PRELIMINARY DRAINAGE REPORT

The Triangle

7120 E. Indian School Road
Scottsdale, AZ 85251

Prepared For:

Gensler

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Prepared by:

SEG

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Plan # _____
Case # 10-ZN-2020
Q-S # _____
☒ Accepted
☐ Corrections
N.Baronas 11/9/2020
Reviewed By Date

Project Number: 200504

Revision Date: October 16, 2020 (Rezoning)

Case No.: **63-PA-2020**
10-ZN-2020

Plan Check No.: TBD

10-ZN-2020
10/22/20

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1. INTRODUCTION

This Preliminary Drainage Report represents the storm water analysis for the HoJo Development (The Triangle) proposed in Scottsdale, Arizona. The purpose of this preliminary report is to provide the hydrologic and hydraulic analysis, required by the City of Scottsdale, to support the proposed rezoning for said development. This report includes discussions and calculations defining the storm water management concepts for the collection and conveyance 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 subject property consists of land located south of the 3rd Avenue and Craftsman Court, the between 3rd Avenue and Indian School Road in Scottsdale, AZ:

- A portion of the southeast 1/4 of Section 22, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona.
- Parcel ID: Parcel 173-50-034; The Venue, Zoning C-2 (7117 E. 3rd Avenue)
  Parcel 173-50-108A; Kimberly at Michael V. Salon, Vape Sky, Teres A Nail Bar, Zoning C-2 (7120 E. Indian School Road, Scottsdale, AZ 85251)
  Parcel 173-50-117B; Howard Johnson Inn, Zoning C-2 (7110 E. Indian School Road, Scottsdale, AZ 85251)

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:

- West: The site is bound by an alley with the following across as follows:
  Parcel 173-50-129; Marshall Way Plaza; Zoning is C-2
  Parcel 173-50-114; Pink Plaza; Zoning is C-2
- East: Parcel 173-50-119E, 173-50-094, -100A; commercial shops, Zoning D-/OR-2
- North: Across 3rd Avenue: Parcel 173-50-019; Foxy Spray Tans; Zoning is C-2
  Across 3rd Avenue: Parcel 173-50-146; Cadre Condominiums; Zoning is C-2
- South: Across Indian School Road are parcels:
  Parcel 130-12-013, -012, -011; Commercial offices; Zoning is C-2.
  Parcel 130-12-007A

2.3 EXISTING SITE DESCRIPTION:

The project area includes approximately 144,173 sf. ft. (3.310 acres) of land designated as C-2 per C.O.S. zoning map 5. The site is currently developed and includes three commercial developments with parking lots: Howard Johnson Inn, The Venue and a commercial building comprised of several retail stores. The developments are separated by parking areas.

Per Topographic Survey prepared by AWL Land Surveying, the site slopes from northwest to southeast at approximately 1.00%. Elevation varies from approximately 1266.24 at the northwest corner to approximately 1262.21 at the southeast corner. The site drains to the perimeter streets and alley.

Refer to **FIGURE 2** attached for an aerial of the site.

2.4 PROPOSED SITE DEVELOPMENT:

Site development includes the demolition of the Howard Johnson Inn, The Venue structures and their designated parking lots as well as the construction of a new hotel, residential building and townhome complex. The development will include one proposed access on the north side to 3rd Avenue, two access entrances to the alley on the west, and will maintain the two existing driveway entrances to Indian School Road. An underground parking structure is proposed for the development. Refer to **Appendix III** - Preliminary Grading Plan for site layout.

2.5 FLOOD HAZARD ZONE:

FIRM Map Number 04013C2235L dated October 16, 2013 indicates the site is designated as Zone "X". As such, it is defined as areas determined to be outside the 0.2% annual chance floodplain and therefore is not in a special flood hazard area.

Refer to **FIGURE 3** for the FIRM.

3. EXISTING DRAINAGE CONDITIONS

3.1 OFF-SITE DRAINAGE PATTERNS

The topographic survey provides the following information for offsite drainage:

- There is an existing alley to the west approximately 16' wide that slopes from north to south. The alley conveys drainage from the site onto Indian School Road.
- The existing sidewalks to the north and south of the site drain into their adjacent streets, 3rd Avenue and Indian School Road, respectively.
- Adjacent roads have curb and gutters conveying flow within the rights-of-way. Flows from Indian School Road are collected in EX. CB-1 and EX. CB-2.
- An existing inlet, EX. CB-3, located east of the EX-3 drainage area concentration point, collects runoff from EX-3 and adjacent parking area. Refer to **Appendix IV** for site photos.
- Based on existing conditions obtained by the topo and site photos, the site sits 1-2' above the pavement grade along the east parcels. Therefore, it was concluded that the existing site is not affected by any offsite flows.
- Refer to Section 5.1 for additional discussion of safety of finish floor elevations.

3.2 ONSITE DRAINAGE

Based on the topographic information, only drainage areas EX-1 and EX-2 located at the north end of the property drain to 3rd Avenue. The runoff along 3rd avenue flows east where it is ultimately conveyed onto N. Scottsdale Road. Drainage area EX-3and EX-4 drain to the neighboring parcel to the east, but ultimately makes their way to Indian School Road. Similarly, drainage area EX-7 drains to the alley adjacent to the west but ultimately discharges to Indian School Road. Drainage areas EX-5 and EX-6 drain to Indian School Road and flows are captured by catch basins along Indian School Road.

Refer to Appendix II for **Existing Conditions Drainage Area Map**.

The Rational Method was utilized to compute the on-site peak discharges. The Rational Method equation is calculated as shown below:

$Q=C_{wt}IA$
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 (using five minutes for the developed areas)
A = The contributing drainage area in acres

Refer to section 4.3 for land characteristics.

Table 1 below is a summary of existing Q_{100} runoff and required storage volume:

TABLE 1:

Existing Runoff Calculations				
Drainage Area ID	Area (acres)	C_w (-)	intensity (in/hr)	Q (cfs)
Contributing Areas to 3rd Ave				
EX-1	0.20	0.95	7.44	1.41
EX-2	0.67	0.95	7.44	4.74
Totals	**0.87**	**0.95**		**6.15**
Contributing Areas to Indian School Road				
EX-3	0.24	0.95	7.44	1.70
EX-4	0.36	0.95	7.44	2.54
EX-5	0.48	0.94	7.44	3.36
EX-6	1.04	0.87	7.44	6.73
EX-7	0.19	0.95	7.44	1.34
Totals	**2.31**	**0.91**		**15.67**

Overall project area includes **3.18 Acres at C_{wt} = 0.92** (Existing conditions, to back of sidewalk)

Refer to the **Existing Cwt Exhibit (Exhibit A**) and **Existing Conditions Drainage Area Map (Exhibit C)** in **Appendix II**.

4. PROPOSED STORM WATER MANAGEMENT

4.1 DESIGN INTENT:

On-site drainage will be directed off-site via overland flow to the historical outlets. This is a re-development of existing commercial land; therefore, the City of Scottsdale specifies that on-site retention shall be provided as described in Section 4.2 below.

The majority of the entire site is proposed impervious with minor increases in runoff compared to existing conditions.

Refer to **Appendix II** for **Proposed Conditions Drainage Area Map.**

4.2 DESIGN STORM REQUIREMENTS:

In accordance with City of Scottsdale requirements, stormwater storage for the 100-year 2-hour storm event is required based on maintaining existing retention volume plus the difference between the pre

vs. post development runoff from the 100-year 2-hour storm event if increased or first flush, whichever is greater.

4.3 LAND CHARACTERISTICS:

The proposed project site consists mainly of roofs and covered gathering areas, sidewalks and minor landscape areas along the south and north boundaries. Based on the DS&PM, runoff coefficients for the 100-year storm event used are as follows:

- C=0.95 for building or concrete
- C=0.95 for paved surface
- C=0.45 for undisturbed natural desert or desert landscape

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 Rational Method equation is displayed as shown below:

$Q=C_{wt}IA$

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 (Using Five minutes for the developed areas)

A = The contributing drainage area in acres

Table 2 below is a summary of Proposed Q_{100} runoff.

TABLE 2:

Proposed Runoff Calculations

Drainage Area ID	Area (acres)	C_w (-)	intensity (in/hr)	Q (cfs)
Contributing Areas to 3rd Ave				
DA-1	0.37	0.95	7.44	2.62
DA-2	0.47	0.93	7.44	3.25
Totals	**0.84**	**0.94**		**5.87**
Contributing Areas to Indian School Road				
DA-3	1.13	0.95	7.44	7.99
DA-4	0.48	0.95	7.44	3.39
DA-5	0.46	0.91	7.44	3.11
DA-6	0.27	0.95	7.44	1.91
Totals	**2.34**	**0.94**		**16.40**

Overall project area includes **3.18 Acres at C_{wt} = 0.94** (Proposed conditions, to back of curb) Refer to the **Proposed Cwt Exhibit (Exhibit B)**, **Proposed Conditions Drainage Area Map (Exhibit D)** and Calculations in **Appendix II**.

Table 5 summarizes the calculated onsite peak flows for the 100-yr storm event under proposed and existing conditions.

TABLE 3:

Runoff Calculations Summary			
Outfall	**Proposed**	**Existing**	**Difference**
3rd Avenue	5.87	6.15	**-0.28**
Indian School Road	16.40	15.67	**0.73**

The increase in flow to Indian School Road is less than 1 cfs and the storm drains have the capacity to accommodate the project flow based on calculations in Appendix II and Section 4.6.

4.4 STORMWATER RETENTION:

PRE VS POST: Based on topographic survey there is no retention provided on the existing development. Based on the performed calculations above, existing condition and proposed development storage requirements for the 100-yr, 2-hr storm event are calculated as follows:

TABLE 4:

Pre vs. Post Required Storage Volume Calculation Summary					
V= A * (Cwpost-Cwpre) *D/12					
Area	C_{wpost}	C_{wpre}	Depth	**Volume Req.**	
(acres)	(-)	(-)	(in)	(acre-ft)	**(CF)**
3.18	0.94	0.92	2.16	0.011	**498.67**

FIRST FLUSH: First Flush storage required is calculated in accordance with COS– DS&PM. According to the DS&PM, sites less than one (1) acre in size may be waived from the First Flush requirement with approval from staff. The area considered in the first flush calculation is the disturbed area minus any true roof top area. As shown in the Proposed Conditions Roof Area Exhibit (Exhibit E) in Appendix II, the areas considered in the first flush calculation (**0.92 ac**) quantified to be less than 1 acre. As such, the site could be considered exempt from the first flush requirement.

Refer to **Proposed Conditions Roof Area Exhibit (Exhibit E)** in **Appendix II** for areas considered in the first flush calculation.

4.5 STORMWATER RETENTION WAIVER:

The proposed development includes an underground parking structure to the limits of the property thereby eliminating potential open or underground retention areas. Runoff to the north (3RD Avenue) is reduced by 0.28 cfs. The total increase to the south (Indian School Road) is 0.73 cfs and the street and storm drains have capacity to accommodate the project flows based on projected peak flows in Table 3 and offsite flows presented in section 4.6. First flush treatment is not required. Therefore, a Request for Stormwater Storage Waiver for 499 cf will be applied for based on section 4-1.203 DS&PM. Refer to **Appendix IV** for Stormwater Retention Waiver.

4.6 OFFSITE STORM SYSTEM ANALYSIS:

For the purpose of this report, the calculated runoff was used to analyze the effects of the increase in runoff to the existing system based on the existing peak flows presented in the Lower Indian Bend Wash Area Drainage Master Study Hydrology and Hydraulics Report, Contract No.: FCD 2011C019, dated December 2017.

The hydraulic grade line and capacity was analyzed for the existing 48" RGRCP reach along E. Indian School Road. The reach begins at the upstream manhole, MJ8W2STEISRL, located at the Alley and E. Indian School Road intersection and continues east to N Scottsdale Road at manhole MJ23W2STSRL, refer to Appendix V for an excerpt of the Lower Indian Bend Wash ADMP corresponding to the analyzed reach along Indian School Road.

The onsite peak flows from Table 6 were calculated through the use of the Rational Method and indicate that there is a 0.73 cfs increase to Indian School Road. The hydraulic analysis was performed for the existing 36" storm drain (upstream) and the 48" (downstream) to verify the capacity of the existing system in respect to the additional flow. The analysis was performed using Flowmaster to analyze the existing 36"and 48" RGRCP reach based on the existing peak flow of 32.4 cfs and 71.5 cfs at pipes **C6W2STEISRL** and **C1W2STEISRL**, respectively, obtained from the Lower Indian Bend Wash ADMP, and the additional 0.73 cfs obtained from the calculated on-site peak flow. Refer to **Appendix V** for Inlet Summary Table and Pipe Discharge Tables in the Lower Indian Bend Wash ADMP.

36" Pipe C6W2STEISRL**:** 32.4 cfs (Existing) + 0.73 cfs (Post) **= 33.13cfs**
48" Pipe C1W2STEISRL**:** 71.5 cfs (Existing) + 0.73cfs (Post) **= 72.23 cfs**

Hydraulic calculations indicate that 52.94 cfs is available for the existing 36" RGRCP (S=0.63%) at full capacity and 114.01 cfs available for the existing 48" RGRCP (S=0.63%) at full capacity. The existing 36" and 48" RGRCP storm drains are capable of conveying the total post conditions flow increase of 0.73 cfs. Refer to **Appendix II** for pipe capacity calculations.

4.7 ADEQ WATER QUALITY REQUIREMENTS:

The total disturbed area of this site is approximately 3.18 acres. The Arizona Department of Environmental Quality requires that any site disturbance 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.

5. FLOOD SAFETY FOR DWELLINGS

5.1 FINISHED FLOOR ELEVATIONS

This project lies in an "X" Flood Zone. Therefore, the proposed building finished floor elevations will be set a minimum of 12 inches above the 100-year high-water elevation of any adjacent streets and drainage paths and a minimum of 14 inches above the lowest top of curb of the lot. This will ensure that each building will be well above the 100-year water level. All buildings with the exception of Buildings 4 and 5 are set 14 inches above the lowest top of curb but are set more than 12 inches above the 100-year water surface elevation at the ultimate outfall. The site ultimate outfall is located at the southeast corner at an elevation of 1261.15. The ultimate outfall elevation is greater than 14" below the minimum finish floor elevation.

TABLE 5:

FFE Summary			
BLDG (ID)	Finish Floor Elevation (ft)	Lowest Top of Curb (ft)	Difference (in)
1	66.00	64.62	16.56
2	66.00	64.42	18.96
3	66.00	62.81	38.28
4	65.00	64.20	9.60
5	65.00	63.98	12.24
6	64.50	62.40	25.20

6. CONCLUSIONS

6.1 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 lowest top of curb of the lot.
2. A stormwater storage waiver will be requested for the redevelopment of the site.

6.2 PROJECT PHASING:

This project will be constructed in a single phase.

7. WARNING AND DISCLAIMER OF LIABILITY

RE: following page.

8. REFERENCES

1. *Design Standards & Policies Manual, City of Scottsdale – January 2018*
2. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, Flood Control District of Maricopa County, Fourth Edition, December 14, 2018*
3. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, Flood Control District of Maricopa County, December 14, 2018*

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

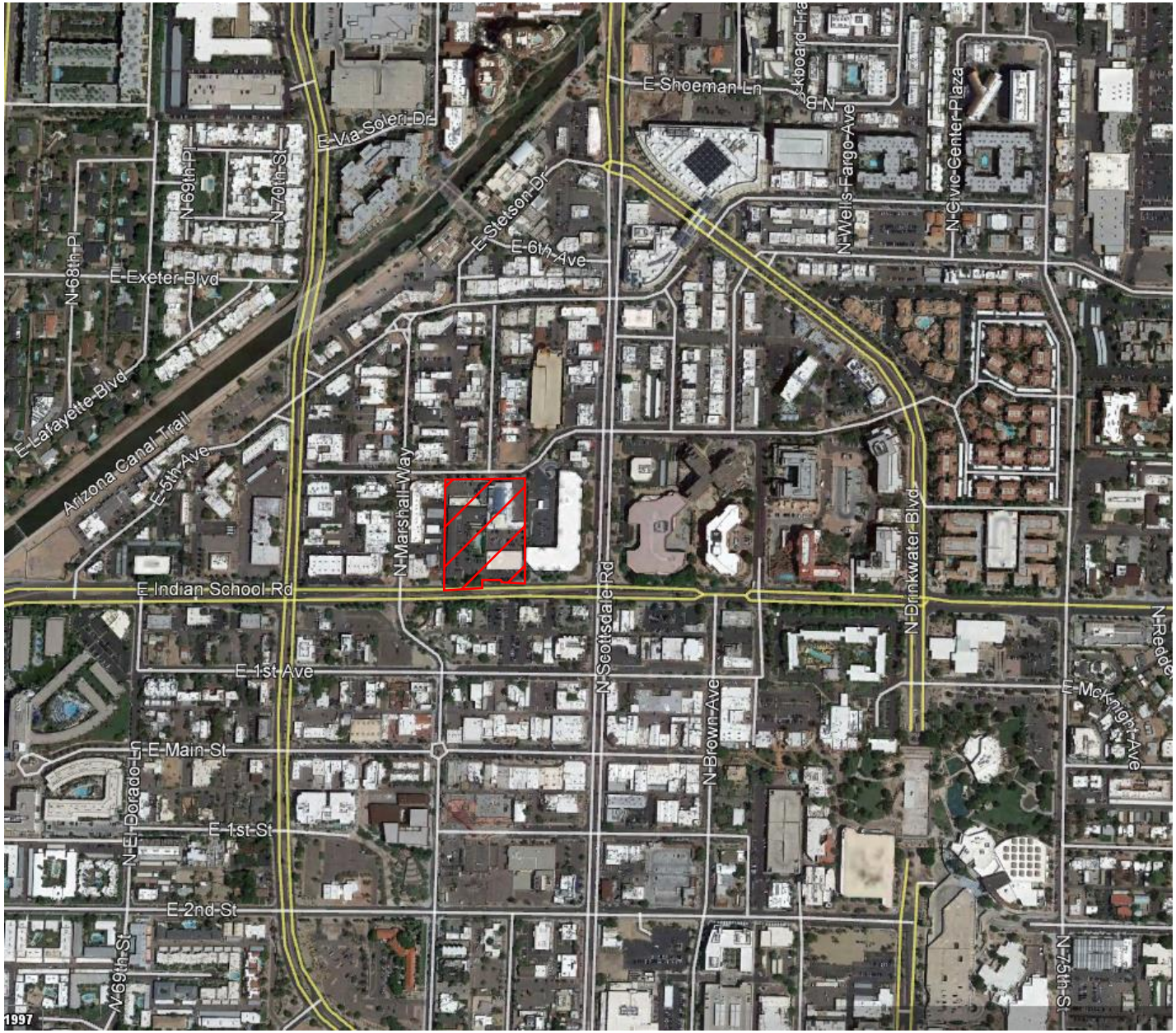

FIGURE 1
VICINITY MAP

8280 E. Gelding Dr., Suite 101
Scottsdale, AZ 85260
Sustainability Engineering Group *info@azSEG.com* *480.588.7226* *www.azSEG.com*

FIGURE 2
AERIAL MAP

8280 E. Gelding Dr., Suite 101
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NOTES TO USERS

This map is for use in administering the Nation Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: http://www.fcd.maricopa.gov/Maps/gismapa/appa/gdacs/application/index.cfm

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

The **profile baseline** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

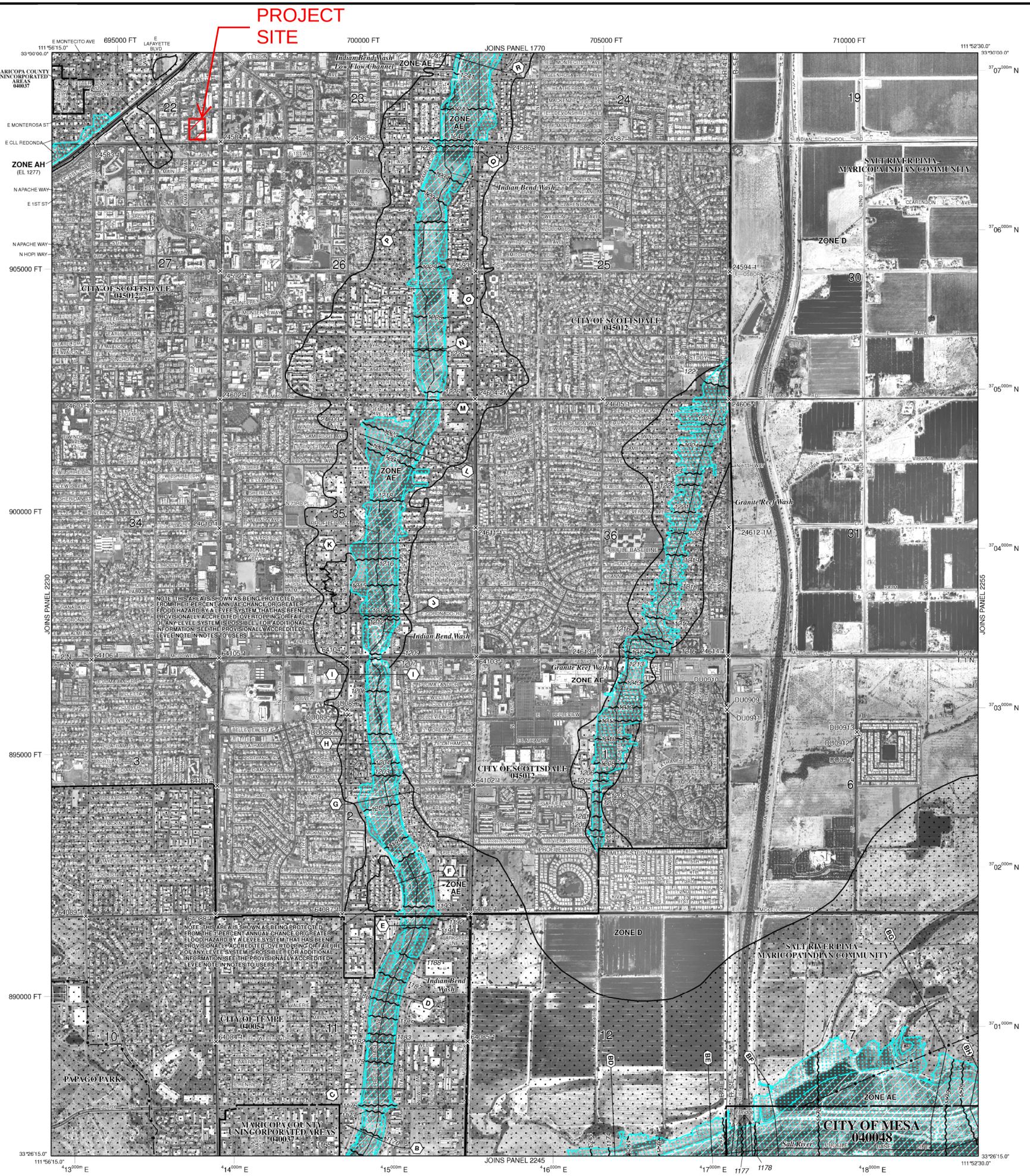
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For Information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

Provisionally Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1--percent--annual--chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. Io maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by June 25, 2011. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicate the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de--accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.



LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

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

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

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

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

A — A	Cross section line
23 — 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 12
6000000 M	5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
July 19, 2001 - September 30, 2005

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

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2235L

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

PANEL 2235 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2235	L
MESA, CITY OF	040046	2235	L
SCOTTSDALE, CITY OF	045012	2235	L
TEMPE, CITY OF	040054	2235	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
04013C2235L
MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

10-ZN-2020
10/22/20

FIGURE 3
FEMA FIRM

APPENDIX I

Rainfall Data

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4955°, Longitude: -111.9279°
Elevation: 1262.91 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	**0.183** (0.154-0.223)	**0.240** (0.202-0.292)	**0.326** (0.273-0.395)	**0.392** (0.326-0.473)	**0.481** (0.393-0.578)	**0.550** (0.444-0.658)	**0.620** (0.492-0.740)	**0.693** (0.539-0.825)	**0.789** (0.598-0.941)	**0.862** (0.641-1.03)
10-min	**0.279** (0.234-0.340)	**0.365** (0.307-0.444)	**0.496** (0.415-0.602)	**0.596** (0.496-0.720)	**0.733** (0.599-0.880)	**0.838** (0.676-1.00)	**0.944** (0.748-1.13)	**1.05** (0.821-1.26)	**1.20** (0.910-1.43)	**1.31** (0.976-1.57)
15-min	**0.345** (0.290-0.421)	**0.452** (0.381-0.550)	**0.614** (0.514-0.746)	**0.739** (0.614-0.893)	**0.908** (0.742-1.09)	**1.04** (0.838-1.24)	**1.17** (0.927-1.40)	**1.31** (1.02-1.56)	**1.49** (1.13-1.78)	**1.63** (1.21-1.95)
30-min	**0.465** (0.390-0.567)	**0.609** (0.513-0.741)	**0.827** (0.692-1.00)	**0.995** (0.827-1.20)	**1.22** (0.999-1.47)	**1.40** (1.13-1.67)	**1.58** (1.25-1.88)	**1.76** (1.37-2.10)	**2.00** (1.52-2.39)	**2.19** (1.63-2.62)
60-min	**0.576** (0.483-0.702)	**0.754** (0.635-0.917)	**1.02** (0.857-1.24)	**1.23** (1.02-1.49)	**1.51** (1.24-1.82)	**1.73** (1.40-2.07)	**1.95** (1.55-2.33)	**2.18** (1.70-2.60)	**2.48** (1.88-2.96)	**2.71** (2.02-3.24)
2-hr	**0.667** (0.569-0.796)	**0.864** (0.736-1.03)	**1.16** (0.983-1.38)	**1.38** (1.16-1.64)	**1.69** (1.40-1.99)	**1.92** (1.57-2.26)	**2.16** (1.74-2.54)	**2.41** (1.91-2.83)	**2.74** (2.12-3.22)	**2.99** (2.26-3.54)
3-hr	**0.726** (0.615-0.873)	**0.931** (0.793-1.13)	**1.22** (1.04-1.47)	**1.46** (1.22-1.74)	**1.78** (1.47-2.12)	**2.04** (1.66-2.42)	**2.31** (1.85-2.74)	**2.59** (2.04-3.07)	**2.98** (2.28-3.53)	**3.30** (2.46-3.91)
6-hr	**0.874** (0.757-1.03)	**1.11** (0.963-1.30)	**1.42** (1.23-1.67)	**1.67** (1.43-1.95)	**2.01** (1.70-2.33)	**2.28** (1.90-2.63)	**2.56** (2.10-2.95)	**2.84** (2.28-3.29)	**3.23** (2.53-3.75)	**3.54** (2.71-4.11)
12-hr	**0.977** (0.855-1.14)	**1.24** (1.08-1.44)	**1.57** (1.36-1.81)	**1.83** (1.58-2.11)	**2.17** (1.86-2.50)	**2.44** (2.07-2.81)	**2.72** (2.27-3.13)	**3.00** (2.47-3.45)	**3.38** (2.71-3.91)	**3.67** (2.89-4.27)
24-hr	**1.17** (1.04-1.32)	**1.48** (1.32-1.67)	**1.92** (1.71-2.17)	**2.27** (2.02-2.55)	**2.75** (2.42-3.09)	**3.13** (2.74-3.51)	**3.53** (3.07-3.96)	**3.94** (3.40-4.42)	**4.51** (3.85-5.06)	**4.96** (4.19-5.58)
2-day	**1.26** (1.13-1.42)	**1.61** (1.44-1.82)	**2.12** (1.89-2.38)	**2.52** (2.24-2.83)	**3.08** (2.72-3.46)	**3.53** (3.10-3.96)	**4.00** (3.49-4.50)	**4.50** (3.89-5.06)	**5.19** (4.44-5.85)	**5.74** (4.86-6.49)
3-day	**1.33** (1.19-1.50)	**1.71** (1.52-1.92)	**2.25** (2.00-2.53)	**2.68** (2.37-3.01)	**3.29** (2.90-3.69)	**3.78** (3.31-4.24)	**4.30** (3.74-4.83)	**4.85** (4.18-5.45)	**5.62** (4.79-6.32)	**6.24** (5.26-7.04)
4-day	**1.41** (1.25-1.59)	**1.80** (1.60-2.03)	**2.37** (2.11-2.67)	**2.84** (2.51-3.19)	**3.50** (3.08-3.92)	**4.03** (3.52-4.51)	**4.60** (3.99-5.15)	**5.20** (4.47-5.84)	**6.05** (5.14-6.79)	**6.74** (5.67-7.58)
7-day	**1.56** (1.39-1.76)	**1.99** (1.78-2.25)	**2.63** (2.34-2.97)	**3.15** (2.79-3.55)	**3.88** (3.42-4.36)	**4.47** (3.91-5.02)	**5.10** (4.43-5.73)	**5.76** (4.96-6.48)	**6.70** (5.70-7.54)	**7.46** (6.28-8.41)
10-day	**1.70** (1.51-1.91)	**2.17** (1.93-2.44)	**2.86** (2.54-3.22)	**3.42** (3.03-3.84)	**4.21** (3.70-4.71)	**4.83** (4.23-5.40)	**5.50** (4.78-6.15)	**6.20** (5.35-6.94)	**7.18** (6.12-8.05)	**7.97** (6.72-8.94)
20-day	**2.08** (1.86-2.33)	**2.68** (2.39-3.00)	**3.54** (3.16-3.95)	**4.19** (3.73-4.67)	**5.07** (4.48-5.65)	**5.74** (5.06-6.40)	**6.42** (5.64-7.17)	**7.12** (6.22-7.95)	**8.05** (6.97-9.02)	**8.77** (7.53-9.84)
30-day	**2.43** (2.17-2.73)	**3.13** (2.79-3.50)	**4.13** (3.67-4.61)	**4.88** (4.34-5.44)	**5.90** (5.21-6.57)	**6.68** (5.88-7.43)	**7.48** (6.55-8.32)	**8.29** (7.23-9.23)	**9.39** (8.12-10.5)	**10.2** (8.78-11.4)
45-day	**2.82** (2.52-3.15)	**3.63** (3.25-4.06)	**4.78** (4.28-5.34)	**5.64** (5.03-6.29)	**6.76** (6.01-7.54)	**7.61** (6.74-8.49)	**8.46** (7.47-9.45)	**9.32** (8.18-10.4)	**10.4** (9.11-11.7)	**11.3** (9.79-12.7)
60-day	**3.12** (2.80-3.48)	**4.03** (3.62-4.49)	**5.30** (4.75-5.90)	**6.22** (5.56-6.92)	**7.42** (6.62-8.26)	**8.31** (7.39-9.25)	**9.20** (8.15-10.2)	**10.1** (8.89-11.2)	**11.2** (9.84-12.5)	**12.1** (10.5-13.5)

[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.

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PF graphical

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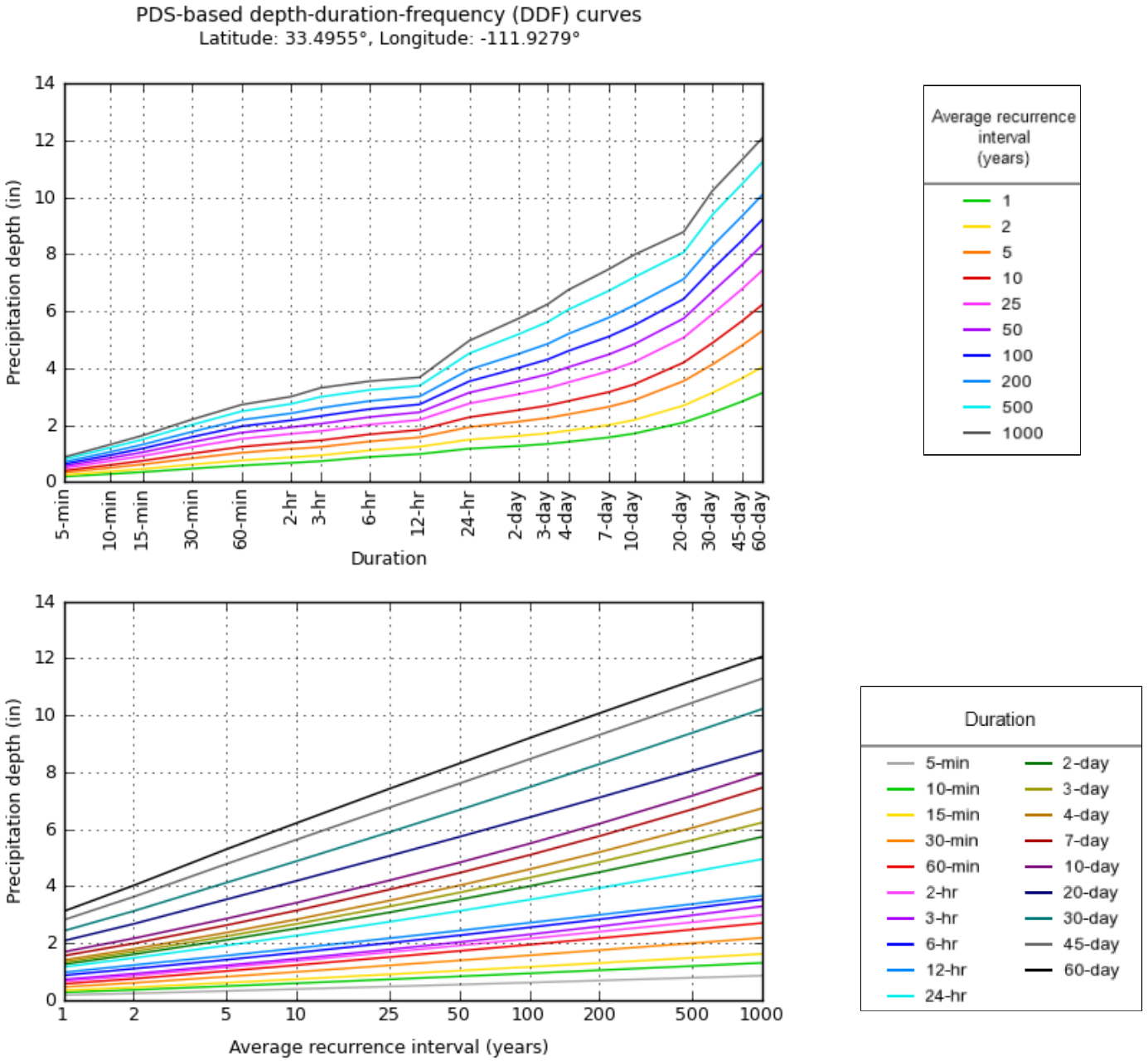

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Maps & aerials

Small scale terrain

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10/22/20

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4955°, Longitude: -111.9279°
Elevation: 1262.91 ft**
* source: ESRI Maps
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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	**2.20** (1.85-2.68)	**2.88** (2.42-3.50)	**3.91** (3.28-4.74)	**4.70** (3.91-5.68)	**5.77** (4.72-6.94)	**6.60** (5.33-7.90)	**7.44** (5.90-8.88)	**8.32** (6.47-9.90)	**9.47** (7.18-11.3)	**10.3** (7.69-12.4)
10-min	**1.67** (1.40-2.04)	**2.19** (1.84-2.66)	**2.98** (2.49-3.61)	**3.58** (2.98-4.32)	**4.40** (3.59-5.28)	**5.03** (4.06-6.01)	**5.66** (4.49-6.76)	**6.32** (4.93-7.54)	**7.20** (5.46-8.59)	**7.87** (5.86-9.41)
15-min	**1.38** (1.16-1.68)	**1.81** (1.52-2.20)	**2.46** (2.06-2.98)	**2.96** (2.46-3.57)	**3.63** (2.97-4.36)	**4.15** (3.35-4.97)	**4.68** (3.71-5.59)	**5.23** (4.07-6.23)	**5.95** (4.52-7.10)	**6.51** (4.84-7.78)
30-min	**0.930** (0.780-1.13)	**1.22** (1.03-1.48)	**1.65** (1.38-2.01)	**1.99** (1.65-2.40)	**2.45** (2.00-2.94)	**2.80** (2.26-3.34)	**3.15** (2.50-3.76)	**3.52** (2.74-4.19)	**4.01** (3.04-4.78)	**4.38** (3.26-5.24)
60-min	**0.576** (0.483-0.702)	**0.754** (0.635-0.917)	**1.02** (0.857-1.24)	**1.23** (1.02-1.49)	**1.51** (1.24-1.82)	**1.73** (1.40-2.07)	**1.95** (1.55-2.33)	**2.18** (1.70-2.60)	**2.48** (1.88-2.96)	**2.71** (2.02-3.24)
2-hr	**0.334** (0.284-0.398)	**0.432** (0.368-0.517)	**0.578** (0.492-0.688)	**0.690** (0.580-0.820)	**0.843** (0.700-0.994)	**0.960** (0.786-1.13)	**1.08** (0.872-1.27)	**1.20** (0.953-1.41)	**1.37** (1.06-1.61)	**1.50** (1.13-1.77)
3-hr	**0.242** (0.205-0.291)	**0.310** (0.264-0.375)	**0.408** (0.345-0.490)	**0.485** (0.407-0.580)	**0.593** (0.491-0.705)	**0.679** (0.554-0.805)	**0.769** (0.616-0.911)	**0.863** (0.680-1.02)	**0.993** (0.759-1.18)	**1.10** (0.818-1.30)
6-hr	**0.146** (0.126-0.172)	**0.185** (0.161-0.218)	**0.237** (0.205-0.278)	**0.279** (0.239-0.325)	**0.336** (0.284-0.389)	**0.380** (0.317-0.440)	**0.427** (0.350-0.493)	**0.474** (0.381-0.549)	**0.539** (0.423-0.625)	**0.591** (0.452-0.687)
12-hr	**0.081** (0.071-0.094)	**0.103** (0.090-0.119)	**0.130** (0.113-0.150)	**0.151** (0.131-0.175)	**0.181** (0.154-0.208)	**0.203** (0.171-0.233)	**0.226** (0.188-0.260)	**0.249** (0.205-0.287)	**0.280** (0.225-0.324)	**0.305** (0.240-0.355)
24-hr	**0.049** (0.043-0.055)	**0.062** (0.055-0.070)	**0.080** (0.071-0.090)	**0.095** (0.084-0.106)	**0.115** (0.101-0.129)	**0.131** (0.114-0.146)	**0.147** (0.128-0.165)	**0.164** (0.142-0.184)	**0.188** (0.160-0.211)	**0.206** (0.174-0.232)
2-day	**0.026** (0.023-0.030)	**0.034** (0.030-0.038)	**0.044** (0.039-0.050)	**0.053** (0.047-0.059)	**0.064** (0.057-0.072)	**0.074** (0.065-0.083)	**0.083** (0.073-0.094)	**0.094** (0.081-0.105)	**0.108** (0.092-0.122)	**0.120** (0.101-0.135)
3-day	**0.019** (0.017-0.021)	**0.024** (0.021-0.027)	**0.031** (0.028-0.035)	**0.037** (0.033-0.042)	**0.046** (0.040-0.051)	**0.052** (0.046-0.059)	**0.060** (0.052-0.067)	**0.067** (0.058-0.076)	**0.078** (0.067-0.088)	**0.087** (0.073-0.098)
4-day	**0.015** (0.013-0.017)	**0.019** (0.017-0.021)	**0.025** (0.022-0.028)	**0.030** (0.026-0.033)	**0.036** (0.032-0.041)	**0.042** (0.037-0.047)	**0.048** (0.042-0.054)	**0.054** (0.047-0.061)	**0.063** (0.054-0.071)	**0.070** (0.059-0.079)
7-day	**0.009** (0.008-0.010)	**0.012** (0.011-0.013)	**0.016** (0.014-0.018)	**0.019** (0.017-0.021)	**0.023** (0.020-0.026)	**0.027** (0.023-0.030)	**0.030** (0.026-0.034)	**0.034** (0.030-0.039)	**0.040** (0.034-0.045)	**0.044** (0.037-0.050)
10-day	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.012** (0.011-0.013)	**0.014** (0.013-0.016)	**0.018** (0.015-0.020)	**0.020** (0.018-0.023)	**0.023** (0.020-0.026)	**0.026** (0.022-0.029)	**0.030** (0.025-0.034)	**0.033** (0.028-0.037)
20-day	**0.004** (0.004-0.005)	**0.006** (0.005-0.006)	**0.007** (0.007-0.008)	**0.009** (0.008-0.010)	**0.011** (0.009-0.012)	**0.012** (0.011-0.013)	**0.013** (0.012-0.015)	**0.015** (0.013-0.017)	**0.017** (0.015-0.019)	**0.018** (0.016-0.020)
30-day	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.006** (0.005-0.006)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.009-0.012)	**0.012** (0.010-0.013)	**0.013** (0.011-0.015)	**0.014** (0.012-0.016)
45-day	**0.003** (0.002-0.003)	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.008-0.011)	**0.010** (0.009-0.012)
60-day	**0.002** (0.002-0.002)	**0.003** (0.003-0.003)	**0.004** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.008** (0.007-0.009)

[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.

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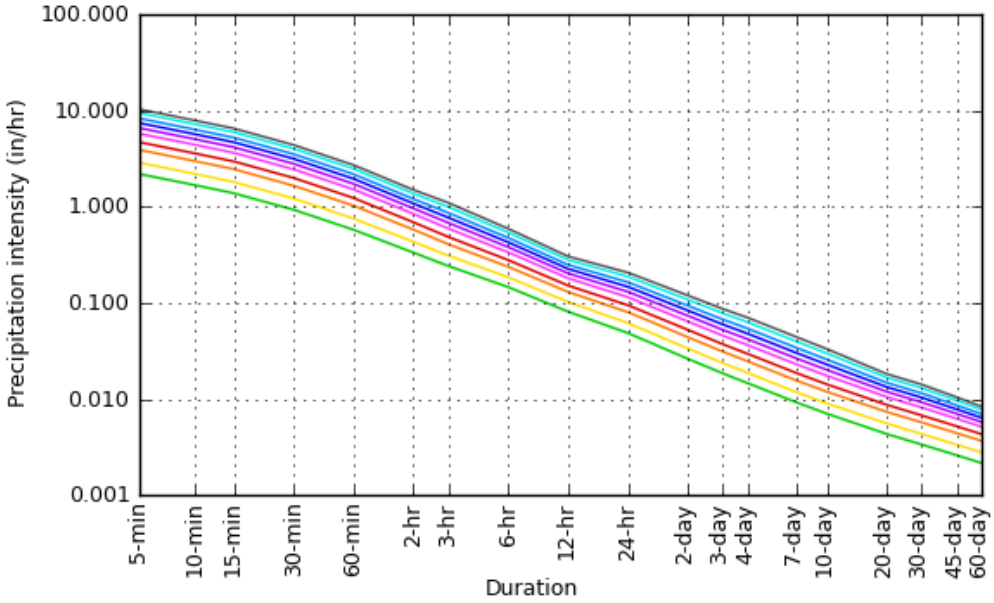
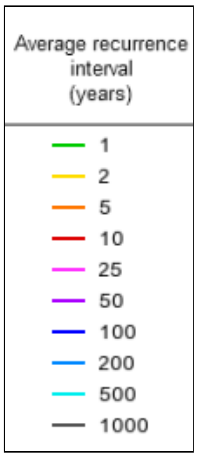
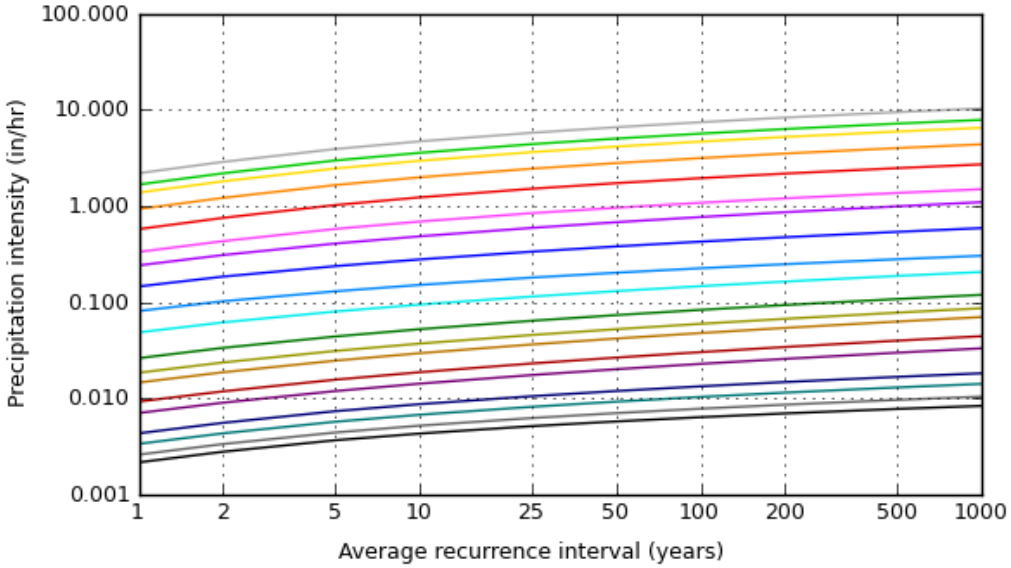
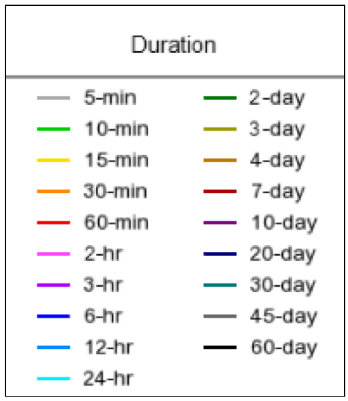
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 33.4955°, Longitude: -111.9279°









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Maps & aerials

Small scale terrain

10-ZN-2020
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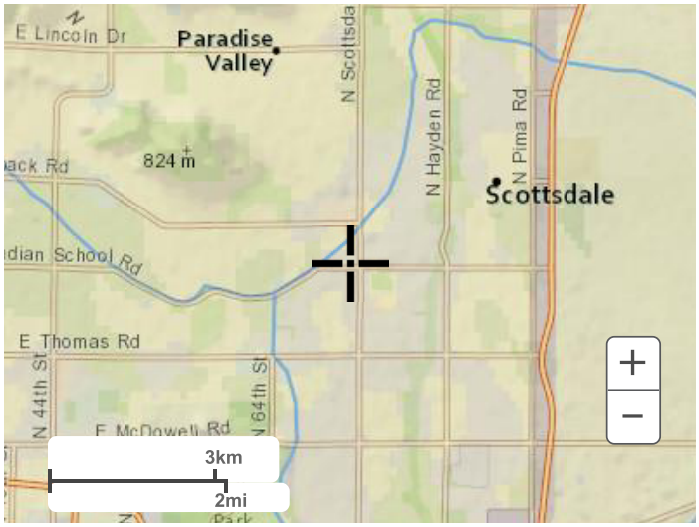
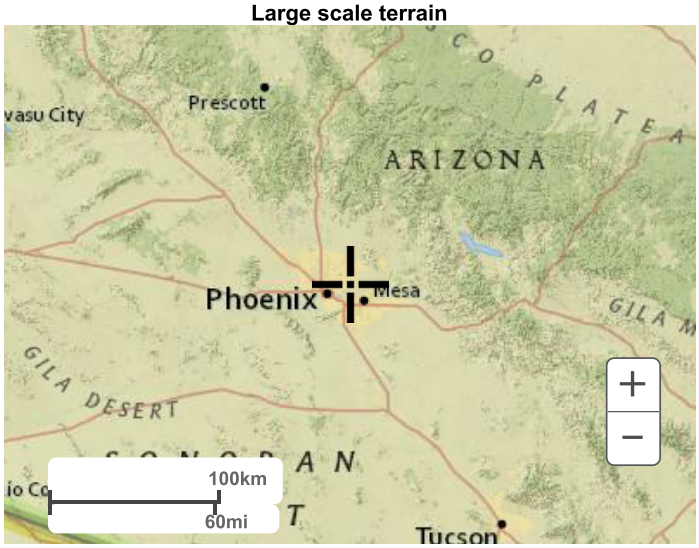
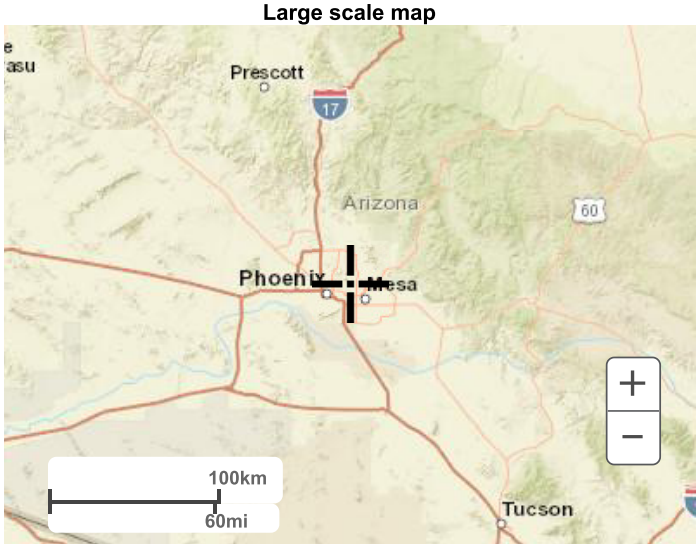


Large scale terrain



Large scale map



Large scale aerial

10-ZN-2020
10/22/20

APPENDIX II

Calculations

Weighted Runoff Coefficient-Calculations (Cw)

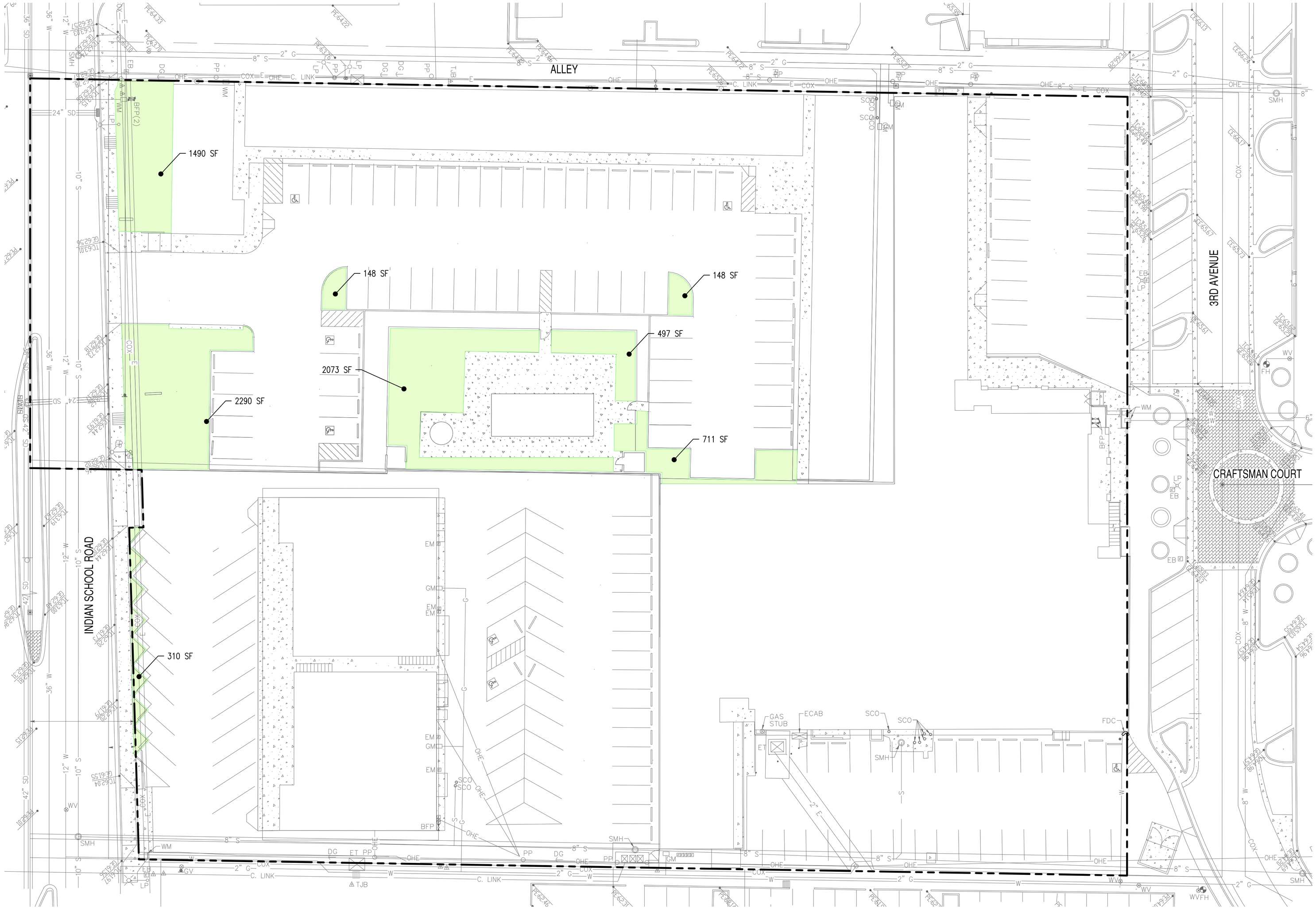
PROPOSED OVERALL SITE C_w					
	BUILDING or CONCRETE	ASPHALT	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.95	0.45		
AREA (ac)	2.46	0.65	0.07	3.18	**0.94**
DA-1	0.37	0.00	0.00	0.37	0.95
DA-2	0.19	0.26	0.02	0.47	0.93
DA-3	1.07	0.05	0.01	1.13	0.95
DA-4A	0.12	0.00	0.00	0.12	0.95
DA-4B	0.20	0.16	0.00	0.36	0.95
DA-5	0.42	0.00	0.04	0.46	0.91
DA-6	0.09	0.18	0.00	0.27	0.95

EXISTING OVERALL SITE C_w					
	BUILDING or CONCRETE	ASPHALT	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.95	0.45		
AREA (ac)	1.66	1.34	0.18	3.18	**0.92**
EX-1	0.20	0.00	0.00	0.20	0.95
EX-2	0.67	0.00	0.00	0.67	0.95
EX-3	0.00	0.24	0.00	0.24	0.95
EX-4	0.00	0.36	0.00	0.36	0.95
EX-5A	0.12	0.00	0.00	0.12	0.95
EX-5B	0.35	0.00	0.01	0.36	0.94
EX-6	0.13	0.74	0.17	1.04	0.87
EX-7	0.19	0.00	0.00	0.19	0.95

THE TRIANGLE

3RD AVENUE AND INDIAN SCHOOL ROAD

EXISTING CONDITIONS CWT EXHIBIT



ON-SITE PERVIOUS	=	0.18 AC	Cwt=0.45
ON-SITE IMPERVIOUS	=	3.00 AC	Cwt=0.95
TOTAL Cwt	=	3.18 AC	@ Cwt=0.92

NORTH

0' 20' 40' 60'

SCALE: 1" = 20'

PRELIMINARY
NOT FOR
CONSTRUCTION

SEG SUSTAINABILITY ENGINEERING GROUP

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

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

PROJECT
THE TRIANGLE

LOCATION
7120 E. INDIAN SCHOOL ROAD
SCOTTSDALE, AZ 85251

DRAWN	KA	10/16/2020
DESIGNED	KA	10/16/2020
QC	SC	10/16/2020
QA	AF	10/16/2020
PROJ. MGR.	AF	

DATE: 10/16/2020

ISSUED FOR:

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 200504

SHEET TITLE:

EXISTING CONDITIONS
DRAINAGE AREA MAP

SHEET NO.:

EXHIBIT A

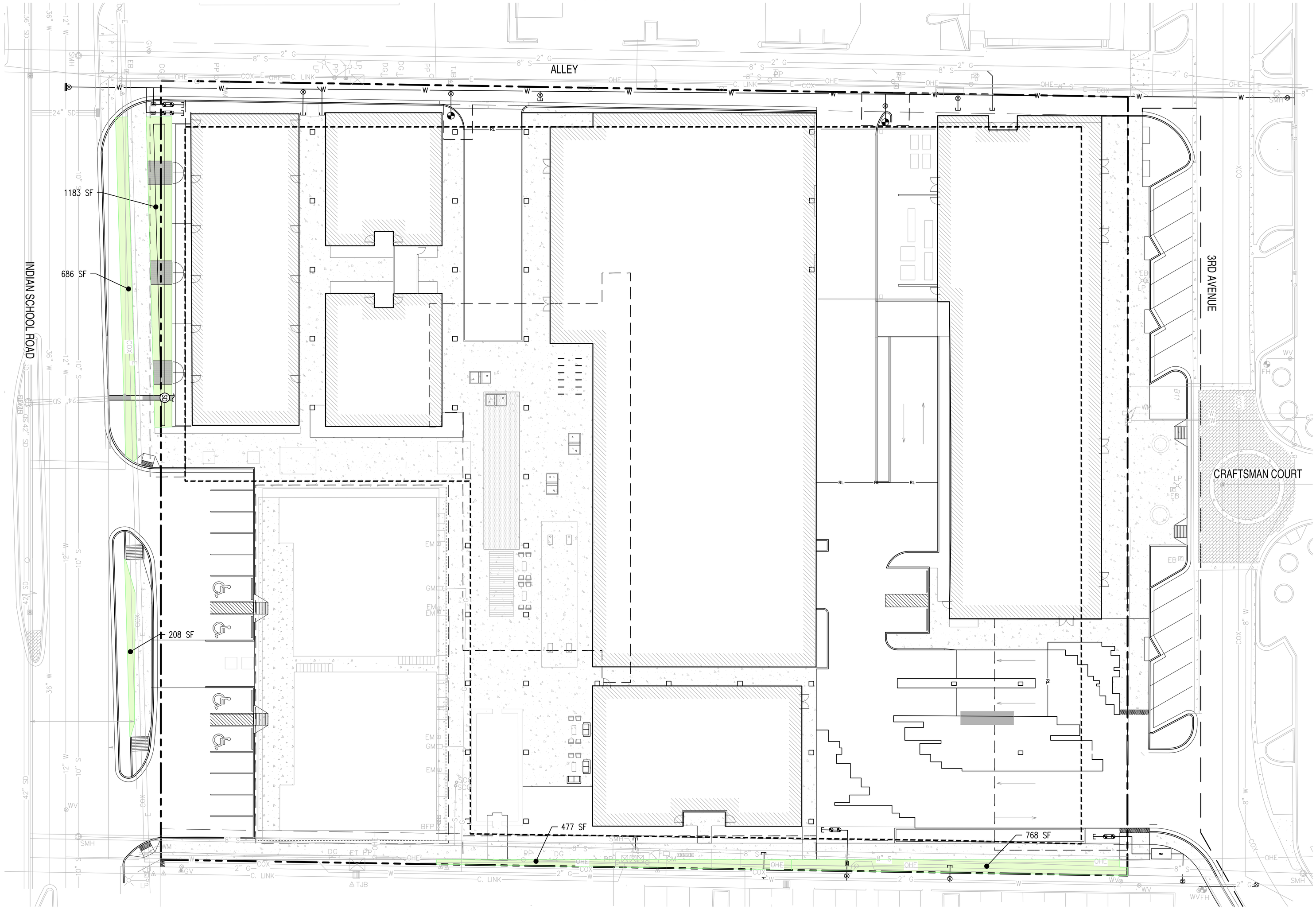
LOCATION: Z:\Shared\PROJECTS\Gensler\Holo Apartments Scottsdale 200504\11 CAD (SEG)\11.2 Entitlement-Planning\200504_EX-Cwt.dwg PRINTED BY: KENYA.AVINA DATE: 10/16/2020 3:16 PM

10-NZ-2020
10/22/20

THE TRIANGLE

3RD AVENUE AND INDIAN SCHOOL ROAD

PROPOSED CONDITIONS CWT EXHIBIT



ON-SITE PERVIOUS =	0.07 AC	@ Cwt=0.45	
ON-SITE IMPERVIOUS =	3.11 AC	@ Cwt=0.95	
TOTAL Cwt =	3.18 AC	@ Cwt=0.94	

NORTH

0' 20' 40' 60'

SCALE: 1" = 20'

PRELIMINARY
NOT FOR
CONSTRUCTION

SEG SUSTAINABILITY ENGINEERING GROUP

8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260

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In Maricopa County: (602) 263-1100

PROJECT: THE TRIANGLE

LOCATION: 7120 E. INDIAN SCHOOL ROAD SCOTTSDALE, AZ 85251

DRAWN	KA	10/16/2020
DESIGNED	KA	10/16/2020
QC	SC	10/16/2020
QA	AF	10/16/2020
PROJ. MGR.	AF	

DATE: 10/16/2020

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2	
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JOB NO.: 200504

SHEET TITLE: PROPOSED CONDITION Cwt MAP

SHEET NO.: EXHIBIT B

PRINTED BY: KENYA.AVINA DATE: 10/16/2020 3:14 PM

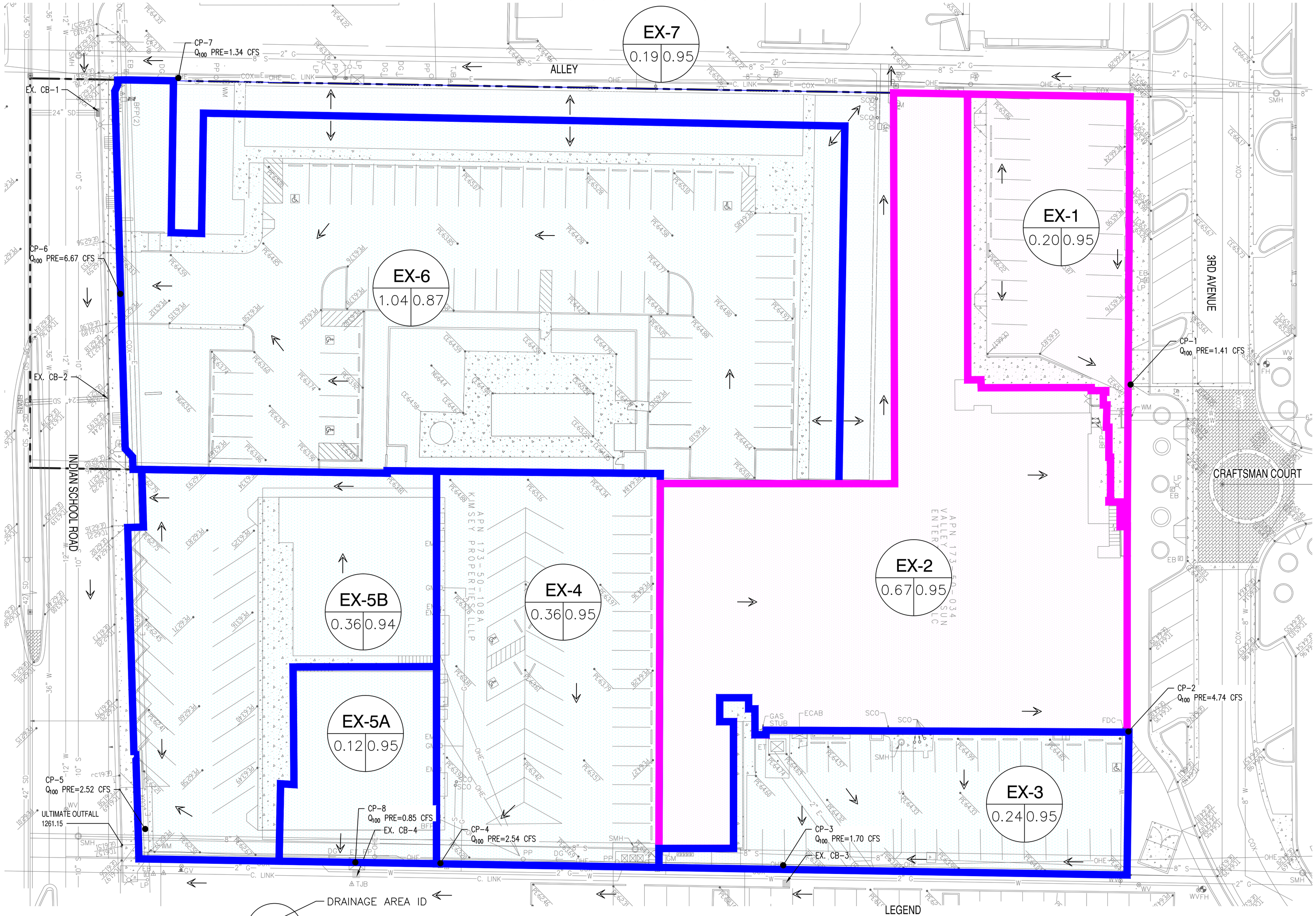
LOCATION: Z:\Shared\PROJECTS\Gensler\HoJo Apartments Scottsdale 200504\11 CAD (SEG)\11.2 Entitlement-Planning\200504_POST-Cwt.dwg

10-ZN-2020
10/22/20

THE TRIANGLE

3RD AVENUE AND INDIAN SCHOOL ROAD

EXISTING CONDITIONS DRAINAGE AREA MAP



DRAINAGE AREA KEY

DRAINAGE AREA ID

AREA IN ACRES — RUNOFF COEFFICIENT

LEGEND

- DRAINAGE AREAS CONTRIBUTING TO 3RD AVE
- DRAINAGE AREAS CONTRIBUTING TO INDIAN SCHOOL RD
- FLOW ARROW

SCALE: 1" = 20'

NORTH

PRELIMINARY
NOT FOR CONSTRUCTION

SUSTAINABILITY ENGINEERING GROUP

SEG

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

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ARIZONA811 Arizona Blue Stake, Inc.
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In Maricopa County: (602) 263-1100

PROJECT
THE TRIANGLE

LOCATION
7120 E. INDIAN SCHOOL ROAD
SCOTTSDALE, AZ 85251

DRAWN	KA	10/16/2020
DESIGNED	KA	10/16/2020
QC	SC	10/16/2020
QA	AF	10/16/2020
PROJ. MGR.	AF	

DATE: 10/16/2020

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REVISION NO.:	DATE:
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JOB NO.: 200504

SHEET TITLE:
EXISTING CONDITIONS DRAINAGE AREA MAP

SHEET NO.:
EXHIBIT C

LOCATION: Z:\Shared\PROJECTS\Gensler\HoJo Apartments Scottsdale 200504\11 CAD (SEG)\11.2 Entitlement-Planning\200504_EX-DAM.dwg PRINTED BY: KENYA.AVINA DATE: 10/16/2020 3:16 PM

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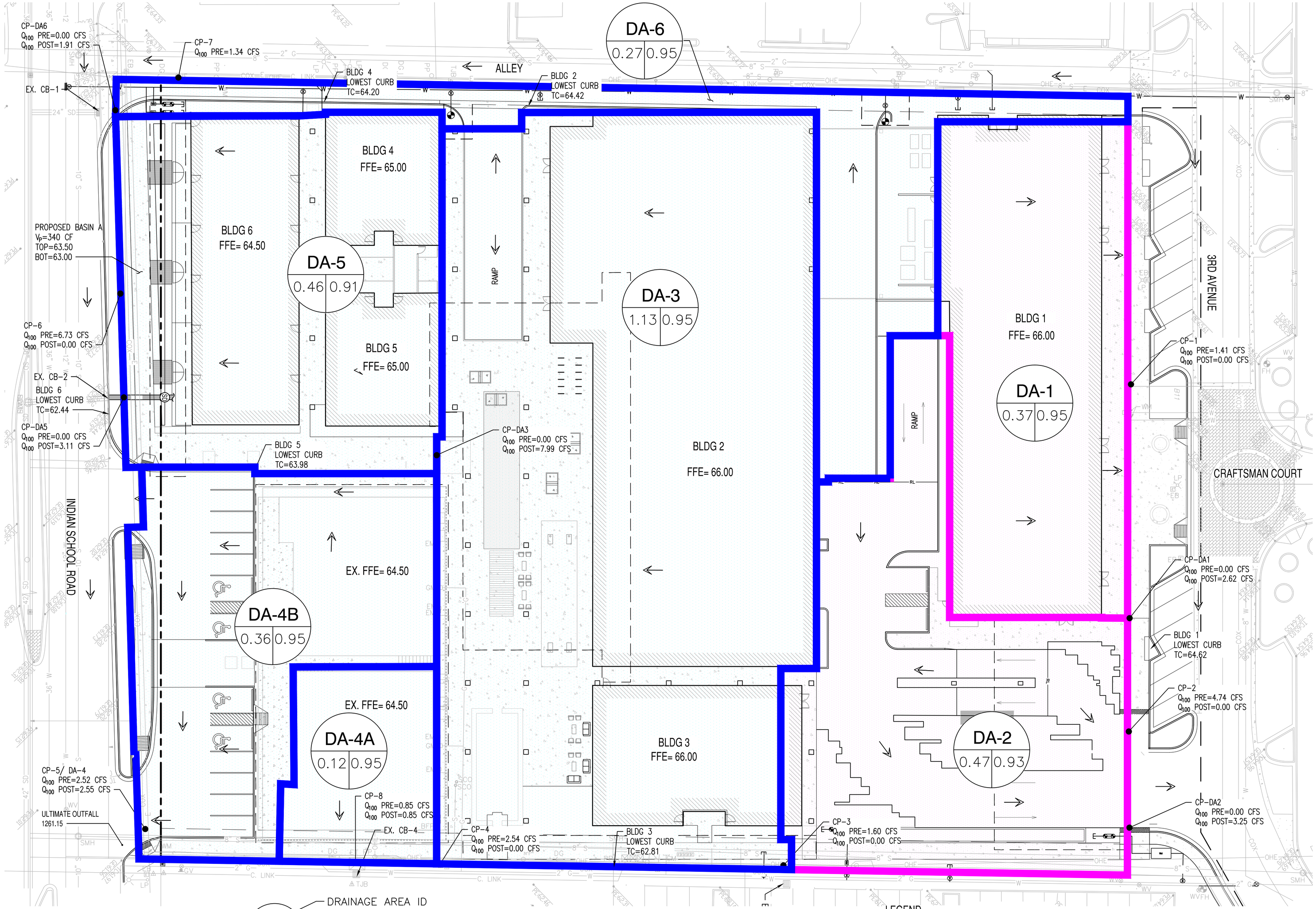
10/22/20

HOJO DEVELOPMENT

3RD AVENUE AND INDIAN SCHOOL ROAD
PROPOSED CONDITIONS DRAINAGE AREA MAP



DRAINAGE AREA ID

AREA IN ACRES — RUNOFF COEFFICIENT

DRAINAGE AREA KEY

LEGEND

- DRAINAGE AREAS CONTRIBUTING TO 3RD AVE
- DRAINAGE AREAS CONTRIBUTING TO INDIAN SCHOOL RD
- FLOW ARROW

NORTH

0' 20' 40' 60'

SCALE: 1" = 20'

PRELIMINARY
NOT FOR
CONSTRUCTION

SEG SUSTAINABILITY ENGINEERING GROUP

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

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Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

PROJECT: THE TRIANGLE

LOCATION: 7120 E. INDIAN SCHOOL ROAD SCOTTSDALE, AZ 85251

DRAWN	KA	10/16/2020
DESIGNED	KA	10/16/2020
QC	SC	##########
QA	AF	##########
PROJ. MGR.	AF	##########

DATE: 10/16/2020

ISSUED FOR:

REVISION NO.:	DATE:
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JOB NO.: 200504

SHEET TITLE: PROPOSED CONDITION DRAINAGE AREA MAP

SHEET NO.: EXHIBIT D

PRINTED BY: KENYAAVINA DATE: 10/16/2020 3:15 PM

LOCATION: Z:\Shared\PROJECTS\Gensler\Hojo Apartments Scottsdale 200504\11 CAD (SEG)\11.2 Entitlement-Planning\200504_POST-DAM.dwg

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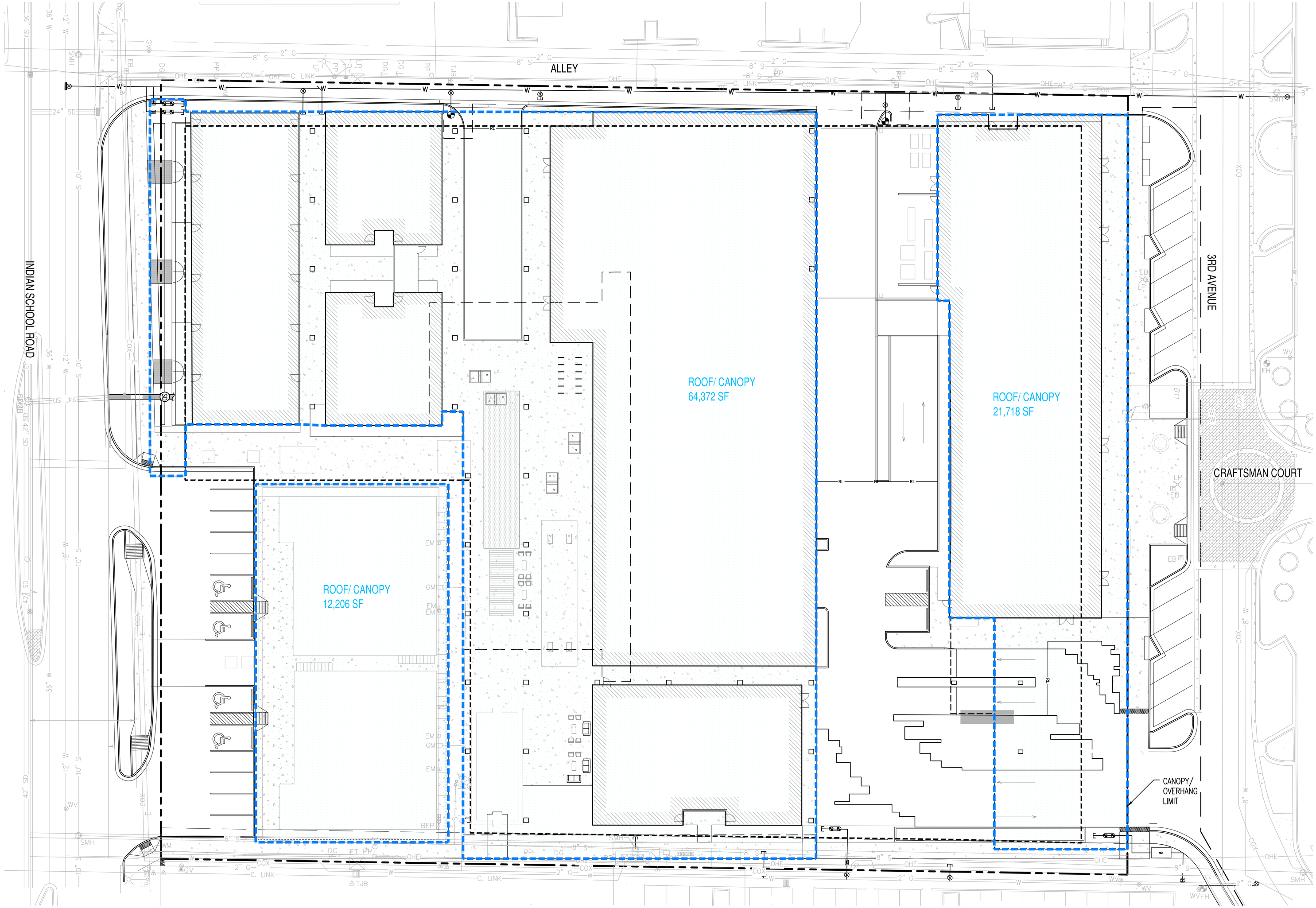
10/22/20

THE TRIANGLE

3RD AVENUE AND INDIAN SCHOOL ROAD

PROPOSED CONDITIONS ROOF AREA EXHIBIT



ON-SITE ROOF/ CANOPY AREA = 98,296 (2.26 AC)

ON-SITE FIRST FLUSH AREA = 39,921 (0.92 AC)

TOTAL DISTURBED AREA = 138,117 (3.18 AC)

NORTH

0' 20' 40' 60'

SCALE: 1" = 20'

PRELIMINARY
NOT FOR
CONSTRUCTION

SEG SUSTAINABILITY ENGINEERING GROUP

8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260

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In Maricopa County: (602) 263-1100

PROJECT
THE TRIANGLE

LOCATION
7120 E. INDIAN SCHOOL ROAD
SCOTTSDALE, AZ 85251

DRAWN	KA	10/16/2020
DESIGNED	KA	10/16/2020
QC	SC	10/16/2020
QA	AF	10/16/2020
PROJ. MGR.	AF	

DATE:
10/16/2020

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JOB NO.: 200504

SHEET TITLE:
PROPOSED CONDITIONS
ROOF AREA EXHIBIT

SHEET NO.:
EXHIBIT E

PRINTED BY: KENYA.AVINA DATE: 10/16/2020 3:13 PM

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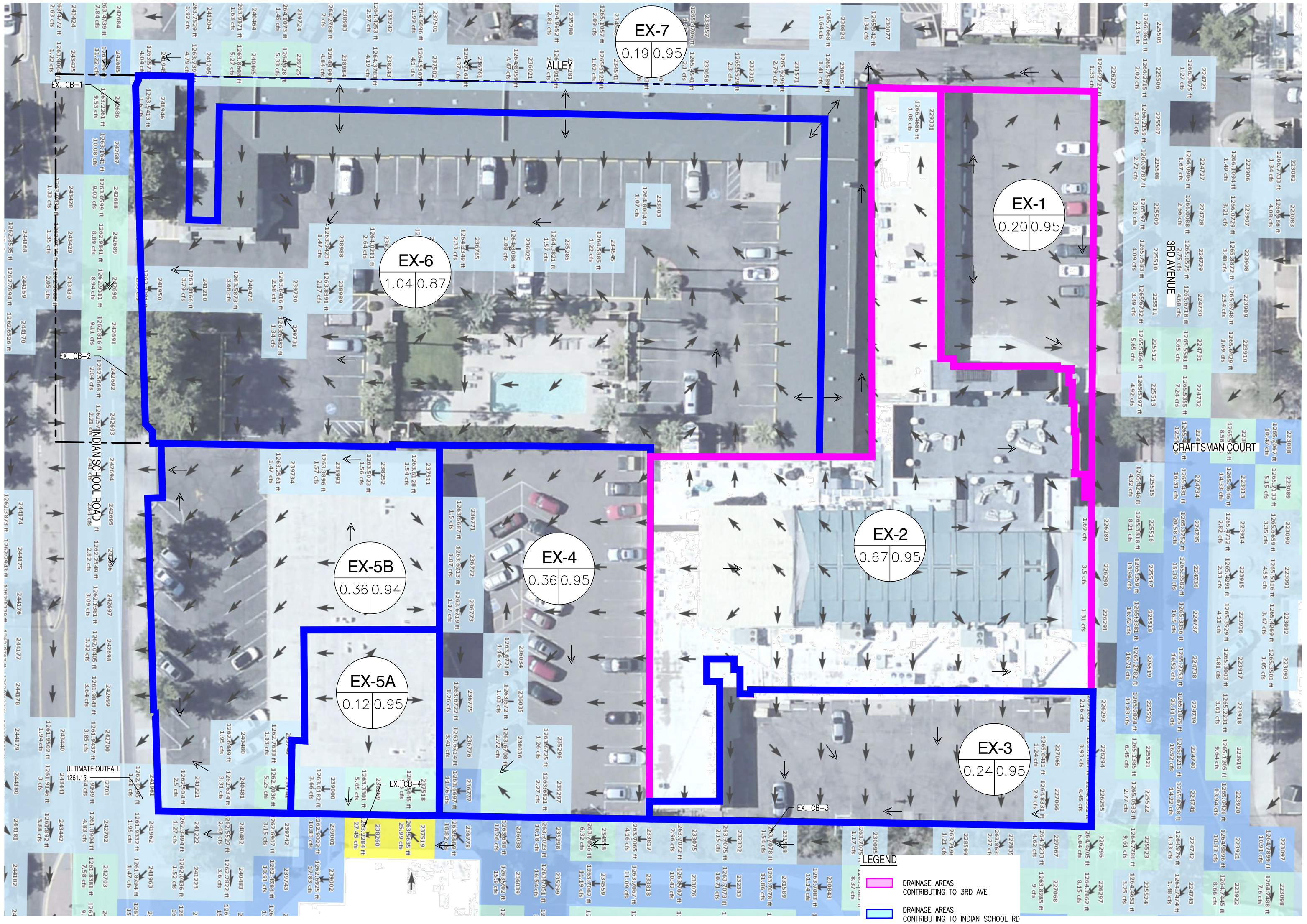
10/22/20

THE TRIANGLE

3RD AVENUE AND INDIAN SCHOOL ROAD

EXISTING CONDITIONS DRAINAGE AREA MAP



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NOT FOR
CONSTRUCTION

SEG SUSTAINABILITY ENGINEERING GROUP

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Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

PROJECT	LOCATION
THE TRIANGLE	7120 E. INDIAN SCHOOL ROAD SCOTTSDALE, AZ 85251

DRAWN	KA	10/16/2020
DESIGNED	KA	10/16/2020
QC	SC	##########
QA	AF	##########
PROJ. MGR.	AF	##########

DATE: 10/16/2020

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REVISION NO.:	DATE:
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JOB NO.: 200504

SHEET TITLE: FLO-2D MAP

SHEET NO.: EXHIBIT F

LOCATION: Z:\Shared\PROJECTS\Gensler\Hylo Apartments Scottsdale 200504\11 CAD (SEG)\11.2 Entitlement-Planning\200504_EX-DAM.dwg DATE: 10/16/2020 1:30 PM PRINTED BY: KENYA.AVINA

10-ZN-2020
10/22/20

36" at S=0.0063 ft/ft; d/D=1.0

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.006 ft/ft
Normal Depth	36.0 in
Diameter	36.0 in

Results	
Discharge	52.94 cfs
Flow Area	7.1 ft²
Wetted Perimeter	9.4 ft
Hydraulic Radius	9.0 in
Top Width	0.00 ft
Critical Depth	28.4 in
Percent Full	100.0 %
Critical Slope	0.007 ft/ft
Velocity	7.49 ft/s
Velocity Head	0.87 ft
Specific Energy	3.87 ft
Froude Number	(N/A)
Maximum Discharge	56.94 cfs
Discharge Full	52.94 cfs
Slope Full	0.006 ft/ft
Flow Type	Undefined

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	36.0 in
Critical Depth	28.4 in
Channel Slope	0.006 ft/ft
Critical Slope	0.007 ft/ft

48" at S=0.0063 ft/ft; d/D=1.0

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.006 ft/ft
Normal Depth	48.0 in
Diameter	48.0 in

Results	
Discharge	114.01 cfs
Flow Area	12.6 ft²
Wetted Perimeter	12.6 ft
Hydraulic Radius	12.0 in
Top Width	0.00 ft
Critical Depth	38.7 in
Percent Full	100.0 %
Critical Slope	0.007 ft/ft
Velocity	9.07 ft/s
Velocity Head	1.28 ft
Specific Energy	5.28 ft
Froude Number	(N/A)
Maximum Discharge	122.64 cfs
Discharge Full	114.01 cfs
Slope Full	0.006 ft/ft
Flow Type	Undefined

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	48.0 in
Critical Depth	38.7 in
Channel Slope	0.006 ft/ft
Critical Slope	0.007 ft/ft

10-ZN-2020
10/22/20

APPENDIX III

Preliminary Grading and Drainage Plans

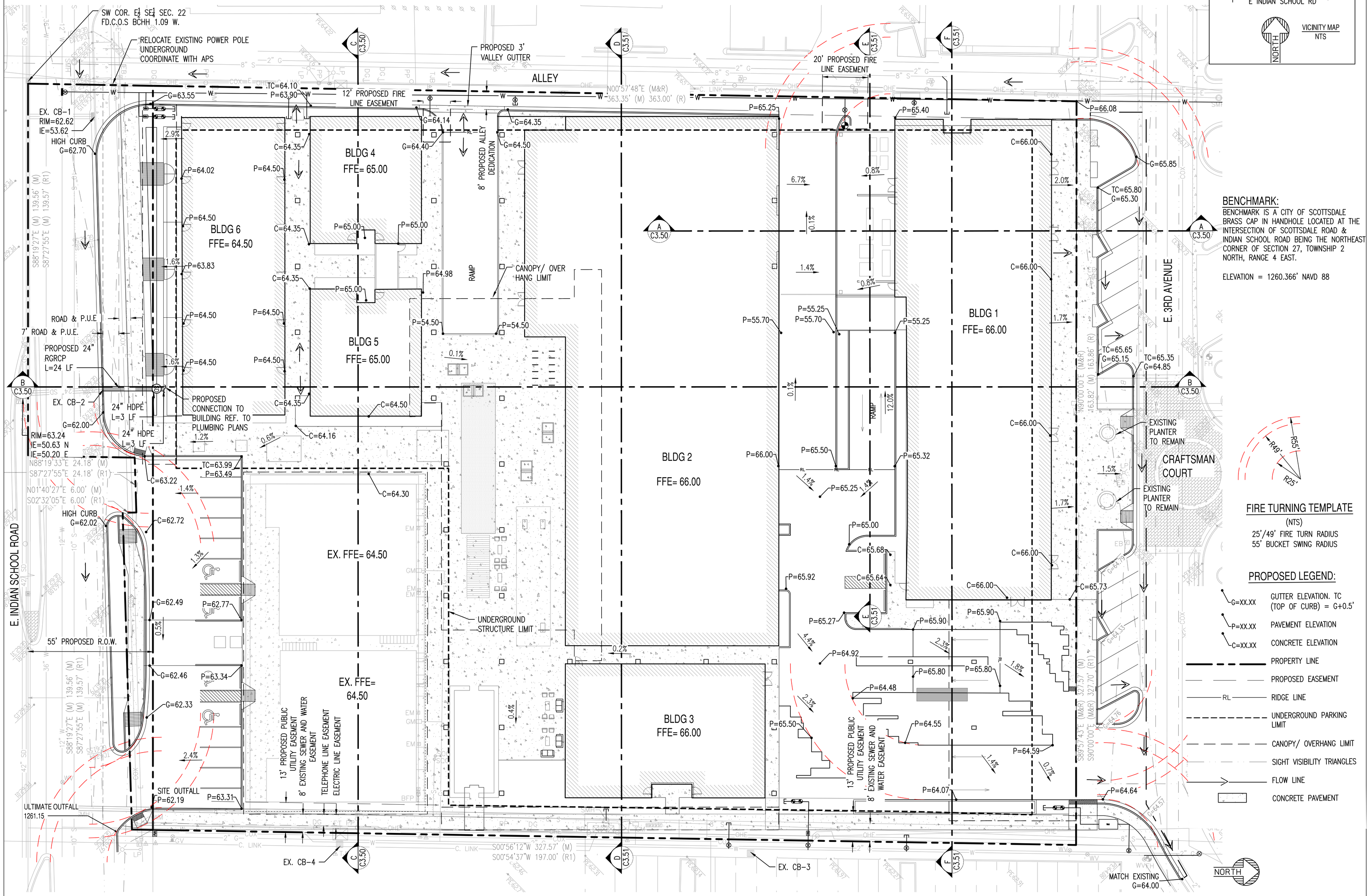
THE TRIANGLE

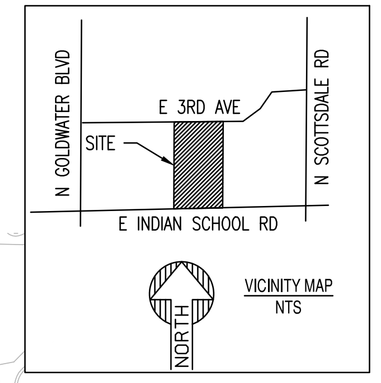
7120 E. INDIAN SCHOOL ROAD SCOTTSDALE, AZ 85251

CIVIL ENGINEER:
SEG
8280 E. GELDING DR, SUITE #101
SCOTTSDALE, AZ 85260
480-588-7226
ATTN: ALI FAKIH

CLIENT:
PEG DEVELOPMENT
180 N. UNIVERSITY AVE
SUITE 200, PROVO UT 84601
801-655-1998
ATTN: MATT KRAMBULE

ARCHITECT:
GENSLER
2575 E. CAMELBACK RD
SUITE 175, PHOENIX AZ 85016
602-253-4900
ATTN: JOHANNA COLLINS





BENCHMARK:
BENCHMARK IS A CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE LOCATED AT THE INTERSECTION OF SCOTTSDALE ROAD & INDIAN SCHOOL ROAD BEING THE NORTHEAST CORNER OF SECTION 27, TOWNSHIP 2 NORTH, RANGE 4 EAST.

ELEVATION = 1260.366' NAVD 88

FIRE TURNING TEMPLATE
(NTS)
25'/49' FIRE TURN RADIUS
55' BUCKET SWING RADIUS

PROPOSED LEGEND:

- G=XX.XX — GUTTER ELEVATION. TC (TOP OF CURB) = G+0.5'
- P=XX.XX — PAVEMENT ELEVATION
- C=XX.XX — CONCRETE ELEVATION
- PROPERTY LINE
- PROPOSED EASEMENT
- RL — RIDGE LINE
- UNDERGROUND PARKING LIMIT
- CANOPY/ OVERHANG LIMIT
- SIGHT VISIBILITY TRIANGLES
- FLOW LINE
- CONCRETE PAVEMENT

6/19/2020 3:38:59 PM

10-ZN-2020
10/22/20

THE TRIANGLE

7120 E INDIAN SCHOOL RD,
SCOTTSDALE, AZ 85251

- CASE PRE-APP NUMBER -
63-PA-2020

Gensler
2575 E Camelback Road
Suite 175
Phoenix, AZ 85016
United States
Tel 602.523.4900
Fax 602.523.4949

SYDNOR
4806 N 78TH Place
Scottsdale, AZ 85251
United States
Tel 480.206.4593

SEG
8280 E. GELDING DRIVE
Suite 101
Scottsdale, AZ 85260
United States
Tel 480.588.7226

△ Date	Description
10/16/20	Resubmittal

Seal / Signature

NOT FOR CONSTRUCTION

Project Name
3RD AVENUE+INDIAN SCHOOL ROAD - SCOTTSDALE, AZ

Project Number
200504 (SEG)

Description
PRELIMINARY GRADING PLAN

Scale
As indicated

C3.00

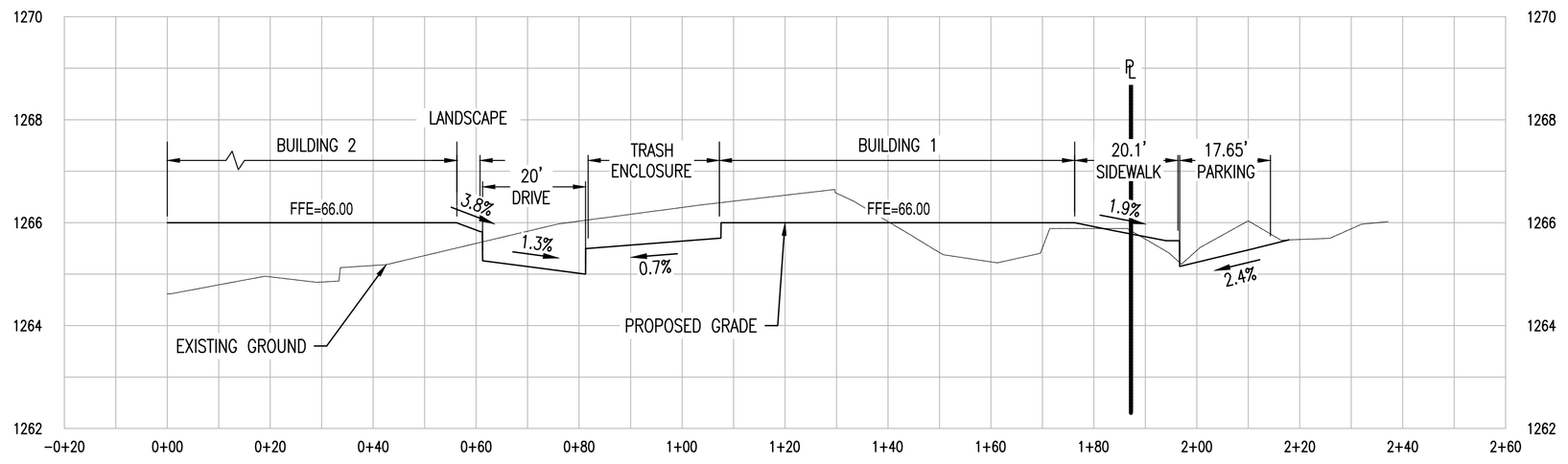
CIVIL ENGINEER:
SEG
8280 E. GELDING DR, SUITE #101
SCOTTSDALE, AZ 85260
480-588-7226
ATTN: ALI FAKIH

DEVELOPER/OWNER:
PEG/ COMPANIES
180 N. UNIVERSITY AVE
SUITE 200, UT 84601
801-655-1998
ATTN: MATT KRAMBULE

ARCHITECT:
GENSLER
2575 E. CAMELBACK RD
SUITE 175, PHOENIX AZ 85016
602-253-4900
ATTN: JOHANNA COLLINS

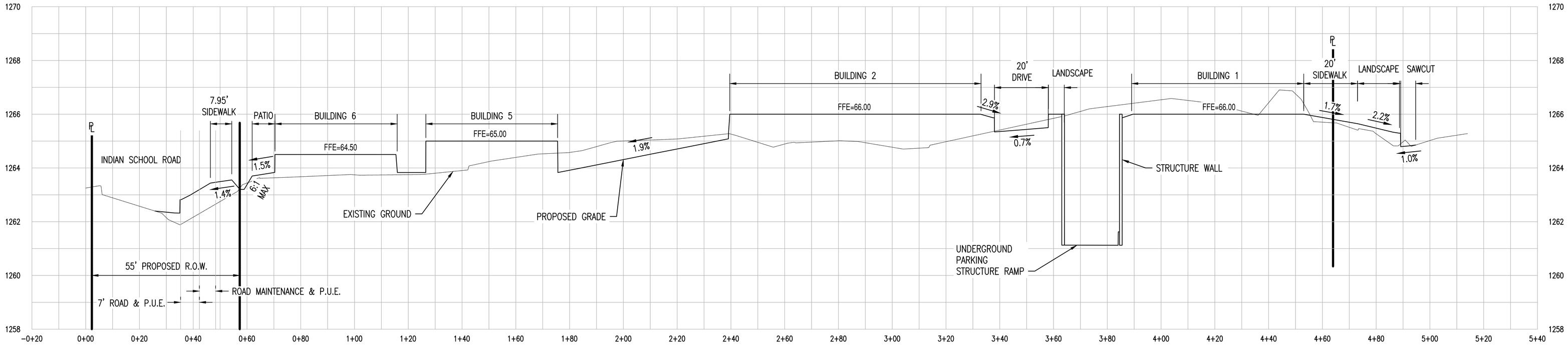
THE TRIANGLE

7120 E. INDIAN SCHOOL ROAD SCOTTSDALE, AZ 85251



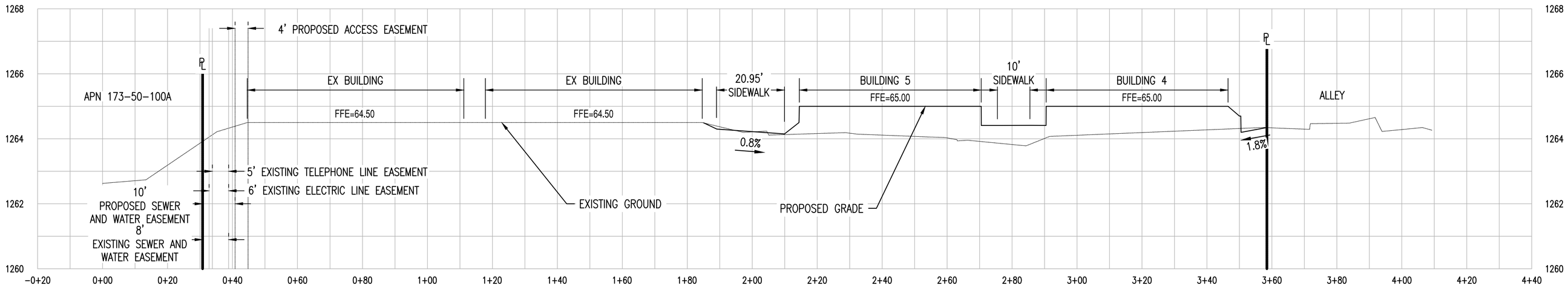
PROFILE VIEW A-A

SCALE:
HORZ: 1"=20'
VERT: 1"=2'



PROFILE VIEW B-B

SCALE:
HORZ: 1"=20'
VERT: 1"=2'



PROFILE VIEW C-C

SCALE:
HORZ: 1"=20'
VERT: 1"=2'

6/19/2020 3:38:59 PM

10-ZN-2020
10/22/20

THE TRIANGLE

7120 E INDIAN SCHOOL RD,
SCOTTSDALE, AZ 85251

- CASE PRE-APP NUMBER -
63-PA-2020

Gensler

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Suite 175
Phoenix, AZ 85016
United States
Tel 602.523.4900
Fax 602.523.4949

SYDNOR

4806 N 78TH Place
Scottsdale, AZ 85251
United States
Tel 480.206.4593

SEG

8280 E. GELDING DRIVE
Suite 101
Scottsdale, AZ 85260
United States
Tel 480.588.7226

△ Date	Description
10/16/20	Resubmittal

Seal / Signature

NOT FOR CONSTRUCTION

Project Name
3RD AVENUE+INDIAN SCHOOL ROAD - SCOTTSDALE, AZ

Project Number
200504 (SEG)

Description
PRELIMINARY CROSS SECTION

Scale
As indicated

C3.50

CIVIL ENGINEER:
SEG
8280 E. GELDING DR, SUITE #101
SCOTTSDALE, AZ 85260
480-588-7226
ATTN: ALI FAKIH

DEVELOPER/OWNER:
PEG/ COMPANIES
180 N. UNIVERSITY AVE
SUITE 200, UT 84601
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ATTN: MATT KRAMBULE

ARCHITECT:
GENSLER
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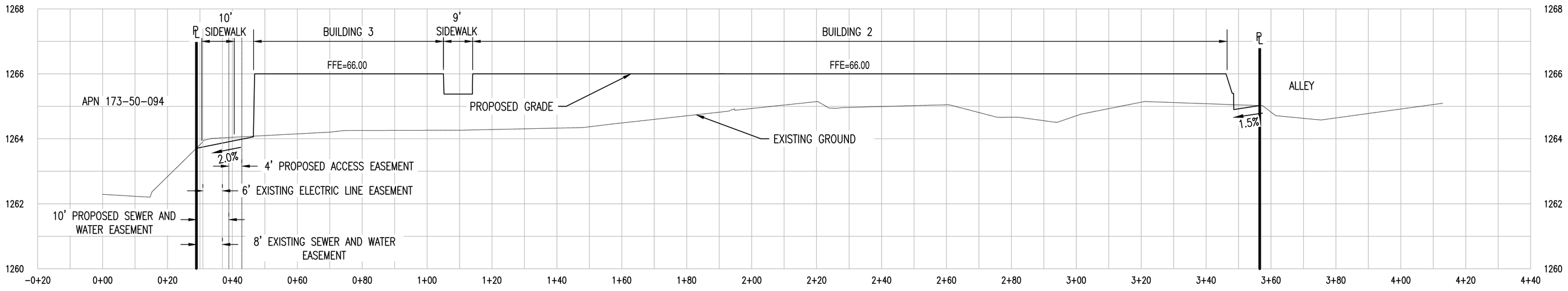
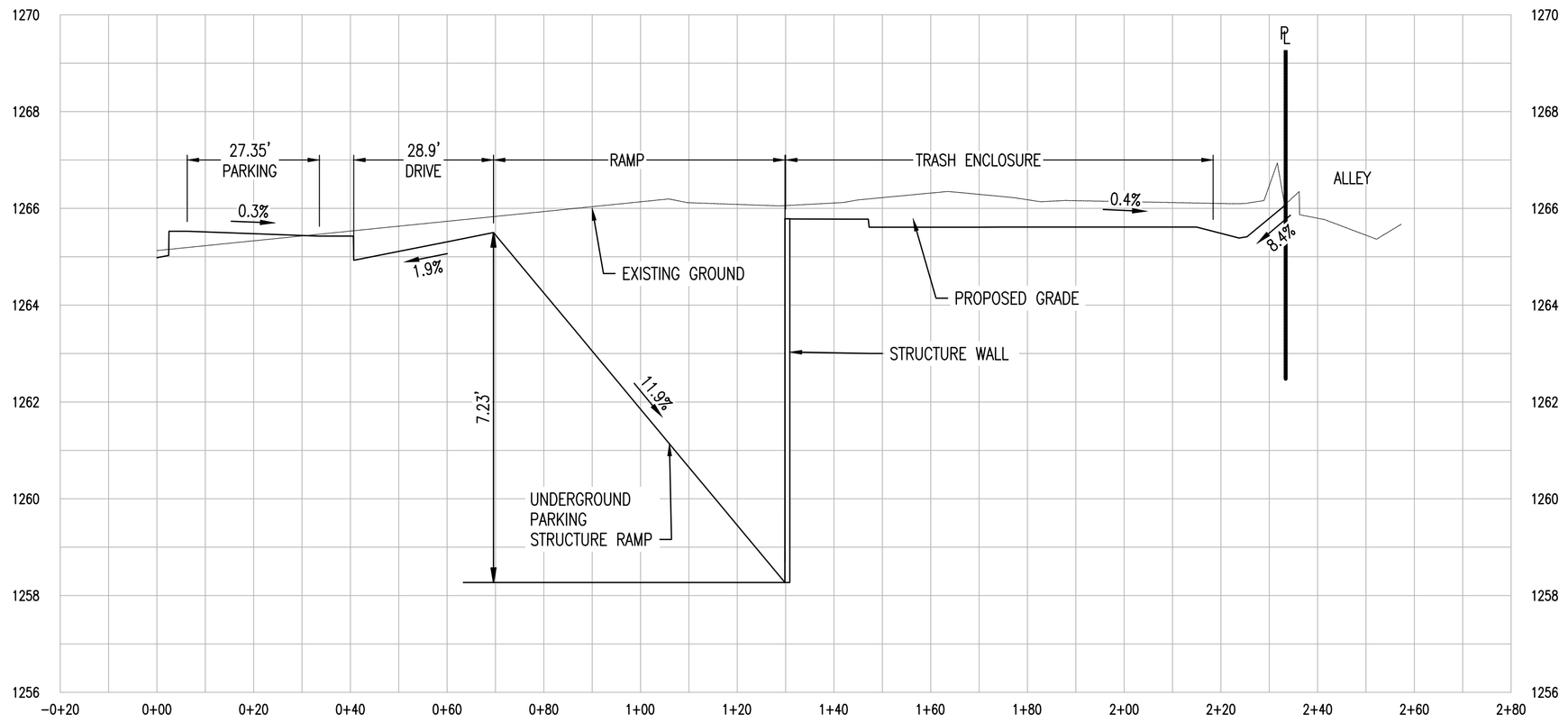
THE TRIANGLE

7120 E. INDIAN SCHOOL ROAD SCOTTSDALE, AZ 85251



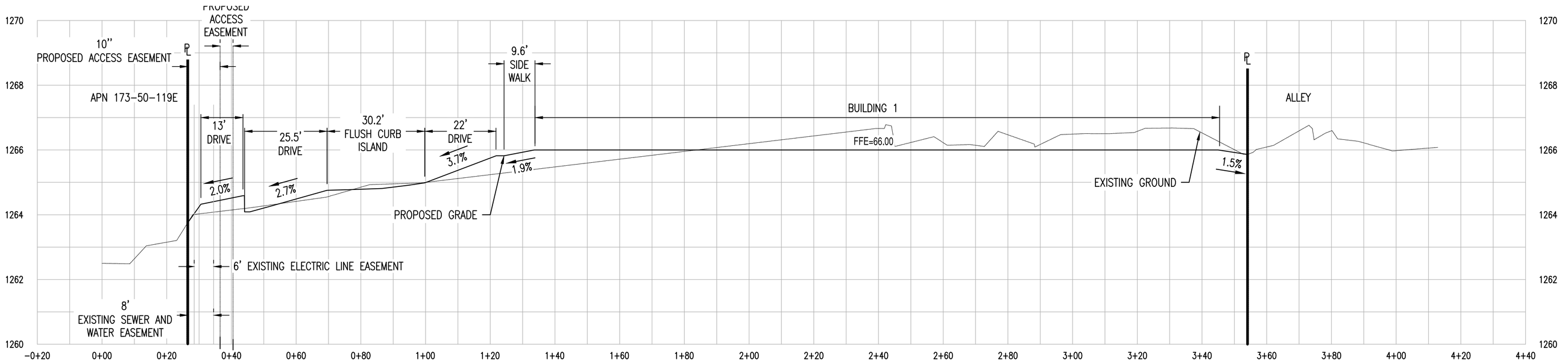
PROFILE VIEW D-D

SCALE:
HORZ: 1"=20'
VERT: 1"=2'



PROFILE VIEW E-E

SCALE:
HORZ: 1"=20'
VERT: 1"=2'



PROFILE VIEW F-F

SCALE:
HORZ: 1"=20'
VERT: 1"=2'

6/19/2020 3:38:59 PM

10-ZN-2020
10/22/20

THE TRIANGLE

7120 E INDIAN SCHOOL RD,
SCOTTSDALE, AZ 85251

- CASE PRE-APP NUMBER -
63-PA-2020

Gensler

2575 E Camelback Road
Suite 175
Phoenix, AZ 85016
United States
Tel 602.523.4900
Fax 602.523.4949

SYDNOR

4806 N 78TH Place
Scottsdale, AZ 85251
United States
Tel 480.206.4593

SEG

8280 E. GELDING DRIVE
Suite 101
Scottsdale, AZ 85260
United States
Tel 480.588.7226

△	Date	Description
	10/16/20	Resubmittal

Seal / Signature

NOT FOR CONSTRUCTION

Project Name
3RD AVENUE+INDIAN SCHOOL ROAD - SCOTTSDALE, AZ

Project Number
200504 (SEG)

Description
PRELIMINARY CROSS SECTION

Scale
As indicated

C3.51

APPENDIX IV

Site Visit Photos

EAST BOUNDARY SITE PHOTOS 8/27/2020

NORTHEAST BOUNDARY OF PARCEL 173-50-119E

PARCEL 173-50-119E EXISTING INLET STRUCTURE, EX. CB-3

EAST BOUNDARY BETWEEN PARCELS 173-50-108A AND 173-50-094 LOOKING NORTH

EAST BOUNDARY BETWEEN PARCELS 173-50-108A AND 173-50-094 LOOKING SOUTH

SOUTHEAST BOUNDARY BETWEEN PARCELS 173-50-108A AND 173-50-100A LOOKING NORTH

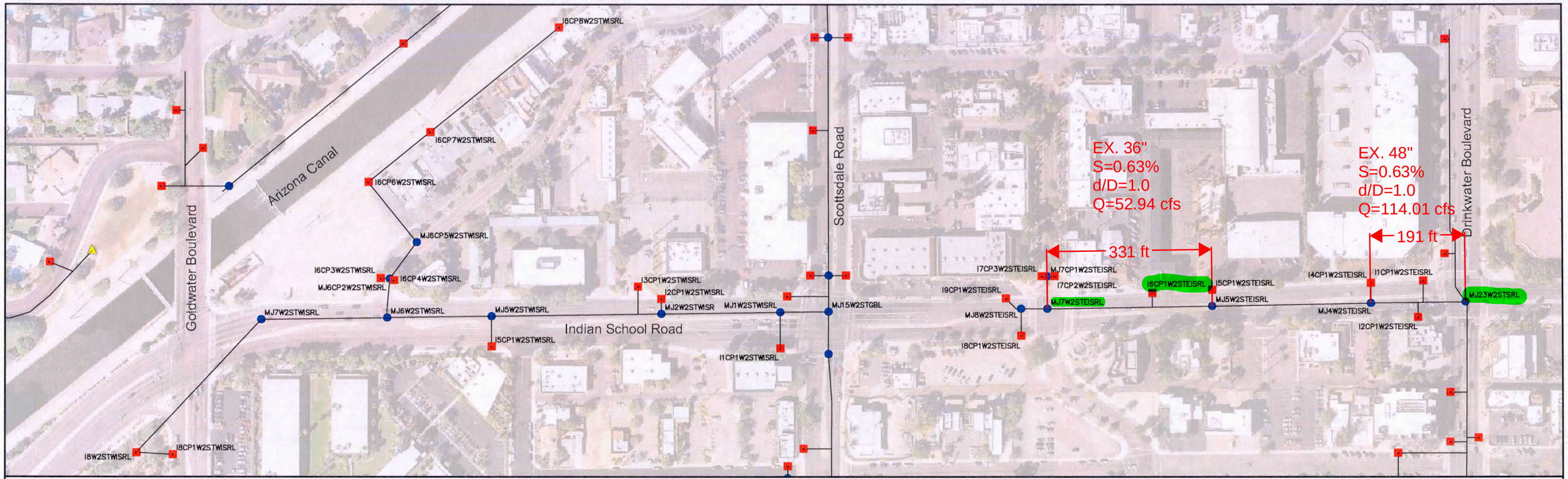
SOUTHEAST BOUNDARY BETWEEN THE TRIANGLE BUILDING AND PARCEL 173-50-100A LOOKING NORTH

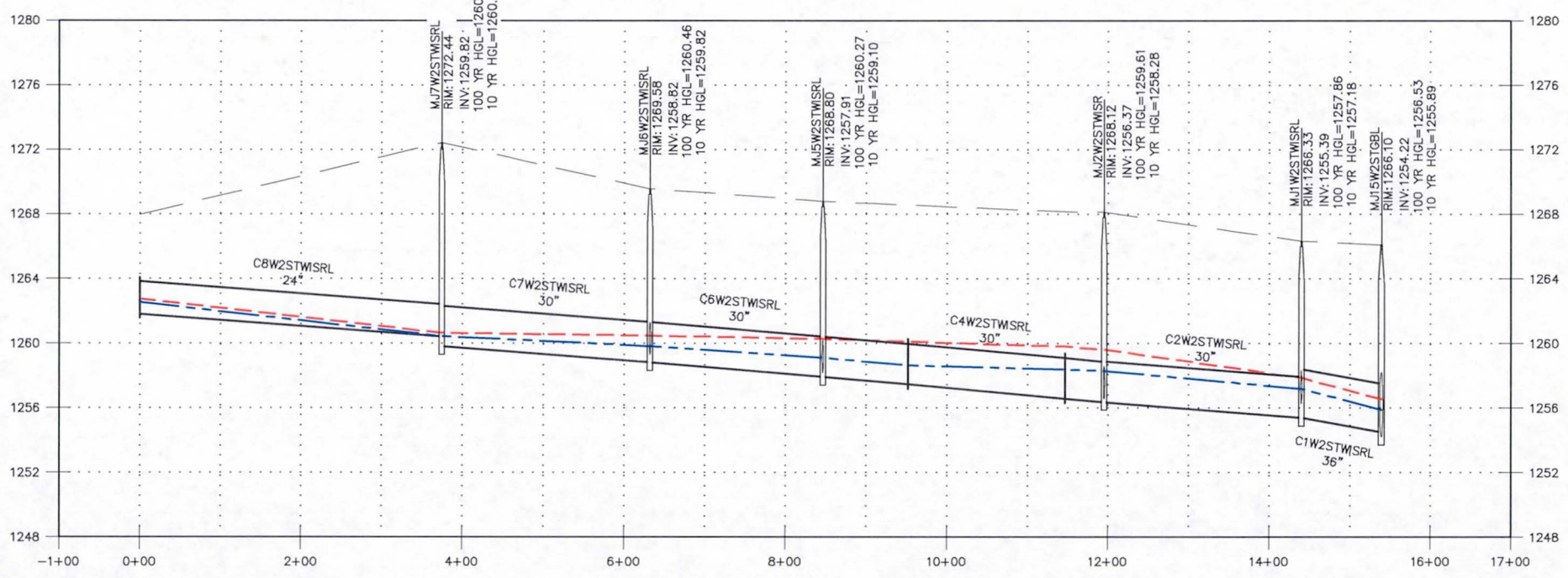
SOUTHWEST CORNER OF PARCEL 173-50-100A

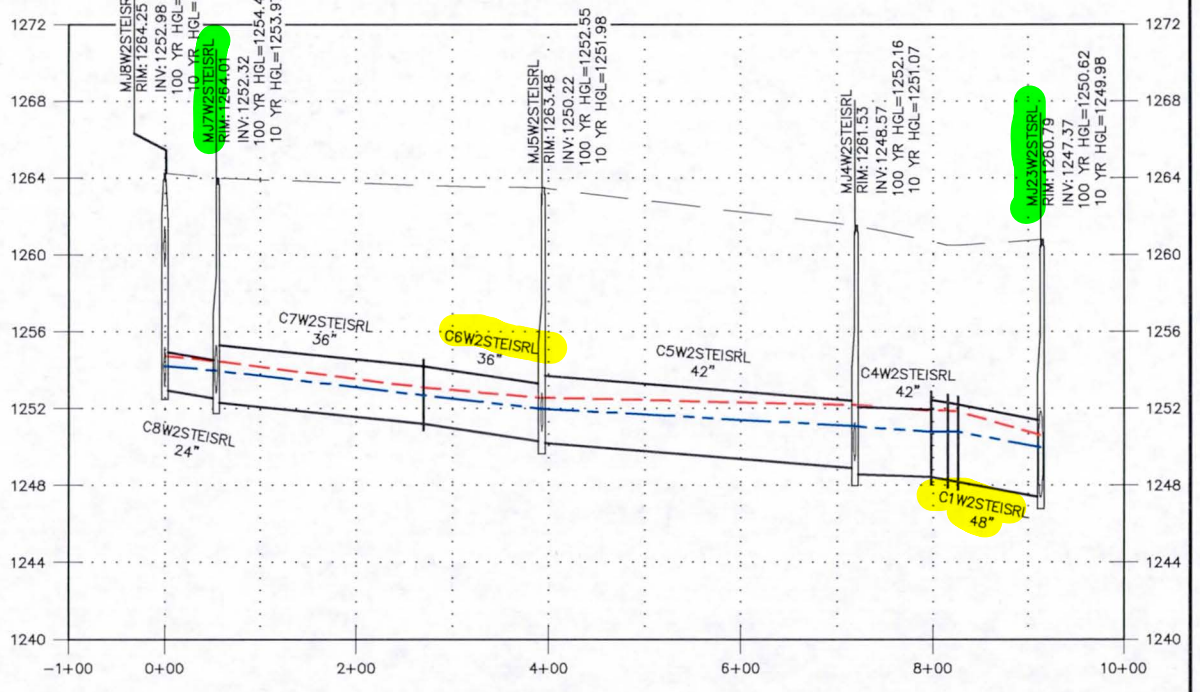
EXISITNG INLET, EX. CB-4, IN PARCEL 173-50-100A

APPENDIX V

Lower Indian Bend Wash ADMP Excerpt







SHEET SD29 OF SD121

Flood Control District of Maricopa County

Gavan & Barker Inc. Civil Engineering & Landscape Architecture 3030 North Central Avenue, Suite 1530 Phoenix, AZ 85012 Phone 602-200-0031

TYLIN INTERNATIONAL engineers| planners| scientists

Legend (Plan)
- Inlet & SWMM Identifier
- Manhole & SWMM Identifier
- Outlet & SWMM Identifier
- Storm Drain Pipes

Legend (Profile)
- Ground Elevation
- Hydraulic Grade Line (100yr, 6-hr)
- Hydraulic Grade Line (10yr, 6-hr)

LOWER INDIAN BEND WASH ADMS/P
STUDY AREA-SOUTH

N

50 0 50 100

Scale: 1"=200' Horizontal
1"=10' Vertical

SWMM Outfall:
W2STIBWOUTFALL
(West 2nd Street S.D. Outfall)

	By	Date
Prepared	AJA	12/18/2017
Checked	MTG	12/18/2017

10-ZN-2020
10/22/20

Inlet Summary Table

SWMM Name		Curb High / Soffit High Inflow	FLO-2D/SWMM Model							
			100-yr, 24-hr		100-yr, 6-hr		10-yr, 24-hr		10-yr, 6-hr	
Inlet	Connector Pipe		Inflow	Pipe Max	Inflow	Pipe Max	Inflow	Pipe Max	Inflow	Pipe Max
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
I32CP1W2ST	C32CP1W2ST	14.4	0.5	0.5	0.5	0.5	0.3	0.3	0.4	0.4
I32CP2W2ST	C32CP2W2ST	14.4	0.9	0.9	1.0	1.0	0.6	0.6	0.7	0.7
I2CP1W2STSRL	C2CP1W2STSRL	7.2	4.9	4.9	5.4	5.4	3.4	3.4	4.0	4.0
I1CP1W2STSRL	C1CP1W2STSRL	7.2	1.5	1.4	3.0	3.0	0.5	0.5	0.6	0.6
I4CP1W2STSRL	C4CP1W2STSRL	7.2	5.6	5.6	6.4	6.4	2.5	2.5	3.5	3.5
I6CP1W2STSRL	C6CP1W2STSRL	4.8	1.5	1.5	1.7	1.7	1.0	1.0	1.2	1.2
I7CP1W2STSRL	C7CP1W2STSRL	9.6	7.3	7.3	8.6	8.6	4.0	4.0	5.1	5.0
I8CP1W2STSRL	C8CP1W2STSRL	4.8	0.7	0.7	0.8	1.0	0.4	0.5	0.5	0.5
I9CP1W2STSRL	C9CP1W2STSRL	4.8	0.9	0.9	1.8	1.8	0.6	0.6	0.7	0.7
I5CP2W2STSRL	C5CP2W2STSRL	9.6	6.7	6.7	8.1	8.1	3.8	3.8	4.7	4.7
I5CP3W2STSRL	C5CP3W2STSRL	14.4	14.8	14.7	15.6	15.6	11.4	11.4	12.7	12.7
I21CP1W2STSRL	C21CP1W2STSRL	12.0	4.7	4.6	5.9	5.8	2.7	2.7	3.3	3.3
I20CP1W2STSRL	C20CP1W2STSRL	12.0	2.7	2.7	4.0	4.0	1.5	1.5	1.8	1.8
I19CP1W2STSR	C19CP1W2STSR	12.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
I17CP1W2STSRL	C17CP1W2STSRL	4.8	1.1	1.1	1.3	1.3	0.6	0.6	0.7	0.7
I16CP1W2STSRL	C16CP1W2STSRL	4.8	1.9	1.9	2.2	2.2	0.9	0.9	1.1	1.1
I15CP1W2STSRL	C15CP1W2STSRL	4.8	4.0	4.0	4.2	4.2	2.9	2.9	3.3	3.3
I14CP1W2STSRL	C14CP1W2STSRL	4.8	2.0	2.0	3.0	3.0	0.3	0.3	0.4	0.4
I13CP1W2STSRL	C13CP1W2STSRL	7.2	3.3	3.2	3.8	3.8	1.6	1.5	2.0	2.0
I10CP2W2STSRL	C10CP2W2STSRL	12.0	13.8	13.8	15.0	15.0	6.7	6.7	9.2	9.2
I10CP3W2STSRL	C10CP3W2STSRL	12.0	1.2	1.2	3.2	3.1	0.5	0.5	0.6	0.6
I12CP1W2STSRL	C12CP1W2STSRL	12.0	1.6	1.5	2.1	2.0	0.7	0.7	0.9	0.9
I18CP2W2STSRL	C18CP2W2STSRL	14.4	8.4	8.3	9.9	9.8	5.3	5.3	6.2	6.2
I18CP1W2STSRL	C18CP1W2STSRL	8.7	1.1	9.4	1.4	11.2	0.5	5.7	0.6	6.8
I20CP1W2ST	C20CP1W2ST	32.2	1.1	1.1	2.0	2.3	0.3	0.3	0.5	0.5
I21CP1W2ST	C21CP1W2ST	32.2	9.7	9.7	14.5	14.5	3.5	3.5	5.3	5.3
I20CP2W2ST	C20CP2W2ST	32.2	0.8	0.8	1.6	1.6	0.3	0.3	0.4	0.4
I1W2STBAL	C1W2STBAL	32.2	11.9	29.0	16.8	34.7	5.5	20.9	7.3	23.4
I24CP2W2ST	C24CP2W2ST	2.6	1.6	1.6	2.0	2.0	1.0	1.0	1.2	1.2
I24CP4W2ST	C24CP4W2ST	2.6	1.9	1.9	2.3	2.2	1.1	1.1	1.4	1.4
I33CP1W2ST	C33CP1W2ST	20.0	1.5	1.5	1.9	1.9	0.9	0.9	1.1	1.1
I34CP1W2ST	C34CP1W2ST	20.0	1.3	1.2	1.6	1.6	0.7	0.7	0.9	0.9
I35CP1W2ST	C35CP1W2ST	20.0	1.8	1.8	2.3	2.3	1.0	1.0	1.2	1.2
I37CP1W2ST	C37CP1W2ST	32.2	8.9	8.9	10.4	10.4	5.8	5.8	7.0	7.0
I37CP2W2ST	C37CP2W2ST	32.2	3.0	3.0	3.6	3.6	1.8	1.8	2.2	2.2
I36CP1W2ST	C36CP1W2ST	20.0	8.7	8.7	10.6	10.6	4.7	4.7	6.1	6.1
I43CP1W2ST	C43CP1W2ST	32.2	11.0	11.0	13.2	13.1	5.5	5.5	6.7	6.7
I47CP1W2ST	C47CP1W2ST	32.2	5.8	5.8	6.7	6.7	3.7	3.7	4.5	4.5
I46CP1W2ST	C46CP1W2ST	17.4	1.6	1.6	2.0	2.0	0.8	0.8	1.1	1.1
I2CP1W2ST69STL	C2CP1W2ST69STL	2.6	0.9	0.9	1.0	1.0	0.5	0.5	0.6	0.6
I1CP1W2ST69STL	C1CP1W2ST69STL	2.6	3.1	3.1	3.2	3.2	1.7	1.7	2.0	2.0
I9CP1W2STBAL	C9CP1W2STBAL	2.6	1.8	3.9	3.2	6.2	1.9	3.7	2.1	4.0
I9CP2W2STBAL	C9CP2W2STBAL	2.6	1.9	2.0	3.1	3.0	2.0	2.2	2.0	2.1
I7CP1W2STBAL	C7CP1W2STBAL	2.6	2.0	1.9	2.6	2.5	4.3	1.9	2.1	2.1
I4CP1W2STBAL	C4CP1W2STBAL	3.6	5.5	5.4	5.9	5.9	5.4	5.3	5.4	5.3

Inlet Summary Table

SWMM Name		Curb High / Soffit High Inflow	FLO-2D/SWMM Model							
			100-yr, 24-hr		100-yr, 6-hr		10-yr, 24-hr		10-yr, 6-hr	
Inlet	Connector Pipe		Inflow	Pipe Max	Inflow	Pipe Max	Inflow	Pipe Max	Inflow	Pipe Max
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
I2CP1W2STEISRL	C2CP1W2STEISRL	17.4	7.9	7.9	10.5	10.6	3.1	3.1	4.5	4.5
I1CP1W2STEISRL	C1CP1W2STEISRL	20.0	10.1	10.0	13.1	13.0	3.5	3.6	5.6	5.6
I26CP1W2STSRL	C26CP1W2STSRL	4.8	5.8	5.7	7.6	7.5	3.6	3.6	4.4	4.4
I5CP1W2STEISRL	C5CP1W2STEISRL	13.9	7.2	7.2	7.8	7.8	5.1	5.1	6.1	6.0
I4CP1W2STEISRL	C4CP1W2STEISRL	20.0	14.9	14.9	17.0	17.0	10.7	10.7	12.2	12.1
I6CP1W2STEISRL	C6CP1W2STEISRL	3.4	3.9	3.9	4.3	4.3	2.7	2.7	3.2	3.2
I9CP1W2STEISRL	C9CP1W2STEISRL	17.4	7.1	7.1	8.2	8.2	5.0	5.0	5.9	5.8
I8CP1W2STEISRL	C8CP1W2STEISRL	3.1	2.3	2.3	2.7	2.7	1.6	1.6	1.9	1.9
I7CP2W2STEISRL	C7CP2W2STEISRL	5.2	8.5	8.5	8.9	8.8	5.5	5.5	6.2	6.2
I7CP3W2STEISRL	C7CP3W2STEISRL	13.1	10.9	10.8	12.7	12.7	7.4	7.3	8.9	8.9
I2CP1W2STWISRL	C2CP1W2STWISRL	7.8	7.2	7.1	8.4	8.4	4.7	4.7	5.5	5.5
I3CP1W2STWISRL	C3CP1W2STWISRL	5.4	9.2	9.1	10.6	10.6	5.6	5.6	7.0	6.9
I1CP1W2STWISRL	C1CP1W2STWISRL	4.8	3.9	3.9	4.6	4.6	2.5	2.5	2.9	2.9
I16CP1W2STGBL	C16CP1W2STGBL	17.4	3.9	3.9	4.4	4.4	2.6	2.6	3.1	3.1
I8W2STWISRL	C8W2STWISRL	5.0	3.6	4.6	4.3	5.4	2.2	2.8	2.7	3.4
I5CP1W2STWISRL	C5CP1W2STWISRL	4.8	4.0	4.0	4.3	4.3	3.1	3.1	3.4	3.4
I8CP1W2STWISRL	C8CP1W2STWISRL	3.1	1.0	1.0	1.2	1.2	0.7	0.7	0.8	0.8
I6CP6W2STWISRL	C6CP6W2STWISRL	5.0	1.3	4.1	1.6	4.8	0.7	2.3	0.8	2.8
I6CP7W2STWISRL	C6CP7W2STWISRL	5.0	2.0	2.8	2.4	3.3	1.2	1.6	1.5	2.0
I6CP3W2STWISRL	C6CP3W2STWISRL	2.6	1.7	1.7	2.0	2.0	1.3	1.3	1.5	1.5
I6CP4W2STWISRL	C6CP4W2STWISRL	2.6	1.7	1.7	2.0	2.0	1.3	1.3	1.5	1.5
I6CP8W2STWISRL	C6CP8W2STWISRL	5.0	0.7	0.7	0.9	0.9	0.4	0.4	0.5	0.5
I5CP1W2ST69STL	C5CP1W2ST69STL	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I5CP1W2ST	C5CP1W2ST	7.2	6.1	6.0	7.4	7.1	3.5	3.4	4.3	4.3
I2CP1W2STGBL	C2CP1W2STGBL	5.2	1.2	4.7	1.6	5.9	0.6	2.5	0.8	3.1
I2CP2W2STGBL	C2CP2W2STGBL	5.2	3.5	3.5	4.4	4.4	1.8	1.8	2.3	2.3
I3CP1W2STGBL	C3CP1W2STGBL	17.4	7.3	7.3	9.1	9.1	3.6	3.6	4.7	4.6
I4CP3W2STGBL	C4CP3W2STGBL	7.8	7.6	7.5	8.1	8.0	5.1	5.1	5.9	5.9
I4CP2W2STGBL	C4CP2W2STGBL	5.2	1.5	1.5	1.8	1.8	0.8	0.8	1.0	1.0
I6CP1W2STGBL	C6CP1W2STGBL	3.6	1.8	1.8	2.1	2.1	1.3	1.3	1.5	1.5
I5CP1W2STGBL	C5CP1W2STGBL	17.4	6.4	6.4	8.0	8.0	3.3	3.3	4.4	4.4
I7CP3W2STGBL	C7CP3W2STGBL	11.3	4.3	4.3	5.0	5.0	2.8	2.8	3.3	3.3
I7CP2W2STGBL	C7CP2W2STGBL	5.2	3.8	3.8	4.3	4.3	2.7	2.7	3.1	3.1
I8CP1W2STGBL	C8CP1W2STGBL	5.2	0.5	0.5	0.6	0.6	0.3	0.3	0.4	0.4
I9CP1W2STGBL	C9CP1W2STGBL	17.4	3.7	3.6	5.6	5.5	0.9	0.9	1.4	1.3
I10CP3W2STGBL	C10CP3W2STGBL	17.4	5.8	5.8	6.9	6.9	3.4	3.4	4.1	4.1
I10CP2W2STGBL	C10CP2W2STGBL	7.8	4.1	4.1	4.7	4.7	2.7	2.7	3.2	3.2
I11CP1W2STGBL	C11CP1W2STGBL	17.4	8.4	8.3	10.2	10.1	4.3	4.3	5.8	5.7
I17CP2W2STGBL	C17CP2W2STGBL	17.4	3.8	3.8	4.8	4.7	2.2	2.2	2.8	2.8
I17CP1W2STGBL	C17CP1W2STGBL	17.4	3.1	3.1	3.8	3.8	1.9	1.9	2.4	2.4
I18CP1W2STGBL	C18CP1W2STGBL	17.4	3.5	3.5	4.7	4.7	1.5	1.5	2.0	2.0
I21CP3W2STGBL	C21CP3W2STGBL	4.8	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
I21CP1W2STGBL	C21CP1W2STGBL	5.0	0.2	0.2	0.3	0.3	0.1	0.1	0.2	0.2
I21CP2W2STGBL	C21CP2W2STGBL	4.8	0.0	0.2	0.0	0.3	0.0	0.1	0.0	0.2
I19CP1W2STGBL	C19CP1W2STGBL	7.0	2.5	2.5	3.0	3.0	1.5	1.5	1.9	1.9

INLET SUMMARY TABLE NOTES:

1. The curb high/soffit high inflow discharge were calculated according to the procedures outlined in the District's Hydraulics Manual.
2. The inflow discharge is the peak hydrograph discharge taken from the SWMMQIN.OUT file.
3. The pipe Max Discharge is the peak hydrograph discharge taken from the 'Link Results' in the SWMM.RTP file.

Flood Control District of Maricopa County
Gavan & Barker INC. Civil Engineering & Landscape Architecture 3030 North Central Avenue, Suite 1530 Phoenix, AZ 85012 Phone 602-200-0031
TY LIN INTERNATIONAL engineers| planners| scientists

LOWER INDIAN BEND WASH ADMS/P
STUDY AREA-SOUTH

SWMM Outfall:
W2STIBWOUTFALL
(West 2nd Street S.D. Outfall)

	By	Date
Prepared	AJA	12/18/2017
Checked	MTG	12/18/2017

Inlet Summary Table

SWMM Name		Curb High / Soffit High Inflow	FLO-2D/SWMM Model							
			100-yr, 24-hr		100-yr, 6-hr		10-yr, 24-hr		10-yr, 6-hr	
Inlet	Connector Pipe		Inflow	Pipe Max	Inflow	Pipe Max	Inflow	Pipe Max	Inflow	Pipe Max
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
I19CP2W2STGBL	C19CP2W2STGBL	7.0	4.3	4.3	4.9	4.9	2.8	2.7	3.3	3.3
I20CP7W2STGBL	C20CP7W2STGBL	5.0	0.7	0.7	0.8	0.8	0.4	0.4	0.5	0.5
I20CP10W2STGBL	C20CP10W2STGBL	7.0	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
I20CP9W2STGBL	C20CP9W2STGBL	7.0	5.9	5.9	6.9	6.9	3.8	3.8	4.6	4.6
I20CP4W2STGBL	C20CP4W2STGBL	7.0	5.2	5.2	5.8	5.8	3.6	3.6	4.2	4.2
I20CP5W2STGBL	C20CP5W2STGBL	7.0	2.0	2.0	2.5	2.4	1.2	1.2	1.4	1.4
I20CP2W2STGBL	C20CP2W2STGBL	5.0	1.3	1.3	1.5	1.5	0.7	0.7	0.8	0.8
I8CP2W2STBAL	C8CP2W2STBAL	3.1	1.0	1.0	1.1	1.1	0.7	0.7	1.0	1.1
I29CP1W2STSRL	C29CP1W2STSRL	11.3	11.3	11.2	12.4	12.4	8.6	8.5	9.6	9.6
I7CP1W2ST	C7CP1W2ST	3.4	1.5	1.5	1.7	1.6	1.1	1.1	1.2	1.2
I9CP1W2ST	C9CP1W2ST	3.4	2.7	2.7	2.9	2.9	2.1	2.1	2.3	2.3
I6ACP1W2ST	C6ACP1W2ST	5.2	10.2	10.2	10.8	10.9	8.3	8.3	8.6	8.6
I5CP1W2STCCL	C5CP1W2STCCL	10.8	0.6	0.6	0.7	0.7	0.4	0.4	0.4	0.4
I8CP1W2STCCL	C8CP1W2STCCL	2.5	2.5	2.5	2.9	2.9	1.6	1.6	1.9	1.9
I4CP3W2STCCL	C4CP3W2STCCL	2.5	2.3	2.3	2.8	2.8	1.3	1.3	1.6	1.6
I4CP2W2STCCL	C4CP2W2STCCL	2.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
I11CP1W2STCCL	C11CP1W2STCCL	2.5	0.4	1.1	0.5	1.3	0.2	0.6	0.3	0.8
I11CP2W2STCCL	C11CP2W2STCCL	2.5	0.7	0.7	0.9	0.9	0.4	0.4	0.5	0.5
I11CP3W2STCCL	C11CP3W2STCCL	2.5	0.5	2.0	0.5	2.4	0.3	1.2	0.4	1.5
I11CP4W2STCCL	C11CP4W2STCCL	2.5	1.6	1.6	1.9	1.9	0.9	0.9	1.2	1.2
I10CP1W2STCCL	C10CP1W2STCCL	2.5	0.9	0.9	1.0	1.0	0.5	0.5	0.6	0.6
I9CP1W2STCCL	C9CP1W2STCCL	2.5	1.4	1.4	1.7	1.7	0.9	0.9	1.1	1.1
I6CP1W2STCCL	C6CP1W2STCCL	10.8	0.4	0.4	0.5	0.5	0.2	0.2	0.3	0.3
I7CP1W2STCCL	C7CP1W2STCCL	2.5	1.6	1.6	2.0	2.0	0.8	0.8	1.1	1.1
I2CP2W2STBAL	C2CP2W2STBAL	4.4	3.0	3.0	3.3	3.3	2.4	2.3	2.6	2.6
I2CP1W2STBAL	C2CP1W2STBAL	2.6	1.8	4.8	2.1	5.4	1.1	3.5	1.4	4.0
I37ACP2W2ST	C37ACP2W2ST	2.6	3.3	3.3	3.7	3.7	2.6	2.6	2.9	2.9
I10ACP1W2ST	C10ACP1W2ST	3.5	3.0	3.0	3.3	3.3	2.4	2.4	2.6	2.6
I10ACP2W2ST	C10ACP2W2ST	3.6	1.8	1.8	2.0	2.0	1.1	1.1	1.4	1.3
I3CP5W2STDBL	C3CP5W2STDBL	17.0	11.1	11.0	11.7	11.7	5.9	5.9	7.3	7.2
I3CP4W2STDBL	C3CP4W2STDBL	11.0	8.5	32.3	17.9	38.2	1.4	17.4	1.9	21.5
I3CP6W2STDBL	C3CP6W2STDBL	17.0	14.7	14.2	14.8	14.0	10.3	10.2	12.6	12.6
I3CP2W2STDBL	C3CP2W2STDBL	17.0	9.2	9.1	10.0	9.7	4.7	4.7	5.9	5.9
I3CP1W2STDBL	C3CP1W2STDBL	20.4	2.4	19.4	6.1	22.4	1.0	10.0	1.3	12.4
I3CP3W2STDBL	C3CP3W2STDBL	17.0	8.5	8.5	9.3	9.9	4.5	4.5	5.5	5.5
I12BCP1W2ST	C12BCP1W2ST	4.7	0.3	0.3	0.4	1.3	0.2	0.2	0.2	0.2
I11BCP2W2ST	C11BCP2W2ST	31.4	4.3	4.3	5.0	4.9	2.9	2.9	3.4	3.4
I11BCP1W2ST	C11BCP1W2ST	19.5	2.4	6.7	3.0	7.8	1.4	4.3	1.7	5.1
I11ACP1W2ST	C11ACP1W2ST	3.6	0.5	0.5	0.6	0.6	0.3	0.3	0.3	0.3
I12BCP2W2ST	C12BCP2W2ST	3.5	0.9	0.9	1.0	1.2	0.6	0.6	0.7	0.7
I11BCP4W2ST	C11BCP4W2ST	7.6	8.8	8.8	10.3	10.1	5.2	5.2	6.3	6.3
I11BCP5W2ST	C11BCP5W2ST	7.8	5.5	5.5	6.8	6.6	2.8	2.8	3.6	3.5
I19BCP2W2ST	C19BCP2W2ST	3.5	2.5	2.5	2.9	2.9	1.6	1.5	1.9	1.9
I19BCP1W2ST	C19BCP1W2ST	3.2	1.9	4.3	2.4	5.3	1.2	2.8	1.4	3.2
I19ACP1W2ST	C19ACP1W2ST	3.4	1.3	1.3	1.7	1.6	0.8	0.8	1.0	1.0

INLET SUMMARY TABLE NOTES:

1. The curb high/soffit high inflow discharge were calculated according to the procedures outlined in the District's Hydraulics Manual.
2. The inflow discharge is the peak hydrograph discharge taken from the SWMMQIN.OUT file.
3. The pipe Max Discharge is the peak hydrograph discharge taken from the 'Link Results' in the SWMM.RTP file.

Flood Control District of Maricopa County
Gavan & Barker Inc. Civil Engineering & Landscape Architecture 3030 North Central Avenue, Suite 1530 Phoenix, AZ 85012 Phone 602-207-0031
TY·LIN INTERNATIONAL engineers| planners| scientists

LOWER INDIAN BEND WASH ADMS/P
STUDY AREA-SOUTH

SWMM Outfall:
W2STIBWOUTFALL
(West 2nd Street S.D. Outfall)

	By	Date
Prepared	AJA	12/18/2017
Checked	MTG	12/18/2017

Pipe Discharge Summary Table

Conduit Name	Normal Depth Capacity	FLO-2D/SWMM Model Discharge			
		100-yr, 24-hr	100-yr, 6-hr	10-yr, 24-hr	10-yr, 6-hr
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
C1W2ST	246.4	485.0	550.2	272.7	334.0
C2W2ST	337.3	484.5	549.8	272.2	334.2
C3W2ST	329.8	482.8	549.8	274.1	335.0
C4W2ST	344.7	484.4	549.9	272.4	331.1
C5W2ST	270.9	484.4	549.7	271.6	330.1
C6AW2ST	277.9	480.7	545.2	270.2	328.2
C6W2ST	272.4	470.3	534.2	263.4	320.3
C7W2ST	235.5	470.3	534.2	278.9	319.9
C8W2ST	254.7	468.9	533.0	270.1	322.5
C9W2ST	204.0	468.9	533.0	271.5	325.6
C10AW2ST	229.5	466.4	530.2	271.6	326.3
C10BW2ST	288.4	462.3	525.6	271.4	335.3
C11AW2ST	240.9	462.2	525.8	263.9	321.4
C11BW2ST	283.6	462.1	525.6	269.4	320.1
C12AW2ST	274.9	449.6	512.3	258.7	322.8
C12BW2ST	288.4	449.5	512.0	259.2	318.3
C12CW2ST	282.7	449.2	511.8	258.6	316.4
C13W2ST	204.0	449.2	512.0	263.4	319.0
C14W2ST	228.7	448.9	511.8	265.5	319.2
C15AW2ST	268.7	449.0	511.6	260.5	313.6
C15BW2ST	245.8	402.9	449.7	243.2	284.9
C16W2ST	257.1	402.8	449.6	245.6	284.2
C17W2ST	987.1	402.8	449.7	253.3	284.3
C18W2ST	868.0	394.9	442.9	248.7	282.9
C19AW2ST	976.5	394.8	442.9	246.7	297.6
C19BW2ST	941.6	393.8	441.7	245.4	301.5
C19CW2ST	938.8	389.9	437.0	242.8	296.4
C20W2ST	948.6	387.2	437.0	236.4	295.8
C21W2ST	946.1	389.8	433.3	235.3	291.6
C22W2ST	644.9	342.3	386.7	203.9	260.7
C23W2ST	353.3	345.3	386.4	217.8	291.2
C24W2ST	494.4	351.9	386.6	205.6	255.5
C25W2ST	486.3	345.0	383.0	206.3	253.9
C26W2ST	508.6	345.4	385.0	208.8	254.0
C27W2ST	510.7	345.8	388.5	207.4	252.7
C28W2ST	512.4	347.4	390.9	206.0	251.5
C29W2ST	1516.1	349.7	391.6	206.4	251.2
C30W2ST	275.1	176.9	196.5	105.3	128.2
C31W2ST	266.9	177.0	196.7	105.5	128.3
C32W2ST	276.6	176.9	196.9	105.6	128.3
C33W2ST	273.5	176.3	195.9	105.3	127.9
C34W2ST	133.9	175.1	194.8	104.7	127.3
C35W2ST	272.8	174.1	194.2	104.2	126.9
C36W2ST	423.5	172.6	193.6	103.6	125.9
C37AW2ST	413.9	164.4	195.2	99.3	119.9

Pipe Discharge Summary Table

Conduit Name	Normal Depth Capacity	FLO-2D/SWMM Model Discharge			
		100-yr, 24-hr	100-yr, 6-hr	10-yr, 24-hr	10-yr, 6-hr
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
C37BW2ST	485.6	160.5	189.3	96.5	116.9
C38W2ST	322.2	149.6	175.5	89.5	108.5
C39W2ST	52.8	148.7	174.5	88.9	108.0
C40W2ST	627.2	148.3	174.1	88.7	107.8
C41W2ST	201.6	21.4	25.1	11.8	14.4
C42W2ST	96.8	21.5	25.2	11.8	14.4
C43W2ST	59.5	21.5	25.2	11.8	14.5
C44W2ST	77.0	10.8	12.4	6.5	8.0
C45W2ST	79.4	10.9	12.6	6.6	8.1
C1W2STGBL	635.7	127.1	149.3	77.1	93.8
C2W2STGBL	108.3	127.0	149.2	77.1	93.7
C3W2STGBL	109.4	123.0	144.0	75.1	91.2
C4W2STGBL	108.8	115.9	135.4	71.6	86.7
C5W2STGBL	109.0	107.0	125.9	65.7	79.8
C6W2STGBL	87.9	101.0	118.8	62.5	75.6
C7W2STGBL	108.0	99.3	116.8	61.3	74.1
C8W2STGBL	110.6	91.6	108.1	56.0	67.9
C9W2STGBL	111.5	91.6	107.8	55.8	67.3
C10W2STGBL	111.0	88.4	103.1	54.5	65.7
C11W2STGBL	112.5	78.7	91.9	48.9	58.9
C12W2STGBL	111.5	70.5	82.2	44.4	53.0
C13W2STGBL	111.1	70.7	82.5	44.5	53.0
C14W2STGBL	111.1	70.8	82.7	44.6	53.1
C15W2STGBL	172.5	70.9	82.8	44.7	53.3
C16W2STGBL	262.7	36.5	43.3	22.2	26.7
C17W2STGBL	262.2	32.6	39.0	19.6	23.7
C18W2STGBL	61.9	25.7	30.5	15.4	18.6
C19W2STGBL	61.9	22.3	26.0	14.2	16.8
C20W2STGBL	36.5	15.6	18.2	10.0	11.8
C21W2STGBL	7.8	0.4	0.5	0.3	0.3
C1W2STSRL	2055.1	173.8	195.6	105.0	122.7
C2W2STSRL	1790.3	172.7	205.7	104.4	122.2
C3W2STSRL	1925.0	168.3	193.4	100.9	118.3
C4W2STSRL	164.5	168.3	197.4	100.8	118.2
C5W2STSRL	164.1	163.4	191.2	99.0	116.6
C6W2STSRL	163.6	142.2	168.0	84.5	97.5
C7W2STSRL	100.9	140.9	166.6	84.3	96.5
C8W2STSRL	163.9	134.0	158.3	81.5	92.2
C9W2STSRL	167.5	133.2	157.5	85.1	93.4
C10W2STSRL	164.0	132.1	155.4	85.1	97.1
C11W2STSRL	154.1	116.8	137.2	76.8	90.0
C12W2STSRL	98.3	116.8	137.1	76.6	90.3
C13W2STSRL	139.6	115.5	135.5	76.0	90.8
C14W2STSRL	76.2	112.5	131.9	74.5	90.1
C15W2STSRL	139.4	110.7	129.2	74.0	91.2

Pipe Discharge Summary Table

Conduit Name	Normal Depth Capacity	FLO-2D/SWMM Model Discharge			
		100-yr, 24-hr	100-yr, 6-hr	10-yr, 24-hr	10-yr, 6-hr
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
C16W2STSRL	138.7	106.7	124.8	69.2	89.1
C17W2STSRL	139.7	104.9	122.5	65.5	87.2
C18W2STSRL	139.3	103.9	121.3	65.9	84.4
C19W2STSRL	136.9	95.4	111.1	59.9	75.1
C20W2STSRL	87.9	95.3	110.9	63.8	72.2
C21W2STSRL	139.5	92.8	107.3	55.5	71.1
C22W2STSRL	135.8	88.2	102.1	54.9	70.4
C23W2STSRL	62.2	89.1	102.2	60.9	67.2
C24W2STSRL	98.3	21.1	20.5	15.7	18.1
C25W2STSRL	110.8	23.4	19.3	14.5	16.4
C26W2STSRL	85.8	19.5	19.7	10.5	18.0
C27W2STSRL	85.5	11.4	11.9	9.0	11.2
C28W2STSRL	595.5	11.2	12.3	8.4	9.5
C29W2STSRL	101.7	11.2	12.3	8.5	9.5
C30W2STSRL	96.4	0.0	0.0	0.0	0.0
C1W2STWISRL	62.5	34.8	39.6	23.0	27.1
C2W2STWISRL	25.7	31.1	35.1	20.4	24.2
C3W2STWISRL	27.7	24.5	27.5	15.9	18.8
C4W2STWISRL	27.6	16.1	18.4	10.5	12.1
C5W2STWISRL	26.5	15.7	18.4	10.5	12.2
C6W2STWISRL	26.7	12.1	13.8	7.6	9.0
C7W2STWISRL	25.6	4.6	5.4	2.8	3.3
C8W2STWISRL	13.9	4.6	5.4	2.8	3.4
C1W2STEISRL	139.1	71.5	83.4	44.3	53.4
C2W2STEISRL	101.6	61.4	69.7	40.2	48.0
C3W2STEISRL	128.5	53.7	59.4	37.1	43.8
C4W2STEISRL	39.2	53.3	59.7	37.3	43.6
C5W2STEISRL	64.0	39.2	43.3	26.6	31.2
C6W2STEISRL	57.7	32.4	36.3	21.6	25.5
C7W2STEISRL	48.0	28.5	32.1	19.1	22.6
C8W2STEISRL	20.9	9.4	10.8	6.6	7.7

PIPE DISCHARGE SUMMARY TABLE NOTES:

1. The normal depth capacity discharges were obtained from the SWMM.RPT file.
2. The pipe discharge is the peak hydrograph discharge taken from the 'Link Results" in the SWMM.RTP file.

Flood Control District of Maricopa County
Gavan & Barker Inc. Civil Engineering & Landscape Architecture 3030 North Central Avenue, Suite 1530 Phoenix, AZ 85012 Phone 602-200-0031
TY LIN INTERNATIONAL engineers| planners| scientists

LOWER INDIAN BEND WASH ADMS/P
STUDY AREA-SOUTH

SWMM Outfall:
W2STIBWOUTFALL
(West 2nd Street S.D. Outfall)

	By	Date
Prepared	AJA	12/18/2017
Checked	MTG	12/18/2017

APPENDIX VI

Stormwater Storage Waiver

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

10-ZN-2020 ____ - DR - ___ ____ - PP - ____ PC#_____

Requests for stormwater storage waivers are reviewed as part of case submittals for the associated project. This form should be included in the preliminary drainage report with the applicant's portion completed. The preliminary drainage report shall include supporting documentation and analysis as needed to support the requested wavier.

Date 10-16-2020 Project Name The Triangle

Project Location 3rd Avenue and Indian School Road, Scottsdale AZ

Applicant Contact Ali Fakih Company Name SEG

Phone 480-588-7226 E-mail ali@azseg.com

Address 8280 E. Gelding Dr. Suite 101, Scottsdale, AZ 85260

Waiver Criteria

A project must meet at least one of three criteria listed below for the city to consider waiving some or all required stormwater storage. **However, regardless of the criteria, a waiver will only be granted if the applicant can demonstrate that the effect of a waiver will not increase the potential for flooding on any property.** Check the applicable box and provide a signed and sealed engineering report and supporting engineering analysis that demonstrate the project meets the criteria and that the effect of a waiver will not increase the potential for flooding on any property.

If the runoff for the project has been included in a storage facility at another location, the applicant must demonstrate that the stormwater storage facility was specifically designed to accommodate runoff from the subject property and that the runoff will be conveyed to this location through an adequately designed conveyance facility.

It should be noted that reductions in stormwater storage relating to

☑ 1. The development is adjacent to a conveyance facility that an engineering analysis shows is designed and constructed to handle the additional runoff from the site as a result of development.

☐ 2. The development is on a parcel less than one-half acre in size.

☐ 3. Stormwater storage requirements conflict with requirements of the Environmentally Sensitive Lands Ordinance (ESLO).

For a full storage waiver, a conflict with ESLO is limited to:

- Property located in the hillside landform as defined in the city Zoning Ordinance
- Property in the upper desert landform that has a land slope steeper than 5% as defined in the city Zoning Ordinance
- Property within the ESL zoning overlay district where the only viable location for a stormwater storage basin requires blasting

This full waiver only applies to those portions of property meeting one of these three requirements.

100-year/2-hour storage is allowed, but not required for redevelopment projects and development within the ESL zoning overlay. Rather, these projects must store enough stormwater to attenuate post-development flows to predevelopment levels, considering the 10- and 100-year storm events (S.R.C. Sections 37-50 and 37-51).

By signing below, I certify that the stated project meets the waiver criteria selected above as demonstrated by the attached documentation.

_____ _____

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500

Request for Stormwater Storage Waiver

City of Scottsdale Plan/Case Numbers:

10-ZN-2020 **____ - DR - ___ ____ - PP - ____ PC#_____**

CITY STAFF TO COMPLETE THIS PAGE

Project Name The Triangle

Check Appropriate Boxes:

☐ Meets waiver criteria (specify): ☐ 1 ☐ 2 ☐ 3

Recommended Conditions of Waiver:

☐ All storage requirements waived.

☐ Post-development peak discharge rates do not exceed pre-development conditions.

☐ Other:

Explain: _____

_____

☐ **Waiver approved per above conditions.**

_____ _____

Floodplain Administrator or Designee Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500

10-ZN-2020

10/22/20

Request for Stormwater Storage Waiver

10-ZN-2020

City of Scottsdale Plan/Case Numbers:

____ - DR - ___ ____ - PP - ____ PC#_____

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is $3.00 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

The Floodplain Administrator considers in-kind contributions on a case-by-case basis. An in-kind contribution can serve as part of or instead of the calculated in-lieu fee. In-kind contributions must be stormwater-related and must constitute a public benefit. In-lieu fees and in-kind contributions are subject to the approval of the Floodplain Administrator or designee.

Project Name The Triangle

The waived stormwater storage volume is calculated using a simplified approach as follows:

$V = \Delta CRA$; where

V = stormwater storage volume required, in cubic feet,
ΔC = increase in weighted average runoff coefficient over disturbed area ($C_{post} - C_{pre}$),
R = 100-year/2-hour precipitation depth, in feet (DSPM, Appendix 4-1D, page 11), and
A = area of disturbed ground, in square feet

Furthermore,

$V_w = V - V_p$; where
V_w = volume waived,
V = volume required, and
V_p = volume provided

R = 2.16
ΔC= 0.02
A = 3.18
V = 499
V_p= 0
V_w= 499

☑ An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee ($) = V_w (cu. ft.) x $3.00 per cubic foot = $1,497

☐ An in-kind contribution will be made, as follows:

_____
_____
_____

☐ No in-lieu fee is required. Reason:

_____
_____

Approved by:

_____ _____
Floodplain Administrator or Designee Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500