	-216226.71
180	0.957	16.91	0.62	10.03	44.29	-369971.50
360	0.532	16.91	0.62	5.58	44.29	-836187.96
720	0.306	16.91	0.62	3.21	44.29	-1774735.26
1440	0.216	16.91	0.62	2.26	44.29	-3630995.67

REQUIRED STORAGE: 100-yr Event BASIN 2

Tc (min.)	I100	A (ac)	C	Q(in) (cfs)	Q (out) (cfs)	Qi-QoxTcx60 (cf)
5	9.28	16.10	0.63	94.13	53.01	12335.11
10	7.04	16.10	0.63	71.41	53.01	11038.03
15	5.82	16.10	0.63	59.03	53.01	5420.03
30	3.92	16.10	0.63	39.76	53.01	-23848.99
60	2.42	16.10	0.63	24.55	53.01	-102470.18
120	1.36	16.10	0.63	13.79	53.01	-282351.74
180	0.957	16.10	0.63	9.71	53.01	-467674.01
360	0.532	16.10	0.63	5.40	53.01	-1028460.76
720	0.306	16.10	0.63	3.10	53.01	-2155949.65
1440	0.216	16.10	0.63	2.19	53.01	-4390771.28
	ACTUAL	20.24				
	EXCESS	4.14				

REQUIRED STORAGE: 100-yr Event BASIN 3

Tc (min.)	I100	A (ac)	C	Q(in) (cfs)	Q (out) (cfs)	Qi-QoxTcx60 (cf)
5	9.28	9.42	0.63	55.07	24.67	9120.93
10	7.04	9.42	0.63	41.78	24.67	10265.75
15	5.82	9.42	0.63	34.54	24.67	8882.43
30	3.92	9.42	0.63	23.26	24.67	-2531.46
60	2.42	9.42	0.63	14.36	24.67	-37109.76
120	1.36	9.42	0.63	8.07	24.67	-119512.40
180	0.957	9.42	0.63	5.68	24.67	-205098.35
360	0.532	9.42	0.63	3.16	24.67	-464676.32
720	0.306	9.42	0.63	1.82	24.67	-987293.34
1440	0.216	9.42	0.63	1.28	24.67	-2020734.12

REQUIRED STORAGE: 100-yr Event BASIN 4

Tc (min.)	I100	A (ac)	C	Q(in) (cfs)	Q (out) (cfs)	Qi-QoxTcx60 (cf)
5	9.28	6.56	0.61	37.13	17.18	5986.45
10	7.04	6.56	0.61	28.17	17.18	6594.76
15	5.82	6.56	0.61	23.29	17.18	5498.38
30	3.92	6.56	0.61	15.69	17.18	-2688.71
60	2.42	6.56	0.61	9.68	17.18	-26986.06
120	1.36	6.56	0.61	5.44	17.18	-84512.33
180	0.957	6.56	0.61	3.83	17.18	-144185.06
360	0.532	6.56	0.61	2.13	17.18	-325104.81
720	0.306	6.56	0.61	1.22	17.18	-689278.05
1440	0.216	6.56	0.61	0.86	17.18	-1409672.54

REQUIRED STORAGE: 100-yr Event BASIN 5

Tc (min.)	I100	A (ac)	C	Q(in) (cfs)	Q (out) (cfs)	Qi-QoxTcx60 (cf)
5	9.28	7.28	0.58	39.18	8.22	9289.16
10	7.04	7.28	0.58	29.73	8.22	12903.42
15	5.82	7.28	0.58	24.57	8.22	14718.93
30	3.92	7.28	0.58	16.55	8.22	14997.25
60	2.42	7.28	0.58	10.22	8.22	7193.55
120	1.36	7.28	0.58	5.74	8.22	-17838.26
180	0.957	7.28	0.58	4.04	8.22	-45134.96
360	0.532	7.28	0.58	2.25	8.22	-129031.56
720	0.306	7.28	0.58	1.29	8.22	-299287.25
1440	0.216	7.28	0.58	0.91	8.22	-631407.88

	DA-5	3.14
Basin 2 overflow		4.14
	total in	7.28

Cwt Calculations					
Disturbed	Undisturbed<10%	Undisturbed>10%	Total Area	Cwt	Drainage
0 61	0 45	0 80			Area ID
11 83	2 16	2 92	16 91	0 62	DA-1
11 83	**2 16**	**2 92**	**16 91**	0 62	
4 48	0 99	0 57	6 04	0 60	DA-2
10 64	0 46	3 10	14 20	0 65	DA-4
15 12	**1 45**	**3 67**	**20 24**	**0 63**	
2 82	0 32	0 00	3 14	0 59	DA-5
2 82	**0 32**	**0 00**	**3 14**	0 59	
8 09	0 31	1 02	9 42	0 63	DA-6
8 09	**0 31**	**1 02**	**9 42**	0 63	
6 38	0 18	0 00	6 56	0 61	DA-7
6 38	**0 18**	**0 00**	**6 56**	**0 61**	
0 06	1 66	0 00	1 72	0 46	DA-3
1 26	5 43	0 00	6 69	0 48	DA-8
1 32	**7 09**	**0 00**	**8 41**	**0 48**	

Existing Channel - Basin 1

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0 040	
Channel Slope	0 05260	ft/ft
Normal Depth	2 00	ft
Left Side Slope	2 00	ft/ft (H V)
Right Side Slope	2 00	ft/ft (H V)
Bottom Width	2 00	ft

Results

Discharge	108 71	ft^3/s
Flow Area	12 00	ft^2
Wetted Perimeter	10 94	ft
Hydraulic Radius	1 10	ft
Top Width	10 00	ft
Critical Depth	2 39	ft
Critical Slope	0 02359	ft/ft
Velocity	9 06	ft/s
Velocity Head	1 28	ft
Specific Energy	3 28	ft
Froude Number	1 46	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0 00	ft
Length	0 00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0 00	ft
Profile Description		
Profile Headloss	0 00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2 00	ft
Critical Depth	2 39	ft
Channel Slope	0 05260	ft/ft

Existing Channel - Basin 1

GVF Output Data

Critical Slope	0 02359	ft/ft

REQUIRED FIRST FLUSH STORAGE VOLUME

Retention Basin ID	Rainfall Depth (in) 0 5/12)	Drainage Area	Area (Ac)	Cwt	V req (Ac Ft)	V req (C F)
1	0 0417	DA-1	16 91	0 67	0 472	20,579 86
2	0 0417	DA-2+4	by-pass	0	0 000	0 00
3	0 0417	DA- 6	9 42	0 67	0 263	11,464 36
4	0 0417	DA- 7	6 56	0 67	0 183	7,983 67
5	0 0417	DA- 5+2+4	23 38	0 67	0 653	28,453 99
Overall	0 0417		56 27		1 572	68,481 88
By-pass		DA- 3+8	8 41			
	Total Site Area (net)		64 68			

Worksheet for Trapezoidal Channel - 1

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0 030	
Channel Slope	0 01670	ft/ft
Normal Depth	1 00	ft
Left Side Slope	12 00	ft/ft (H V)
Right Side Slope	8 00	ft/ft (H V)
Bottom Width	5 00	ft

Results

Discharge	68 11	ft^3/s
Flow Area	15 00	ft^2
Wetted Perimeter	25 10	ft
Hydraulic Radius	0 60	ft
Top Width	25 00	ft
Critical Depth	1 02	ft
Critical Slope	0 01556	ft/ft
Velocity	4 54	ft/s
Velocity Head	0 32	ft
Specific Energy	1 32	ft
Froude Number	1 03	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0 00	ft
Length	0 00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0 00	ft
Profile Description		
Profile Headloss	0 00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1 00	ft
Critical Depth	1 02	ft
Channel Slope	0 01670	ft/ft

Worksheet for Trapezoidal Channel - 1

GVF Output Data

Critical Slope	0 01556	ft/ft

Lot 6-7 Channel

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.069	
Channel Slope	0.00850	ft/ft
Normal Depth	1.00	ft
Bottom Width	8.67	ft

Results

Discharge	14.99	ft^3/s
Flow Area	8.67	ft^2
Wetted Perimeter	10.67	ft
Hydraulic Radius	0.81	ft
Top Width	8.67	ft
Critical Depth	0.45	ft
Critical Slope	0.10314	ft/ft
Velocity	1.73	ft/s
Velocity Head	0.05	ft
Specific Energy	1.05	ft
Froude Number	0.30	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.00	ft
Critical Depth	0.45	ft
Channel Slope	0.00850	ft/ft
Critical Slope	0.10314	ft/ft

Lot 7-8 Channel

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.069	
Channel Slope	0.01150	ft/ft
Normal Depth	1.00	ft
Bottom Width	8.67	ft

Results

Discharge	17.43	ft^3/s
Flow Area	8.67	ft^2
Wetted Perimeter	10.67	ft
Hydraulic Radius	0.81	ft
Top Width	8.67	ft
Critical Depth	0.50	ft
Critical Slope	0.10107	ft/ft
Velocity	2.01	ft/s
Velocity Head	0.06	ft
Specific Energy	1.06	ft
Froude Number	0.35	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.00	ft
Critical Depth	0.50	ft
Channel Slope	0.01150	ft/ft
Critical Slope	0.10107	ft/ft

PROPOSED RETENTION VOLUME CALCULATIONS

BASIN 1					
ELEV	AREA	DEPTH	AVG VOLUME	SUM VOLUME	Comment
(FT)	(SF)	(FT)	(CF)	(CF)	
2701 00	6 657			0 00	BOT
		1 00	7,410 50		
2702 00	8 164			7 410 50	
		1 00	8 970 00		
2703 00	9 776			16 380 50	
		1 00	10 638 00		
2704 00	11 500			27 018 50	HWE

BASIN 2					
ELEV	AREA	DEPTH	AVG VOLUME	SUM VOLUME	Comment
(FT)	(SF)	(FT)	(CF)	(CF)	
2678 00	2 411			0 00	BOT
		1 00	2 929 00		
2679 00	3 447			2 929 00	
		1 00	4 054 50		
2680 00	4 662			6 983 50	
		1 00	5 358 50		
2681 00	6 055			12 342 00	HWE

BASIN 3					
ELEV	AREA	DEPTH	AVG VOLUME	SUM VOLUME	Comment
(FT)	(SF)	(FT)	(CF)	(CF)	
2667 00	4 371			0 00	BOT
		1 00	5 019 00		
2668 00	5 667			5 019 00	
		1 00	6 365 00		
2669 00	7 063			11 384 00	
		1 00	7 811 50		
2670 00	8 560			19 195 50	HWE

BASIN 4					
ELEV	AREA	DEPTH	AVG VOLUME	SUM VOLUME	Comment
(FT)	(SF)	(FT)	(CF)	(CF)	
2673 00	13 761			0 00	BOT
		1 00	14 708 50		
2674 00	15 656			14 708 50	
		1 00	16 653 50		
2675 00	17 651			31 362 00	
		1 00	18 699 00		
2676 00	19 747			50 061 00	HWE

BASIN 5					
ELEV	AREA	DEPTH	AVG VOLUME	SUM VOLUME	Comment
(FT)	(SF)	(FT)	(CF)	(CF)	
2664 00	48 611			0 00	BOT
		1 00	50 304 00		
2665 00	51 997			50 304 00	
		1 00	53 740 50		
2666 00	55 484			104 044 50	
		1 00	57,277 50		
2667 00	59 071			161,322 00	HWE

RETENTION VOLUME SUMMARY	
BASIN ID	VOLUME PROVIDED (C F)
1	27 019
2	12 342
3	19 196
4	50 061
5	161 322
TOTAL	269 939

100-yr; 2-hr Required Storage Volume Calculations

In accordance with COS DS&PM, required storage is based on the disturbed area.						Vr=1*(P/12)*Cw*A P=100-yr, 2-hr=2.72 in.
Drainage	Disturbed Area	C_w			Volume Req.	Volume Req.
Area ID	(acres)	(-)			(acre-ft)	(CF)
RETENTION BASIN 1						
DA-1	11.83	**0.62**			1.663	72,418.91
Basin 1 Totals:	**11.83**	**0.62**			**1.663**	**72,418.91**
RETENTION BASIN 2						
DA-2	4.48	**0.60**			0.609	26,540.24
DA-4	10.64	**0.65**			1.568	68,285.82
Basin 2 Totals:	**15.12**	**0.63**			**2.177**	**94,826.05**
RETENTION BASIN 5						
DA-5	2.82	0.59			0.377	16,427.70
Basin 5 Totals:	**2.82**	**0.59**			**0.377**	**16,427.70**
RETENTION BASIN 3						
DA-6	8.09	0.63			1.155	50,322.78
Basin 3 Totals:	**8.09**	**0.63**			**1.155**	**50,322.78**
RETENTION BASIN 4						
DA-7	6.38	0.61			0.882	38,426.08
Basin 4 Totals:	**6.38**	**0.61**			**0.882**	**38,426.08**
Totals	**41.42**				**6.25**	**272,421.51**
BASIN BY-PASS						
DA-3	0.06					
DA-8	1.26					
By-pass Totals:	**1.32**					
Net site Area:	**42.74**					

SUMMARY OF STORAGE REQUIREMENTS

	FIRST FLUSH	100-YR, 2-HR	POND ROUTING	PROVIDED RETENTION
Basin ID	Vreq (C F)	Vreq (C F)	Vreq (C F)	Vprov (C F)
1	20,580	72,419	17,712	27,019
2	0	94,827	12,336	12,342
3	11,465	50,323	10,266	19,196
4	7,984	38,427	6,595	50,061
5	28,454	16,428	12,904	161,322
TOTAL	68,483	272,424	59,813	269,940

APPENDIX III

Soreno Canyon Road Plans - Excerpts

SERENO CANYON
118TH STREET PAVING PLANS
A PORTION OF SECTION 3 T.4N., R.5E., SECTION 34 T.5N., R.5E., & SECTION 2 T.4N., R.5E., OF THE G.&S.R.M., MARICOPA COUNTY, CITY OF SCOTTSDALE, ARIZONA

CITY OF SCOTTSDALE GENERAL NOTES:

GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION

1 ALL CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE (C.O.S.) SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE LATTER SHALL GOVERN

2 THE ENGINEERING DESIGNS ON THESE PLANS ARE ONLY APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY

3 APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS SHALL BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.

4 A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHT-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO STARTING OF CONSTRUCTION (TELEPHONE 480-312-5750)

5 WHENEVER EXCAVATION IS TO BE DONE, CALL THE "BLUE STAKE CENTER", (602) 263-1100 TWO WORKING DAYS BEFORE EXCAVATION IS TO BEGIN. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY

6 ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHT-OF-WAY AND EASEMENT GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY UPON RECEIPT OF PAYMENT OF A BASE FEE PLUS A FEE FOR INSPECTION SERVICES TO BE PROVIDED BY THE CITY. COPIES OF ALL PERMITS SHALL BE RETAINED ONSITE AND SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE WORK STOPPAGE UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.

7 ALL EXCAVATION AND GRADING WHICH IS NOT IN THE PUBLIC RIGHT-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

8 SIGNS REQUIRE SEPARATE APPROVAL AND PERMITS

ENGINEERS NOTES

1 MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTALS THEREOF PER THE LOCAL TOWN OR CITY) ARE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY

2 ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THESE PLANS SHALL BE IN ACCORDANCE WITH THE MAG STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE CITY OF SCOTTSDALE UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS

3 THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING AND SAFETY USED DURING CONSTRUCTION UNLESS SPECIFICALLY ADDRESSED

4 THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THESE PLANS

5 THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THESE PLANS

6 THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS

7 A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL FOR BLUE STAKE (263-1100) PRIOR TO ANY EXCAVATION

8 THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK

9 ALL GRADING, PAVING, EXCAVATION, TRENCHING, PIPE BEDDING, AND BACKFILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS (GEOTECHNICAL) REPORT FOR THIS PROJECT IN ADDITION TO THE REFERENCED REQUIRED SPECIFICATIONS AND DETAILS

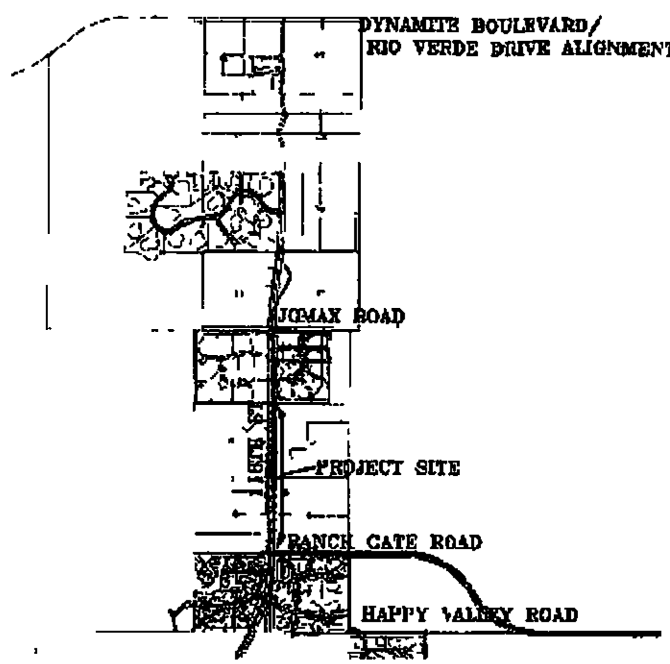
10 THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AGENT

11 ALL EXPOSED CONCRETE TO BE COLORED SOLOMON 700 ORANGE APPLIED AT A RATE OF 2 LBS PER LB SACK CEMENT

12 ALL SEWER SHALL BE CONSTRUCTED PER C.O.S. SUPPLEMENTAL SPECS

13 THE MARKING TAPE SHALL BE A MIN 4.0 MILS THICK, INERT POLYETHYLENE PLASTIC THAT IS IMPERVIOUS TO ALL KNOWN ALKALIS, ACIDS, CHEMICAL REAGENTS AND SOLVENTS LIKELY TO BE ENCOUNTERED IN THE SOIL. THE TAPE WIDTH SHALL BE EQUAL TO THE PIPE DIAMETER. THE TAPE COLOR SHALL BE GREEN WITH THE FOLLOWING MESSAGE IN BLACK LETTERING "CAUTION SANITARY SEWER FORCE MAIN". MARKING TAPE SHALL BE BURIED 24" BELOW THE SURFACE OVER THE CENTER OF PIPE. THE LOCATOR TAPE SHALL BE A MIN 4.0 MILS THICK INERT POLYETHYLENE PLASTIC THAT IS IMPERVIOUS TO ALL KNOWN ALKALIS, ACIDS, CHEMICAL REAGENTS AND SOLVENTS LIKELY TO BE ENCOUNTERED IN THE SOIL WITH A MINIMUM 1/3 MIL THICK METALLIC FOIL OR WO EMBEDDED COPPER WIRES. LOCATING TAPE SHALL BE A MINIMUM THREE INCHES IN WIDTH. LOCATING TAPE SHALL BE SOLID GREEN PRINTED IN THE SAME MANNER OF THE MARKING TAPE SPECIFIED ABOVE

14 THIS PROJECT REQUIRES A REGULAR ONGOING MAINTENANCE PROGRAM FOR THE DESIGNED DRAINAGE SYSTEM(S) TO PRESERVE THE DESIGN INTEGRITY AND THE ABILITY TO PERFORM ITS OPERATIONAL INTENT. FAILURE TO PROVIDE MAINTENANCE WILL JEOPARDIZE THE DRAINAGE SYSTEM(S) PERFORMANCE AND MAY LEAD TO ITS INABILITY TO PERFORM PROPERLY AND/OR CAUSE DAMAGE ELSEWHERE IN THE PROJECT



PROJECT SITE
(NTS)

EASEMENTS WITHIN TRACTS REQUIREMENTS
EASEMENTS WITHIN TRACTS FOR SEWER LINES SHALL NOT BE LESS THAN TWENTY (20') FEET IN WIDTH AND SHALL RUN PARALLEL TO THE PROPERTY LINE. THE TRACT SHALL EXTEND TO THE DEDICATED STREET RIGHT-OF-WAYS

SEWER LINE TRACTS MUST BE FREE OF OBSTRUCTION ACCESSIBLE TO CITY SERVICE EQUIPMENT. AREAS IN QUESTION MUST BE REVIEWED BY THE CITY'S WATER OPERATIONS DEPARTMENT

SEWER LINE EASEMENTS LOCATED WITHIN TRACTS SHALL HAVE A TEN (10') FOOT WIDE STABILIZED PATH WITH A CROSS SECTIONAL SLOPE NOT GREATER THAN 10%. THE STABILIZED SHALL CONSIST OF NATIVE SOIL WITH 95% COMPACTION AND COMPACTED FOR A DEPTH OF ONE (1') FOOT FROM THE SURFACE.

UTILITY NOTES

1 THESE PLANS HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES AND THE WORK CONTAINED IN THESE PLANS HAS BEEN APPROVED BY THESE COMPANIES WITHIN THEIR AREA OF INTEREST. THE SIZE AND LOCATIONS AS SHOWN OF THE GAS, TELEPHONE AND POWER LINES AND CONNECTIONS AGREE WITH THE INFORMATION CONTAINED IN THE UTILITY COMPANY'S RECORDS. WHERE THE WORK TO BE DONE CONFLICTS WITH ANY OF THESE UTILITIES, THE CONFLICTS SHALL BE RESOLVED AS SPECIFIED IN THE SPECIAL PROVISIONS AND/OR AS OTHERWISE NOTED ON THESE PLANS. CONFLICTS ARISING DURING THE COURSE OF CONSTRUCTION FROM UNFORESEEN CIRCUMSTANCES SHALL BE REPORTED TO THE INTERESTED UTILITY COMPANY AND BE RESOLVED BY THEM AND THE DESIGN ENGINEER.

2 THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION OR UTILITY RELOCATION.

NATURAL OPEN SPACE & LIMITS OF CONSTRUCTION PROTECTION PLAN

1 NO BUILDING, GRADING, OR CONSTRUCTION ACTIVITY SHALL ENCROACH INTO AREAS DESIGNATED AS NOS.

2 ALL NOS AND LOC AREAS SHALL BE PROTECTED FROM DAMAGE PRIOR TO AND DURING CONSTRUCTION BY THE FOLLOWING METHODS:
- A REGISTERED LAND SURVEYOR SHALL STAKE ALL NOS AND LOC AREAS BASED ON THIS EXHIBIT
- THREE (3) FOOT TALL STEEL REBAR SHALL BE SET ALONG THE NOS AND LOC LINE AND CONNECTED WITH GOLD ROPING BY THE CONTRACTOR PRIOR TO ANY CLEARING OR GRADING.
- THE STAKING AND ROPING SHALL BE MAINTAINED INTACT BY THE CONTRACTOR DURING THE DURATION OF THE CONSTRUCTION ACTIVITY

3 THE CONTRACTOR SHALL REMOVE STAKING AND ROPING AFTER RECEIPT OF THE CERTIFICATE OF OCCUPANCY FROM THE CITY OF SCOTTSDALE FOR THE ADJACENT HOME OR CONSTRUCTION WORK.

WATER NOTE:

1 THE WATER SYSTEM SHOWN HEREIN HAS BEEN DESIGNED TO ADEQUATELY SUPPLY WATER IN SUFFICIENT QUANTITY AND PRESSURE TO MEET LOCAL FIRE REQUIREMENTS.

INDEMNITY:

1 CITY OF SCOTTSDALE WILL NOT BE RESPONSIBLE FOR REMOVAL, REPAIR OR REPLACEMENT OF SIDEWALKS, LANDSCAPING OR ANY OTHER IMPROVEMENTS LOCATED WITHIN CITY EASEMENT(S) AS A RESULT OF ACCESS TO MAINTENANCE OF OR REPAIRS TO THE WATERLINE SHOWN ON THESE PLANS

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	SURVEY MARKER	
	CURB & GUTTER	
	SIDEWALK	
	EXTRUDED/SINGLE CURB	
NG 71.50	NATURAL GROUND	
TC 71.50	TOP OF CURB ELEV	TC 71.50
G 71.50	GUTTER ELEV	G 71.50
C 71.50	CONCRETE ELEV	C 71.50
P 71.50	PAVEMENT ELEV	P 71.50
FG 71.50	FINISHED GRADE ELEV	FG 71.50
FL 71.50	FLOW LINE ELEV	FL 71.50
	CONTOURS	
	A.C. PAVEMENT	
	A.C. PAVEMENT	
	REDUCER	
	TAPPING SLEEVE	
	WATER METER	
	WATER LINE AND VALVE	
	FIRE HYDRANT	
	SEWER LINE & MANHOLE	
	SEWER CLEANOUT	
	STORM DRAIN & MANHOLE	24" SD
	PROJECT BOUNDARY	
	GRADE BREAK	GB
	HIGH WATER ELEV	HW 71.00
	FLOWLINE	
	FINISHED FLOOR ELEV	FF=72.00
	FINISHED PAD ELEV	PAL=71.5
	SLOPE	S=0.03
	POINT OF CONCENTRATION	(88)
	BASIN LABEL	(1)

ZONING

R1-190 ESL
R1-130 ESL

HOOKE & ASSOCIATES, INC.
[illegible]

AS BUILT CERTIFICATION

I hereby certify that the "As Built" elevations and locations as shown on these plans were made under my supervision and are correct to the best of my knowledge and belief.

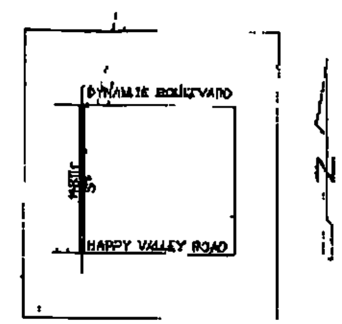
NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REPRESENTATIVE	TELEPHONE NUMBER	DATE SIGNED
WATER	CITY OF SCOTTSDALE	CITY OF SCOTTSDALE	N/A	N/A
SANITARY SEWER	CITY OF SCOTTSDALE	CITY OF SCOTTSDALE	N/A	N/A
ELECTRIC	APS	SHELLE HERRERA	602-48_-4763	7/2/06
TELEPHONE	QWEST CORP.	CONFLICT LIAISON DEPT.	602-530-0496	8/5/06
NATURAL GAS	SOUTHWEST GAS CORP	HOWARD NAJAF	602-484-5294	7/14/06
CABLE TV	COX CABLE	TRAVIS CURRY	623-322-3019	8/10/06
OTHER	-	-	-	-
OTHER	-	-	-	-

ENGINEER'S CERTIFICATION:

I, CURTIS BROWN, BEING THE PERSON RESPONSIBLE FOR DESIGNING THE FACILITIES NECESSARY TO SERVE THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL OF THE UTILITY COMPANIES LISTED ABOVE HAVE REVIEWED THIS PROJECT PROPOSAL AND ALL CONFLICTS HAVE BEEN RESOLVED AT THIS POINT. "NO CONFLICTS" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL. I ALSO CERTIFY THAT ALL ONSITE TRANSFORMERS, CABLE BOXES AND ANY OTHER PUBLIC/PRIVATE UTILITY APPURTENANCES ARE PLACED SUCH THAT THEY DO NOT NEGATIVELY IMPACT THE USE OR INTENDED USE OF ANY DEDICATED EASEMENTS OR FACILITIES DEVELOPED WITH THIS PROJECT INCLUDING BUT NOT LIMITED TO STORMWATER STORAGE BASINS, SIGHT DISTANCE EASEMENTS AND NAOS OR OTHER OPEN SPACE EASEMENTS

SIGNATURE [signature] DATE 5/21/07



VICINITY MAP
(NTS)

OWNER / DEVELOPER

CROWN COMMUNITY DEVELOPMENT
1751 THATCH COURT SUITE 100
AURORA, IL 60504
CONTACT: HUGH SHEED
TEL: (630) 851-5490

CIVIL ENGINEER

WOOD, PATEL AND ASSOCIATES
2051 W NORTHERN AVE SUITE 100 PHOENIX, ARIZONA 85021
CONTACT: CURTIS BROWN
PH 602-335-8500
FX 602-335-8580

BENCHMARK

DESCRIPTION: CITY OF SCOTTSDALE BRASS CAP FLUSH, INTERSECTION OF HAPPY VALLEY DRIVE AND 120TH STREET. POINT BEING S & W UP 11 NORTHEAST CORNER LOT 18
ELEVATION: 2,69_.19 NAVD 88 DATUM

SHEET INDEX

1	COVER SHEET
2	INDEX SHEET
3	DETAIL & STORM DRAIN DETAILS
4-8	PLAN AND PROFILE SHEETS

EARTHWORK QUANTITIES

CUT (RAW) 13,044 CY

FILL (RAW) 2,610 CY

QUANTITIES ARE IN PLACE ESTIMATES. NO SHRINK OR SWELL IS ASSUMED. NO GROUND LOSS IS INCLUDED. EXISTING GROUND AS SHOWN PER GRADING PLANS.

CITY OF SCOTTSDALE REVIEW & RECOMMENDED APPROVAL

FIRE DEPT	[signature] 6-25-07	GRADING & DRAINAGE	[signature] 6-25-07
PLANNING	[signature] 6-25-07	WATER & SEWER	[signature] 6-25-07
TRAFFIC	[signature] 6-25-07	PAVING	[signature] 6-25-07
RETAINING WALL	N/A		

APPROVED BY: [signature]
ENGINEERING COORDINATION MANAGER OR (DESIGNEE) DATE 6/25/07

CALL TWO WORKING DAYS BEFORE YOU DIG
(602) 263-1100
1-800-STAKE-IT

WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
CONSTRUCTION MANAGERS
2051 West Northern Suite 100 Phoenix AZ 85021
Phone (602) 335-8500
Fax (602) 335-8580

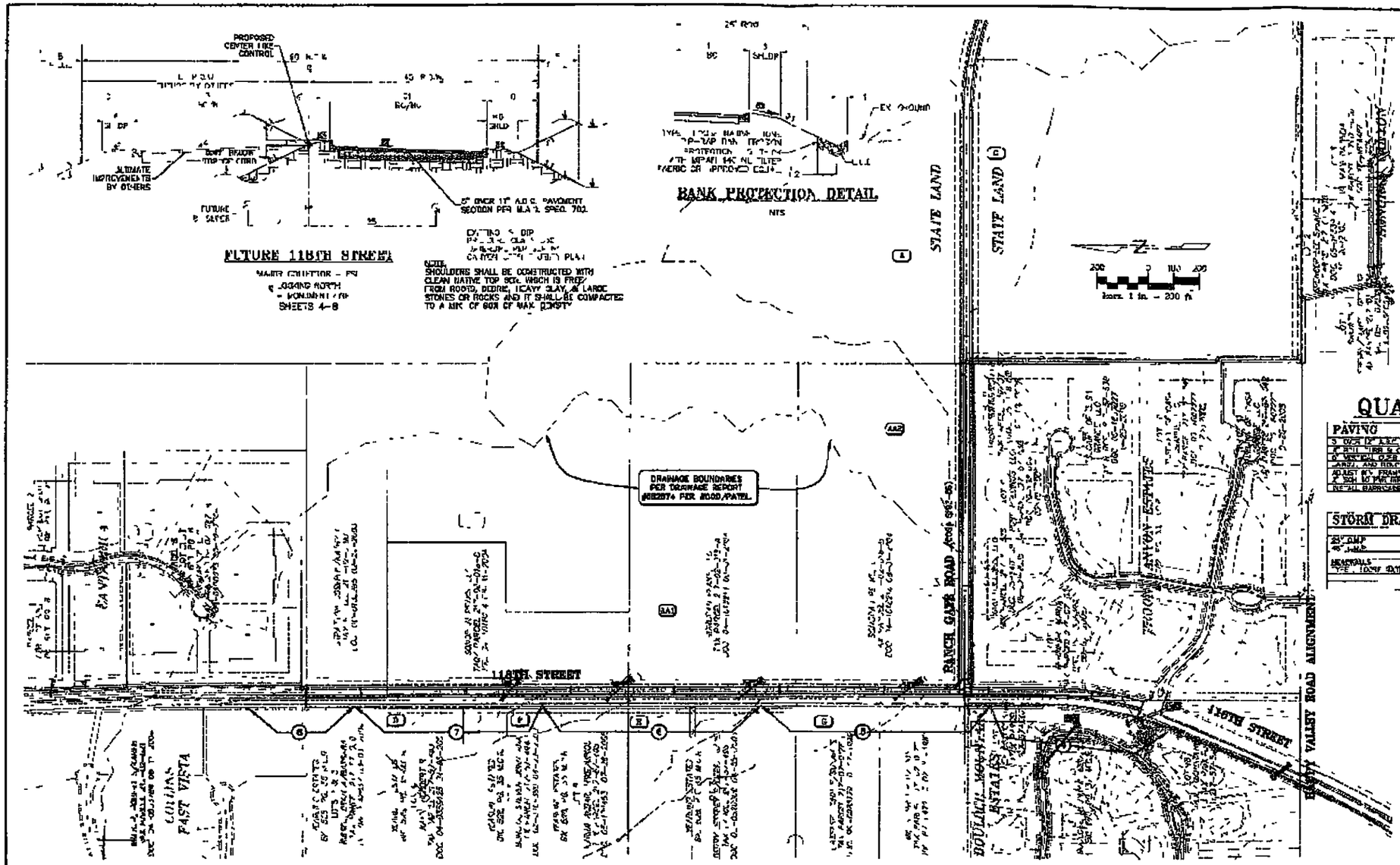
DESIGN: C. BROWN
DESIGN: K. LOPEZ
CAD TECHNICIAN: P. SMSTER
SCALE (HORIZ)
SCALE (VERT)
DATE: 05/21/07
JOB NUMBER: 032474
SHEET 1 OF 8

SERENO CANYON - 118th STREET
PAVING PLANS
COVER

COS# 5193-08, 305-SA-2006, 214-PA-2006, QS#49-56,48-56,47-56, 68-NP-2008

Sereno Canyon 118th Approved Original Paving Plans

62069



QUANTITIES

PAVING	
3" DEEP 12" A.B.C. PAVEMENT	[illegible]
4" ASPH. TIER 5 CULVERT	[illegible]
0" VERTICAL CURB & GUTTER	[illegible]
LANDS AND RIGHT OF WAY	[illegible]
ADJUST MH FRAME AND COVER	[illegible]
2" SCH 80 PVC IRRIGATION SLEEVE	[illegible]
INSTALL BARRICADE	[illegible]

STORM DRAIN	
24" RCP	[illegible]
18" RCP	[illegible]
HEADWALLS TYPE 100W (WITH PIPE 24")	[illegible]

LEGEND

(8) PLAN AND PROFILE SHEET

(1) DRAINAGE BASIN LABEL

SERENO CANYON – 118th STREET

PAVING PLANS
INDEX SHEET

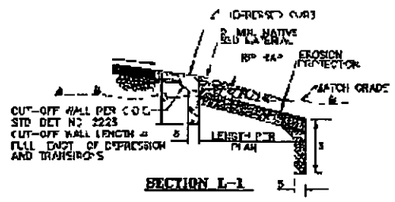
WOOD/PATEL
CIVIL ENGINEERS
RIVERS, WATER
LAND SURVEYORS
8228 West Northern
Suite 100
Phoenix, AZ 85021
Phone (602) 33-[illegible]
Fax (602) 33-[illegible]

DRAWN C. BROWN
DESIGNED K. LOPEZ
CHECKED
SCALE (HORIZ) 1"=200
SCALE (VERT)
DATE [illegible]
JOB NUMBER [illegible]
SHEET 2 OF 8

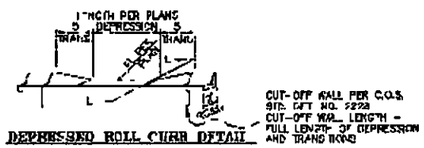
(602) 263-1100
1-800-STAKE-IT

COS# 6193-06, 305-SA-2006, 214-PA-2006, QS#s(49-56,46-56,47-56), 68-NP-2006

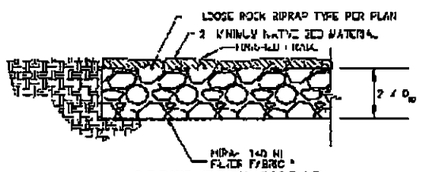
62070



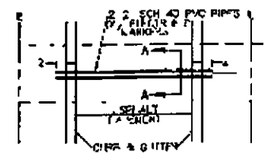
SECTION L-1



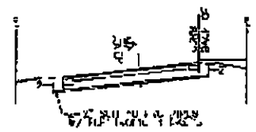
DEPRESSED ROLL CURB DETAIL



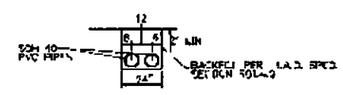
LOOSE ROCK RIPRAP



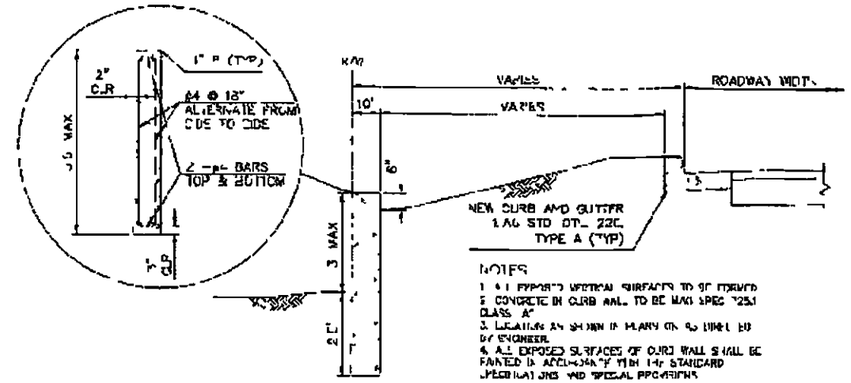
PLAN VIEW
TYPICAL IRRIGATION SLEEVE INSTALLATION
N.T.S.



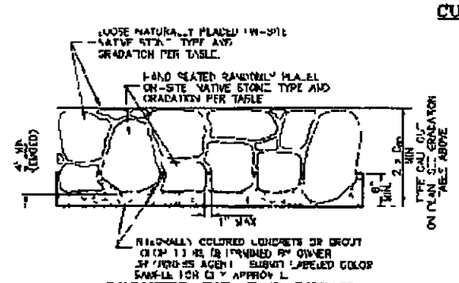
ROADWAY
CROSS-SECTION
TYPICAL IRRIGATION SLEEVE INSTALLATION
N.T.S.



SECTION A-A
TYPICAL IRRIGATION SLEEVE INSTALLATION
N.T.S.



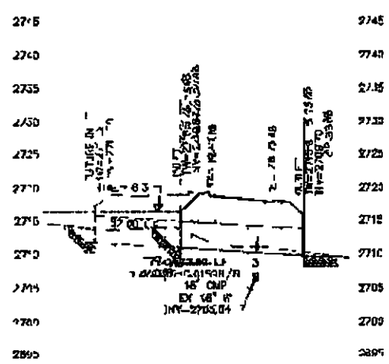
CURB WALL DETAIL
N.T.S.



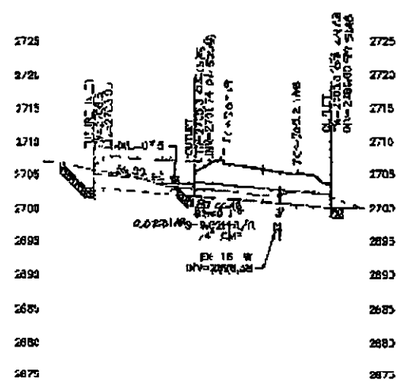
GROUTED RIP-RAP DETAIL

LOOSE & GROUTED ROCK RIP-RAP GRADATION				
PERCENT FINER BY WEIGHT (D)	SIEVE SIZE			
	TYPE I	TYPE II	TYPE III	TYPE IV
15	4"	7"	8"	14"
50	9"	15"	18"	33"
85	14"	23"	27"	43"
100	18	33"	36	65"
INSTALL LOOSE RIP-RAP PER M.A.G. SPEC. 220				

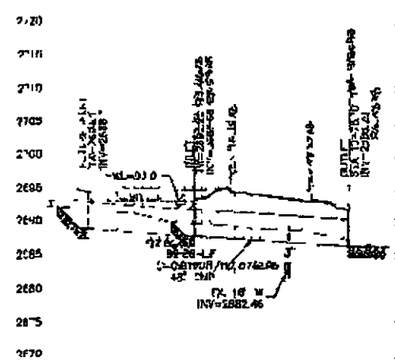
* INSTALL "MIRAFI 140 NL" FILTER FABRIC OR APPROVED EQUAL UNDER ALL LOOSE RIP-RAP



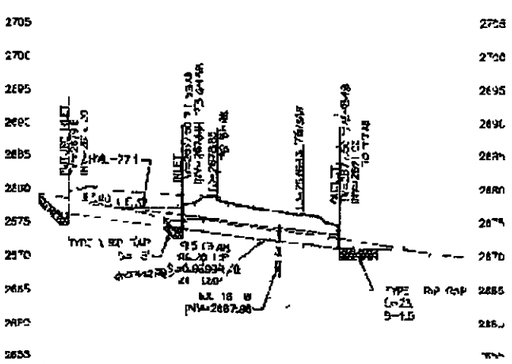
118TH STREET
LOOKING UP STATION
SEE SHEET 7 FOR PLAN VIEW
STRUCTURE – D



118TH STREET
LOOKING UP STATION
SEE SHEET 6 FOR PLAN VIEW
STRUCTURE – F



118TH STREET
LOOKING UP STATION
SEE SHEET 6 FOR PLAN VIEW
STRUCTURE – E



118TH STREET
LOOKING UP STATION
SEE SHEET 6 FOR PLAN VIEW
STRUCTURE – G

SERENO CANYON – 118th STREET

PAVING PLANS

DETAIL SHEET

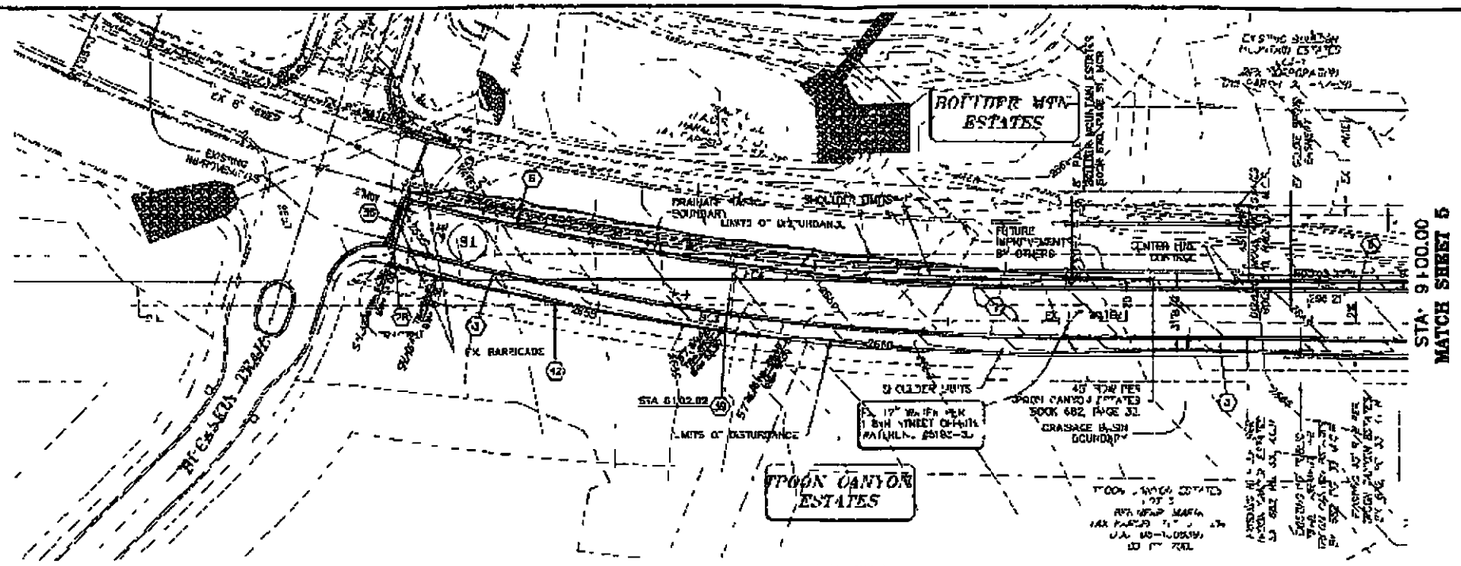
WOOD/PATEL
CIVIL ENGINEERS
LAND SURVEYORS
CONSULTING ENGINEERS
8251 East Highway 260
Suite 100
Phoenix AZ 85021
Phone: (602) 525-8500
Fax: (602) 525-8505

ENGINEER
DESIGNER
CAD TECHNICIAN
DATE (MAY)
SCALE (MAY) 1"=10'
DATE 05/23/07
JOB NUMBER 003974
SHEET 3 OF 6

(602) 263-1100
1-800-STAKE-IT

COS# 5192-08, 305-SA-2006, 214-PA-2006, QS#s49-56,A8-56,A7-56I, 68-NF-2006

6207

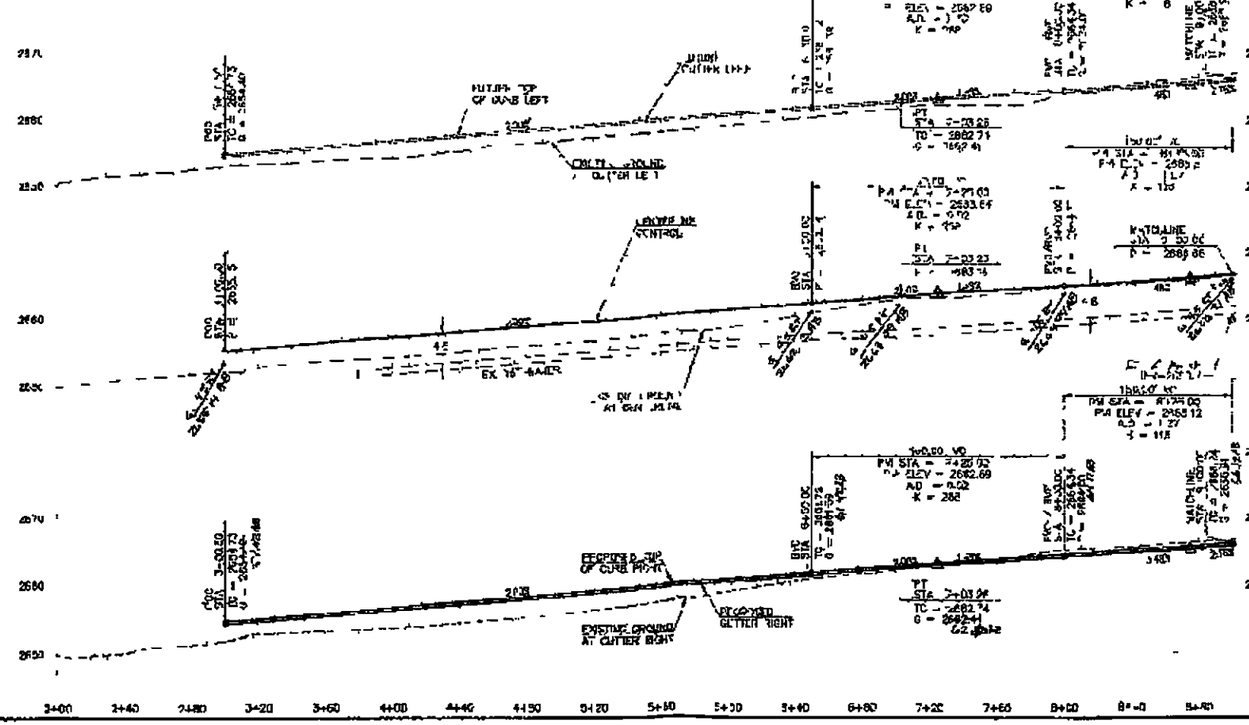


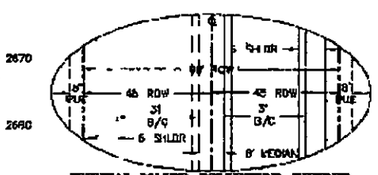
CURVE TABLE					
CURVE	DELTA	RADIUS	ARC	TANGENT	CHORD
C-3	S87°04'39"	1570.40'	435.61'	224.53'	434.2'
C-4	N85°04'58"	1605.46'	346.43'	200.37'	345.74'

LEGEND

NOTE:
DRAINAGE BOUNDARY PER DRAINAGE REPORT #062074 PER WOOD/PATEL. SEE SHEET 2 FOR CONTEXT

- (15) PLAN AND PROFILE SHEET
- (A-3) DRAINAGE BASIN LABEL
- BASIN BOUNDARY
- (S3 1) CONCENTRATION POINT





TYPICAL MAJOR COLLECTOR-DIVIDED STREET DIMENSIONS

PAVING NOTES

1. CONSTRUCT ROADWAY SECTION ON SHEET 2.
2. CONSTRUCT 4" ROLL CURB & GUTTER PER M.A.G. STD DET 220 "A"
3. CONSTRUCT 8' VERTICAL CURB & GUTTER PER C.O.S. STD. DET 2220 "A"
4. REMOVE EXISTING BARRICADE
5. SAWCUT TO A NEAT LINE AND REMOVE 2" MIN EXISTING PAVEMENT PER C.O.S. STD DET. 2200A.
6. INSTALL 2-2" SCH 40 PVC PIPE SLEEVE FOR LIGHTING PURPOSES. SEE DETAIL SHT 3.
7. SEE CURB RAIL DETAIL PER SHEET 3. HEIGHT PER PLAN.

SERENO CANYON - 118th STREET

PAVING PLANS
PLAN & PROFILE

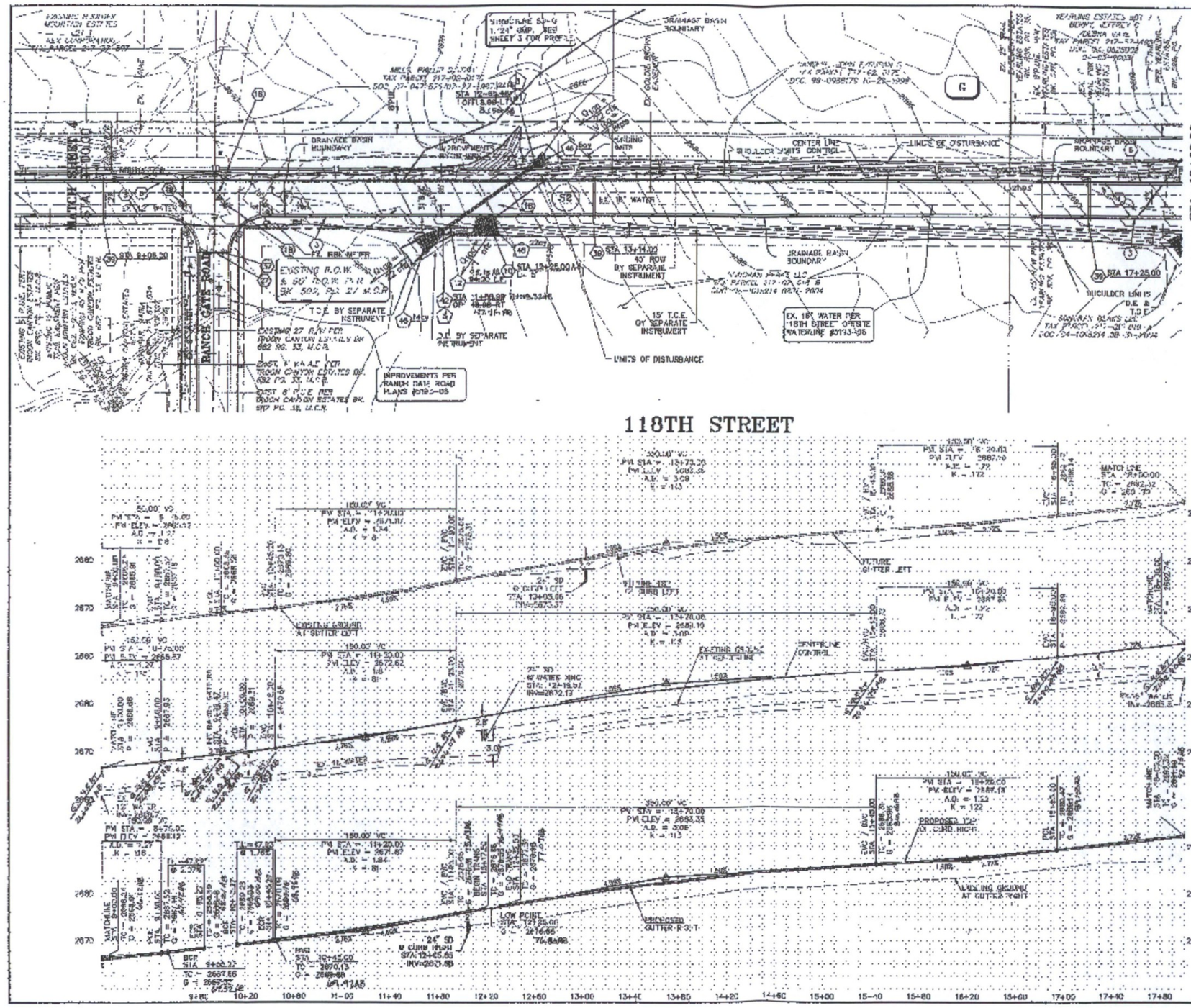
WOOD/PATEL
CIVIL ENGINEERS
TRANSPORTATION ENGINEERS
LAND SURVEYORS
CONSTRUCTION MANAGERS
8051 West Northern Ave., Ste. 100
Phoenix, AZ 85021
Phone (602) 995-1510
Fax (602) 995-0046

ENGINEER	C. BURGAN
DESIGNER	R. LOPEZ
TAG MOUNTAIN	SUMMER
SCALE (HORIZ)	1"=40'
SCALE (VERT)	1"=10'
DATE	05/21/07
JOB NUMBER	082074
SHEET	4 OF 10

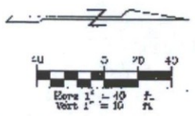
CALL ARIZONA BLUE STAKE, INC. 602 263-1100 1-800-STAKE-IT

COS# 6193-06, 305-SA-2006, 214-PA-2006, Q6-#(48-56,46-56,47-56), 68-NP-2006

62072



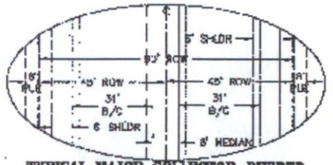
BACK OF CURB CURVE TABLE					
CURVE	DELTA	RADIUS	ARC	TANGENT	CHORD
C1	87°48'20"	30.00'	47.03'	29.91'	42.38'
C2	90°15'46"	30.00'	47.22'	30.09'	42.49'



LEGEND

NOTE:
DRAINAGE BOUNDARY PER DRAINAGE REPORT #082874
PER WOOD/PATEL SEE SHEET 2 FOR CONTEXT.

- (15) PLAN AND PROFILE SHEET
- (A1) DRAINAGE BASIN - AREA
- BASIN BOUNDARY
- (S2.1) CONCENTRATION POINT



TYPICAL MAJOR COLLECTOR-DIVIDED STREET DIMENSIONS

PAVING NOTES

(1) CONSTRUCT ROADWAY SECTION ON SHEET 2.

(5) CONSTRUCT 4" SOIL CURB & GUTTER PER M.A.G. STD. DET. 220 "C".

(9) CONSTRUCT 5" VERTICAL CURB & GUTTER PER D.C.S. STD. DET. 2220 "A".

(10) CONSTRUCT DEPRESSED CURB PER DETAIL SHEET 3.

(14) ADJUST FRAME & COVER PER C.O.S. STD. DET. 2270.

(17) INSTALL BARRICADE PER M.A.G. STD. DET. 130 B.

(27) CONSTRUCT INTERMEDIATE PAVEMENT SECTION PER M.A.G. STD. DET. 201, TYPE "A". EXTEND PAVEMENT SECTION 2' BEYOND CURB RETURNS.

(38) INSTALL 2-2" SCH 40 PVC PIPE SLEEVE FOR L.S. PURPOSES SEE DETAIL SHT 3.

DRAINAGE NOTES

(3) CONSTRUCT HANDRAIL PER D.C.S. STD. DTL. 2308.

(12) INSTALL 24" 14 GAUGE ALUMINIZED C.M.P. WITH 2 - 2/3" x 1/2" CORRUGATION.

(41) CONSTRUCT INLET HEADWALL PER M.A.G. STD. DET. SCI-3.

(42) CONSTRUCT OUTLET HEADWALL PER M.A.G. STD. DET. SCI-3.

(48) INSTALL TYPE I LOOSE NATIVE STONE RIP-RAP 1.5' THICK WITH MIRAFI 140 NL FILTER FABRIC OR APPROVED EQUAL. SEE DETAIL ON SHEET 3

SERENO CANYON - 118th STREET

PAVING PLANS
PLAN & PROFILE

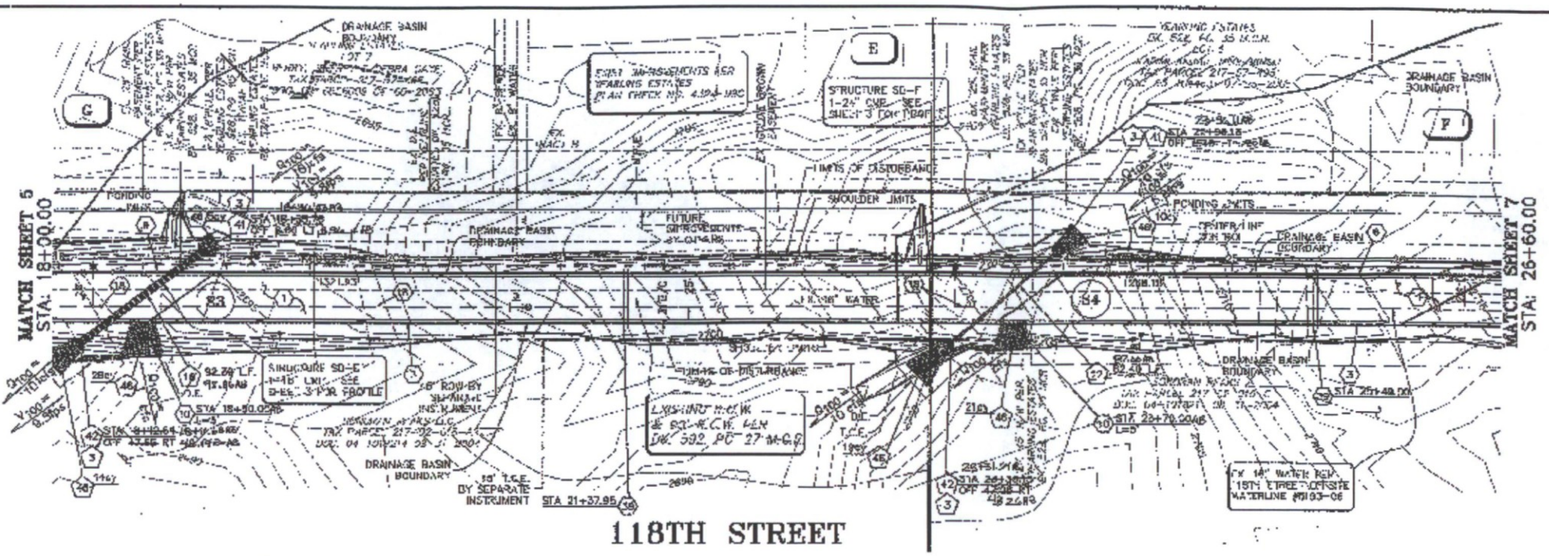
WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
CONSTRUCTION MANAGERS
8051 West Northern
Suite 150
Phoenix, AZ 85021
Phone: (602) 235-0060
Fax: (602) 235-0080

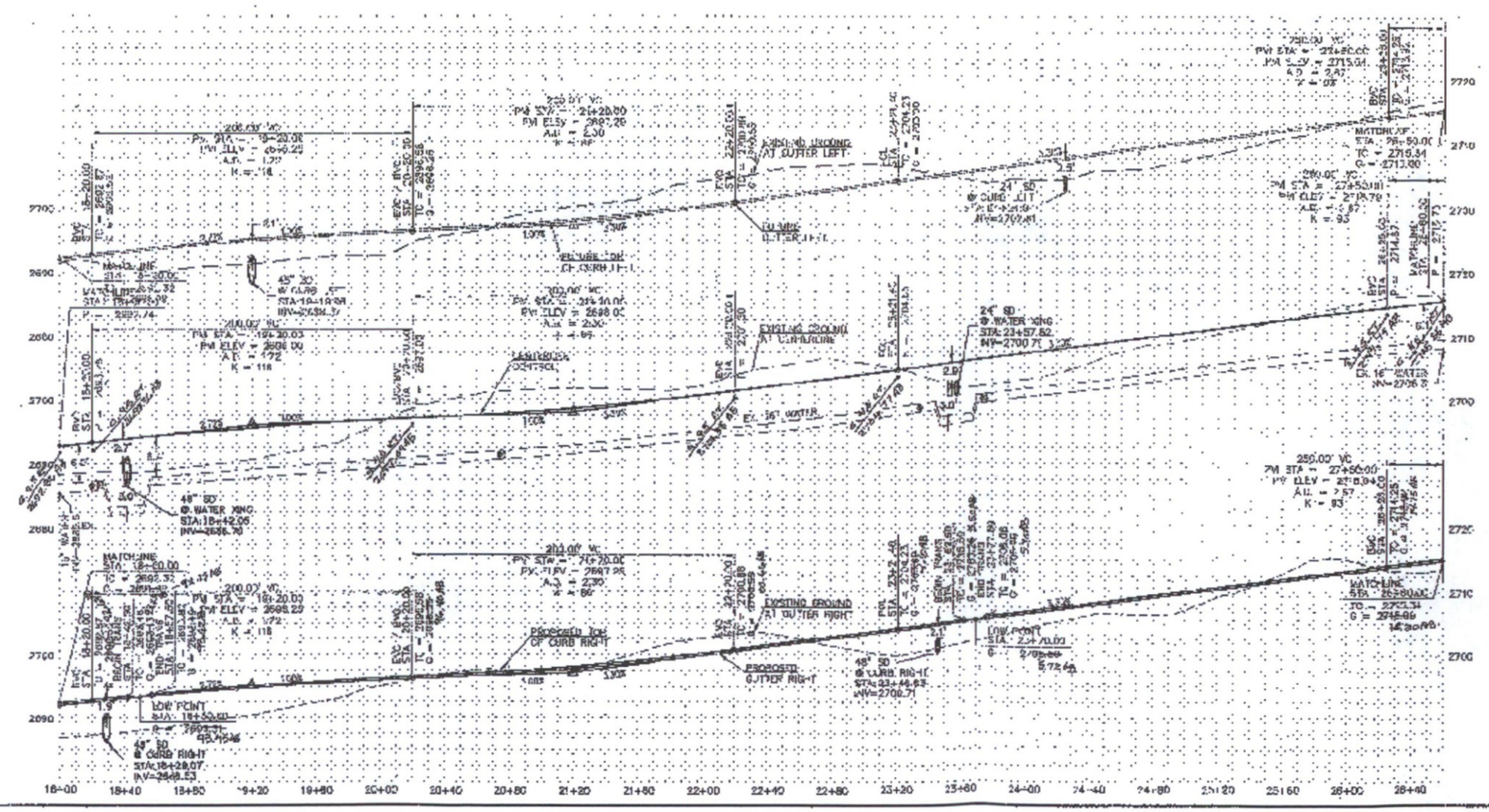
ENGINEER	
DESIGNER	C. BROWN
PRO TECHNICIAN	K. LUCAS
SCALE (HORIZ)	D. SMASHER
SCALE (VERT)	1"=40'
DATE	1"=10'
JOB NUMBER	06/21/01
SHEET	062874
	5 OF 8

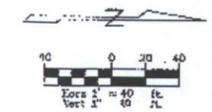
(602) 263-1100
1-800-STAKE-IT

COS# 5183-06, 305-SA-2006, 214-PA-2006, QS#s(49-56,48-56,47-56), 68-NP-2006

62073



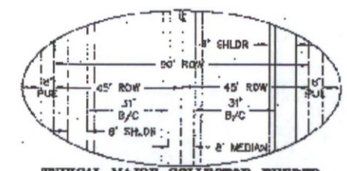




LEGEND

NOTE:
DRAINAGE BOUNDARY PER
DRAINAGE REPORT #062674
PER WOOD/PATEL. SEE SHEET
2 FOR CONTEXT.

- (18) PLAN AND PROFILE SHEET
- (A1) DRAINAGE BASIN LABEL
- BASIN BOUNDARY
- (S2.1) CONCENTRATION POINT



TYPICAL MAJOR COLLECTOR-DIVIDED STREET DIMENSIONS

PAVING NOTES

1. CONSTRUCT ROADWAY SECTION ON SHEET 2.
3. CONSTRUCT 4' ROLL CURB & GUTTER PER M.A.G. STD. DT. 220 "C".
6. CONSTRUCT 6" VERTICAL CURB & GUTTER PER C.O.S. STD. DET. 220D "A".
10. CONSTRUCT DEPRESSED CURB PER DETAIL SHEET 3.
18. ADJUST FRAME & COVER PER C.O.S. STD. DET. 2270.
30. INSTALL 2-2" SCH 40 PVC PIPE SLEEVE FOR L.S. PURPOSES. SEE DETAIL SHT 3.

DRAINAGE NOTES

37. CONSTRUCT HANDRAIL PER C.O.S. STD. DTL. 2504.
12. INSTALL 24" 14 GAUGE ALUMINIZED C.M.P. WITH 2 - 2/3" x 1/2" CORRUGATION.
13. INSTALL 48" 14 GAUGE ALUMINIZED C.M.P. WITH 2 - 2/3" x 1/2" CORRUGATION.
41. CONSTRUCT INLET HEADWALL PER M.A.G. STD. DET. 501-3.
42. CONSTRUCT OUTLET HEADWALL PER M.A.G. STD. DET. 501-3.
46. INSTALL TYPE I LOOSE NATIVE STONE RIP-RAP 1.5' THICK WITH MIRAFI 140 NL FILTER FABRIC OR APPROVED EQUAL. SEE DETAIL ON SHEET 3.

CALL TWO WORKING DAYS BEFORE YOU DIG
(602) 263-1100
1-800-STAKE-IT
(ARIZONA ONLY)

SERENO CANYON - 118th STREET

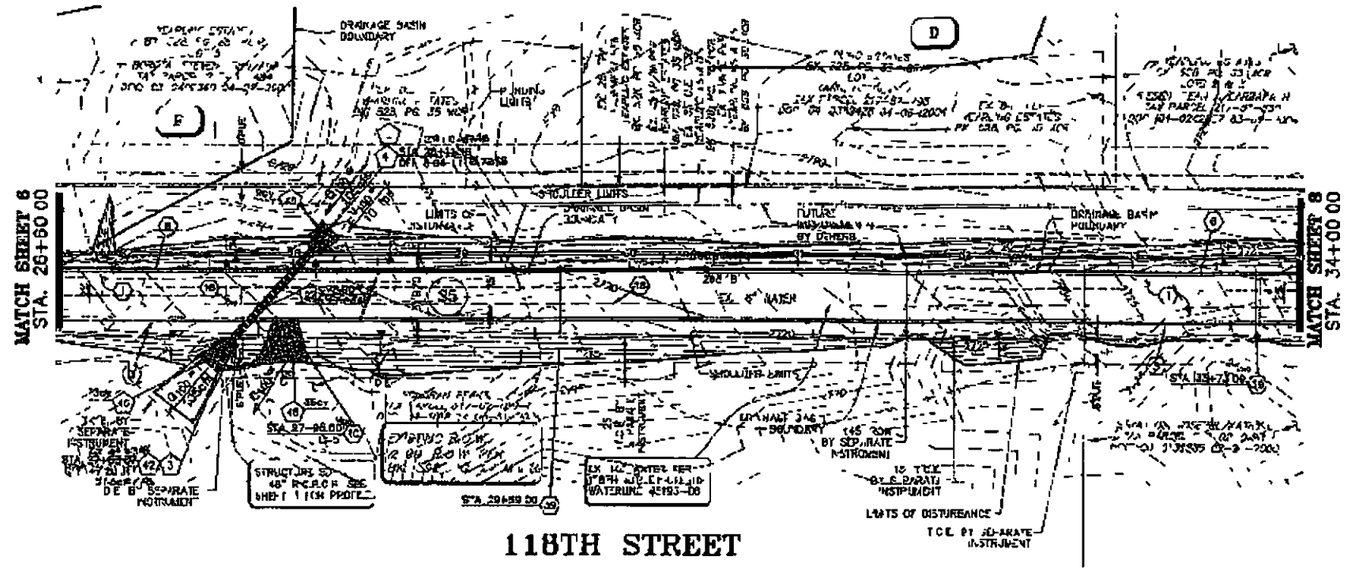
PAVING PLANS
PLAN & PROFILE

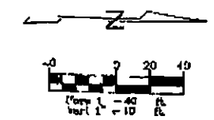
WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
CONSTRUCTION MANAGERS
2051 West Northern
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

DRAWN BY	C. BROWN
DESIGNED	L. LOPEZ
QA/QC REVIEWED BY	P. SWISHER
SCALE (HORZ)	1"=40'
SCALE (VERT)	1"=10'
DATE	05/21/07
JOB NUMBER	062674
SHEET	6 OF 8

COS# 5193-06, 305-SA-2006, 214-PA-2006, QS#s(49-56,48-56,47-56), 88-NP-2006

62074

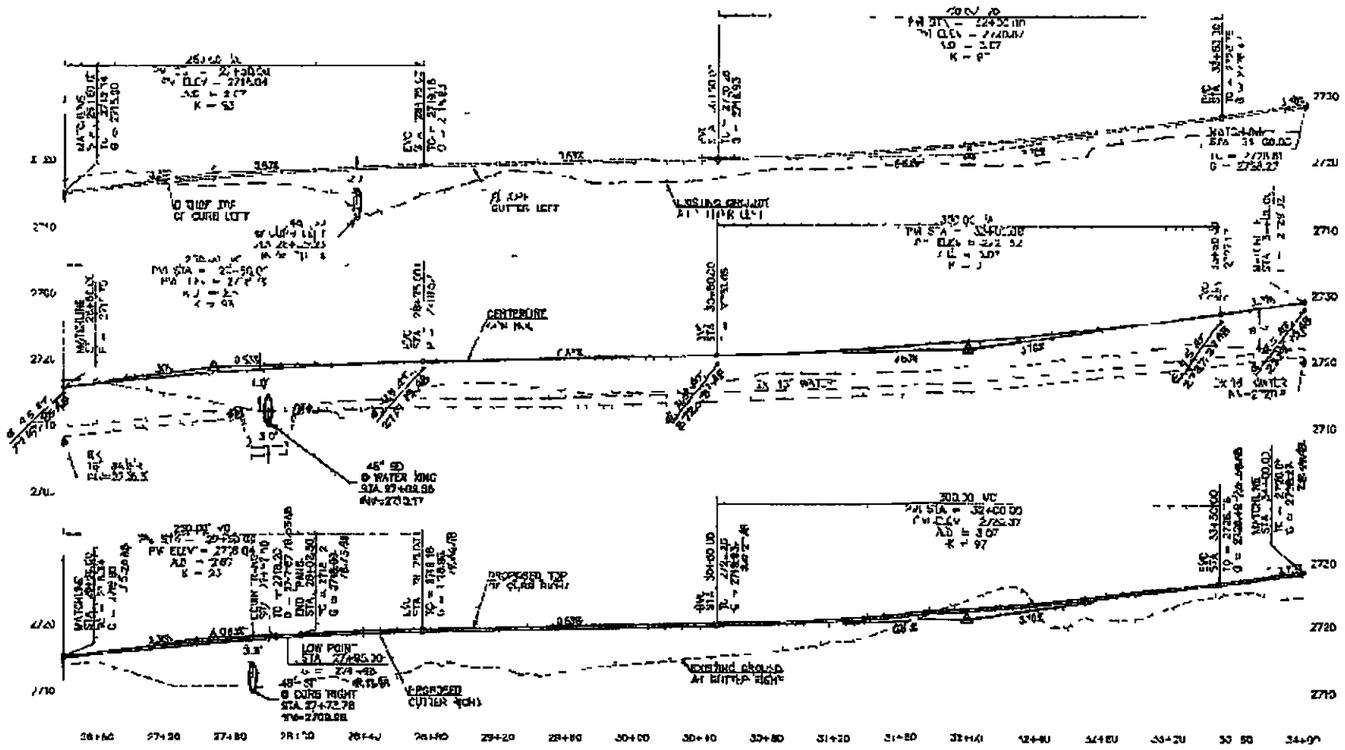


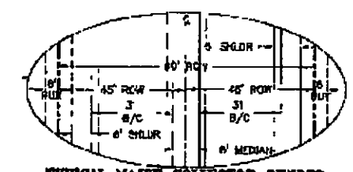


LEGEND

NOTE:
DRAINAGE BOUNDARY PER DRAINAGE REPORT FOR WOOD/PATEL. SEE SHEET 2 FOR CONTENT

- (19) PLAN AND PROFILE SHEET
- (A4) DRAINAGE BASIN LABEL
- BASIN BOUNDARY
- (S2 1) CONCENTRATION POINT





TYPICAL MAJOR COLLECTOR–DIVIDED STREET DIMENSIONS

PAVING NOTES

(1) CONSTRUCT ROADWAY SECTION ON SHEET 7

(3) CONSTRUCT 4" ROLL CURB & GUTTER PER M.A.G. STD. DET. 220 "C"

(8) CONSTRUCT 6" VERTICAL CURB & GUTTER PER C.O.S. STD. DET. 2220 A

(17) CONSTRUCT DEPRESSED CURB PER DETAIL SHEET 3.

(18) ADJUST FRAME & COVER PER C.O.S. STD. DET. 2370.

(30) INSTALL 2-2" SCH 40 PVC PIPE SLEEVE FOR I.S. PURPOSES. SEE DETAIL SHT 3.

DRAINAGE NOTES

(2) CONSTRUCT HANDRAIL PER C.O.S. STD. DTL. 2528.

(22) INSTALL 48" 14 GAUGE ALUMINIZED CMP WITH 2 – 2/3" x 1/2" CORRUGATION.

(41) CONSTRUCT INLET HEADWALL PER M.A.G. STD. DET. 501-1.

(42) CONSTRUCT OUTLET HEADWALL PER M.A.G. STD. DET. 501-3

(46) INSTALL TYPE I LOOSE NATIVE STONE RIP-RAP 1.5' THICK WITH MIRAFI 140 N. FILTER FABRIC OR APPROVED EQUAL. SEE DETAIL ON SHEET 3

SERENO CANYON – 118th STREET

PAVING PLANS
PLAN & PROFILE

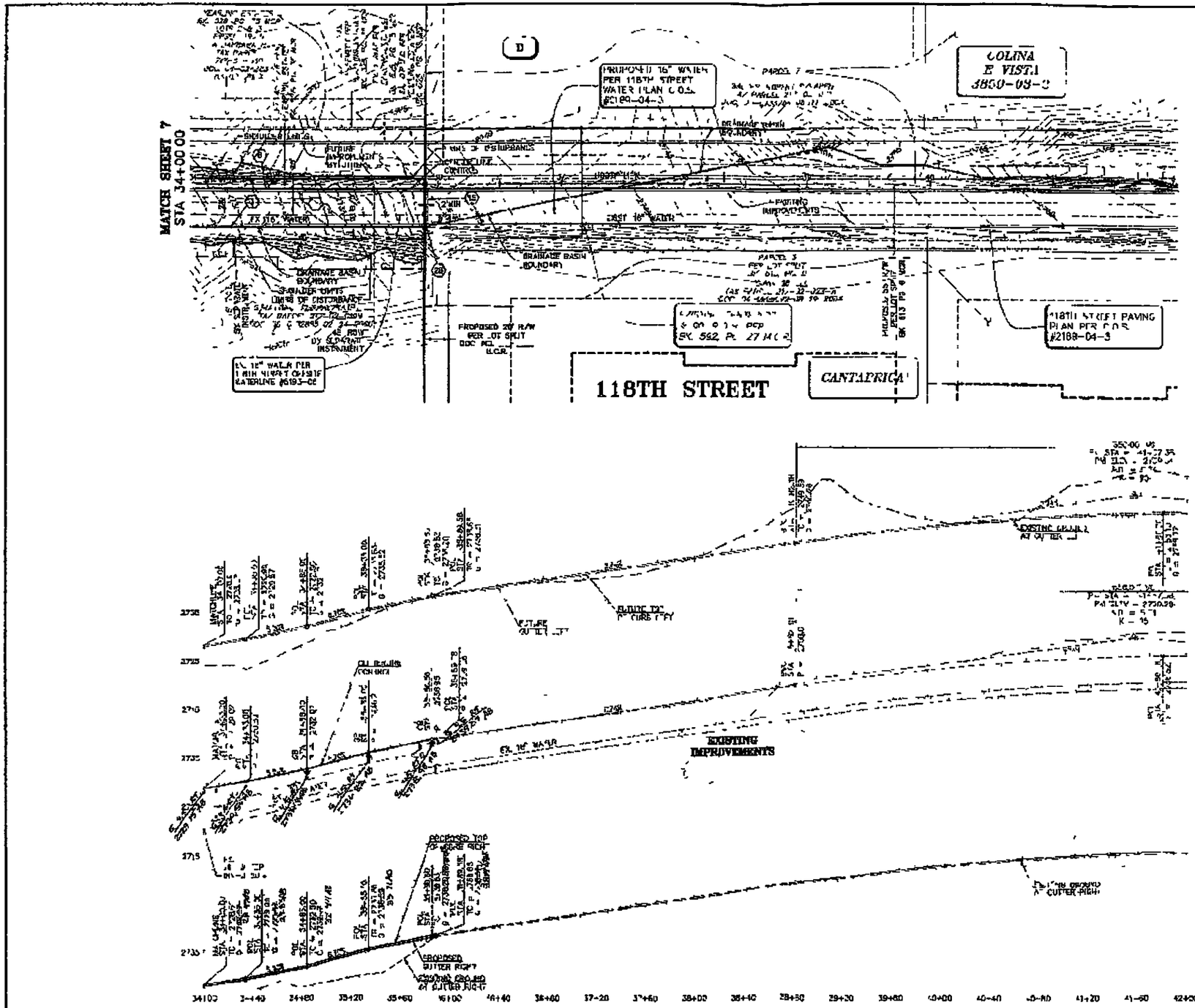
WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
CONSTRUCTION MANAGERS
2051 West Northern
Suite 105
Phoenix, AZ 85021
Phone (602) 995-8510
Fax (602) 995-8509

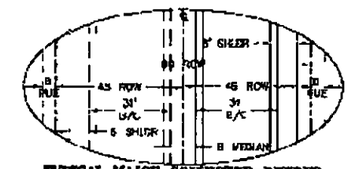
ENGINEER	C. BROWN
DESIGNER	
CAD TECHNICIAN	K. LOPEZ
FIELD ENGINEER	S. SHIRS-SW
SCALE (HORIZ)	1" = 40'
SCALE (VERT)	1" = 10'
DATE	10/21/02
JOB NUMBER	02-0874
SHEET	7 OF 8

(602) 263-1100
1-800-STAKE-IT

COS# 5193-06, 306-SA-2006, 214-PA-2006, QS#s(48-56,48-56A7-56), 68 NP-2006

62075





TYPICAL MAJOR COLLECTOR-DIVIDED STREET DIMENSIONS

LEGEND

NOTE
DRAINAGE BOUNDARY PER
DRAINAGE REPORT #
PER WOOD/PATEL
2 YR CONTENT

- PLAN AND PROFILE SHEET
- DRAINAGE BASIN LABEL
- BASIN BOUNDARY
- CONCENTRATION POINT

PAVING NOTES

1. CONSTRUCT ROADWAY SECTION ON SHEET 2
2. CONSTRUCT 6" REGULAR CURB & GUTTER PER M.A.G. STD DET 220 "C"
6. CONSTRUCT 6" VERTICAL CURB & GUTTER PER C.O.S. STD DET 2220 "A"
15. SAWCUT & REMOVE EXISTING CURB, GUTTER, PAVEMENT AND REPLACE PAVEMENT PER C.O.S. STD DET 2200 2201
28. REMOVE EXISTING BARRICADE

SERENO CANYON – 118th STREET

PAVING PLANS
PLAN & PROFILE

WOOD/PATEL
CIVIL ENGINEERS
LAND SURVEYORS
CONSTRUCTION MANAGERS
2051 West Northern
Suite 100
Phoenix AZ 85021
Phone (602) 335-8510
Fax (602) 335-8530

ENGINEER	C. BROWN
DESIGNER	M. LOPEZ
NO TECHNICIAN	P. BUDNER
SCALE (HORIZ)	1"=40'
SCALE (VERT)	1"=10'
DATE	05/31/07
JOB NUMBER	06767.4
SHEET	8 OF 8

(602) 263-1100
1-800-STAKE-IT

COS# 6182-06, 305-SA-2006, 214-PA-2006, OS#s(49-56,48-56,47-56), 68-NP-2006

62076

APPENDIX IV

Preliminary 404 Jurisdictional Determination

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, U S ARMY CORPS OF ENGINEERS
3636 N CENTRAL AVENUE, SUITE 900
PHOENIX, AZ 85012-1939

May 7, 2018

SUBJECT Preliminary Jurisdictional Determination

John Christensen
Lyle Anderson Company
14901 N Scottsdale Road, Suite 201
Scottsdale, AZ 85254

Dear Mr Christensen

I am responding to your request (File No SPL-2018-00155) dated February 20, 2018 for a preliminary Department of the Army jurisdictional determination (JD) for your proposed Sonoran Peaks residential development, located within 69 34 acres of land in a portion of Section 3, Township 4 North, Range 5 East (33 719325°N, -111 824313°W), in the City of Scottsdale, Maricopa County, Arizona

The Corps' evaluation process for determining whether a Department of the Army permit is needed involves two tests If both tests are met, a permit would likely be required The first test determines whether the proposed project is located within the Corps' geographic jurisdiction (i e , it is within a water of the United States) The second test determines whether as proposed, the project involves a regulated activity under Corps' authority, i e , Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, or Section 103 of the Marine Protection Research and Sanctuaries Act The determination in this letter pertains only to the question of geographic jurisdiction

Based on available information, I have preliminarily determined waters of the U S may be present on your project site in the approximate locations noted on the enclosed map The basis for this finding may be found on the enclosed Preliminary Jurisdictional Determination (JD) form Preliminary JDs are non-binding indications of the presence of waters of the U S , including wetlands, on a parcel Preliminary JDs are advisory in nature and may not be appealed

This determination was conducted to identify the extent of the Corps' Clean Water Act jurisdiction on your project site identified in your request This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985 If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work

Thank you for participating in the regulatory program If you have any questions, please contact Ann Palaruan at (602) 230-6955 or via e-mail at Cynthia A Palaruan@usace army mil Please help me to evaluate and improve the regulatory experience for others by completing the customer survey form at http //corpsmapu usace army mil/cm_apex/f?p=regulatory_survey

Sincerely,

Sallie Diebolt
Chief, Arizona Branch
Regulatory Division

Enclosures

Notice of Administrative Appeal Options and Process
PJD Forms
PJD Aerial

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant Lyle Anderson Company ATTN John Christensen	File No SPL-2018-00155	Date May 7, 2018

Attached is		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision Additional information may be found at *http //www usace army mil/cecw/pages/reg_materials aspx* or Corps regulations at 33 CFR Part 331

A INITIAL PROFFERED PERMIT You may accept or object to the permit

- ACCEPT If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit

- OBJECT If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly You must complete Section II of this form and return the form to the district engineer Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future Upon receipt of your letter, the district engineer will evaluate your objections and may (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below

B PROFFERED PERMIT You may accept or appeal the permit

- ACCEPT If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit

- APPEAL If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse) This form must be received by the division engineer within 60 days of the date of this notice

C PERMIT DENIAL You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse) This form must be received by the division engineer within 60 days of the date of this notice

D APPROVED JURISDICTIONAL DETERMINATION You may accept or appeal the approved JD or provide new information

- ACCEPT You do not need to notify the Corps to accept an approved JD Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD

- APPEAL If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse) This form must be received by the division engineer within 60 days of the date of this notice

E PRELIMINARY JURISDICTIONAL DETERMINATION You do not need to respond to the Corps regarding the preliminary JD The Preliminary JD is not appealable If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction Also you may provide new information for further consideration by the Corps to reevaluate the JD

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record)

ADDITIONAL INFORMATION The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record Neither the appellant nor the Corps may add new information or analyses to the record However, you may provide additional information to clarify the location of information that is already in the administrative record

POINT OF CONTACT FOR QUESTIONS OR INFORMATION

If you have questions regarding this decision and/or the appeal process you may contact Ann Palaruan Project Manager Arizona Branch Regulatory Division U S Army Corps of Engineers Email Cynthia a Palaruan@usace army mil	If you only have questions regarding the appeal process you may also contact Thomas J Cavanaugh Administrative Appeal Review Officer U S Army Corps of Engineers South Pacific Division 1455 Market Street, 2052B San Francisco, California 94103-1399 Email Thomas J Cavanaugh@usace army mil

RIGHT OF ENTRY Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations

Signature of appellant or agent	Date	Telephone number

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD 2/20/2018

B. NAME AND ADDRESS OF PERSON REQUESTING PJD John Christensen Lyle Anderson Company 14901 N Scottsdale Road Ste 201 Scottsdale, AZ 85254

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: LA District - Arizona Branch, Sonoran Peaks residential development, SPL-2018-00155

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION.
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State AZ County/parish/borough Maricopa City Scottsdale

Center coordinates of site (lat/long in degree decimal format)

Lat 33 719325° Long -111.824313°

Universal Transverse Mercator: 423626 89 m E, 3731341 74 m N

Name of nearest waterbody Salt River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination Date 5/7/2018

☐ Field Determination Date(s)

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i e , wetland vs non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e , Section 404 or Section 10/404)
	See	ORM	Sheet		

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate
2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources, (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions, (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization, (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary, (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD, (6) accepting a permit authorization (e g , signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court, and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C F R Part 331 If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable This PJD finds that there *"may be"* waters of the U S and/or that there *"may be"* navigable waters of the U S on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file Appropriately reference sources below where indicated for all checked items

■ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor
Map Figures 1-5

Data sheets prepared/submitted by or on behalf of the PJD requestor
☐ Office concurs with data sheets/delineation report
☐ Office does not concur with data sheets/delineation report Rationale _____

☐ Data sheets prepared by the Corps _____

☐ Corps navigable waters' study _____

☐ U S Geological Survey Hydrologic Atlas _____
USGS NHD data
USGS 8 and 12 digit HUC maps

■ U S Geological Survey map(s) Cite scale & quad name Figure 4 McDowell Peak, Ariz (1973)

■ Natural Resources Conservation Service Soil Survey Citation _____

■ National wetlands inventory map(s) Cite name _____

☐ State/local wetland inventory map(s) _____

■ FEMA/FIRM maps Figure 3

☐ 100-year Floodplain Elevation is _____ (National Geodetic Vertical Datum of 1929)

■ Photographs ■ Aerial (Name & Date) Google Earth Imagery October 2016
or ■ Other (Name & Date) Ground Photographs January 2018

☐ Previous determination(s) File no and date of response letter _____

☐ Other information (please specify) _____

IMPORTANT NOTE The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____	2/27/18
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
Feature 4	ARIZONA	R6	RIVERINE	Area	0.0223	ACRE	DELINEATE	33.721282°	-111.825237°	Salt River
Feature 5	ARIZONA	R6	RIVERINE	Area	0.2891	ACRE	DELINEATE	33.718690°	-111.825220°	Salt River
Feature 9	ARIZONA	R6	RIVERINE	Area	0.1251	ACRE	DELINEATE	33.716853°	-111.822982°	Salt River

Aerial Date: Oct 4, 2016
Source: Google Earth Aerial Imagery

Prepared by: J. Casteel of Logan Simpson February 2018

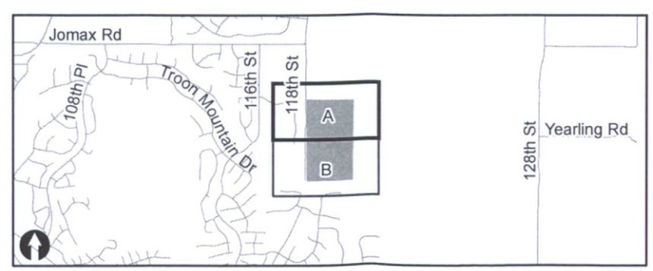
Photo location

Flow direction

Feature number

Potential Waters of the United States (0.1033 acre)

Survey Area (34.09 acres)



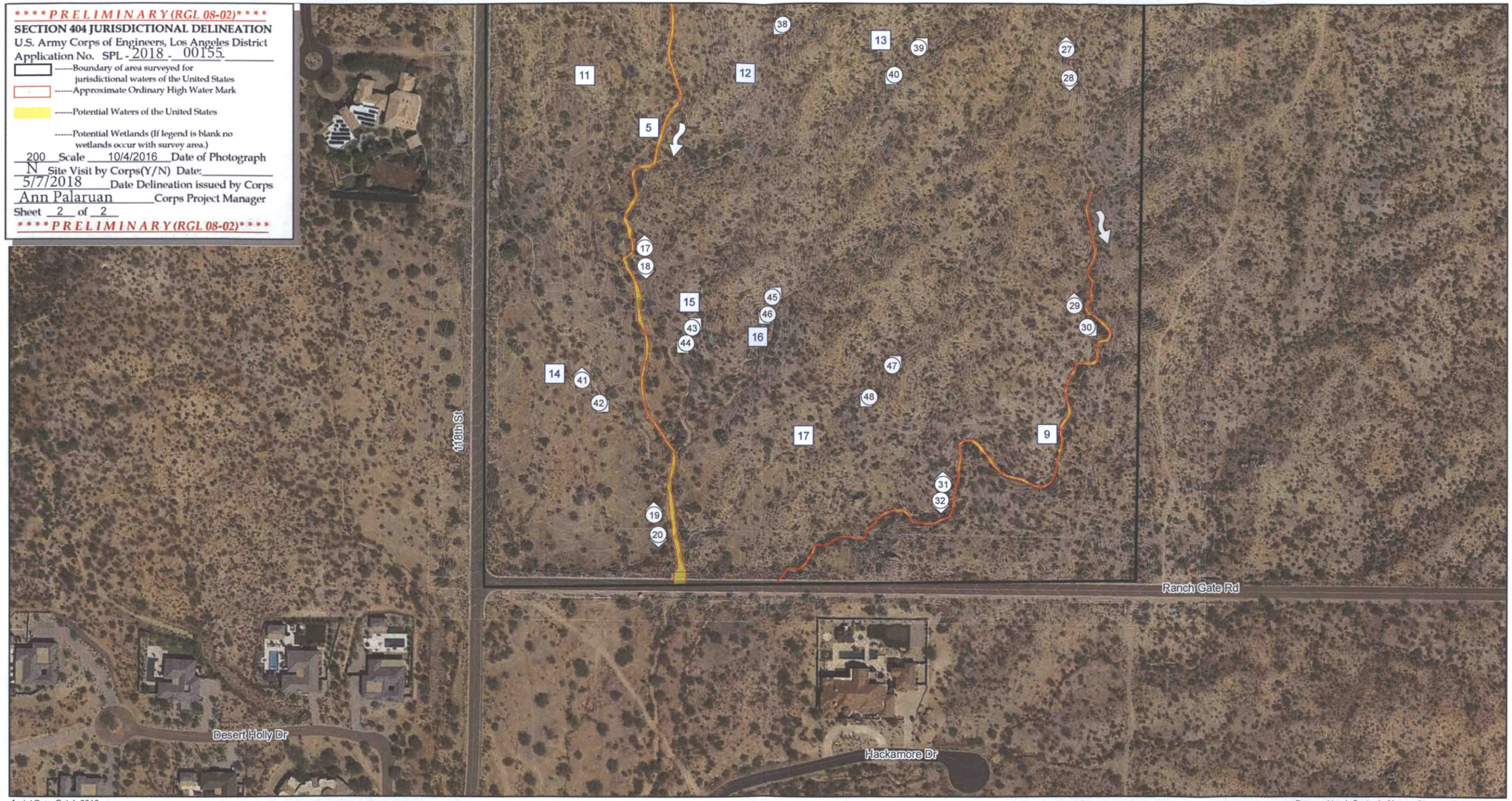
Section 404 Preliminary Jurisdictional Delineation
Sonoran Peaks

Source: USGS 7.5' Quadrangles McDowell Peak, Ariz. (1973); T4N, R5E, Sec. 2 and 3; UTM 1983 Zone 12S; 423600.36mE, 3731597.89mN

Feet
0 200
1" = 200'

February 2018

Figure 5A



Aerial Date: Oct 4, 2016
Source: Google Earth Aerial Imagery

Prepared by: J. Casteel of Logan Simpson February 2018

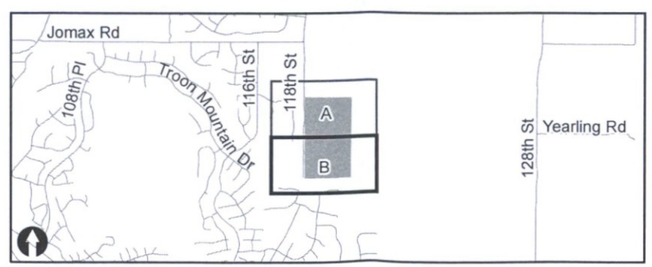
Photo location

Flow direction

Feature number

Potential Waters of the United States (0.3332 acre)

Survey Area (35.25 acres)



Section 404 Preliminary Jurisdictional Delineation
Sonoran Peaks

Source: USGS 7.5' Quadrangles McDowell Peak, Ariz. (1973); T4N, R5E, Sec. 2 and 3; UTM 1983 Zone 12S; 423600.36mE, 3731110.21mN

Feet
0 200
1" = 200'

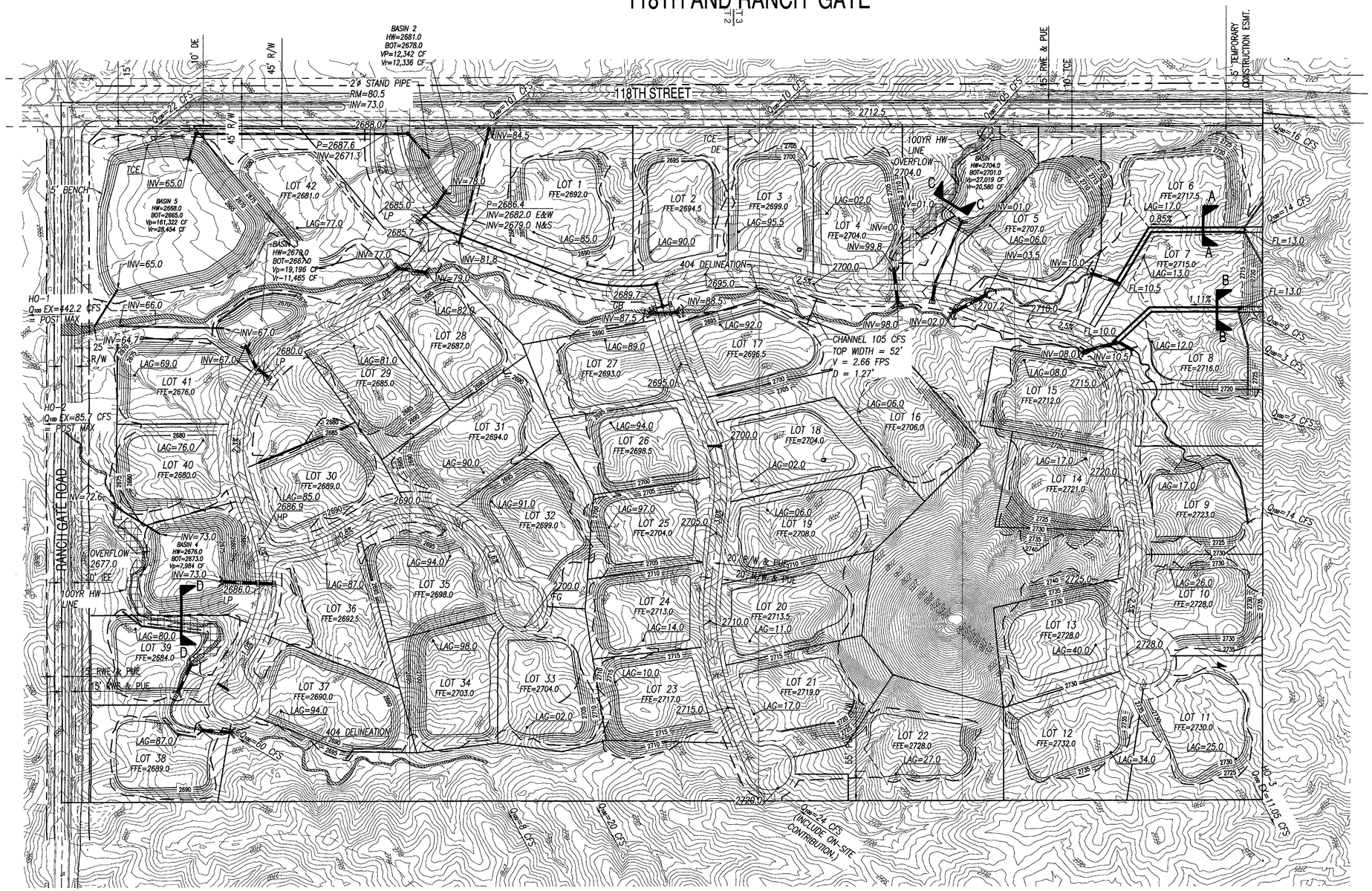
February 2018

Figure 5B

APPENDIX V

Preliminary Grading and Drainage Plan

PRELIMINARY GRADING AND DRAINAGE PLAN
118TH AND RANCH GATE

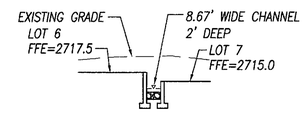


LEGEND

- RIGHT OF WAY
- PROPERTY LINE
- EXISTING CONTOUR
- 404 DELINEATION
- STORM DRAIN CB
- STORM DRAIN PIPE
- EASEMENT LINE AS NOTED
- RETAINING WALL
- DAYLIGHT LINE

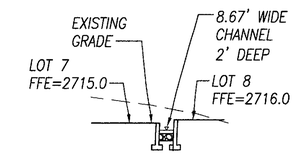
RETENTION VOLUME REQUIRMENTS:

REQUIRED VOLUME: 68,483 CF
PROVIDED VOLUME: 269,940 CF



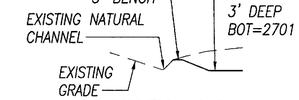
SECTION A-A

NTS



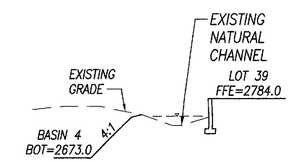
SECTION B-B

NTS



SECTION C-C

NTS



SECTION D-D

NTS

0' 100' 200' 300'
SCALE: 1" = 100'
NORTH

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County (602) 263-1100

NOTE TO CONTRACTOR:
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE INTENDED TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS. THE DESIGNS SHOWN ON THE DRAWINGS ASSUME THERE ARE NO UNUSUAL SOIL CONDITIONS OR MINEFLUNGES. THE FAILURE OF THIS CONDITION MAY REQUIRE SIGNIFICANT CHANGES TO THESE DOCUMENTS.
IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECTS OF ANY QUESTIONS PRIOR TO CONSTRUCTION. QUALIFIED CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

Registered Professional Engineer (Civil) CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 11-06-18
ARIZONA, U.S.A.
EXPIRES 12-31-18

SEG SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL. 480.588.7228 FAX 480.259.3534

PROJECT LYLE ANDERSON RANCH GATE	LOCATION 118TH STREET AND RANCH GATE ROAD

DRAWN	CULVER
DESIGNED	CULVER
CHECKED	COUNSELL
PROJ. MGR.	FAKIH

DATE: 11/06/2018

ISSUED FOR: REZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

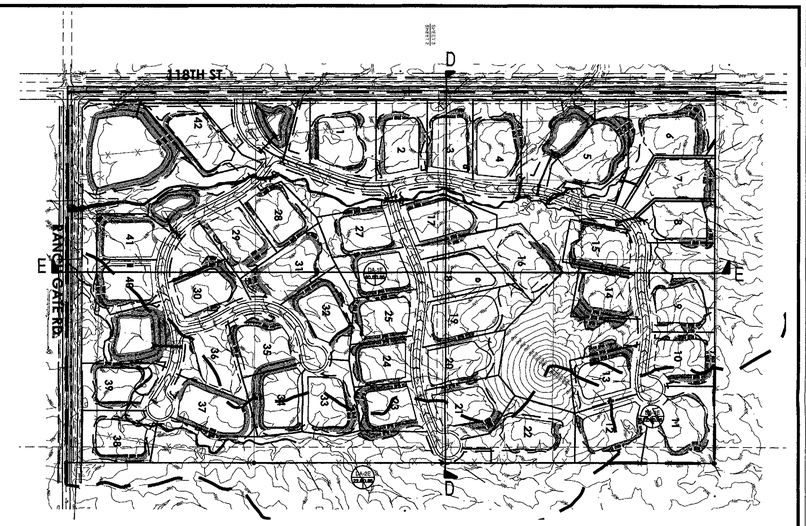
JOB NO.: 171083

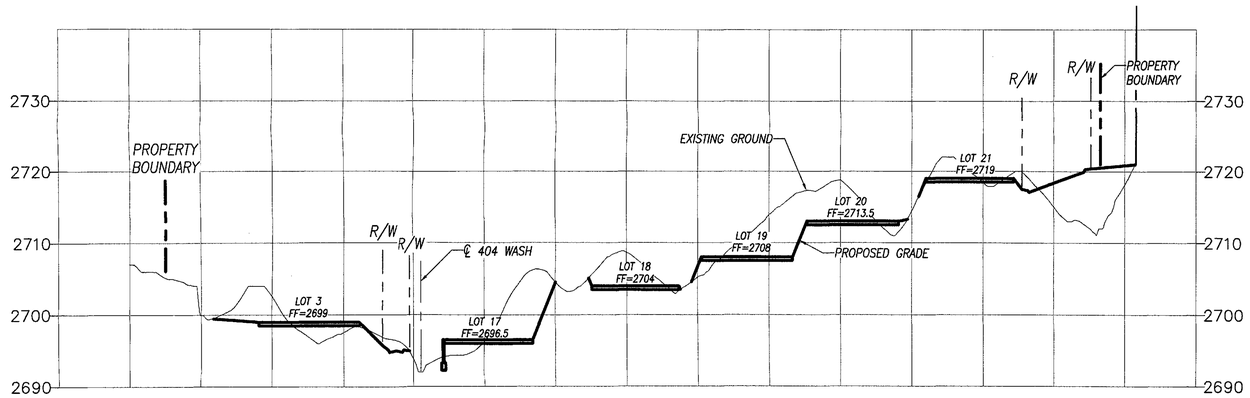
SHEET TITLE: PRELIMINARY GRADING AND DRAINAGE PLAN

SHEET NO.: C3.00

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND THE PROPERTY OF SUSTAINABILITY ENGINEERING GROUP, AND SHALL REMAIN THEIR PROPERTY. THE USE OF THIS DRAWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH IT IS PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE.

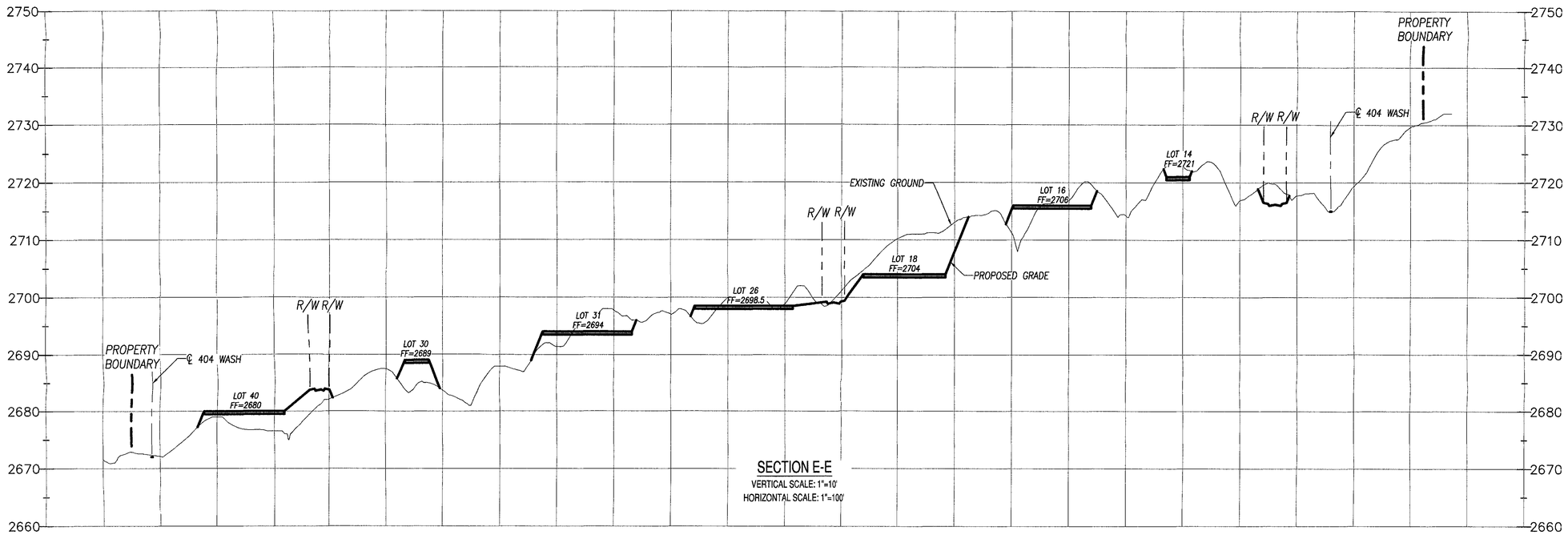
SITE CROSS SECTIONS
118TH AND RANCH GATE





SECTION D-D

VERTICAL SCALE: 1"=10'
HORIZONTAL SCALE: 1"=100'



SECTION E-E

VERTICAL SCALE: 1"=10'
HORIZONTAL SCALE: 1"=100'

Call at least two full working days before you begin excavation.
ARIZONA 811 Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

NOTE TO CONTRACTOR:
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES ONLY. THE INFORMATION CONTAINED HEREIN DOES NOT CONSTITUTE A SPECIFICATION OR A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO INCORPORATE ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING FEDERAL A.D.A. REQUIREMENTS. THIS SET ASSUMES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR WIND LOADS. THE FAILURE OF THIS DOCUMENT TO ADDRESS ANY SPECIFIC CONDITION SHALL NOT RELIEVE (1) IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECTS OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL OBSERVABLE CONDITIONS AND APPLICABLE CODES.

Registered Professional Engineer (Civil)
CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 11-06-18
ARIZONA, U.S.A.
EXPIRES 12-31-18

SEG SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL 480.588.7226 FAX 480.299.3534

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND THE PROPERTY OF SUSTAINABILITY ENGINEERING GROUP, AND SHALL REMAIN THEIR PROPERTY. THE USE OF THIS DRAWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH IT IS PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE.

PROJECT
LYLE ANDERSON RANCH GATE

LOCATION
118TH STREET AND RANCH GATE ROAD

DRAWN	CULVER
DESIGNED	CULVER
CHECKED	COUNSELL
PROJ. MGR.	FAKIH

DATE: 11/06/2018

ISSUED FOR:
REZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 171083

SHEET TITLE:
SITE SECTIONS

SHEET NO.:
C3.01

PELIMINARY MASTER/BASIS OF DESIGN REPORT

WATER & SEWER

for the Zoning Case

118th Street & Ranch Gate

Northeast corner of 118th Street and Ranch Gate Road
Scottsdale, Arizona

Prepared For:

Lyle Anderson Companies
8777 N. Gainey Center Drive
Scottsdale, AZ 85258

Prepared by:

SEG

Registered Professional Engineer (Civil)
CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 10-01-18
ARIZONA, U.S.A.

Sustainability Engineer
8280 E. Gelding Drive, S
Scottsdale, AZ 852
480.588.7226 www.azS

Project Number: 171

Submittal Date: July 25
Revision Date: Septemb

Zoning No.: 15-ZN-2018 Plan Chec

PRELIMINARY Basis of Design Report

- ☑ ACCEPTED
- ☐ ACCEPTED AS NOTED
- ☐ REVISE AND RESUBMIT

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY scan DATE 12/12/2018

10/10/18

15-ZN-2018
10/01/2018

PELIMINARY MASTER/BASIS OF DESIGN REPORT

WATER & SEWER

for the Zoning Case

118th Street & Ranch Gate

Northeast corner of 118th Street and Ranch Gate Road
Scottsdale, Arizona

Prepared For:

Lyle Anderson Companies
8777 N. Gainey Center Drive
Scottsdale, AZ 85258

Prepared by:

SEG

Registered Professional Engineer (Civil)
CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 10-01-18
ARIZONA, U.S.A.
EXPIRES 12-31-18

Sustainability Engineering Group
8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 171083

Submittal Date: July 25, 2018
Revision Date: September 2018

Zoning No.: 15-ZN-2018 Plan Check No.: TBD

15-ZN-2018
10/01/2018

Registered Professional Engineer (Civil)
CERTIFICATE NO. 45621
ALI SAMIH FAKIH
Date Signed 10-31-18
ARIZONA, U.S.A.
EXPIRES 12-31-18

Table of Contents

1 EXECUTIVE SUMMARY 1
2 INTRODUCTION 1
2 1 PLAN OBJECTIVE 1
2 2 SITE LOCATION 1
2 3 PROPOSED DEVELOPMENT 2
3 DESIGN CRITERIA 2
3 1 DEVELOPMENT CRITERIA 2
4 DEMANDS 2
4 1 EXISTING AND PROPOSED DEMANDS 2
4 2 WATER ZONE 3
4 3 PHASING OF PROJECT 3
4 4 SUMMARY NARRATIVE OF DEMANDS 3
5 EXISTING INFRASTRUCTURE / CONDITIONS 4
5 1 ADJACENT PIPE LINES 4
5 2 ADJACENT DEVELOPMENTS 4
6 PROPOSED INFRASTRUCTURE 4
6 1 WATER DISTRIBUTION SYSTEM 4
6 2 SEWER COLLECTION SYSTEM 4
6 3 MAINTENANCE AND OWNERSHIP 4
7 WATER COMPUTATIONS 4
7 1 DESCRIPTION OF MODEL 4
8 SEWER COMPUTATIONS 5
8 1 DESCRIPTION 5
9 SUMMARY / CONCLUSIONS 5
10 REFERENCES 5
11 EXHIBITS 5

1. EXECUTIVE SUMMARY

The proposed development consists of 68.5 acres of undisturbed desert land located north and east of 118th Street and Ranch Gate Road in Scottsdale Arizona. The proposed development plan shows up to 43 single-family residential lots within a gated community accessing 118th Street. The property is presently zoned R1-130 ESL and is proposed to be rezoned to R1-43 ESL PRD.

The City of Scottsdale provides water and sewer service to this area, so all water and sewer improvements will be designed and constructed to the City's design standards.

Water service will be made at two locations to the existing line in 118th Street (16-inch) and a stub for future connection to the land adjacent to the east is provided thus providing a looped configuration through the development.

Sewer service will connect to an 8" sewer extension along the project's frontage to 118th Street. The 118th Street sewer extension will connect to a dry sewer located at the southeast corner of Yearling Estates and provide a point of service to the undeveloped 10-acre parcel north of this property.

City staff has stated no water or sewer payback agreements were found for the existing water and sewer infrastructure located adjacent to this property.

Certified fire hydrant flow testing was performed on September 21, 2018 at 7:30 AM by Arizona Flow Testing, LLC at locations as shown on the provided reports. The results are as follows:

	Raw Test Data	Data w/40 PSI Safety Factor
• Static Pressure	112.0 PSI	72.0 PSI
• Residual Pressure:	84.0 PSI	44.0 PSI
• Flow:	1,954 GPM	1,954 GPM
• GPM @ 20 PSI:	3,714 GPM	2,729 GPM

Refer to **EXHIBIT 4** for actual Flow Test Data.

2. INTRODUCTION

2.1 PLAN OBJECTIVE:

The purpose of this report is a) show demands representing the existing and proposed zoning impact, b) show the proposed maximum water and sewer demands and c) present sufficient water and sewer investigation to support rezoning of this property.

2.2 SITE LOCATION

The subject property is approximately 68.5-acres and consists of five parcels of land whose Parcel ID numbers are:

- 217-02-018A
- 217-02-018B

- 217-02-019C
- 217-02-019D
- 217-02-019E

See **EXHIBIT 1 - Vicinity Map – Context Aerial** for the project's location with respect to major cross streets.

2.3 PROPOSED DEVELOPMENT

2.3.1 Existing Site Description:

This site is vacant desert land generally sloping form the northeast (elevation 2730 +/-) to the southwest (elevation 2670 +/-) at an average of approximately 3% with a change in elevation of approximately of 60 feet. A 50-foot high hill exists near the northeast side of the site. Refer to **EXHIBIT 2 – Conceptual Site Plan** for an aerial of the overall project.

2.3.2 Proposed Site Development:

The current plan for the property proposes approximately 42 single-family residential units with private streets and a gated entry. All necessary tracts and easements for the installation of utilities will be provided as part of the final plat.

3. DESIGN CRITERIA

3.1 DEVELOPMENT CRITERIA

Existing zoning: R1-190 ESL
Proposed zoning: R1-43 ESL PRD
Acreage 68.5

Demands, system layout, system pressures, velocities, head losses and fire flow will all be in accordance with the City's DS&PM, latest revision.

A 500 gpm system fire flow demand will be utilized in the final hydraulic calculations based on floor areas of homes anticipated to be around 3600 sq. ft.

4. DEMANDS

4.1 EXISTING AND PROPOSED DEMANDS

Refer to the tables below for the existing and proposed water and sewer demand calculations based on the design criteria in the City's DS+PM.

EXISTING ZONING

Table 1: WATER DEMAND CALCULATIONS

	Units	Avg. Day Demand (GPM)	Max Day Peaking Factor	Peak Hour Peaking Factor	Avg. Day Demand (GPM)	Max. Day Demand (GPM)	Peak Hour (GPM)
R1-130	23	0.69	2	3.5	16	32	56

Table 2 - SEWER DEMAND CALCULATIONS

	Units	Avg. Day Demand (gal/person)	Persons per Unit	Avg. Day Demand (GPD)	Peaking Factor	Peak Flow (GPM)
R1-130	23	100	2.5	5,750	4	16

PROPOSED ZONING

Table 3: WATER DEMAND CALCULATIONS

	Units	Avg. Day Demand (GPM)	Max Day Peaking Factor	Peak Hour Peaking Factor	Avg. Day Demand (GPM)	Max. Day Demand (GPM)	Peak Hour (GPM)
R1-43	42	0.69	2	3.5	29	58	101

Table 4 - SEWER DEMAND CALCULATIONS

	Units	Avg. Day Demand (gal/person)	Persons per Unit	Avg. Day Demand (GPD)	Peaking Factor	Peak Flow (GPM)
R1-43	42	100	2.5	10,500	4	29

4.2 WATER ZONE

The property will be developed entirely within pressure Zone 13.

4.3 PHASING OF PROJECT

The project is proposed to be constructed in a single phase.

4.4 SUMMARY NARRATIVE OF DEMANDS

The max day + fire flow scenario will govern the water system design.

The sewer design should not be adversely impacted by any offsite flow from the east. Topography within State Land to the east will be reviewed in the final design process and any extensions through this parcel for future connections to State Land may be provided as deemed necessary.

5. EXISTING INFRASTRUCTURE / CONDITIONS

5.1 ADJACENT PIPE LINES

City of Scottsdale Water & Sewer Quarter Section Maps (47-56 and 48-56) show a 16" water line, serving Zone 13, available in 118th Street and a 12" water line, serving Zone 13, in Ranch Gate Road along with an 8"sewer. A PRV located at the intersection of Ranch Gate Road and 118th Street provides a pressure reduction to Zone 12 for the properties south of Ranch Gate Road. Refer to **EXHIBIT 3** for the COS Water and Sewer Quarter Section Maps (47-56 and 48-56).

5.2 ADJACENT DEVELOPMENTS

Collina E Vista, Yearling Estates, an undeveloped 5-acre parcel, Scottsdale Mills and Boulder Mountain Estates exist along the west side of 118th Street. An undeveloped 10-acre parcel abuts this site to the north, State Land to the east and Troon Canyon Estates to the south at Ranch Gate Road.

6. PROPOSED INFRASTRUCTURE

6.1 WATER DISTRIBUTION SYSTEM

This development proposes to provide two connections to the water line in 118th Street, extend through the interior street system, and provide for a future connection to the property to the east providing redundant domestic water and fire service. Tracts and/or easements will be provided as needed. Refer to **Exhibit 5 - Preliminary Utility Plan**

6.2 SEWER COLLECTION SYSTEM

An offsite line will be extended along the property's 118th frontage providing points of connection to the dry sewer in Yearling states and Parcel 217-02-019F. The onsite sewer collection system will likely need to connect to the 118th Street line as the topography dictates. Tracts and/or easements will be dedicated as needed. Refer to **Exhibit 5 - Preliminary Utility Plan**

6.3 MAINTENANCE AND OWNERSHIP

All water and sewer lines are proposed as public lines located within rights-of-ways or easements/tracts and will be owned and maintained by the city.

7. WATER COMPUTATIONS

7.1 DESCRIPTION OF MODEL

The proposed water system will be designed to meet the criteria of COS Water, the Arizona Department of Environmental Quality ("ADEQ"), and Maricopa County Environmental Services Department ("MCESD").

Bentley WaterCAD® Version 8i will be used to model the water distribution system for the Final Water Basis of Design Report.

8. SEWER COMPUTATIONS

8.1 DESCRIPTION

Sewer flows will be evaluated using Manning's equation and the parameters within the DS+PM in the Final Sewer Basis of Design Report. Excel spreadsheets will tabulate the pipe hydraulics including invert info, pipe diameter, n, slope, peak flow, flow depth, d/D and flow at 0.65 d/D.

9. SUMMARY / CONCLUSIONS

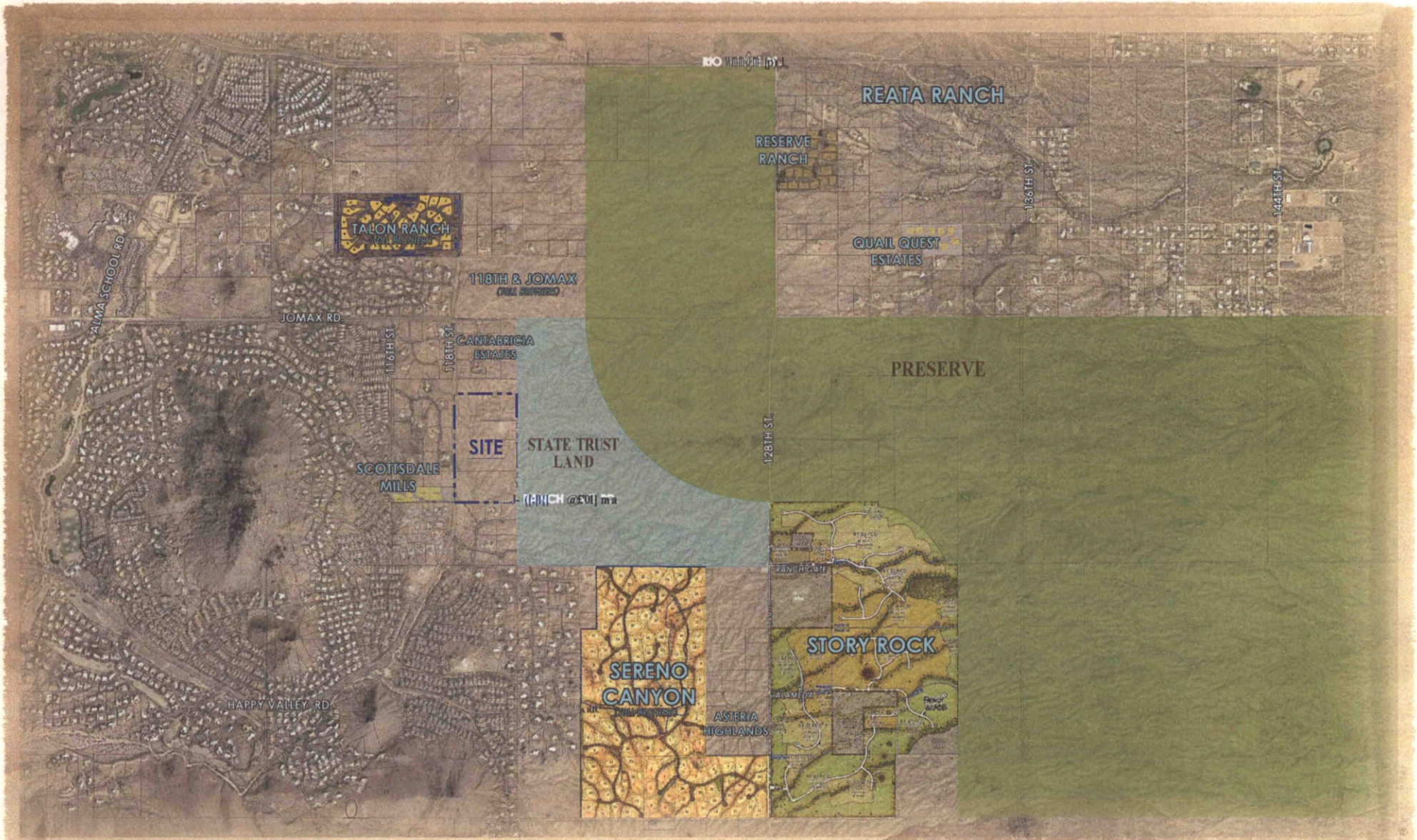
- Sufficient water supply appears available to support domestic and fire flow demand of this project.
- Sewer service is presently available in either 118th Street or Ranch Gate Road.
- Downstream capacities along Happy Valley Road, down to Pinnacle Peak Road and west to the sewer trunk line in Pima Road shall be evaluated by the City through their modeled system.

10. REFERENCES

1. COS QS numbers 47-56 and 48-56.
2. City of Scottsdale Design Standards & Policies Manual, 2018 (Chapter 6 – Water).
3. City of Scottsdale Design Standards & Policies Manual, 2018 (Chapter 7 – Wastewater

11. EXHIBITS:

EXHIBIT 1 - Vicinity Map – Context Aerial
EXHIBIT 2 - Conceptual Site Plan
EXHIBIT 3 - Q-S Maps 47-56 and 48-56
EXHIBIT 4 - Flow Test Data
EXHIBIT 5 - Preliminary Utility Plan



LVA urban design studio

land planning · development entitlements · landscape architecture

120 south ash avenue · tempe, arizona 85281 · 480.994.0994

118IH & RANCH GATE

CONTEXT AERIAL

EXHIBIT 1

NORTH

0000 DRAWN BY:AC 10/25/17

PRELIMINARY-NOT FOR CONSTRUCTION · SUBJECT TO ENGINEERING AND CITY REVIEW AND APPROVAL -- © COPYRIGHT LVA URBAN DESIGN STUDIO, L.L.C.

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it is prepared. Re-use of and improper reliance on this document without written authorization and adoption by LVA Urban Design Studio, L.L.C shall be without liability to LVA Urban Design Studio, L.L.C.

P:\2017\1775-118TH & RANCH GATE\CAD\PLANNING\118TH & RANCH GATE-CONTEXT WITH PROJECTS.dwg Oct 25, 2017

SITE DATA

LOCATION: **NEC OF 118TH STREET & RANCH GATE ROAD**
ESL LANDFORM: **UPPER DESERT**
PARCEL #s: **217-02-018A, -018B, -019C, -019D, -019E**
EXISTING ZONING: R1-130 ESL
PROPOSED ZONING: **R1-43 ESL & O/S (TRACT E)**
GROSS ACRES: **+/-68.6 ACRES** (+/- 2,990,583 S.F.)
NET ACRES: **+/-64.7 ACRES** (+/- 2,818,407 S.F.)
TOTAL LOTS: **42**
ALLOWED DU/AC (PER GENERAL PLAN): **0-1 DU/AC** (Max.)
PROPOSED DU/AC (R1-43): **0.65 DU/AC**
ALLOWED HEIGHT: 24' FROM NATURAL GRADE
PROPOSED HEIGHT: **24' FROM NATURAL GRADE**
ALLOWED WALL HEIGHT: VARIES (8' MAX)
PROPOSED WALL HEIGHT: **VARIES** (8' MAX)
PROPOSED DESERT SCENIC ROADWAY BUFFER: **40' MIN / 50' AVG.**
REQUIRED N.A.O.S. PER SLOPE ANALYSIS*: **25.0 AC.** (39%)
PROVIDED N.A.O.S.: **28.75 AC** (15% MORE THAN REQUIRED)
PROPOSED AMENDED DEVELOPMENT STANDARDS:
MINIMUM LOT WIDTH: **113'** (25% REDUCTION)
MINIMUM LOT SIZE: **32,250 SF** (25% REDUCTION)
MIN. BLD. SETBACKS - FRONT: **30'** (25% REDUCTION)
SIDE: **15'** (25% REDUCTION)
REAR: INTERIOR - **27'** (25% REDUCTION)
PERIMETER BLD. SETBACK: **PER ADJACENT REQ. AT TIME OF BLD. PERMIT**

NOTES

- ALL INTERNAL STREETS TO BE DESIGNATED FIRE LANES.
- ALL STREETS TO SUPPORT 83,000 LBS GROSS VEHICLE WEIGHT.
- UNOBSTRUCTED VEHICLE CLEARANCE TO BE 13'-6" MIN.
- HYDRANTS WILL BE PROVIDED AT MAX. SPACING OF 1,200'.
- MIN. CUL-DE-SAC R/W RADIUS OF 50' PROVIDED.
- SITE, LOT AND RETAINING WALLS TO BE CONSISTENT WITH THE DSPM, ORD. SEC. 5.030, 6.1010 &/OR AS APPROVED BY STAFF.
- ALL ON LOT SITE WALLS TO BE DESIGNED AND LOCATED IN ACCORDANCE TO SCOTTSDALE DSPM AND ORDINANCE REQUIREMENTS AND TO BE REVIEWED WITH THE DRB SUBMITTAL.
- PROJECT ENTRY MEETS C.O.S. DS&PM FIG. 2-1.2 & DS&PM SEC. 2-1.302.
- DEVELOPMENT ENVELOPES SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE WITH THE FINAL PLAT

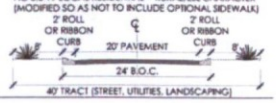
PROJECT TEAM

Discipline	Company Contact Info.
Client	Sonoran Peaks, LLC John Christensen 480.443.2630 jchristensen@andersonco.com
Applicant	Berry Riddell, LLC John Berry 6750 E Camelback Rd. Ste. 100 Scottsdale, AZ 85251 480.385.2753 mh@berryriddell.com
Land Planner	LVA Urban Design Studio/RVi Alex Stedman 120 South Ash Avenue Tempe, Arizona 85281 480.994.0994 astedman@rviplanning.com
Civil Engineer	SEG Ali Fakih 8280 E. Gelding Dr. #101 Scottsdale AZ 85260 480.558.7226 ali@razsegi.com

VICINITY MAP

CROSS SECTION

FIG 5.3-19 LOCAL RESIDENTIAL – RURAL/ESL CHARACTER (MODIFIED SO AS NOT TO INCLUDE OPTIONAL SIDEWALK)



LVA
an RVi Company

land planning
development entitlements
landscape architecture
120 south ash avenue
tempe, arizona 85281
480.994.0994

118TH & RANCH GATE
CONCEPTUAL SITE PLAN/ SUBDIVISION PLAN

GRAPHIC SCALE 1" = 100'

1775 DRAWN BY: PR 9/27/18

PRELIMINARY-NOT FOR CONSTRUCTION * SUBJECT TO ENGINEERING AND CITY REVIEW AND APPROVAL

P:\2017\1775-118TH & RANCH GATE\CAD\PLANNING\RVI-1775-ZN-2ND-SITE PLAN.dwg Sep 27, 2018

EXHIBIT 2

18-56

47-55

47-57

PINNACLE PEAK RANCH

UNIT TWO

GOLDIE BROWN

YEARLING

ESTATES

PARCEL

SCOTTSDALE

BOULDER

MOUNTAIN

CANYON

PHASE II

TROON

DORADO

DESERT

ESTATES

EAST

SANTA

ROAD

NORTH

GENERAL NOTES

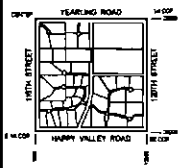
THIS MAP CONTAINS DEPARTMENT DRAWING FOR APPROVED SERVICES PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7992

THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SCOTTSDALE. GPS BEARINGS ARE HAVING DISTANCES AND DISTANCES ARE PLOTTED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOT BASED "CALCULATED ON THE MAP"

LEGEND

- Air Release Valve
- Non-potable Air Release Valve
- Blowoff
- Cap
- Cathodic Protection
- Fill Drain
- Fire Hydrant
- Non-GPS Point
- Pressure Reducing Valve
- Pump
- Reducer
- Sample Station
- Water Manhole
- Non-Potable Manhole
- Well
- Valve
- Non-potable Valve
- Vault
- Water Main
- Non-Potable Main
- Fee / Private Main
- Non-Accessable Main

VICINITY MAP



NORTH

SCALE 1 100'

0 50 100 200

The map scale of 1 100' is based on full size print of 30" 36"

WATER

QUARTER SECTION MAP

47-56

SE 1/4 SEC 3 T4N R5E

EXHIBIT 3

Sbt 1 of 4

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS

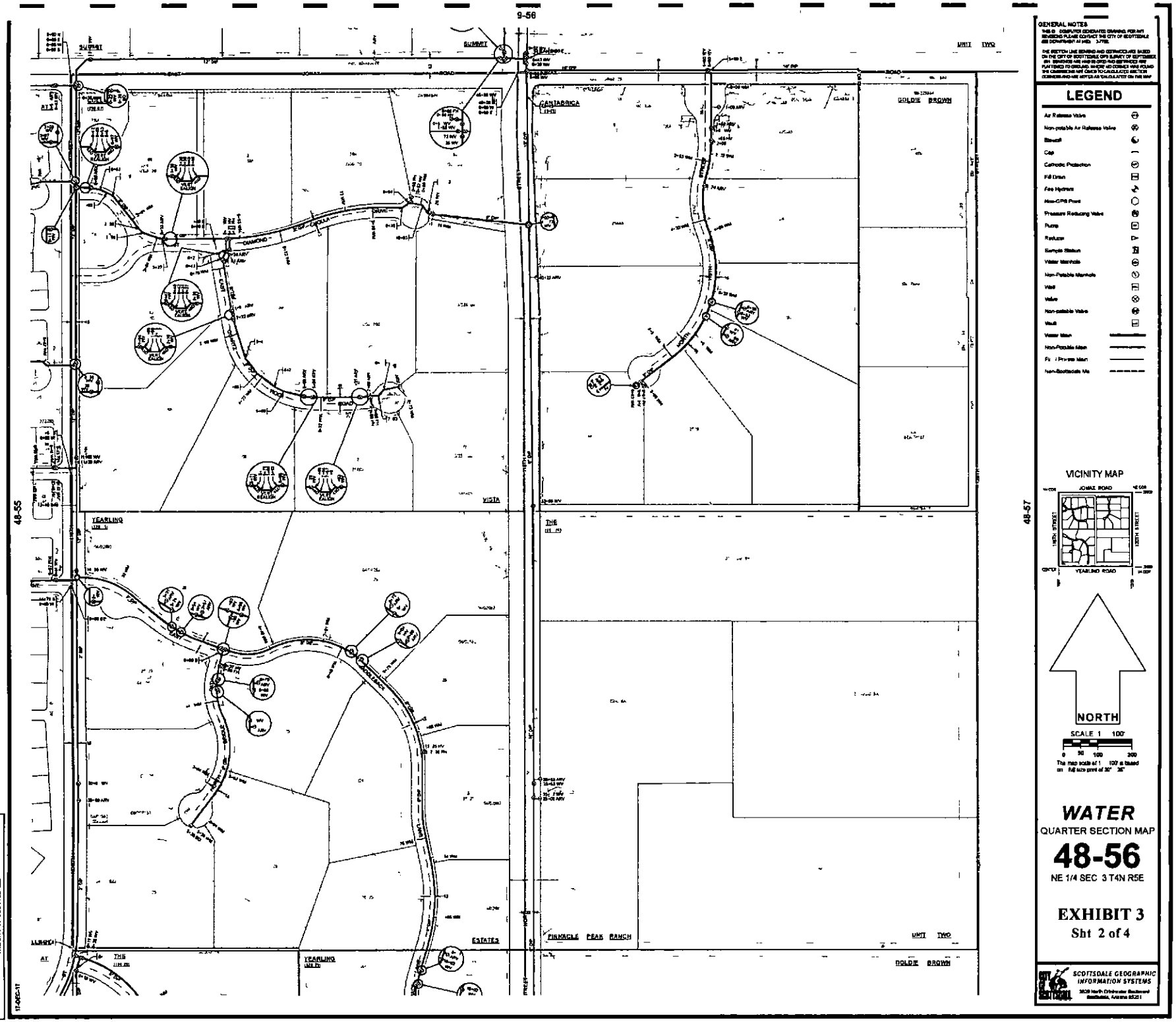
3939 North Drinkwater Boulevard
Scottsdale, Arizona 85251

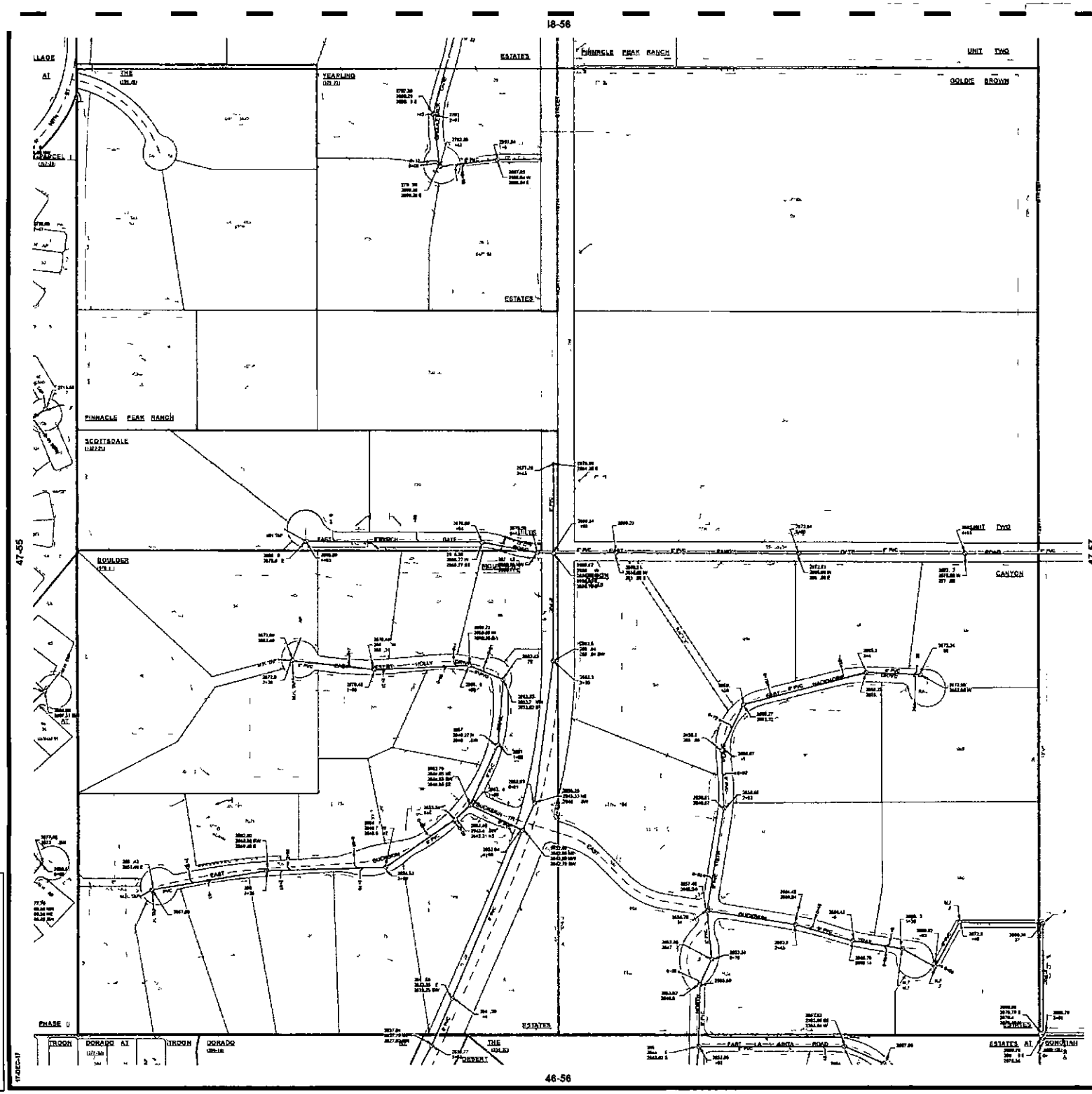
NOTICE

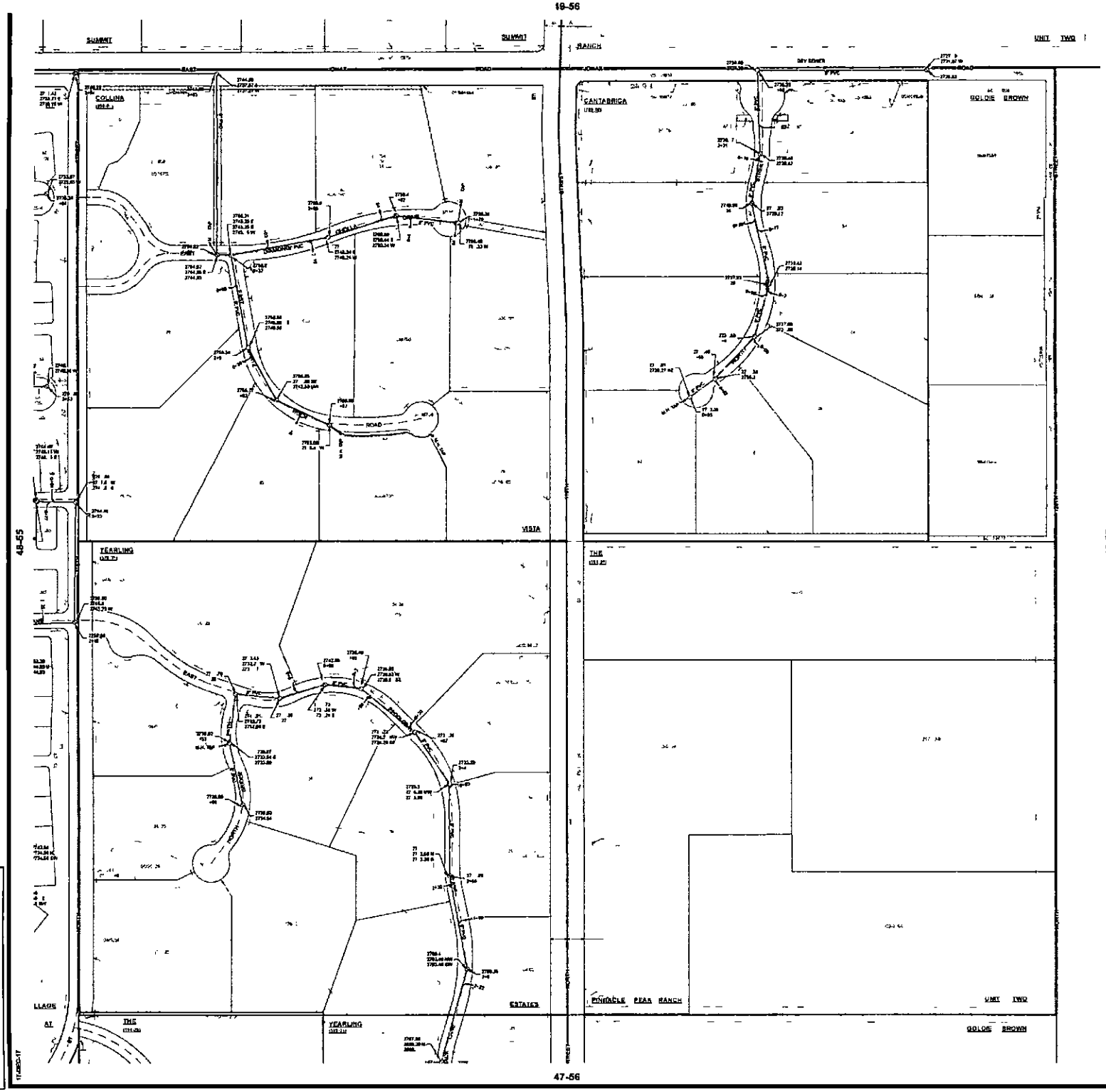
THIS DOCUMENT IS PROVIDED FOR GENERAL INFORMATION PURPOSES ONLY. THE CITY OF SCOTTSDALE MAKES NO WARRANTY, REPRESENTATION OR GUARANTEE AS TO THE CONTENT, SUITABILITY, OR ACCURACY FOR ANY PARTICULAR PURPOSE. IT SHOULD NOT BE RELIED UPON WITHOUT FIELD VERIFICATION.

THE CITY OF SCOTTSDALE

17-DEC-17


9-56
48-55
48-57
SUMMIT
UNIT TWO
GOLDIE BROWN
CANTABRICA
DIAMOND
VISTA
YEARLING
THE
ESTATES
PINNACLE PEAK RANCH
GENERAL NOTES
LEGEND
Air Release Valve
Non-potable Air Release Valve
Blowoff
Cap
Cathodic Protection
Fill Drain
Fire Hydrant
Non-GPS Point
Pressure Reducing Valve
Pump
Reducer
Sample Station
Water Manhole
Non-Potable Manhole
Well
Valve
Non-potable Valve
Vault
Water Main
Non-Potable Main
Non-Scottsdale Ma
VICINITY MAP
JOMAX ROAD
YEARLING ROAD
NORTH
SCALE 1 100'
0 50 100 200
WATER
QUARTER SECTION MAP
48-56
NE 1/4 SEC 3 T4N R5E
EXHIBIT 3
Sht 2 of 4
SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
NOTICE
THE CITY OF SCOTTSDALE


18-56
47-55
47-57
46-56
PINNACLE PEAK RANCH
UNIT TWO
YEARLING
ESTATES
GOLDIE BROWN
SCOTTSDALE
BOULDER
CANYON
THE DESERT
DORADO
PHASE II
EAST LA ARETA ROAD
EAST HACIENDA
EAST BUCKHORN
EAST HOLLY DRIVE
EAST PINNACLE PEAK ROAD
NORTH 124TH STREET
NORTH 128TH STREET
NORTH 132ND STREET
NORTH 136TH STREET
NORTH 140TH STREET
NORTH 144TH STREET
NORTH 148TH STREET
NORTH 152ND STREET
NORTH 156TH STREET
NORTH 160TH STREET
NORTH 164TH STREET
NORTH 168TH STREET
NORTH 172ND STREET
NORTH 176TH STREET
NORTH 180TH STREET
NORTH 184TH STREET
NORTH 188TH STREET
NORTH 192ND STREET
NORTH 196TH STREET
NORTH 200TH STREET
NORTH 204TH STREET
NORTH 208TH STREET
NORTH 212TH STREET
NORTH 216TH STREET
NORTH 220TH STREET
NORTH 224TH STREET
NORTH 228TH STREET
NORTH 232ND STREET
NORTH 236TH STREET
NORTH 240TH STREET
NORTH 244TH STREET
NORTH 248TH STREET
NORTH 252ND STREET
NORTH 256TH STREET
NORTH 260TH STREET
NORTH 264TH STREET
NORTH 268TH STREET
NORTH 272ND STREET
NORTH 276TH STREET
NORTH 280TH STREET
NORTH 284TH STREET
NORTH 288TH STREET
NORTH 292ND STREET
NORTH 296TH STREET
NORTH 300TH STREET
NORTH 304TH STREET
NORTH 308TH STREET
NORTH 312TH STREET
NORTH 316TH STREET
NORTH 320TH STREET
NORTH 324TH STREET
NORTH 328TH STREET
NORTH 332ND STREET
NORTH 336TH STREET
NORTH 340TH STREET
NORTH 344TH STREET
NORTH 348TH STREET
NORTH 352ND STREET
NORTH 356TH STREET
NORTH 360TH STREET
NORTH 364TH STREET
NORTH 368TH STREET
NORTH 372ND STREET
NORTH 376TH STREET
NORTH 380TH STREET
NORTH 384TH STREET
NORTH 388TH STREET
NORTH 392ND STREET
NORTH 396TH STREET
NORTH 400TH STREET
NORTH 404TH STREET
NORTH 408TH STREET
NORTH 412TH STREET
NORTH 416TH STREET
NORTH 420TH STREET
NORTH 424TH STREET
NORTH 428TH STREET
NORTH 432ND STREET
NORTH 436TH STREET
NORTH 440TH STREET
NORTH 444TH STREET
NORTH 448TH STREET
NORTH 452ND STREET
NORTH 456TH STREET
NORTH 460TH STREET
NORTH 464TH STREET
NORTH 468TH STREET
NORTH 472ND STREET
NORTH 476TH STREET
NORTH 480TH STREET
NORTH 484TH STREET
NORTH 488TH STREET
NORTH 492ND STREET
NORTH 496TH STREET
NORTH 500TH STREET
NORTH 504TH STREET
NORTH 508TH STREET
NORTH 512TH STREET
NORTH 516TH STREET
NORTH 520TH STREET
NORTH 524TH STREET
NORTH 528TH STREET
NORTH 532ND STREET
NORTH 536TH STREET
NORTH 540TH STREET
NORTH 544TH STREET
NORTH 548TH STREET
NORTH 552ND STREET
NORTH 556TH STREET
NORTH 560TH STREET
NORTH 564TH STREET
NORTH 568TH STREET
NORTH 572ND STREET
NORTH 576TH STREET
NORTH 580TH STREET
NORTH 584TH STREET
NORTH 588TH STREET
NORTH 592ND STREET
NORTH 596TH STREET
NORTH 600TH STREET
NORTH 604TH STREET
NORTH 608TH STREET
NORTH 612TH STREET
NORTH 616TH STREET
NORTH 620TH STREET
NORTH 624TH STREET
NORTH 628TH STREET
NORTH 632ND STREET
NORTH 636TH STREET
NORTH 640TH STREET
NORTH 644TH STREET
NORTH 648TH STREET
NORTH 652ND STREET
NORTH 656TH STREET
NORTH 660TH STREET
NORTH 664TH STREET
NORTH 668TH STREET
NORTH 672ND STREET
NORTH 676TH STREET
NORTH 680TH STREET
NORTH 684TH STREET
NORTH 688TH STREET
NORTH 692ND STREET
NORTH 696TH STREET
NORTH 700TH STREET
NORTH 704TH STREET
NORTH 708TH STREET
NORTH 712TH STREET
NORTH 716TH STREET
NORTH 720TH STREET
NORTH 724TH STREET
NORTH 728TH STREET
NORTH 732ND STREET
NORTH 736TH STREET
NORTH 740TH STREET
NORTH 744TH STREET
NORTH 748TH STREET
NORTH 752ND STREET
NORTH 756TH STREET
NORTH 760TH STREET
NORTH 764TH STREET
NORTH 768TH STREET
NORTH 772ND STREET
NORTH 776TH STREET
NORTH 780TH STREET
NORTH 784TH STREET
NORTH 788TH STREET
NORTH 792ND STREET
NORTH 796TH STREET
NORTH 800TH STREET
NORTH 804TH STREET
NORTH 808TH STREET
NORTH 812TH STREET
NORTH 816TH STREET
NORTH 820TH STREET
NORTH 824TH STREET
NORTH 828TH STREET
NORTH 832ND STREET
NORTH 836TH STREET
NORTH 840TH STREET
NORTH 844TH STREET
NORTH 848TH STREET
NORTH 852ND STREET
NORTH 856TH STREET
NORTH 860TH STREET
NORTH 864TH STREET
NORTH 868TH STREET
NORTH 872ND STREET
NORTH 876TH STREET
NORTH 880TH STREET
NORTH 884TH STREET
NORTH 888TH STREET
NORTH 892ND STREET
NORTH 896TH STREET
NORTH 900TH STREET
NORTH 904TH STREET
NORTH 908TH STREET
NORTH 912TH STREET
NORTH 916TH STREET
NORTH 920TH STREET
NORTH 924TH STREET
NORTH 928TH STREET
NORTH 932ND STREET
NORTH 936TH STREET
NORTH 940TH STREET
NORTH 944TH STREET
NORTH 948TH STREET
NORTH 952ND STREET
NORTH 956TH STREET
NORTH 960TH STREET
NORTH 964TH STREET
NORTH 968TH STREET
NORTH 972ND STREET
NORTH 976TH STREET
NORTH 980TH STREET
NORTH 984TH STREET
NORTH 988TH STREET
NORTH 992ND STREET
NORTH 996TH STREET
NORTH 1000TH STREET
NORTH 1004TH STREET
NORTH 1008TH STREET
NORTH 1012TH STREET
NORTH 1016TH STREET
NORTH 1020TH STREET
NORTH 1024TH STREET
NORTH 1028TH STREET
NORTH 1032ND STREET
NORTH 1036TH STREET
NORTH 1040TH STREET
NORTH 1044TH STREET
NORTH 1048TH STREET
NORTH 1052ND STREET
NORTH 1056TH STREET
NORTH 1060TH STREET
NORTH 1064TH STREET
NORTH 1068TH STREET
NORTH 1072ND STREET
NORTH 1076TH STREET
NORTH 1080TH STREET
NORTH 1084TH STREET
NORTH 1088TH STREET
NORTH 1092ND STREET
NORTH 1096TH STREET
NORTH 1100TH STREET
NORTH 1104TH STREET
NORTH 1108TH STREET
NORTH 1112TH STREET
NORTH 1116TH STREET
NORTH 1120TH STREET
NORTH 1124TH STREET
NORTH 1128TH STREET
NORTH 1132ND STREET
NORTH 1136TH STREET
NORTH 1140TH STREET
NORTH 1144TH STREET
NORTH 1148TH STREET
NORTH 1152ND STREET
NORTH 1156TH STREET
NORTH 1160TH STREET
NORTH 1164TH STREET
NORTH 1168TH STREET
NORTH 1172ND STREET
NORTH 1176TH STREET
NORTH 1180TH STREET
NORTH 1184TH STREET
NORTH 1188TH STREET
NORTH 1192ND STREET
NORTH 1196TH STREET
NORTH 1200TH STREET
NORTH 1204TH STREET
NORTH 1208TH STREET
NORTH 1212TH STREET
NORTH 1216TH STREET
NORTH 1220TH STREET
NORTH 1224TH STREET
NORTH 1228TH STREET
NORTH 1232ND STREET
NORTH 1236TH STREET
NORTH 1240TH STREET
NORTH 1244TH STREET
NORTH 1248TH STREET
NORTH 1252ND STREET
NORTH 1256TH STREET
NORTH 1260TH STREET
NORTH 1264TH STREET
NORTH 1268TH STREET
NORTH 1272ND STREET
NORTH 1276TH STREET
NORTH 1280TH STREET
NORTH 1284TH STREET
NORTH 1288TH STREET
NORTH 1292ND STREET
NORTH 1296TH STREET
NORTH 1300TH STREET
NORTH 1304TH STREET
NORTH 1308TH STREET
NORTH 1312TH STREET
NORTH 1316TH STREET
NORTH 1320TH STREET
NORTH 1324TH STREET
NORTH 1328TH STREET
NORTH 1332ND STREET
NORTH 1336TH STREET
NORTH 1340TH STREET
NORTH 1344TH STREET
NORTH 1348TH STREET
NORTH 1352ND STREET
NORTH 1356TH STREET
NORTH 1360TH STREET
NORTH 1364TH STREET
NORTH 1368TH STREET
NORTH 1372ND STREET
NORTH 1376TH STREET
NORTH 1380TH STREET
NORTH 1384TH STREET
NORTH 1388TH STREET
NORTH 1392ND STREET
NORTH 1396TH STREET
NORTH 1400TH STREET
NORTH 1404TH STREET
NORTH 1408TH STREET
NORTH 1412TH STREET
NORTH 1416TH STREET
NORTH 1420TH STREET
NORTH 1424TH STREET
NORTH 1428TH STREET
NORTH 1432ND STREET
NORTH 1436TH STREET
NORTH 1440TH STREET
NORTH 1444TH STREET
NORTH 1448TH STREET
NORTH 1452ND STREET
NORTH 1456TH STREET
NORTH 1460TH STREET
NORTH 1464TH STREET
NORTH 1468TH STREET
NORTH 1472ND STREET
NORTH 1476TH STREET
NORTH 1480TH STREET
NORTH 1484TH STREET
NORTH 1488TH STREET
NORTH 1492ND STREET
NORTH 1496TH STREET
NORTH 1500TH STREET
NORTH 1504TH STREET
NORTH 1508TH STREET
NORTH 1512TH STREET
NORTH 1516TH STREET
NORTH 1520TH STREET
NORTH 1524TH STREET
NORTH 1528TH STREET
NORTH 1532ND STREET
NORTH 1536TH STREET
NORTH 1540TH STREET
NORTH 1544TH STREET
NORTH 1548TH STREET
NORTH 1552ND STREET
NORTH 1556TH STREET
NORTH 1560TH STREET
NORTH 1564TH STREET
NORTH 1568TH STREET
NORTH 1572ND STREET
NORTH 1576TH STREET
NORTH 1580TH STREET
NORTH 1584TH STREET
NORTH 1588TH STREET
NORTH 1592ND STREET
NORTH 1596TH STREET
NORTH 1600TH STREET
NORTH 1604TH STREET
NORTH 1608TH STREET
NORTH 1612TH STREET
NORTH 1616TH STREET
NORTH 1620TH STREET
NORTH 1624TH STREET
NORTH 1628TH STREET
NORTH 1632ND STREET
NORTH 1636TH STREET
NORTH 1640TH STREET
NORTH 1644TH STREET
NORTH 1648TH STREET
NORTH 1652ND STREET
NORTH 1656TH STREET
NORTH 1660TH STREET
NORTH 1664TH STREET
NORTH 1668TH STREET
NORTH 1672ND STREET
NORTH 1676TH STREET
NORTH 1680TH STREET
NORTH 1684TH STREET
NORTH 1688TH STREET
NORTH 1692ND STREET
NORTH 1696TH STREET
NORTH 1700TH STREET
NORTH 1704TH STREET
NORTH 1708TH STREET
NORTH 1712TH STREET
NORTH 1716TH STREET
NORTH 1720TH STREET
NORTH 1724TH STREET
NORTH 1728TH STREET
NORTH 1732ND STREET
NORTH 1736TH STREET
NORTH 1740TH STREET
NORTH 1744TH STREET
NORTH 1748TH STREET
NORTH 1752ND STREET
NORTH 1756TH STREET
NORTH 1760TH STREET
NORTH 1764TH STREET
NORTH 1768TH STREET
NORTH 1772ND STREET
NORTH 1776TH STREET
NORTH 1780TH STREET
NORTH 1784TH STREET
NORTH 1788TH STREET
NORTH 1792ND STREET
NORTH 1796TH STREET
NORTH 1800TH STREET
NORTH 1804TH STREET
NORTH 1808TH STREET
NORTH 1812TH STREET
NORTH 1816TH STREET
NORTH 1820TH STREET
NORTH 1824TH STREET
NORTH 1828TH STREET
NORTH 1832ND STREET
NORTH 1836TH STREET
NORTH 1840TH STREET
NORTH 1844TH STREET
NORTH 1848TH STREET
NORTH 1852ND STREET
NORTH 1856TH STREET
NORTH 1860TH STREET
NORTH 1864TH STREET
NORTH 1868TH STREET
NORTH 1872ND STREET
NORTH 1876TH STREET
NORTH 1880TH STREET
NORTH 1884TH STREET
NORTH 1888TH STREET
NORTH 1892ND STREET
NORTH 1896TH STREET
NORTH 1900TH STREET
NORTH 1904TH STREET
NORTH 1908TH STREET
NORTH 1912TH STREET
NORTH 1916TH STREET
NORTH 1920TH STREET
NORTH 1924TH STREET
NORTH 1928TH STREET
NORTH 1932ND STREET
NORTH 1936TH STREET
NORTH 1940TH STREET
NORTH 1944TH STREET
NORTH 1948TH STREET
NORTH 1952ND STREET
NORTH 1956TH STREET
NORTH 1960TH STREET
NORTH 1964TH STREET
NORTH 1968TH STREET
NORTH 1972ND STREET
NORTH 1976TH STREET
NORTH 1980TH STREET
NORTH 1984TH STREET
NORTH 1988TH STREET
NORTH 1992ND STREET
NORTH 1996TH STREET
NORTH 2000TH STREET
NORTH 2004TH STREET
NORTH 2008TH STREET
NORTH 2012TH STREET
NORTH 2016TH STREET
NORTH 2020TH STREET
NORTH 2024TH STREET
NORTH 2028TH STREET
NORTH 2032ND STREET
NORTH 2036TH STREET
NORTH 2040TH STREET
NORTH 2044TH STREET
NORTH 2048TH STREET
NORTH 2052ND STREET
NORTH 2056TH STREET
NORTH 2060TH STREET
NORTH 2064TH STREET
NORTH 2068TH STREET
NORTH 2072ND STREET
NORTH 2076TH STREET
NORTH 2080TH STREET
NORTH 2084TH STREET
NORTH 2088TH STREET
NORTH 2092ND STREET
NORTH 2096TH STREET
NORTH 2100TH STREET
NORTH 2104TH STREET
NORTH 2108TH STREET
NORTH 2112TH STREET
NORTH 2116TH STREET
NORTH 2120TH STREET
NORTH 2124TH STREET
NORTH 2128TH STREET
NORTH 2132ND STREET
NORTH 2136TH STREET
NORTH 2140TH STREET
NORTH 2144TH STREET
NORTH 2148TH STREET
NORTH 2152ND STREET
NORTH 2156TH STREET
NORTH 2160TH STREET
NORTH 2164TH STREET
NORTH 2168TH STREET
NORTH 2172ND STREET
NORTH 2176TH STREET
NORTH 2180TH STREET
NORTH 2184TH STREET
NORTH 2188TH STREET
NORTH 2192ND STREET
NORTH 2196TH STREET
NORTH 2200TH STREET
NORTH 2204TH STREET
NORTH 2208TH STREET
NORTH 2212TH STREET
NORTH 2216TH STREET
NORTH 2220TH STREET
NORTH 2224TH STREET
NORTH 2228TH STREET
NORTH 2232ND STREET
NORTH 2236TH STREET
NORTH 2240TH STREET
NORTH 2244TH STREET
NORTH 2248TH STREET
NORTH 2252ND STREET
NORTH 2256TH STREET
NORTH 2260TH STREET
NORTH 2264TH STREET
NORTH 2268TH STREET
NORTH 2272ND STREET
NORTH 2276TH STREET
NORTH 2280TH STREET
NORTH 2284TH STREET
NORTH 2288TH STREET
NORTH 2292ND STREET
NORTH 2296TH STREET
NORTH 2300TH STREET
NORTH 2304TH STREET
NORTH 2308TH STREET
NORTH 2312TH STREET
NORTH 2316TH STREET
NORTH 2320TH STREET
NORTH 2324TH STREET
NORTH 2328TH STREET
NORTH 2332ND STREET
NORTH 2336TH STREET
NORTH 2340TH STREET
NORTH 2344TH STREET
NORTH 2348TH STREET
NORTH 2352ND STREET
NORTH 2356TH STREET
NORTH 2360TH STREET
NORTH 2364TH STREET
NORTH 2368TH STREET
NORTH 2372ND STREET
NORTH 2376TH STREET
NORTH 2380TH STREET
NORTH 2384TH STREET
NORTH 2388TH STREET
NORTH 2392ND STREET
NORTH 2396TH STREET
NORTH 2400TH STREET
NORTH 2404TH STREET
NORTH 2408TH STREET
NORTH 2412TH STREET
NORTH 2416TH STREET
NORTH 2420TH STREET
NORTH 2424TH STREET
NORTH 2428TH STREET
NORTH 2432ND STREET
NORTH 2436TH STREET
NORTH 2440TH STREET
NORTH 2444TH STREET
NORTH 2448TH STREET
NORTH 2452ND STREET
NORTH 2456TH STREET
NORTH 2460TH STREET
NORTH 2464TH STREET
NORTH 2468TH STREET
NORTH 2472ND STREET
NORTH 2476TH STREET
NORTH 2480TH STREET
NORTH 2484TH STREET
NORTH 2488TH STREET
NORTH 2492ND STREET
NORTH 2496TH STREET
NORTH 2500TH STREET
NORTH 2504TH STREET
NORTH 2508TH STREET
NORTH 2512TH STREET
NORTH 2516TH STREET
NORTH 2520TH STREET
NORTH 2524TH STREET
NORTH 2528TH STREET
NORTH 2532ND STREET
NORTH 2536TH STREET
NORTH 2540TH STREET
NORTH 2544TH STREET
NORTH 2548TH STREET
NORTH 2552ND STREET
NORTH 2556TH STREET
NORTH 2560TH STREET
NORTH 2564TH STREET
NORTH 2568TH STREET
NORTH 2572ND STREET
NORTH 2576TH STREET
NORTH 2580TH STREET
NORTH 2584TH STREET
NORTH 2588TH STREET
NORTH 2592ND STREET
NORTH 2596TH STREET
NORTH 2600TH STREET
NORTH 2604TH STREET
NORTH 2608TH STREET
NORTH 2612TH STREET
NORTH 2616TH STREET
NORTH 2620TH STREET
NORTH 2624TH STREET
NORTH 2628TH STREET
NORTH 2632ND STREET
NORTH 2636TH STREET
NORTH 2640TH STREET
NORTH 2644TH STREET
NORTH 2648TH STREET
NORTH 2652ND STREET
NORTH 2656TH STREET
NORTH 2660TH STREET
NORTH 2664TH STREET
NORTH 2668TH STREET
NORTH 2672ND STREET
NORTH 2676TH STREET
NORTH 2680TH STREET
NORTH 2684TH STREET
NORTH 2688TH STREET
NORTH 2692ND STREET
NORTH 2696TH STREET
NORTH 2700TH STREET
NORTH 2704TH STREET
NORTH 2708TH STREET
NORTH 2712TH STREET
NORTH 2716TH STREET
NORTH 2720TH STREET
NORTH 2724TH STREET
NORTH 2728TH STREET
NORTH 2732ND STREET
NORTH 2736TH STREET
NORTH 2740TH STREET
NORTH 2744TH STREET
NORTH 2748TH STREET
NORTH 2752ND STREET
NORTH 2756TH STREET
NORTH 2760TH STREET
NORTH 2764TH STREET
NORTH 2768TH STREET
NORTH 2772ND STREET
NORTH 2776TH STREET
NORTH 2780TH STREET
NORTH 2784TH STREET
NORTH 2788TH STREET
NORTH 2792ND STREET
NORTH 2796TH STREET
NORTH 2800TH STREET
NORTH 2804TH STREET
NORTH 2808TH STREET
NORTH 2812TH STREET
NORTH 2816TH STREET
NORTH 2820TH STREET
NORTH 2824TH STREET
NORTH 2828TH STREET
NORTH 2832ND STREET
NORTH 2836TH STREET
NORTH 2840TH STREET
NORTH 2844TH STREET
NORTH 2848TH STREET
NORTH 2852ND STREET
NORTH 2856TH STREET
NORTH 2860TH STREET
NORTH 2864TH STREET
NORTH 2868TH STREET
NORTH 2872ND STREET
NORTH 2876TH STREET
NORTH 2880TH STREET
NORTH 2884TH STREET
NORTH 2888TH STREET
NORTH 2892ND STREET
NORTH 2896TH STREET
NORTH 2900TH STREET
NORTH 2904TH STREET
NORTH 2908TH STREET
NORTH 2912TH STREET
NORTH 2916TH STREET
NORTH 2920TH STREET
NORTH 2924TH STREET
NORTH 2928TH STREET
NORTH 2932ND STREET
NORTH 2936TH STREET
NORTH 2940TH STREET
NORTH 2944TH STREET
NORTH 2948TH STREET
NORTH 2952ND STREET
NORTH 2956TH STREET
NORTH 2960TH STREET
NORTH 2964TH STREET
NORTH 2968TH STREET
NORTH 2972ND STREET
NORTH 2976TH STREET
NORTH 2980TH STREET
NORTH 2984TH STREET
NORTH 2988TH STREET
NORTH 2992ND STREET
NORTH 2996TH STREET
NORTH 3000TH STREET
NORTH 3004TH STREET
NORTH 3008TH STREET
NORTH 3012TH STREET
NORTH 3016TH STREET
NORTH 3020TH STREET
NORTH 3024TH STREET
NORTH 3028TH STREET
NORTH 3032ND STREET
NORTH 3036TH STREET
NORTH 3040TH STREET
NORTH 3044TH STREET
NORTH 3048TH STREET
NORTH 3052ND STREET
NORTH 3056TH STREET
NORTH 3060TH STREET
NORTH 3064TH STREET
NORTH 3068TH STREET
NORTH 3072ND STREET
NORTH 3076TH STREET
NORTH 3080TH STREET
NORTH 3084TH STREET
NORTH 3088TH STREET
NORTH 3092ND STREET
NORTH 3096TH STREET
NORTH 3100TH STREET
NORTH 3104TH STREET
NORTH 3108TH STREET
NORTH 3112TH STREET
NORTH 3116TH STREET
NORTH 3120TH STREET
NORTH 3124TH STREET
NORTH 3128TH STREET
NORTH 3132ND STREET
NORTH 3136TH STREET
NORTH 3140TH STREET
NORTH 3144TH STREET
NORTH 3148TH STREET
NORTH 3152ND STREET
NORTH 3156TH STREET
NORTH 3160TH STREET
NORTH 3164TH STREET
NORTH 3168TH STREET
NORTH 3172ND STREET
NORTH 3176TH STREET
NORTH 3180TH STREET
NORTH 3184TH STREET
NORTH 3188TH STREET
NORTH 3192ND STREET
NORTH 3196TH STREET
NORTH 3200TH STREET
NORTH 3204TH STREET
NORTH 3208TH STREET
NORTH 3212TH STREET
NORTH 3216TH STREET
NORTH 3220TH STREET
NORTH 3224TH STREET
NORTH 3228TH STREET
NORTH 3232ND STREET
NORTH 3236TH STREET
NORTH 3240TH STREET
NORTH 3244TH STREET
NORTH 3248TH STREET
NORTH 3252ND STREET
NORTH 3256TH STREET
NORTH 3260TH STREET
NORTH 3264TH STREET
NORTH 3268TH STREET
NORTH 3272ND STREET
NORTH 3276TH STREET
NORTH 3280TH STREET
NORTH 3284TH STREET
NORTH 3288TH STREET
NORTH 3292ND STREET
NORTH 3296TH STREET
NORTH 3300TH STREET
NORTH 3304TH STREET
NORTH 3308TH STREET
NORTH 3312TH STREET
NORTH 3316TH STREET
NORTH 3320TH STREET
NORTH 3324TH STREET
NORTH 3328TH STREET
NORTH 3332ND STREET
NORTH 3336TH STREET
NORTH 3340TH STREET
NORTH 3344TH STREET
NORTH 3348TH STREET
NORTH 3352ND STREET
NORTH 3356TH STREET
NORTH 3360TH STREET
NORTH 3364TH STREET
NORTH 3368TH STREET
NORTH 3372ND STREET
NORTH 3376TH STREET
NORTH 3380TH STREET
NORTH 3384TH STREET
NORTH 3388TH STREET
NORTH 3392ND STREET
NORTH 3396TH STREET
NORTH 3400TH STREET
NORTH 3404TH STREET
NORTH 3408TH STREET
NORTH 3412TH STREET
NORTH 3416TH STREET
NORTH 3420TH STREET
NORTH 3424TH STREET
NORTH 3428TH STREET
NORTH 3432ND STREET
NORTH 3436TH STREET
NORTH 3440TH STREET
NORTH 3444TH STREET
NORTH 3448TH STREET
NORTH 3452ND STREET
NORTH 3456TH STREET
NORTH 3460TH STREET
NORTH 3464TH STREET
NORTH 3468TH STREET
NORTH 3472ND STREET
NORTH 3476TH STREET
NORTH 3480TH STREET
NORTH 3484TH STREET
NORTH 3488TH STREET
NORTH 3492ND STREET
NORTH 3496TH STREET
NORTH 3500TH STREET
NORTH 3504TH STREET
NORTH 3508TH STREET
NORTH 3512TH STREET
NORTH 3516TH STREET
NORTH 3520TH STREET
NORTH 3524TH STREET
NORTH 3528TH STREET
NORTH 3532ND STREET
NORTH 3536TH STREET
NORTH 3540TH STREET
NORTH 3544TH STREET
NORTH 3548TH STREET
NORTH 3552ND STREET
NORTH 3556TH STREET
NORTH 3560TH STREET
NORTH 3564TH STREET
NORTH 3568TH STREET
NORTH 3572ND STREET
NORTH 3576TH STREET
NORTH 3580TH STREET
NORTH 3584TH STREET
NORTH 3588TH STREET
NORTH 3592ND STREET
NORTH 3596TH STREET
NORTH 3600TH STREET
NORTH 3604TH STREET
NORTH 3608TH STREET
NORTH 3612TH STREET
NORTH 3616TH STREET
NORTH 3620TH STREET
NORTH 3624TH STREET
NORTH 3628TH STREET
NORTH 3632ND STREET
NORTH 3636TH STREET
NORTH 3640TH STREET
NORTH 3644TH STREET
NORTH 3648TH STREET
NORTH 3652ND STREET
NORTH 3656TH STREET
NORTH 3660TH STREET
NORTH 3664TH STREET
NORTH 3668TH STREET
NORTH 3672ND STREET
NORTH 3676TH STREET
NORTH 3680TH STREET
NORTH 3684TH STREET
NORTH 3688TH STREET
NORTH 3692ND STREET
NORTH 3696TH STREET
NORTH 3700TH STREET
NORTH 3704TH STREET
NORTH 3708TH STREET
NORTH 3712TH STREET
NORTH 3716TH STREET
NORTH 3720TH STREET
NORTH 3724TH STREET
NORTH 3728TH STREET
NORTH 3732ND STREET
NORTH 3736TH STREET
NORTH 3740TH STREET
NORTH 3744TH STREET
NORTH 3748TH STREET
NORTH 3752ND STREET
NORTH 3756TH STREET
NORTH 3760TH STREET
NORTH 3764TH STREET
NORTH 3768TH STREET
NORTH 3772ND STREET
NORTH 3776TH STREET
NORTH 3780TH STREET
NORTH 3784TH STREET
NORTH 3788TH STREET
NORTH 3792ND STREET
NORTH 3796TH STREET
NORTH 3800TH STREET
NORTH 3804TH STREET
NORTH 3808TH STREET
NORTH 3812TH STREET
NORTH 3816TH STREET
NORTH 3820TH STREET
NORTH 3824TH STREET
NORTH 3828TH STREET
NORTH 3832ND STREET
NORTH 3836TH STREET
NORTH 3840TH STREET
NORTH 3844TH STREET
NORTH 3848TH STREET
NORTH 3852ND STREET
NORTH 3856TH STREET
NORTH 3860TH STREET
NORTH 3864TH STREET
NORTH 3868TH STREET
NORTH 3872ND STREET
NORTH 3876TH STREET
NORTH 3880TH STREET
NORTH 3884TH STREET
NORTH 3888TH STREET
NORTH 3892ND STREET
NORTH 3896TH STREET
NORTH 3900TH STREET
NORTH 3904TH STREET
NORTH 3908TH STREET
NORTH 3912TH STREET
NORTH 3916TH STREET
NORTH 3920TH STREET
NORTH 3924TH STREET
NORTH 3928TH STREET
NORTH 3932ND STREET
NORTH 3936TH STREET
NORTH 3940TH STREET
NORTH 3944TH STREET
NORTH 3948TH STREET
NORTH 3952ND STREET
NORTH 3956TH STREET
NORTH 3960TH STREET
NORTH 3964TH STREET
NORTH 3968TH STREET
NORTH 3972ND STREET
NORTH 3976TH STREET
NORTH 3980TH STREET
NORTH 3984TH STREET
NORTH 3988TH STREET
NORTH 3992ND STREET
NORTH 3996TH STREET
NORTH 4000TH STREET
NORTH 4004TH STREET
NORTH 4008TH STREET
NORTH 4012TH STREET
NORTH 4016TH STREET
NORTH 4020TH STREET
NORTH 4024TH STREET
NORTH 4028TH STREET
NORTH 4032ND STREET
NORTH 4036TH STREET
NORTH 4040TH STREET
NORTH 4044TH STREET
NORTH 4048TH STREET
NORTH 4052ND STREET
NORTH 4056TH STREET
NORTH 4060TH STREET
NORTH 4064TH STREET
NORTH 4068TH STREET
NORTH 4072ND STREET
NORTH 4076TH STREET
NORTH 4080TH STREET
NORTH 4084TH STREET
NORTH 4088TH STREET
NORTH 4092ND STREET
NORTH 4096TH STREET
NORTH 4100TH STREET
NORTH 4104TH STREET
NORTH 4108TH STREET
NORTH 4112TH STREET
NORTH 4116TH STREET
NORTH 4120TH STREET
NORTH 4124TH STREET
NORTH 4128TH STREET
NORTH 4132ND STREET
NORTH 4136TH STREET
NORTH 4140TH STREET
NORTH 4144TH STREET
NORTH 4148TH STREET
NORTH 4152ND STREET
NORTH 4156TH STREET
NORTH 4160TH STREET
NORTH 4164TH STREET
NORTH 4168TH STREET
NORTH 4172ND STREET
NORTH 4176TH STREET
NORTH 4180TH STREET
NORTH 4184TH STREET
NORTH 4188TH STREET
NORTH 4192ND STREET
NORTH 4196TH STREET
NORTH 4200TH STREET
NORTH 4204TH STREET
NORTH 4208TH STREET
NORTH 4212TH STREET
NORTH 4216TH STREET
NORTH 4220TH STREET
NORTH 4224TH STREET
NORTH 4228TH STREET
NORTH 4232ND STREET
NORTH 4236TH STREET
NORTH 4240TH STREET
NORTH 4244TH STREET
NORTH 4248TH STREET
NORTH 4252ND STREET
NORTH 4256TH STREET
NORTH 4260TH STREET
NORTH 4264TH STREET
NORTH 4268TH STREET
NORTH 4272ND STREET
NORTH 4276TH STREET
NORTH 4280TH STREET
NORTH 4284TH STREET
NORTH 4288TH STREET
NORTH 4292ND STREET
NORTH 4296TH STREET
NORTH 4300TH STREET
NORTH 4304TH STREET
NORTH 4308TH STREET
NORTH 4312TH STREET
NORTH 4316TH STREET
NORTH 4320TH STREET
NORTH 4324TH STREET
NORTH 4328TH STREET
NORTH 4332ND STREET
NORTH 4336TH STREET
NORTH 4340TH STREET
NORTH 4344TH STREET
NORTH 4348TH STREET
NORTH 4352ND STREET
NORTH 4356TH STREET
NORTH 4360TH STREET
NORTH 4364TH STREET
NORTH 4368TH STREET
NORTH 4372ND STREET
NORTH 4376TH STREET
NORTH 4380TH STREET
NORTH 4384TH STREET
NORTH 4388TH STREET
NORTH 4392ND STREET
NORTH 4396TH STREET
NORTH 4400TH STREET
NORTH 4404TH STREET
NORTH 4408TH STREET
NORTH 4412TH STREET
NORTH 4416TH STREET
NORTH 4420TH STREET
NORTH 4424TH STREET
NORTH 4428TH STREET
NORTH 4432ND STREET
NORTH 4436TH STREET
NORTH 4440TH STREET
NORTH 4444TH STREET
NORTH 4448TH STREET
NORTH 4452ND STREET
NORTH 4456TH STREET
NORTH 4460TH STREET
NORTH 4464TH STREET
NORTH 4468TH STREET
NORTH 4472ND STREET
NORTH 4476TH STREET
NORTH 4480TH STREET
NORTH 4484TH STREET
NORTH 4488TH STREET
NORTH 4492ND STREET
NORTH 4496TH STREET
NORTH 4500TH STREET
NORTH 4504TH STREET
NORTH 4508TH STREET
NORTH 4512TH STREET
NORTH 4516TH STREET
NORTH 4520TH STREET
NORTH 4524TH STREET
NORTH 4528TH STREET
NORTH 4532ND STREET
NORTH 4536TH STREET
NORTH 4540TH STREET
NORTH 4544TH STREET
NORTH 4548TH STREET
NORTH 4552ND STREET
NORTH 4556TH STREET
NORTH 4560TH STREET
NORTH 4564TH STREET
NORTH 4568TH STREET
NORTH 4572ND STREET
NORTH 4576TH STREET
NORTH 4580TH STREET
NORTH 4584TH STREET
NORTH 4588TH STREET
NORTH 4592ND STREET
NORTH 4596TH STREET
NORTH 4600TH STREET
NORTH 4604TH STREET
NORTH 4608TH STREET
NORTH 4612TH STREET
NORTH 4616TH STREET
NORTH 4620TH STREET
NORTH 4624TH STREET
NORTH 4628TH STREET
NORTH 4632ND STREET
NORTH 4636TH STREET
NORTH 4640TH STREET
NORTH 4644TH STREET
NORTH 4648TH STREET
NORTH 4652ND STREET
NORTH 4656TH STREET
NORTH 4660TH STREET
NORTH 4664TH STREET
NORTH 4668TH STREET
NORTH 4672ND STREET
NORTH 4676TH STREET
NORTH 4680TH STREET
NORTH 4684TH STREET
NORTH 4688TH STREET
NORTH 4692ND STREET
NORTH 4696TH STREET
NORTH 4700TH STREET
NORTH 4704TH STREET
NORTH 4708TH STREET
NORTH 4712TH STREET
NORTH 4716TH STREET
NORTH 4720TH STREET
NORTH 4724TH STREET
NORTH 4728TH STREET
NORTH 4732ND STREET
NORTH 4736TH STREET
NORTH 4740TH STREET
NORTH 4744TH STREET
NORTH 4748TH STREET
NORTH 4752ND STREET
NORTH 4756TH STREET
NORTH 4760TH STREET
NORTH 4764TH STREET
NORTH 4768TH STREET
NORTH 4772ND STREET
NORTH 4776TH STREET
NORTH 4780TH STREET
NORTH 4784TH STREET
NORTH 4788TH STREET
NORTH 4792ND STREET
NORTH 4796TH STREET
NORTH 4800TH STREET
NORTH 4804TH STREET
NORTH 4808TH STREET
NORTH 4812TH STREET
NORTH 4816TH STREET
NORTH 4820TH STREET
NORTH 4824TH STREET
NORTH 4828TH STREET
NORTH 4832ND STREET
NORTH 4836TH STREET
NORTH 4840TH STREET
NORTH 4844TH STREET
NORTH 4848TH STREET
NORTH 4852ND STREET
NORTH 4856TH STREET
NORTH 4860TH STREET
NORTH 4864TH STREET
NORTH 4868TH STREET
NORTH 4872ND STREET
NORTH 4876TH STREET
NORTH 4880TH STREET
NORTH 4884TH STREET
NORTH 4888TH STREET
NORTH 4892ND STREET
NORTH 4896TH STREET
NORTH 4900TH STREET
NORTH 4904TH STREET
NORTH 4908TH STREET
NORTH 4912TH STREET
NORTH 4916TH STREET
NORTH 4920TH STREET
NORTH 4924TH STREET
NORTH 4928TH STREET
NORTH 4932ND STREET
NORTH 4936TH STREET
NORTH 4940TH STREET
NORTH 4944TH STREET
NORTH 4948TH STREET
NORTH 4952ND STREET
NORTH 4956TH STREET
NORTH 4960TH STREET
NORTH 4964TH STREET
NORTH 4968TH STREET
NORTH 4972ND STREET
NORTH 4976TH STREET
NORTH 4980TH STREET
NORTH 4984TH STREET
NORTH 4988TH STREET
NORTH 4992ND STREET
NORTH 4996TH STREET
NORTH 5000TH STREET
NORTH 5004TH STREET
NORTH 5008TH STREET
NORTH 5012TH STREET
NORTH 5016TH STREET
NORTH 5020TH STREET
NORTH 5024TH STREET
NORTH 5028TH STREET
NORTH 5032ND STREET
NORTH 5036TH STREET
NORTH 5040



GENERAL NOTES

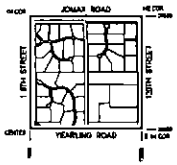
THIS IS COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT 480 312-7782.

THE SECTION LINE BEARINGS AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE 1994 SURVEY OF SEPTEMBER 1991. BEARINGS AND DISTANCES ARE PLOTTED TO GROUND, WHERE AN CORNER WAS FOUND. THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOT AS CALCULATED ON THE MAP

LEGEND

- Cleanout
- Lift Station
- Manhole
- Non-GPS Point
- Plug
- Sewer Service Point
- Sewer Tap Point
- Sewer Valve
- Treatment Plant
- Sewer Main Gravity
- Sewer Main Force
- Sewer Main Private

VICINITY MAP



NORTH

SCALE 1 100'

0 50 100 200

The map scale of 1 100' based on a full size print of 30" 36"

SEWER

QUARTER SECTION MAP

48-56

NE 1/4 SEC 3 T4N R5E

EXHIBIT 3

Sht 4 of 4

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS

8239 North Pima Road Scottsdale, Arizona 85258

NOTICE

THIS DOCUMENT IS PROVIDED FOR GENERAL INFORMATION PURPOSES ONLY. THE CITY OF SCOTTSDALE MAKES NO WARRANTY, REPRESENTATION OR GUARANTEE AS TO ITS CONTENT, SUITABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. IT SHOULD NOT BE RELIED UPON WITHOUT INDEPENDENT VERIFICATION.

THE CITY OF SCOTTSDALE

11-JUL-97

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Ranch Gate
Project Address:	118th Street & Ranch Gate (NEC), Scottsdale, Arizona 85262
Arizona Flow Testing Project No.:	18340
Client Project No.:	Not Provided
Flow Test Permit No.:	C56329
Date and time flow test conducted:	September 21, 2018 at 7:30 AM
Data is current and reliable until:	March 21, 2019
Conducted by:	Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by:	Phil Cipolla – City of Scottsdale-Inspector (602-828-0847)

Raw Test Data

Static Pressure: **112.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **84.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **27.0 PSI**
(Measured in pounds per square inch)

Diffuser Orifice Diameter: 4 Inch Hose Monster
(Measured in inches)

Coefficient of Diffuser: 0.7875

Flowing GPM: **1,954 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **3,714 GPM**

Data with 40 PSI Safety Factor

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **44.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx. 1,300 feet

Main size: Not Provided

Flowing GPM: **1,954 GPM**

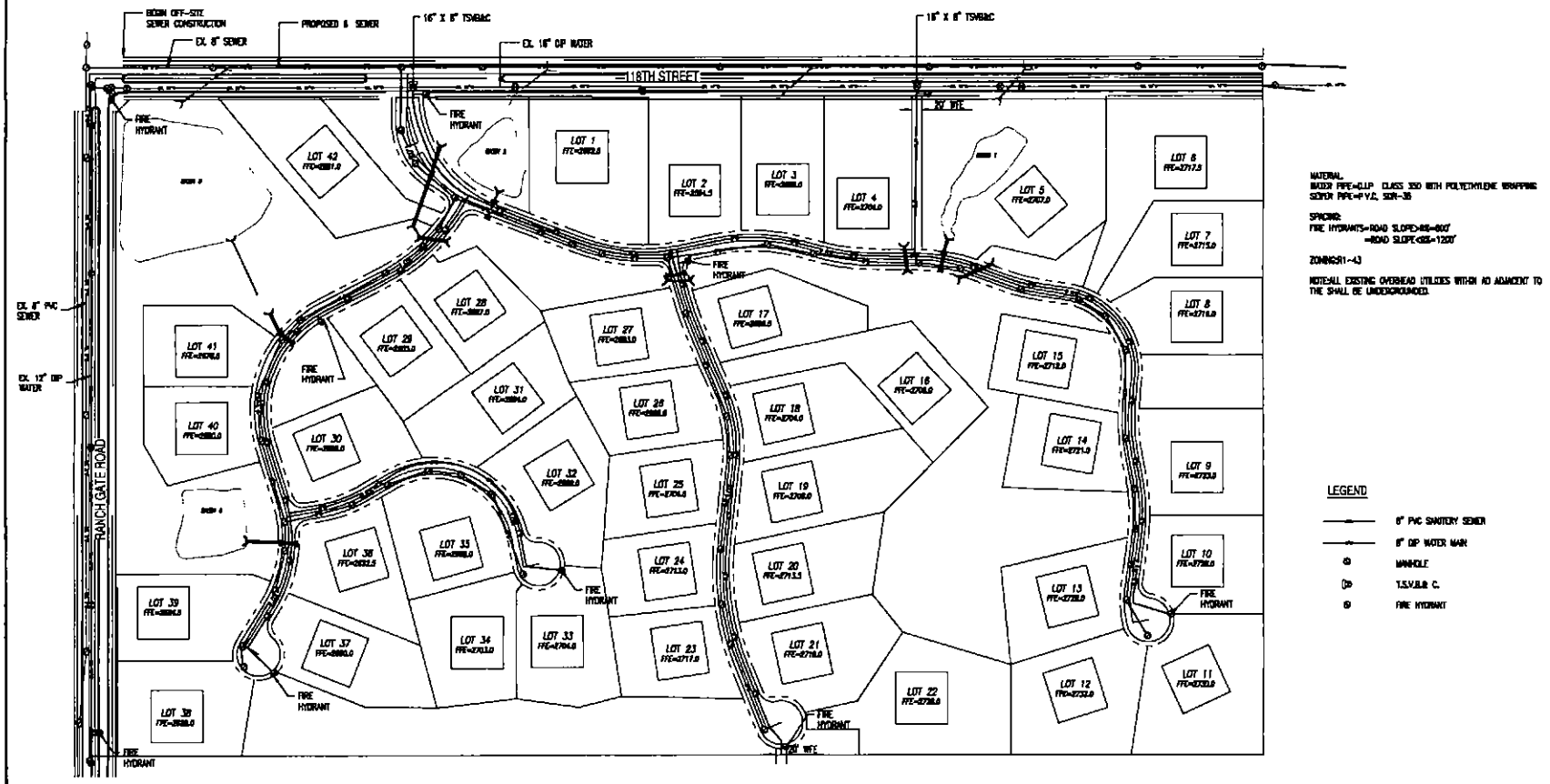
GPM @ 20 PSI: **2,729 GPM**

Flow Test Location

North ↑

EXHIBIT 4

PRELIMINARY UTILITY PLAN
118TH AND RANCH GATE



MATERIAL:
WATER PIPE=D.I.P. CLASS 350 WITH POLYETHYLENE WRAPPING
SEWER PIPE=P.V.C. SDR-35

SPACING:
FIRE HYDRANTS=ROAD SLOPE>8%=600'
=ROAD SLOPE<8%=1200'

ZONING:R1-43

NOTE:ALL EXISTING OVERHEAD UTILITIES WITHIN AD ADJACENT TO THE SHALL BE UNDERGROUNDED.

LEGEND

- 8" PVC SANITARY SEWER
- 8" DIP WATER MAIN
- MANHOLE
- T.S.V.B.& C.
- FIRE HYDRANT

SEG SUSTAINABILITY ENGINEERING GROUP

PROJECT: LYLE ANDERSON RANCH GATE

LOCATION: 118TH STREET AND RANCH GATE ROAD

DRAWN: CULVER
REVIEWED: CULVER
ENGINEER: COUNSELL
PROJ. MGR.: FARSH

DATE: 09/24/2018

ISSUED FOR: REZONING

REVISION NO. | DATE

JOB NO. 171083

SHEET TITLE: PRELIMINARY UTILITY PLAN

SHEET NO. EXHIBIT 5

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND THE PROPERTY OF SUSTAINABILITY ENGINEERING GROUP AND SHALL REMAIN THEIR PROPERTY. THE USE OF THIS DRAWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH IT IS PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE.