

This statement represents the storm water analysis to support the proposed development of Sundown Commons residential development to be located between N. 70th Street and N. 71st Street in Scottsdale Arizona. Included within this report are discussions and calculations defining the stormwater management concepts for collection, conveyance, and retention systems necessary to comply with the drainage requirements of the City of Scottsdale and Maricopa County.

This project consists of the demolition of an existing office complex on the eastern portion of the site along with associated parking spaces and construction of a multi-family residential development, and its associated parking spaces and green areas. The total land area of the site is 7.255 acres, more or less. Approximately 3.73 acres will be disturbed. The remaining portion of the site, consisting of an existing commercial development on the western portion of the site, will be maintained.

The existing parcel located in Section 22, Township 3 North, Range 4 East will be subdivided maintaining the existing commercial site on the west side and the proposed residential development on the east site.

- Existing APN: 175-42-140, Lot 1, 7000 E. Shea Boulevard, as recorded on Book 1701, Page 37 of Maricopa County Records.

The site is bounded by the existing commercial development to the west, a public alley to the east, Sahauro Road to the north and Shea Boulevard to the south.

Flood Insurance Rate Map (FIRM) Map Number 04013C1760L dated October 16, 2013, indicates that this site is located in a designated "Zone X (Shaded)". As such, this is defined as "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." Refer to **EXHIBIT C** for **FIRM**.

EXISTING SITE CONDITIONS

The site is currently developed and consists of commercial buildings with associated parking lots and landscape. Refer to **EXHIBIT A** for **Vicinity Map** and **EXHIBIT B** for **Site Aerial**. Drainage patterns for the site & local streets are as follow:

ON-SITE AND OFF-SITE SITE DISCHARGES

All on-site and off-site runoff is directed into the City of Scottsdale public storm network via an existing 17' X 8' Concrete Box Culvert located at the eastern side of the site.

Refer to **EXHIBIT F** for **Existing Conditions Drainage Area Map**

Runoff calculations for the 100-year, 5-minute event were calculated per the Rational Method:

$$Q = C \cdot i \cdot A$$

- Where:
 - C = Runoff coefficient (C = 0.84).
 - i = Precipitation Intensity (use Tc = 5 min for developed areas)
 - i for 100-year, 5-min event = 7.49 in/hr
 - A = Contributing drainage.
 - **Q = C*i*A = 0.84*7.49*3.73 = 23.47 cfs**

The existing 100-year, 5-min runoff is computed to be **23.47 cfs**

PROPOSED CONDITION

Existing drainage patterns will be maintained under proposed conditions. All on-site and off-site runoff will be directed into the 17' X 8' Concrete Box Culvert. Per the City of Scottsdale, as the site is a redevelopment, the site is to be analyzed for the "pre vs post" condition to assure runoff to the City of Scottsdale public storm network system is not increased. Refer to **EXHIBIT G** for **Proposed Conditions Drainage Area Map**

PRE VS POST

The "pre vs post" runoff volume is calculated with the following equation: $Q = \Delta C * i * A$

- Where:
 - C = Runoff coefficient.
 - i = Precipitation Intensity (use Tc= 5 min for developed areas)
 - i for 100-year, 5-min event = 7.49 in/hr
 - A = Contributing drainage area (acres).

The "pre vs post" discharge was calculated based on a change in impervious cover. A runoff coefficient of 0.84 was calculated for the existing development & 0.79 for the proposed condition, based on the proposed site plan. Refer to **EXHIBIT D** for the proposed conditions Cwt and **EXHIBIT E** for existing conditions Cwt.

EXISTING OVERALL SITE C_w				
	Pavement	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	2.91	0.82	3.73	0.84
EX-A1	2.91	0.82	3.73	0.84

PROPOSED OVERALL SITE C_w				
	Pavement	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	2.55	1.18	3.73	0.79
DA-A1	2.55	1.18	3.73	0.79

$$\Delta C = C_{\text{Post}} - C_{\text{Pre}} = 0.79 - 0.84 = -0.05$$

The proposed 100-year, 5-min runoff is computed to be $Q = C * i * A = 0.79 * 7.49 * 3.73 = 22.07 \text{ cfs}$

$$Q = \Delta C * i * A = (0.79 - 0.84) * 7.49 * 3.73 = 1.40 \text{ cfs}$$

Based on the "pre vs post" calculation, runoff rate to the existing storm water network is decreased ($Q_{\text{post}} < Q_{\text{pre}} = 23.48 < 22.07 \text{ cfs}$), therefore, the proposed project will not affect the city's public storm system. The previous calculation also implies no retention is required as there is a reduction in impervious cover in the proposed condition.

CONCLUSION

Runoff from the proposed multi-family residential development will be reduced under proposed conditions and will not affect the city's public storm network system. The existing 17' X 8' Concrete Box Culvert is sufficient to convey the runoff generated from the project.

EXHIBITS

- **Exhibit A** – Vicinity Map
- **Exhibit B** – Site Aerial
- **Exhibit C** – Flood Insurance Rate Map (FIRM)
- **Exhibit D** – Existing Conditions Cwt
- **Exhibit E** – Proposed Conditions Cwt
- **Exhibit F** – Existing Drainage Area Map
- **Exhibit G** – Proposed Drainage Area Map
- **Exhibit H** – NOAA-14 Rainfall Atlas
- **Exhibit I** – Preliminary Grading and Drainage Plan

NOTES TO USERS

This map is for use in administering the National 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 flood 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 the FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table 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 flood 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 (PROJZONE 0035). The **horizontal datum** was NAD 83 (NAD 83, GRS1980 spheroid). Differences in datum, spheroid, projection or State Plane areas used in the product jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the 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/gsmapps/gstacs/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 Identification and Coastal 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/gsmapps/gstacs/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 (ALSD) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 (NAD 83), International Feet.

The **profile base line** 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 base line, 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 the FIRM, visit the **FEMA 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 MSC 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 (1-877-369-6277) or visit the FEMA website at <http://www.fema.gov>.



700000 FT 705000 FT 710000 FT
 33°57'30.0" N 33°57'30.0" N 33°57'30.0" N 33°57'30.0" N
 111°56'15.0" E 111°56'15.0" E 111°56'15.0" E 111°56'15.0" E
 JOINS PANEL 1320 JOINS PANEL 1770

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHA) SUBJECT TO INUNDATION BY THE 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, AD, AO, AV, 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); no Base Flood Elevations determined.

ZONE AR 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 AV Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently determined to be obsolete. Zone AV indicates the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE VE Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE VE 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 (OPA)

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 Area of different Base Flood Elevations, flood depths or flood velocities.
 Base Flood Elevation line and value; elevation in feet*
 (E1.987)
 Base Flood Elevation value which uniform within zone; elevation in feet*
 (E1.987)

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

○ Cross section line
 ⊖ Transsect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
 1000-meter Universal Transverse Mercator grid GSKL zone 12
 6000000 M State Plane Transverse Mercator
 DMS510
 Bench mark (see explanation in Notes to Users section of this FIRM panel)
 • M7.5
 River Mile

MAP REPOSITORIES
 Refer to Map Repository list in Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
 April 16, 1988

EFFECTIVE DATES OF REVISIONS TO THIS PANEL
 (E1.987)
 October 16, 2013 - to incorporate previously issued letters of map revision, to update corporate limits, to change base flood elevations, to add new flood elevations, to add roads and road names, to change floodways, to add special flood hazard areas, to advance suffix, and to add floodway.

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'
 0 500 1000 2000
 FEET
 0 300 600
 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1760L

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

PANEL 1760 OF 4425
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS	COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040027	1760	L	
PARADISE VALLEY TOWN OF	040059	1760	L	
PHOENIX CITY OF	040051	1760	L	
SCOTTSDALE CITY OF	040012	1760	L	

Note to User: The Map Number shown below should be used when checking map status. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 04013C1760L
MAP REVISED OCTOBER 16, 2013

Federal Emergency Management Agency

EXHIBIT C - FIRM

SUNDOWN COMMONS EXISTING CONDITIONS C_{WT} EXHIBIT

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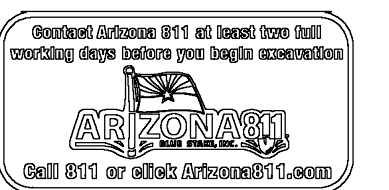
EXHIBIT D - EXISTING CONDITIONS C_{WT}

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CONSTRUCTION

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5240 N. 16TH STREET SUITE 05 PHOENIX, ARIZONA 85016
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PROJECT: SUNDOWN COMMONS
LOCATION: 7000 E. SHEA BLVD
SCOTTSDALE, AZ 85254

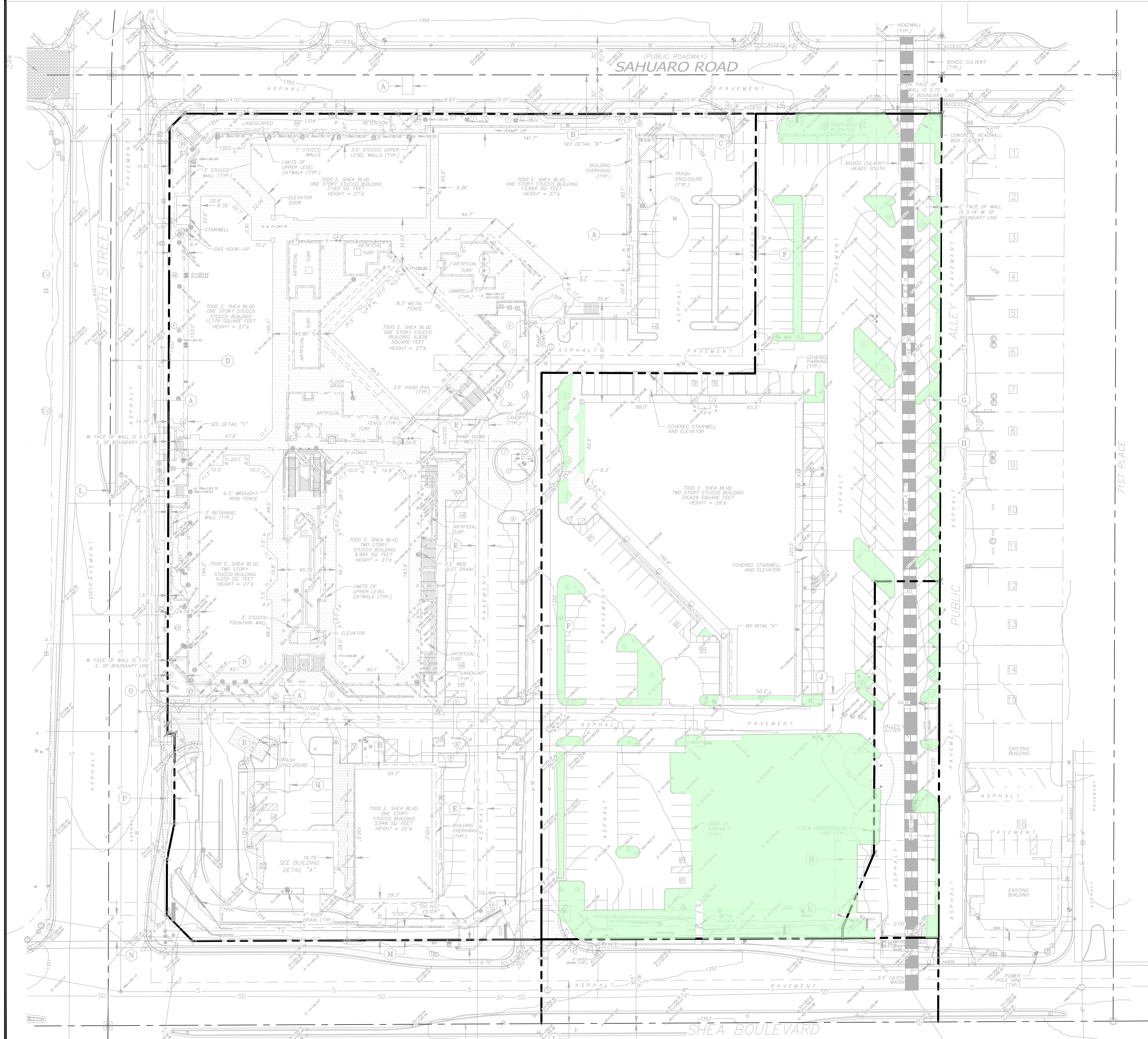
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DATE: 06/22/2023
ISSUED FOR: CONCEPTUAL DESIGN

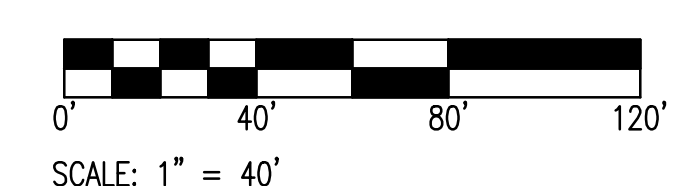
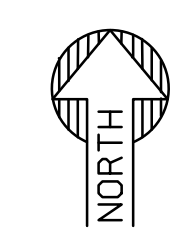
REVISION NO.: DATE:
JOB NO.: 230113

SHEET TITLE: EXISTING CONDITIONS C_{WT} EXHIBIT

PAGE NO.: 1 OF 1
SHEET NO.: EX-Cwt



--- PROPERTY LINE			
▭ BUILDING/PAVED SURFACE =	126,656 SF (2.91 AC)	⊙ CWT=0.95	
▭ NATURAL DESERT/LANDSCAPE =	35,906 SF (0.82 AC)	⊙ CWT=0.45	
	TOTAL ON-SITE CWT =	162,562 SF (3.73 AC)	⊙ CWT=0.84



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SUNDOWN COMMONS PROPOSED CONDITIONS C_{WT} EXHIBIT

7000 E. SHEA BOULEVARD SCOTTSDALE, AZ 85254

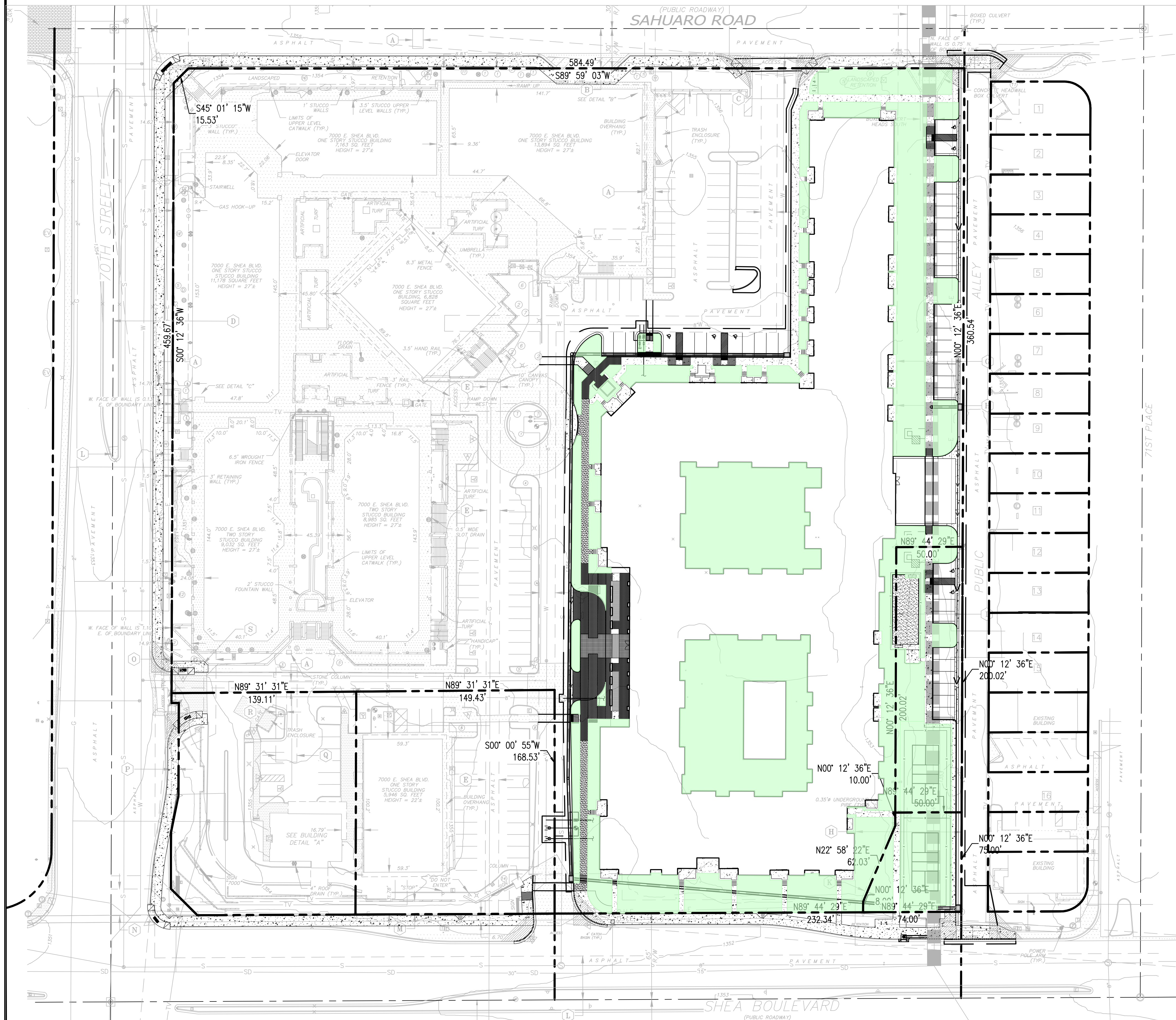
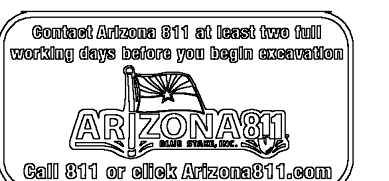
EXHIBIT E - PROPOSED CONDITIONS C_{WT}

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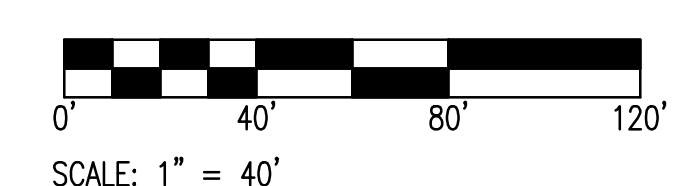
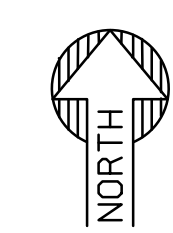
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---	PROPERTY LINE		
▭	BUILDING/PAVED SURFACE =	111,149 SF (2.55 AC)	⊙ CWT=0.95
▭	NATURAL DESERT/LANDSCAPE =	51,413 SF (1.18 AC)	⊙ CWT=0.45
	TOTAL ON-SITE CWT =	162,562 SF (3.73 AC)	⊙ CWT=0.79



PROJECT SUNDOWN COMMONS	LOCATION 7000 E. SHEA BLVD SCOTTSDALE, AZ 85254
DRAWN: BK 06/22/2023	DESIGNED: BK 06/22/2023
CHECKED: BK 06/22/2023	FINAL DC
PROJ. MGR: AF 06/22/2023	DATE: 06/22/2023
ISSUED FOR: CONCEPTUAL DESIGN	
REVISION NO.:	DATE:
JOB NO.: 230113	SHEET TITLE: PROPOSED CONDITIONS C _{WT} EXHIBIT
PAGE NO.: 1 OF 1	SHEET NO.: P-Cwt

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SUNDOWN COMMONS EXISTING CONDITIONS DRAINAGE AREA MAP

7000 E. SHEA BOULEVARD SCOTTSDALE, AZ 85254

EXHIBIT F - EXISTING DRAINAGE AREA MAP

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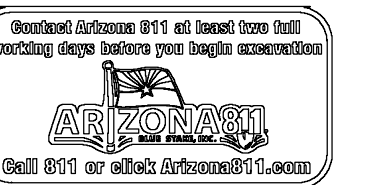
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PROJECT: SUNDOWN COMMONS
LOCATION: 7000 E. SHEA BLVD
SCOTTSDALE, AZ 85254

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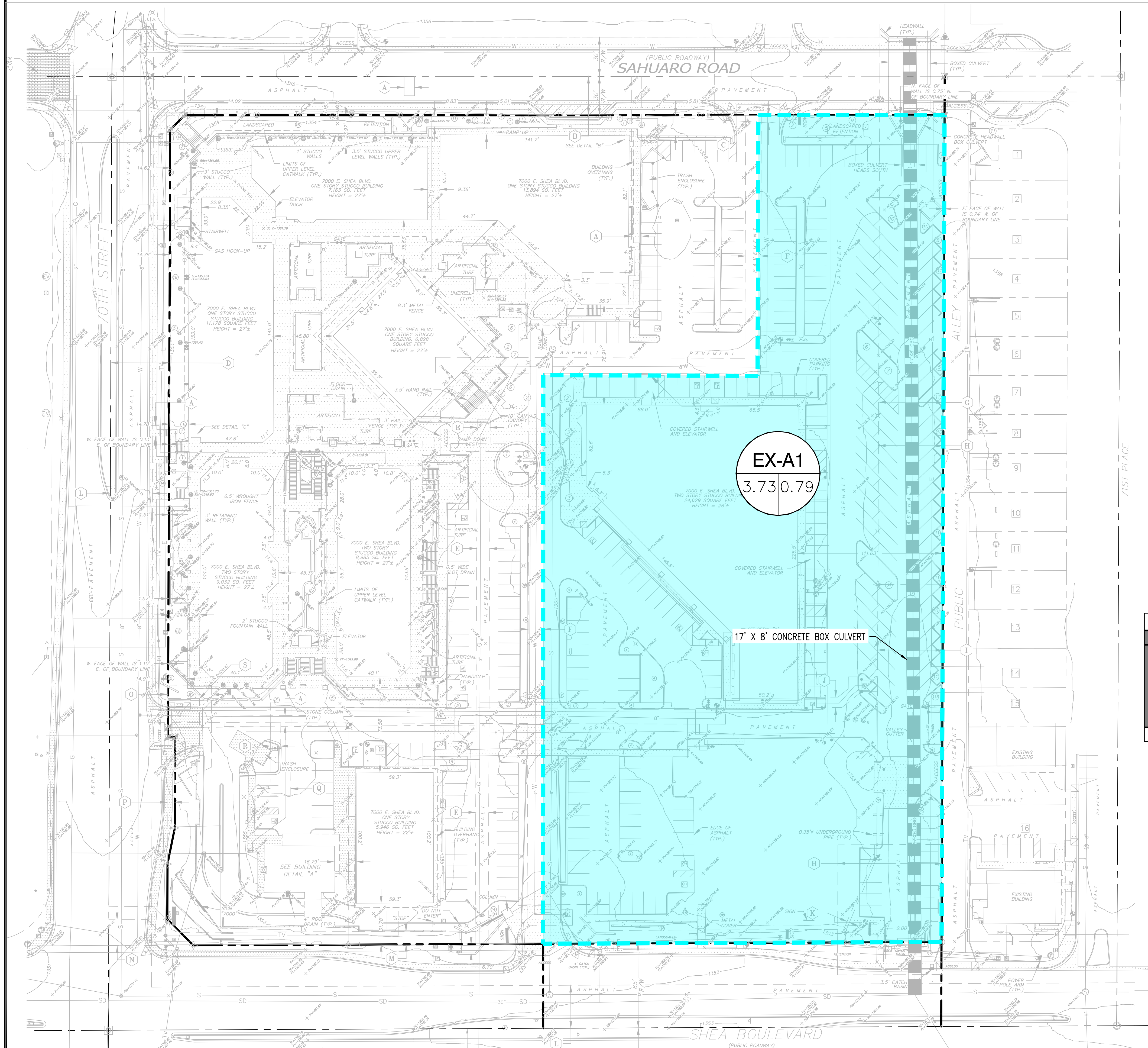
REVISION NO.: DATE:

JOB NO.: 230113

SHEET TITLE: EXISTING CONDITIONS DRAINAGE AREA MAP

EXISTING CONDITIONS
DRAINAGE AREA MAP

PAGE NO.: 1 OF 1
SHEET NO.: EX-DAM



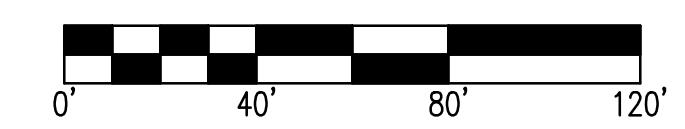
EXISTING LEGEND

- DRAINAGE AREAS DISCHARGING TO PUBLIC STORM NETWORK
- FLOW ARROW

- DRAINAGE AREA
- AREA IN ACRES
- RUNOFF COEFFICIENT

DRAINAGE AREA KEY

EXISTING SITE DISCHARGES								
TOTAL AREA	Cwt	Intensity 10 yr 5-min	Q 10	Intensity 100 yr 5-min	Q 100	Control Point	Total flows Q10	Total flows Q100
(ac)	(-)	(in/hr)	(cfs)	(in/hr)	(cfs)	CP#	(cfs)	(cfs)
3.73	-	4.74	-	7.49	-	-	14.86	23.48
EX-A1	3.73	0.84	4.74	14.86	7.49	23.48	17' X 8' CBC	14.86 23.48



SCALE: 1" = 40'

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SUNDOWN COMMONS PROPOSED CONDITIONS DRAINAGE AREA MAP

7000 E. SHEA BOULEVARD SCOTTSDALE, AZ 85254

EXHIBIT F - EXISTING DRAINAGE AREA MAP

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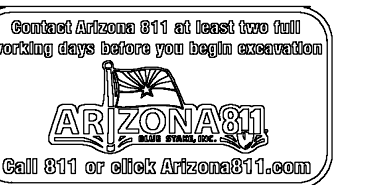
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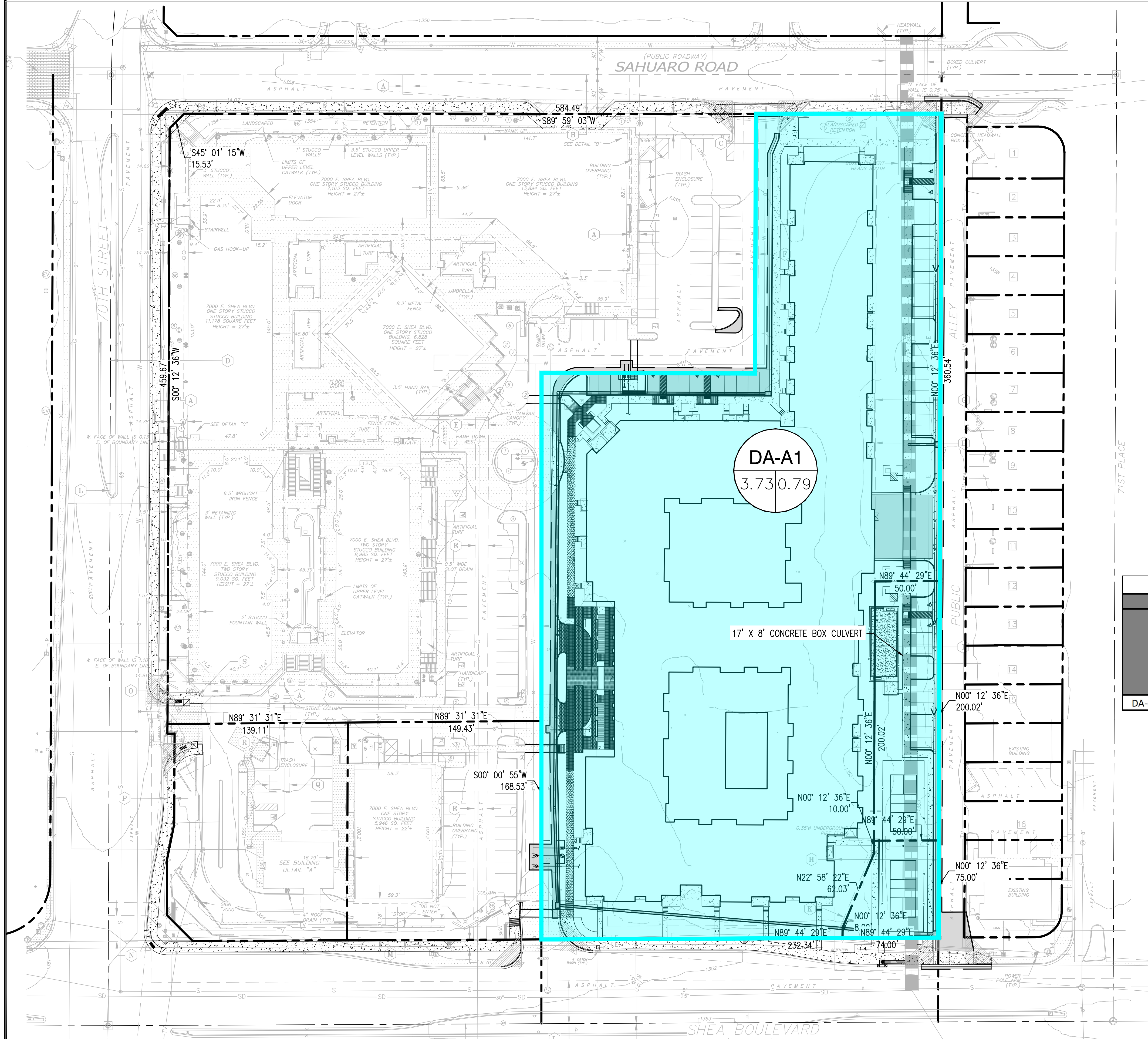
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SHEET TITLE:

PROPOSED CONDITIONS
DRAINAGE AREA MAP

PAGE NO.: 1 OF 1

SHEET NO.: P-DM



PROPOSED LEGEND

- DRAINAGE AREAS DISCHARGING TO PUBLIC STORM NETWORK
- FLOW ARROW

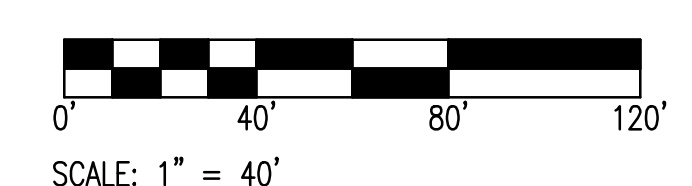
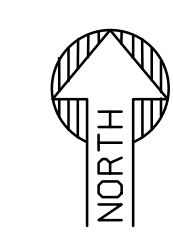
- DRAINAGE AREA
- AREA IN ACRES
- RUNOFF COEFFICIENT

DRAINAGE AREA KEY

DA-A1
3.73 0.79

PROPOSED SITE DISCHARGES

	TOTAL AREA	Cwt	Intensity 10 yr 5-min	Intensity Q 10	Intensity 100 yr 5-min	Intensity Q 100	Control Point	Total flows Q10	Total flows Q100
	(ac)	(-)	(in/hr)	(cfs)	(in/hr)	(cfs)	CP#	(cfs)	(cfs)
DA-A1	3.73	0.79	4.74	13.97	7.49	22.08	17' X 8' CBC	13.97	22.08



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NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.5829°, Longitude: -111.9295°
Elevation: m/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 Tryppaluk, 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	2.24 (1.86-2.74)	2.93 (2.45-3.58)	3.95 (3.28-4.81)	4.74 (3.92-5.76)	5.82 (4.73-7.04)	6.64 (5.33-7.98)	7.49 (5.90-8.99)	8.34 (6.47-9.98)	9.49 (7.18-11.4)	10.4 (7.68-12.4)
10-min	1.71 (1.42-2.08)	2.23 (1.87-2.72)	3.01 (2.50-3.67)	3.61 (2.98-4.39)	4.43 (3.59-5.36)	5.05 (4.06-6.07)	5.70 (4.49-6.84)	6.35 (4.92-7.60)	7.23 (5.46-8.66)	7.89 (5.84-9.47)
15-min	1.41 (1.17-1.72)	1.84 (1.54-2.25)	2.49 (2.06-3.03)	2.98 (2.46-3.63)	3.66 (2.97-4.43)	4.17 (3.35-5.02)	4.71 (3.72-5.65)	5.25 (4.06-6.28)	5.98 (4.51-7.16)	6.52 (4.83-7.83)
30-min	0.948 (0.788-1.16)	1.24 (1.04-1.52)	1.67 (1.39-2.04)	2.01 (1.66-2.44)	2.46 (2.00-2.98)	2.81 (2.26-3.38)	3.17 (2.50-3.81)	3.53 (2.74-4.23)	4.02 (3.04-4.82)	4.39 (3.25-5.27)
60-min	0.587 (0.488-0.717)	0.766 (0.642-0.938)	1.04 (0.859-1.26)	1.24 (1.03-1.51)	1.53 (1.24-1.85)	1.74 (1.40-2.09)	1.96 (1.55-2.36)	2.19 (1.69-2.62)	2.49 (1.88-2.98)	2.72 (2.01-3.26)
2-hr	0.344 (0.290-0.410)	0.444 (0.376-0.531)	0.592 (0.498-0.704)	0.704 (0.587-0.837)	0.860 (0.710-1.02)	0.976 (0.795-1.15)	1.10 (0.878-1.29)	1.22 (0.960-1.44)	1.39 (1.07-1.63)	1.52 (1.14-1.79)
3-hr	0.255 (0.215-0.312)	0.327 (0.277-0.401)	0.427 (0.360-0.521)	0.506 (0.422-0.614)	0.618 (0.508-0.744)	0.707 (0.573-0.847)	0.799 (0.636-0.957)	0.897 (0.701-1.07)	1.03 (0.781-1.23)	1.14 (0.842-1.36)
6-hr	0.154 (0.132-0.183)	0.195 (0.167-0.231)	0.249 (0.212-0.294)	0.292 (0.247-0.343)	0.351 (0.293-0.410)	0.396 (0.326-0.463)	0.444 (0.360-0.516)	0.493 (0.393-0.575)	0.560 (0.434-0.652)	0.612 (0.463-0.715)
12-hr	0.085 (0.073-0.100)	0.107 (0.092-0.126)	0.135 (0.116-0.159)	0.157 (0.134-0.184)	0.187 (0.158-0.218)	0.210 (0.175-0.244)	0.233 (0.192-0.271)	0.257 (0.209-0.299)	0.289 (0.229-0.338)	0.314 (0.244-0.369)
24-hr	0.050 (0.043-0.059)	0.063 (0.055-0.075)	0.082 (0.071-0.096)	0.096 (0.083-0.113)	0.117 (0.100-0.137)	0.133 (0.112-0.155)	0.149 (0.126-0.175)	0.166 (0.139-0.195)	0.190 (0.156-0.223)	0.209 (0.170-0.246)
2-day	0.027 (0.023-0.031)	0.034 (0.030-0.040)	0.045 (0.038-0.052)	0.053 (0.046-0.062)	0.065 (0.055-0.075)	0.074 (0.062-0.086)	0.084 (0.070-0.098)	0.094 (0.078-0.109)	0.108 (0.088-0.126)	0.119 (0.096-0.139)
3-day	0.019 (0.017-0.022)	0.024 (0.021-0.028)	0.032 (0.028-0.037)	0.038 (0.033-0.044)	0.047 (0.040-0.054)	0.054 (0.046-0.062)	0.061 (0.052-0.071)	0.069 (0.058-0.080)	0.079 (0.066-0.092)	0.088 (0.072-0.103)
4-day	0.015 (0.013-0.018)	0.019 (0.017-0.022)	0.026 (0.022-0.030)	0.031 (0.027-0.035)	0.038 (0.033-0.044)	0.044 (0.037-0.050)	0.050 (0.042-0.057)	0.056 (0.047-0.065)	0.065 (0.054-0.076)	0.073 (0.060-0.084)
7-day	0.010 (0.009-0.011)	0.013 (0.011-0.015)	0.017 (0.014-0.019)	0.020 (0.017-0.023)	0.024 (0.021-0.028)	0.028 (0.024-0.033)	0.032 (0.027-0.037)	0.036 (0.031-0.042)	0.042 (0.035-0.049)	0.047 (0.039-0.055)
10-day	0.007 (0.006-0.009)	0.009 (0.008-0.011)	0.012 (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 (0.026-0.036)	0.035 (0.029-0.040)
20-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)	0.011 (0.010-0.013)	0.013 (0.011-0.014)	0.014 (0.012-0.016)	0.016 (0.013-0.018)	0.018 (0.015-0.020)	0.019 (0.016-0.022)
30-day	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.009 (0.007-0.010)	0.010 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.010-0.014)	0.014 (0.012-0.016)	0.015 (0.013-0.017)
45-day	0.003 (0.002-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.005 (0.005-0.006)	0.007 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.012)	0.011 (0.009-0.013)
60-day	0.002 (0.002-0.003)	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 (0.005-0.007)	0.007 (0.006-0.008)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.007-0.010)

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.

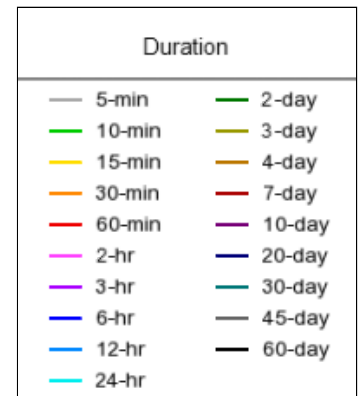
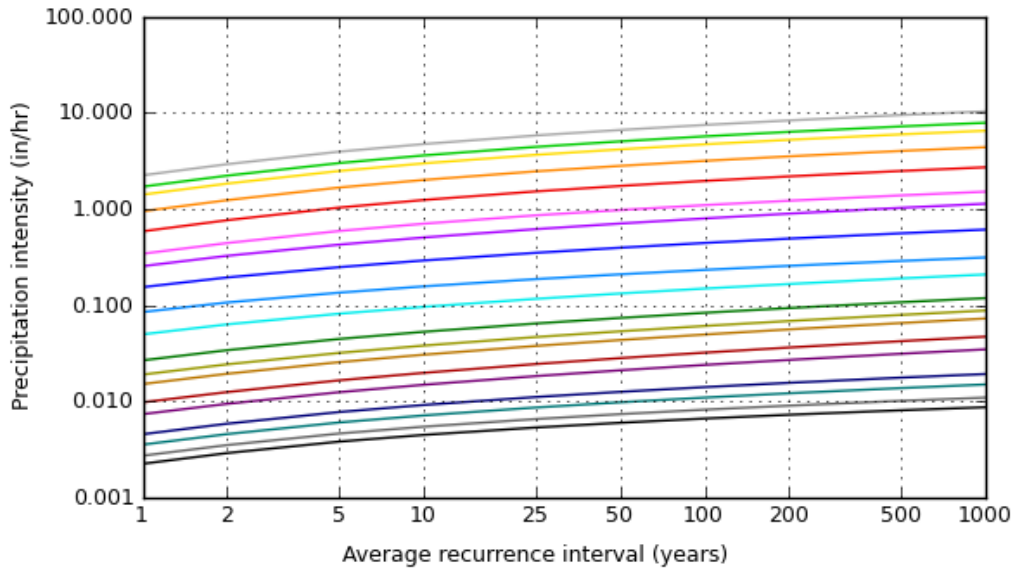
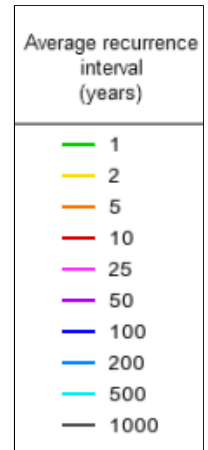
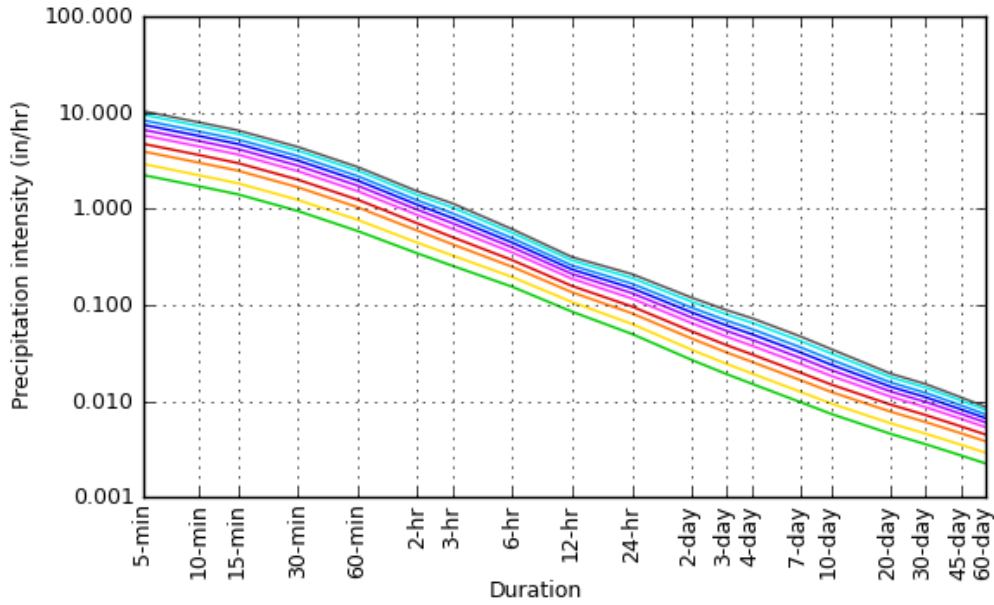
[Back to Top](#)

PF graphical

EXHIBIT H - NOAA-14 RAINFALL ATLAS

PDS-based intensity-duration-frequency (IDF) curves

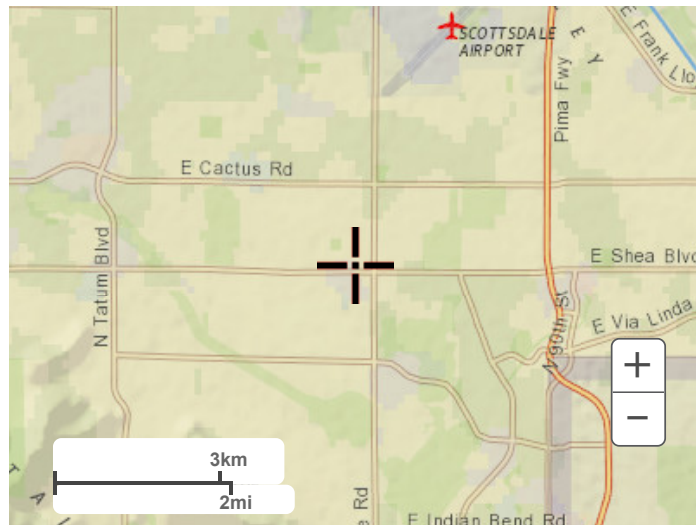
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Maps & aerials

Small scale terrain



Large scale terrain

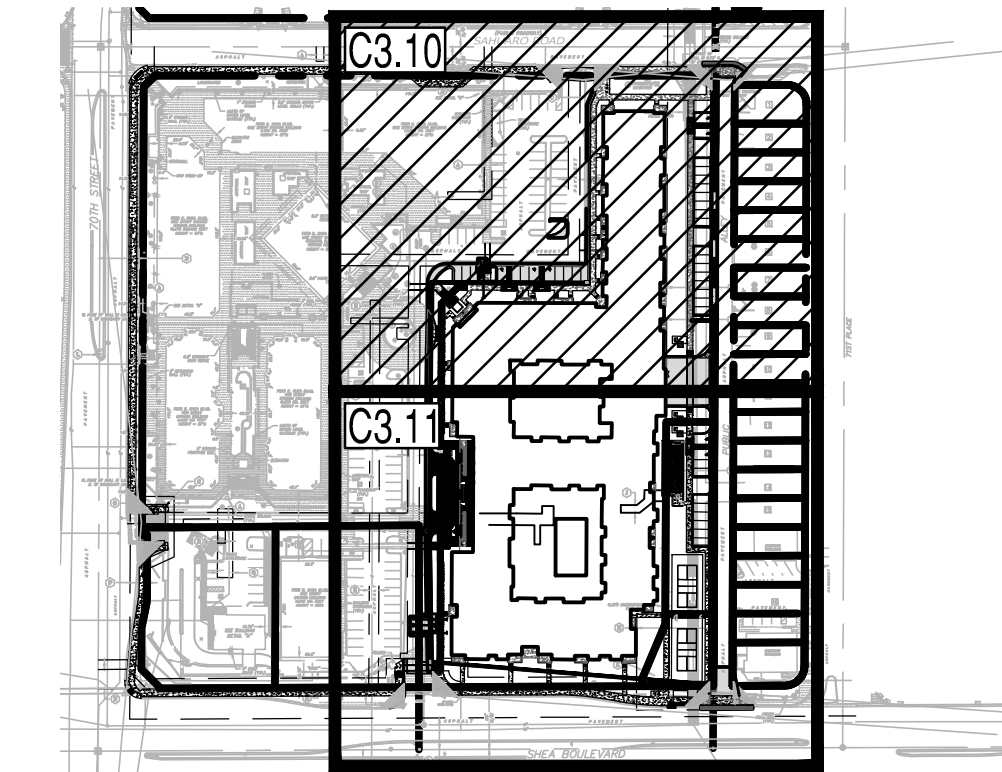
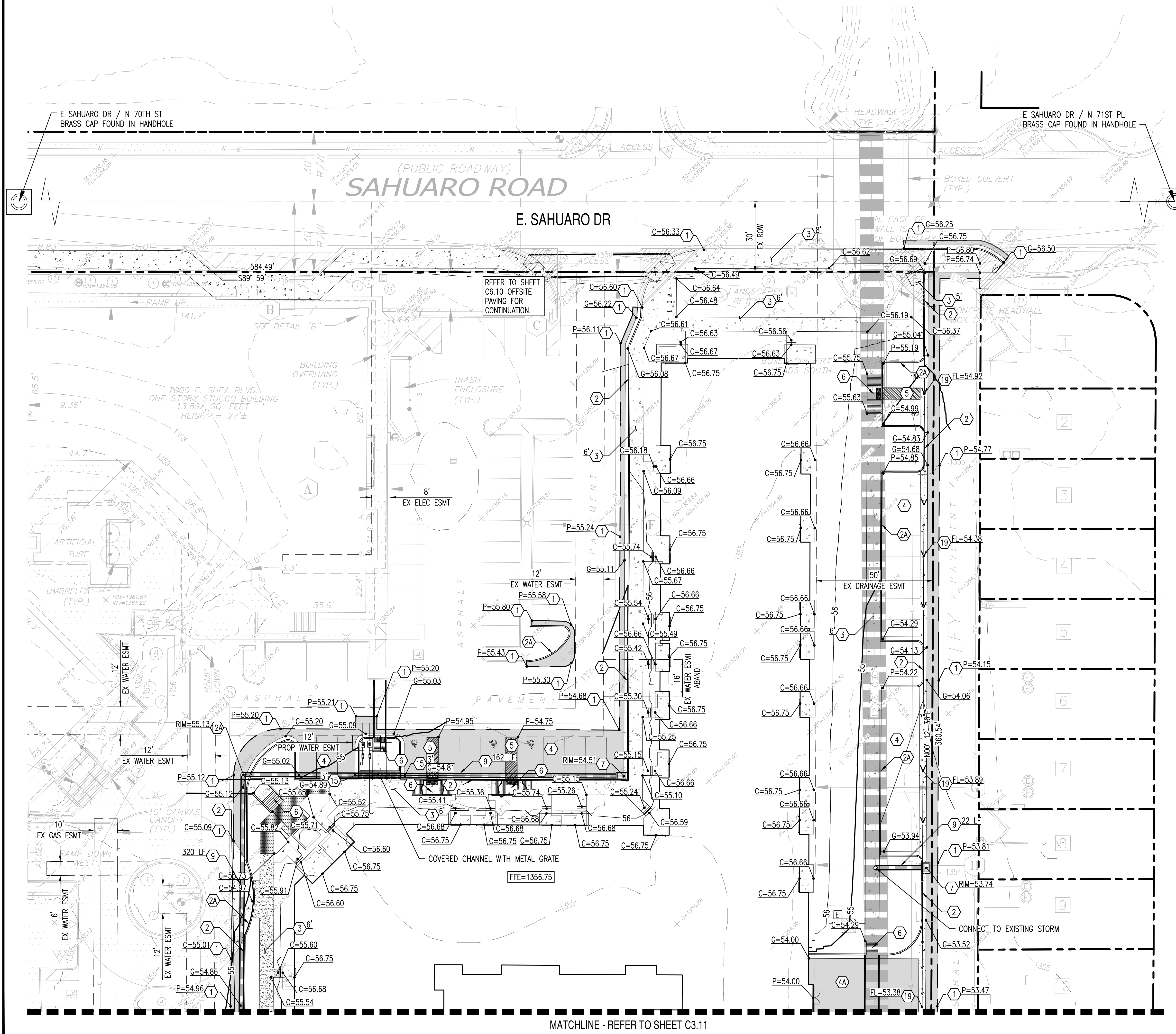


Large scale map



Large scale aerial

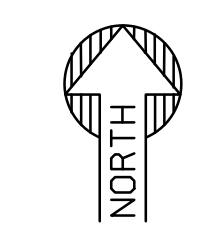
EXHIBIT I - PRELIMINARY GRADING AND DRAINAGE PLAN



KEY MAP
NTS

PRELIMINARY GRADING NOTES

- ① MATCH EXISTING GRADE.
- ② 6" VERTICAL CURB AND GUTTER.
- ②A 6" VERTICAL CURB
- ③ PROPOSED CONCRETE SIDEWALK, WIDTH PER PLAN.
- ④ LIGHT DUTY PAVEMENT.
- ④A HEAVY DUTY PAVEMENT.
- ⑤ PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- ⑥ PROPOSED ACCESSIBLE RAMP
- ⑦ NEW CATCH BASIN.
- ⑨ PROPOSED HDPE PIPE.
- ②A PROPOSED NYLOPLAST DRAIN BASIN WITH SOLID LID.
- ⑮ PROPOSED CURB ISLAND OPENING.
- ⑰ PROPOSED CONCRETE VALLEY GUTTER



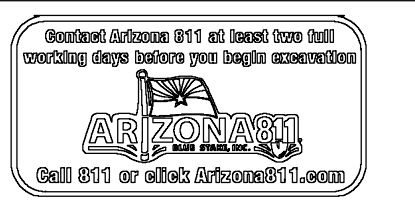
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ESG



PROJECT: SUNDOWN COMMONS
LOCATION: 7000 E. SHEA BLVD SCOTTSDALE, AZ 85254

DRAWN: BK 06/22/2023
DESIGNED: BK 06/22/2023
CHECKED: BK 06/22/2023
FINAL: DC
PROJ. MGR.: AF 06/22/2023

DATE: 06/22/2023
ISSUED FOR: CONCEPTUAL DESIGN

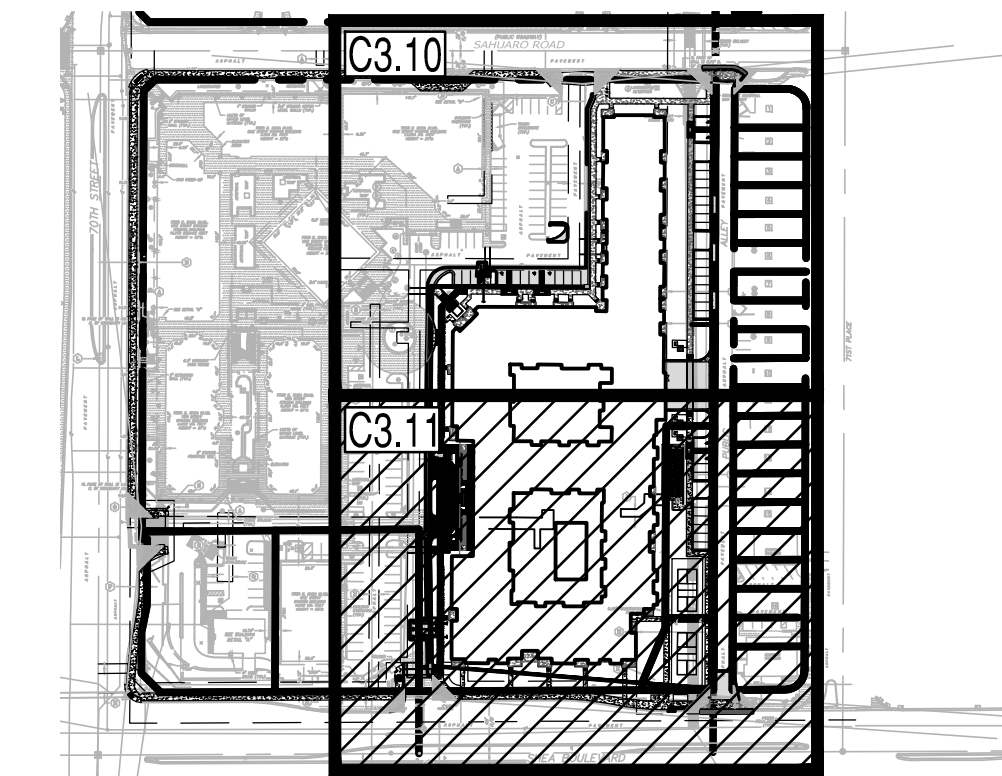
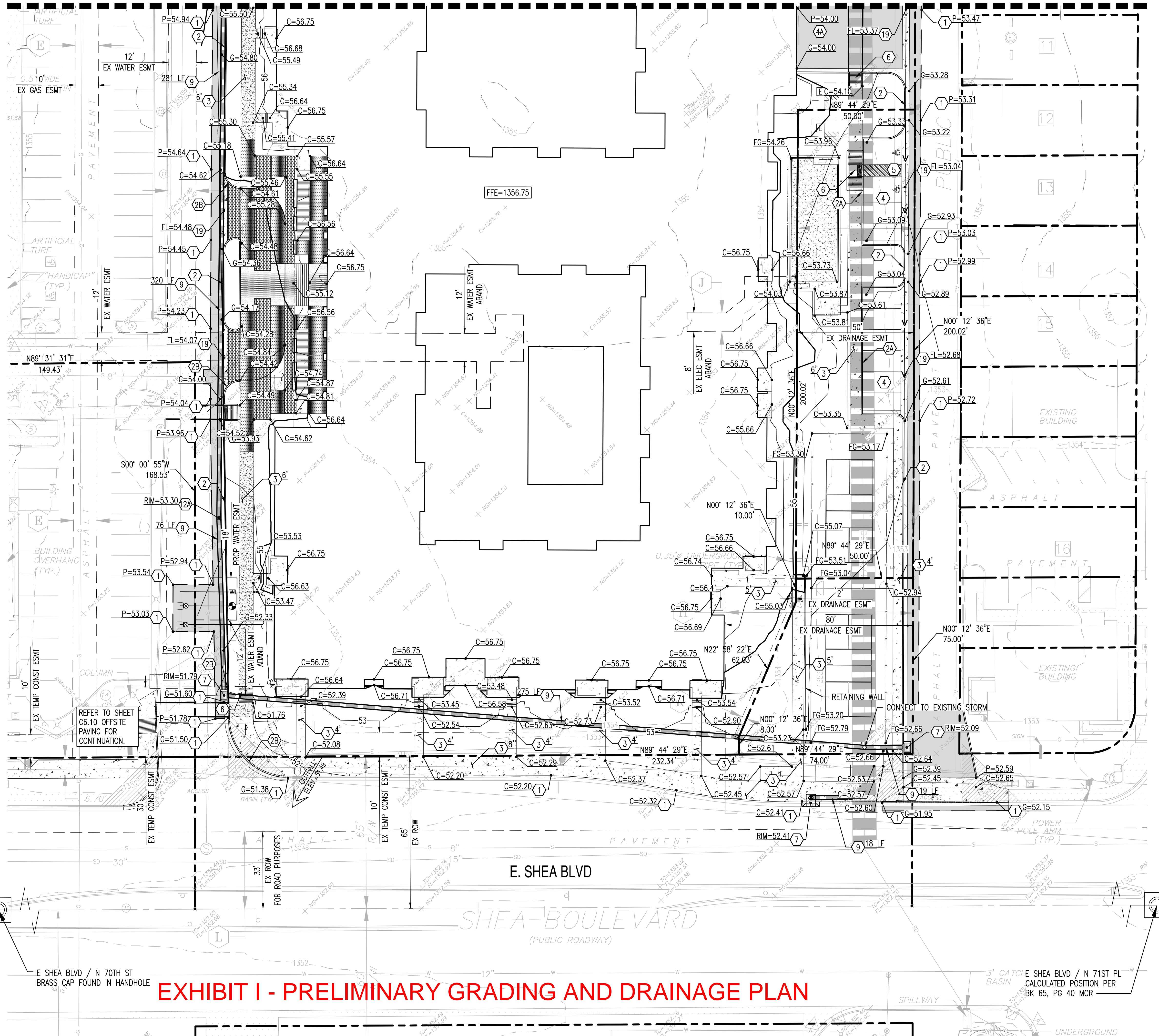
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JOB NO.: 230113
SHEET TITLE: GRADING & DRAINAGE PLAN

PAGE NO.: SHEET NO.: C3.10

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MATCHLINE - REFER TO SHEET C3.10



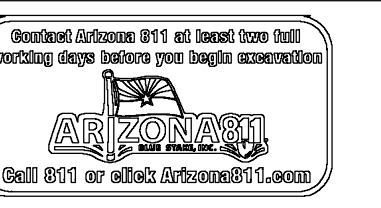
KEY MAP
NTS
NORTH

PRELIMINARY GRADING NOTES

- ① MATCH EXISTING GRADE.
- ② 6" VERTICAL CURB AND GUTTER.
- ②A 6" VERTICAL CURB
- ②B TRANSITION FROM VERTICAL CURB TO FLUSH CURB
- ③ PROPOSED CONCRETE SIDEWALK, WIDTH PER PLAN.
- ④ LIGHT DUTY PAVEMENT.
- ④A HEAVY DUTY PAVEMENT.
- ⑤ PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- ⑥ PROPOSED ACCESSIBLE RAMP
- ⑦ NEW CATCH BASIN.
- ⑨ PROPOSED HDPE PIPE.
- ②A PROPOSED NYLOPLAST DRAIN BASIN WITH SOLID LID.
- ①9 PROPOSED CONCRETE VALLEY GUTTER
- ②0 PROPOSED DECOMPOSED GRANITE PATH, WIDTH PER PLAN.

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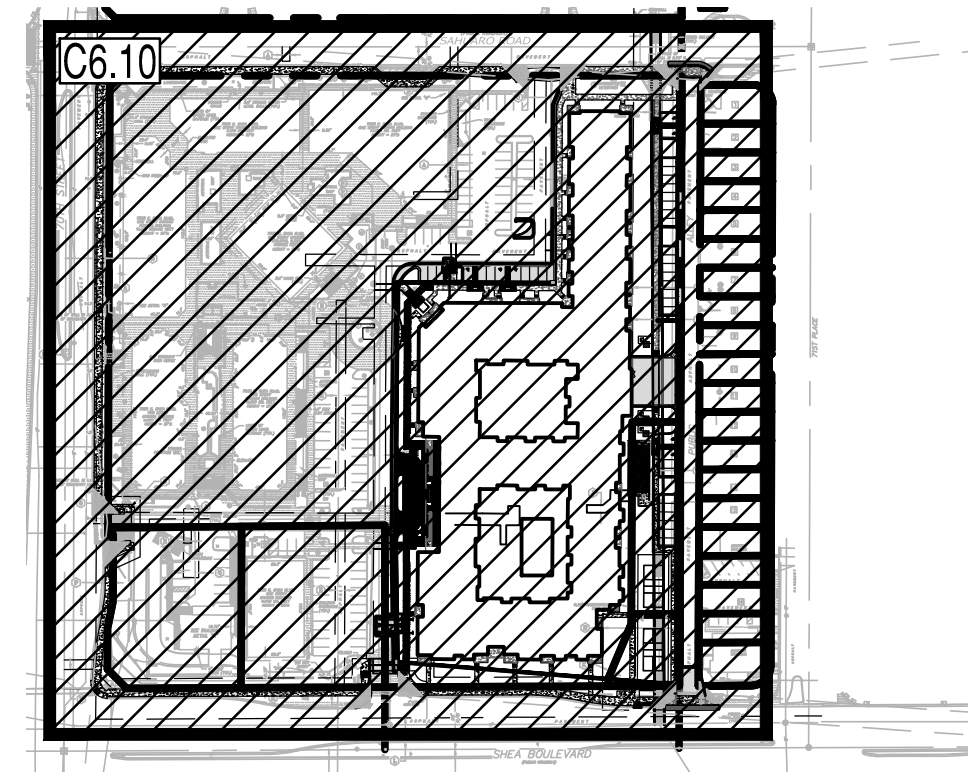
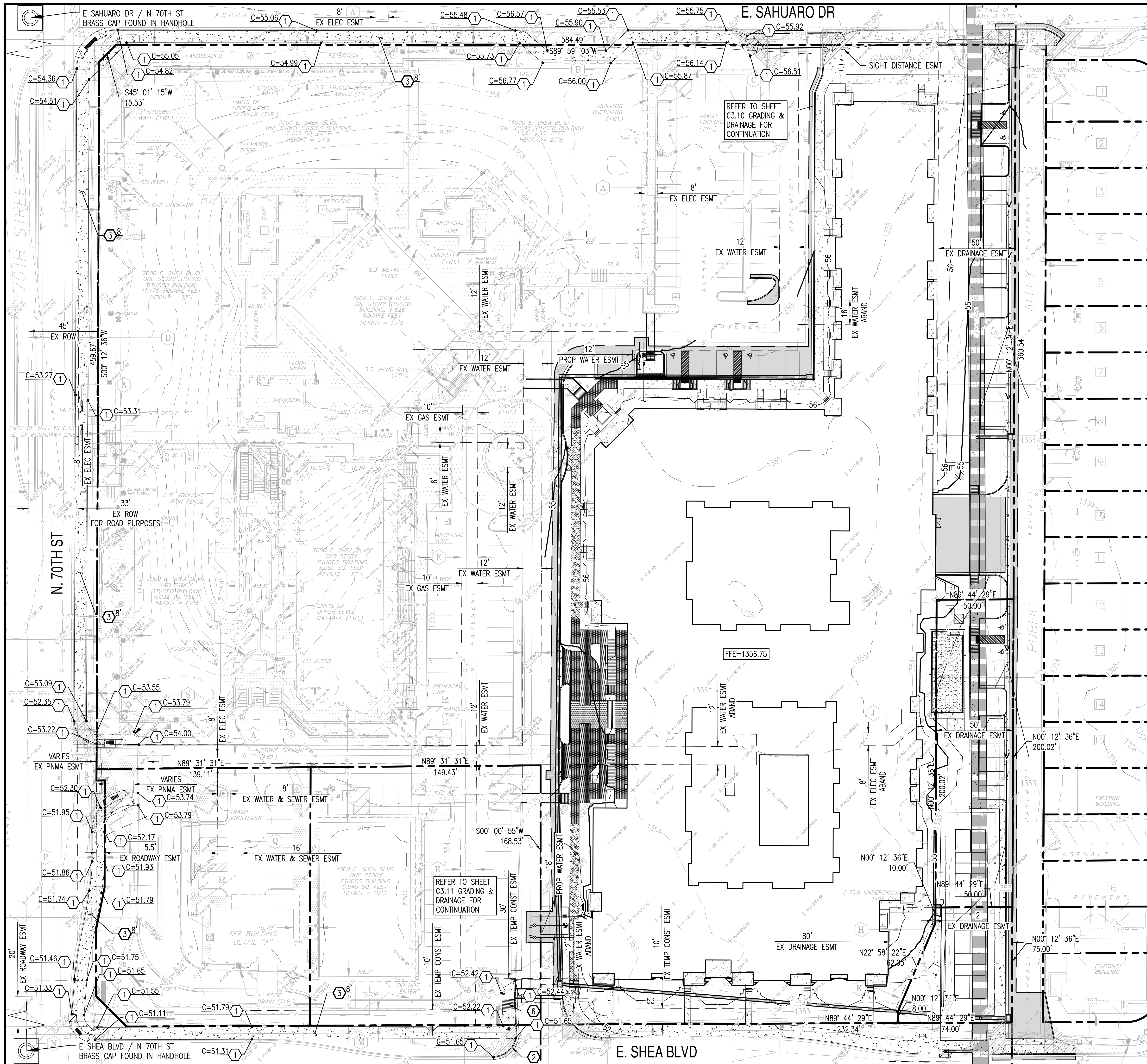


PROJECT SUNDOWN COMMONS	LOCATION 7000 E. SHEA BLVD SCOTTSDALE, AZ 85254
DRAWN DESIGNED CHECKED FINAL DC PROJ. MGR.	BK BK BK AF
DATE: ISSUED FOR: CONCEPTUAL DESIGN	06/22/2023 06/22/2023
REVISION NO.:	DATE:
JOB NO.:	230113
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KEY MAP
NTS
NORTH

PRELIMINARY GRADING NOTES

- ① MATCH EXISTING GRADE.
- ② 6" VERTICAL CURB AND GUTTER.
- ③ PROPOSED CONCRETE SIDEWALK, WIDTH PER PLAN.
- ⑥ PROPOSED ACCESSIBLE RAMP

EXHIBIT I - PRELIMINARY GRADING AND DRAINAGE PLAN

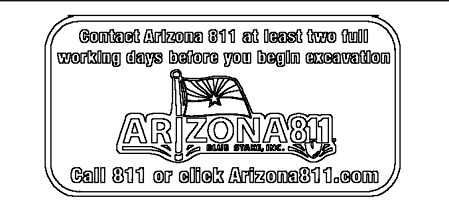
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PROJECT COMMONS	LOCATION
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DRAWN	BK 06/22/2023
DESIGNED	BK 06/22/2023
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FINAL DC	
PROJ. MGR.	AF 06/22/2023
DATE:	06/22/2023
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REVISION NO.:	DATE:
JOB NO.:	230113
SHEET TITLE:	OFFSITE PAVING PLAN
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