FINAL DRAINAGE REPORT

Senior Living Scottsdale + Osborn

3380 N Scottsdale Road, Scottsdale AZ 85251

Plan # _____
Case # 15-DR-2023
Q-S # _____
[X] Accepted
[ ] Corrections
N.Baronas 11/16/2023
Reviewed By Date

Prepared For:

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GROUP OF COMPANIES

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Project Number: 210126
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Case No.: 15-DR-2023 **Plan Check No.: TBD**

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1. INTRODUCTION

This Final Drainage Report represents the storm water analysis for a multi-family residential development proposed in Scottsdale, Arizona. The purpose of this report is to provide the hydrologic and hydraulic analysis, required by the City of Scottsdale, to support the proposed 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 in a portion of the Southeast Quarter of Section 27, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County Arizona:

- Parcel ID: Parcel 130-16-114; Zoning is D/DMU-2 (Downtown Multiple Use)
- Address: 3380 N. Scottsdale Road, Scottsdale 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:

- South:
  The site is bound to the south by the following properties:
  - Parcel 130-16-115; The Carter (apartment complex); Zoning is C-3
- North: Across Osborn Road
  - Parcel 130-13-316; Ten Wife Lofts (apartments/condominiums); Zoning is D/OC-2.
  - Parcel 130-13-046 and 130-13-044A; Walgreens Drug Store; Zoning is C-3.
- West: Across 71st Street
  - Parcel 130-16-087; First Baptist Church of Scottsdale; Zoning is R-5
- East: Across Scottsdale Road
  - Parcel 130-21-001U; Gasoline Service Station and a convenience market; Zoning is C-3.

2.3. EXISTING SITE DESCRIPTION:

The project area includes approximately 2.57 acres of land and is designated with zoning D/DMU-2. The site is currently developed as an Olive Garden restaurant with associated parking lot, driveways, and landscape areas.

Per Topographic Survey prepared by AW Land Surveying, LLC., the site slopes from north to south at approximately less than 1%. The site drains south into existing catch basins along the property line.

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

2.4. PROPOSED SITE DEVELOPMENT:

Site development includes the demolition of existing structures and designated parking lots for the construction of a new high density multifamily project. The development will include two access points proposed at Osborn Road and 71st Street.

Refer to **Appendix III** – Grading and Drainage Plan for site layout.

2.5. FLOOD HAZARD ZONE:

FIRM Map Number 04013C2235M dated September 18, 2020, 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 and FLO2D Map provide the following information for offsite drainage:

- *North*: Half of the runoff from Osborn Road flows towards the site, where it is conveyed through curb and gutter into an existing catch basin, EX-CB-7, located northeast of the site at the SWC of Osborn Road and Scottsdale Road. No offsite flows from the north affect the site.
- *East*: Half of the runoff from Scottsdale Road flows towards the site, where it is conveyed through curb and gutter and flows southerly away from the site. No offsite flows from the east affect the site.
- *West*: Half of the runoff from N. 71st flows towards the site and is also conveyed via existing curb and gutter. And per the FLOW2D MAP, a portion of the drainage flows north into Osborn Road. The remainder flows south and is collected by an existing catch basin, EX-CB-6, located near the southwestern corner of the property. No offsite flows from the west affect the site.
- *South*: Runoff from the apartment complex south of the site is captured by existing catch basins inside the apartment complex's property. No offsite flows from the south affect the site.

Refer to **FIGURE 4**, FLO2D MAP for drainage patterns.

3.2. ON-SITE DRAINAGE.

Based on the topographic information, the historical outfalls are as follows:

- Flows from drainage areas EX-A1 through EX-A4 are collected by existing catch basins located in the curb and gutter along the south property line and retained in existing underground basin (Ex-Basin 1). Flows from drainage area EX-A5 is collected by existing catch basin EX-CB-5 and retained by existing underground retention basin (Ex-Basin 2). According to Plan C1.4 "Stormdrain Plan" by Hilgart Wilson, Ex-Basin 1 and Ex-Basin 2 provide a volume of 4,516 cf and 4,123 cf respectively and are connected. Refer to Appendix V for Plan C1.4 "Stormdrain Plan" by Hilgart Wilson.
- Drainage area EX-B1 is self-retaining.
- Runoff from drainage area EX-C1 flows into Osborn Road, where it is ultimately collected by EX-CB-7.
- All flows draining into existing on-site catch basins are stored in two underground storage tanks located south of the property (Ex-Basin 1 and Ex-Basin 2).

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

Table 1 below is a summary of existing conditions runoff calculations:

TABLE 1. EXISTING SITE DISCHARGES

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)
	3.59	0.86	4.68	-	7.43	-	-	14.50	23.01
EX-A1	0.32	0.87	4.68	1.30	7.43	2.06	EX Basin A	5.56	8.83
EX-A2	0.33	0.90	4.68	1.40	7.43	2.22			
EX-A3	0.36	0.88	4.68	1.50	7.43	2.38			
EX-A4	0.33	0.89	4.68	1.37	7.43	2.17			
EX-A5	0.93	0.87	4.68	3.77	7.43	5.99	EX Basin B	3.77	5.99
EX-B1	0.04	0.45	4.68	0.09	7.43	0.14	EX-B1	0.09	0.14
EX-C1	0.26	0.61	4.68	0.75	7.43	1.19	EX CB-7	3.77	5.99
OFF-2	0.70	0.92	4.68	3.02	7.43	4.79			
OFF-1	0.12	0.87	4.68	0.49	7.43	0.77	EX CB-6	0.49	0.77
OFF-3	0.20	0.88	4.68	0.82	7.43	1.30	CP-1	0.82	1.30

On-site project area includes **2.57 Acres at C_{wt} = 0.84** (Existing conditions)
Refer to the **Existing Cwt Exhibit and Existing Conditions Drainage Area Map** in **Appendix II**.

4. PROPOSED STORM WATER MANAGEMENT

4.1. DESIGN INTENT:

Given that the site has been previously developed, on-site retention shall be calculated per City of Scottsdale DSPM 4-1.201. In order to preserve existing drainage patterns, most of the on-site drainage will discharge to the historical outlets, a portion of the site run-off will also be stored in a proposed underground retention basin to fulfill stormwater retention and first flush requirements. The majority of the building's roof run-off will be directed to the underground retention via roof drains. The underground retention basin will store the minimum pre-vs-post associated volume of the site. Excess runoff will overflow the proposed basin via cmp riser R-1 and discharge into existing catch basin EX-CB-3. Landscape and sidewalk areas around the project building will discharge minor flows to the right of way. Flows will be conveyed via roof drains, storm pipes and overland flow.

4.2. DESIGN STORM REQUIREMENTS:

In accordance with City of Scottsdale requirements for lots that are already developed, 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. For this site, the pre vs. post analysis is governing. Refer to section 4.4 for pre vs. post and first flush volumes comparison.

4.3. LAND CHARACTERISTICS:

The proposed project site consists of a multi-family residential building with a restaurant and landscape areas along the perimeter of the structure. 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.

Table 2 below is a summary of proposed conditions runoff calculations:

TABLE 2. PROPOSED SITE DISCHARGES

PROPOSED 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)
	3.60	0.92	4.68	-	7.43	-	-	15.63	24.82
DA-A1	0.23	0.95	4.68	1.01	7.43	1.61	EX-BASIN 1 & 2/PROPOSED BASIN A	10.25	16.27
DA-A2	0.30	0.95	4.68	1.35	7.43	2.14			
DA-A3	0.29	0.95	4.68	1.31	7.43	2.07			
DA-A4	0.27	0.95	4.68	1.21	7.43	1.92			
DA-A5	0.45	0.95	4.68	1.98	7.43	3.15			
DA-A6	0.45	0.95	4.68	1.99	7.43	3.17			
DA-A7	0.06	0.95	4.68	0.28	7.43	0.44			
DA-A8	0.03	0.95	4.68	0.14	7.43	0.23			
DA-A9	0.04	0.95	4.68	0.19	7.43	0.31			
DA-A10	0.08	0.95	4.68	0.35	7.43	0.56			
DA-A11	0.10	0.95	4.68	0.43	7.43	0.68			
DA-B1	0.05	0.72	4.68	0.18	7.43	0.29	EX CB-6	0.69	1.10
OFF-1	0.12	0.91	4.68	0.51	7.43	0.81			
DA-C1	0.20	0.87	4.68	0.83	7.43	1.31	EX-CB-7	3.82	6.07
OFF-2	0.71	0.90	4.68	2.99	7.43	4.75			
DA-D1	0.01	0.95	4.68	0.05	7.43	0.08	CP-1	0.87	1.38
OFF-3	0.20	0.88	4.68	0.82	7.43	1.30			

On-site project area includes **2.57 Acres at C_{wt} = 0.93** (Proposed conditions)

Refer to the **Proposed Cwt Exhibit and Proposed Conditions Drainage Area Map** in **Appendix II**.

4.4. STORMWATER RETENTION:

100-YR, 2-HR STORM: Per City of Scottsdale DSPM 4-1.201, development storage requirements for the 100-yr, 2-hr storm event are calculated as follows:

$$V_r = \Delta C \left(\frac{R}{12}\right) A$$

where:

V_r = Required storage (cf)

R = Precipitation amount =2.16 in per NOAA Atlas 14 Precipitation Frequency Estimates

A = Total area of site (sf)

$\Delta C = C_{post} - C_{pre}$

$$V_r = (0.93 - 0.84)\left(\frac{2.16}{12}\right)(112{,}097) = 1{,}816\ cf$$

Since the difference of the weighted coefficients is positive, stormwater flows in the project area will increase, generating additional flow contributions to existing drainage patterns. Therefore, stormwater retention is required for the development following the pre vs. post analysis.

FIRST FLUSH: First Flush storage required is calculated in accordance with City of Scottsdale DSPM 4-1.201. Only the areas where runoff could be affected by vehicular contact are considered in the first flush calculation. The roof drainage is considered to be free of heavy traffic pollutants, therefore, on-site driveway areas and sidewalks will be considered for the calculation. First flush area is calculated as the total project area (112,097 sf) minus roof area (86,749 sf) and landscape areas (4,440 sf), equating to 22,891 sf.

$$FF_r = C\left(\frac{P}{12}\right)A$$

where:
$FF_r =$ First Flush required storage volume (cf)
$P =$ Precipitation amount =0.5 in per C.O.S. DSPM
$A =$ Area of site excluding roofs and landscape (sf)
$C =$ The weighted average runoff coefficient =0.95

$$FF_r = (0.95)\left(\frac{0.5}{12}\right)20{,}908 = 827cf$$

The above assessment indicates that the required First Flush storage is 827 cf.

Retention shall be provided for the greater of Pre vs Post or First Flush volumes, therefore on-site retention will be designed to store the Pre vs. Post volume. (**1,816 cf**). The provided storage volume will also fulfill the First Flush requirement. The proposed on-site retention will store flows from drainage area DA-A1 through DA-A5 comply with Pre vs Post and First Flush volumes. Excess runoff will overflow via cmp riser R-1 and discharge to existing catch basin EX-CB-3.

Refer to **Appendix II** for calculations.

Provided storage of *Basin A*:
Basin A will consist of a 6' diameter corrugated metal pipe and will have a length of 75 lf.
$V_P = \pi$* Pipe radius^2 * Pipe length
$V_P = (\pi * 3^2)*(75) = 2{,}120$ cf > Vr = 1,816 CF

The proposed basin has enough capacity to store the required additional volume generated from the Pre vs. Post analysis.

Refer to **Appendix VI** for Storm Water Operation and Maintenance Plan

4.5. STORMWATER DISCHARGE

For Basins with no direct bleed-off available, Drywells are proposed in the on-site storage facilities to dispose of the stormwater within thirty-six (36) hours. The calculation is as follows:

- Minimum percolating rate of a drywell (for planning purposes) = 0.1 cfs
- Volume to be drained in 36 hours = 0.1 cfs * 36 hours * 3600 sec/hour = 12,960 cf = 0.298 acre-feet.
- The number of drywells will be reduced if geotechnical testing for percolation rates determine adequate infiltration is available in the native soils at lower depths. If the percolation rate of the drywells is less than 0.1 cfs the number of drywells may have to be increased.

Basin 1:
Total provided storage = **2,120** CF
2,120 CF / 12,960 CF per drywell = 0.16 = 1 drywell required.

Pre vs post discharges

Proposed conditions will ultimately increase site flow contributions to the existing public storm drain system.
Table 3 below summarizes the project discharges per outfall for the 10-year and 100-year storm events, providing the differences between existing and proposed peak flows for each case. The overall site contributions to the existing public drain system are also shown for the drainage areas that will ultimately discharge to it either through catch basins or the proposed manhole connection.

TABLE 3. PRE VS POST FLOWS

							Ultimate flows to public storm drain system			
	Q10 (cfs)			Q100 (cfs)			**Q10 (cfs)**		**Q100 (cfs)**	
Outfall	Existing	Proposed	Δ	Existing	Proposed	Δ	Existing	Proposed	Existing	Proposed
EX-CB-6	0.49	0.69	0.21	0.77	0.44	-0.34	14.41	8.81	22.88	13.32
EX-CB-7	3.77	3.85	0.08	5.99	6.12	0.13				
CP-1	0.82	0.87	0.05	1.30	1.38	0.08				
EX-CB-1	1.30	0.28	-1.02	2.06	0.44	-1.62				
EX-CB-2	1.40	0.14	-1.25	2.22	0.23	-1.99				
EX-CB-3	1.50	0.19	-1.31	2.38	0.31	-2.08				
EX-CB-4	1.37	0.35	-1.02	2.17	0.56	-1.62				
EX-CB-5	3.77	2.42	-1.35	5.99	3.85	-2.14				
						Δ	-5.61		-9.56	

During the 100-year storm event, discharges to the overall public storm drain system will be decreased. EX-CB-5 is now "on grade" situation in the hydraulic analysis shows that 0.02 cfs will be bypassing, increasing flow to CP-1 by 0.10 cfs.

Since the Pre vs Post volume will be retained and the new underground storage will be equalized within the existing retention system, the outfalls where flows are increased will be mitigated and also since around 300 cf are provided above the Pre vs Post requirement, will help to reduce the impact of the 0.04 increase of the overall volume.

Refer to **Existing Conditions Drainage Area Map** and **Proposed Conditions Drainage Area Map** in **Appendix II**.

4.6. INLET CALCULATIONS

Existing catch basins MAG 534 Type 'E' will be used to capture on-site runoff which will be conveyed into the city's public storm network system. The existing catch basin inlet can adequately convey runoff for the maximum 100-year, 5-min event.

- The MAG 534 Type 'E' Nyloplast can adequately convey a flow of 6.25 cfs. The prosed catch basin can adequately coney runoff for the maximum 100-year, 5-min event Q_{100}= 3.85 cfs. (DA-6 & DA-A11)

Refer to **Appendix IV** for DA-6 & DA-A11 Q_{100} street capacity analysis.

Table below is a summary of inlet calculations:

TABLE 4. INLET CALCULATION SUMMARY

Inlet Calculation Summary										
P=100-yr, 5min = 7.43 in.										
Drainage Area ID	Area (acres)	C_w (-)	Intensity (in/hr)	Q (cfs)	Capacity (cfs)	Pongind deep for design ft	Max ponding deep to overflow ft	Control Point	Catch Basin Type	Size ft
ON-SITE										
DA-A1	0.23	0.95	7.43	1.61	N/A	N/A	N/A	ST-1	Roof Drain	N/A
DA-A2	0.30	0.95	7.43	2.14	N/A	N/A	N/A	ST-2	Roof Drain	N/A
DA-A3	0.29	0.95	7.43	2.07	N/A	N/A	N/A	ST-3	Roof Drain	N/A
DA-A4	0.27	0.95	7.43	1.92	N/A	N/A	N/A	ST-4	Roof Drain	N/A
DA-A5	0.45	0.95	7.43	3.15	N/A	N/A	N/A	ST-5	Roof Drain	N/A
DA-B1	0.45	0.95	7.43	3.17	N/A	N/A	N/A	ST-6	Roof Drain	N/A
DA-B2	0.06	0.95	7.43	0.44	6.25	0.50'	0.56	EX-CB-1	MAG 534	3.0' x 1.5'
DA-B3	0.03	0.95	7.43	0.23	6.25	0.50'	0.48	EX-CB-2	MAG 534	3.0' x 1.5'
DA-B4	0.04	0.95	7.43	0.31	6.25	0.50'	0.73	EX-CB-3	MAG 534	3.0' x 1.5'
DA-B5	0.08	0.95	7.43	0.56	6.25	0.50'	0.71	EX-CB-4	MAG 534	3.0' x 1.5'
DA-B6	0.10	0.95	7.43	0.68	6.25	0.33	Bypass	EX-CB-5	MAG 534	3.0' x 1.5'
DA-C1	0.05	0.72	7.43	0.29	N/A	0.50'	N/A	EX-CB-6	N/A	20' x 0.5'
DA-D1	0.20	0.76	7.43	1.14	N/A	0.50'	N/A	EX-CB-7	N/A	13.5' x 0.5'
DA-E1	0.01	0.95	7.43	0.08	N/A	0.50'	N/A	CP-1	N/A	N/A
OFF-1	0.12	0.91	7.43	0.81	N/A	0.50'	N/A	EX-CB-6	N/A	20' x 0.5'
OFF-2	0.71	0.94	7.43	4.97	N/A	0.50'	N/A	EX-CB-7	N/A	13.5' x 0.5'
OFF-3	0.20	0.88	7.43	1.30	N/A	0.50'	N/A	CP-1	N/A	N/A

4.7. PIPE CAPACITY CALCULATIONS

The proposed drainage system consists of 18" and 12" HDPE pipes conveying runoff flows from proposed roof drains to the underground storage tanks. The system was evaluated for the 100-yr event scenario using Autodesk Civil 3D Gravity Network Analysis, verifying that the hydraulic grade lines

do not exceed six-inch depth in the parking lot. The critical storm pipes have the capacity to convey the total runoff of the Drainage Areas.

Refer to **Appendix II** for **FlowMaster® Calculation** and the **HGL Results.**

4.8. ADEQ WATER QUALITY REQUIREMENTS

The total disturbed area of this site is approximately 2.57 acres. The Arizona Department of Environmental Quality requires that any site disturbance over an acre is required to submit an NOI. A 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 elevation will be set a minimum of 14 inches above the lot ultimate outfall, located at the southeast corner of the site at an elevation of 1246.88'.

6. CONCLUSIONS

6.1. OVERALL PROJECT:

1. The finish floor elevations will be designed a minimum of 14 inches above the low top of curb of the lot with a difference between the outfall and the Finish Floor Elevation of 2.89 feet.
2. Historical outfalls will be affected at proposed conditions and overall discharge to the public storm drain system will be decreased.
3. On-site storage facilities will be provided to account for the Pre vs. Post volume and First Flush volumes.

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

FIGURES

10/7/2021 2:26:08 PM

FIGURE 1. VICINITY MAP

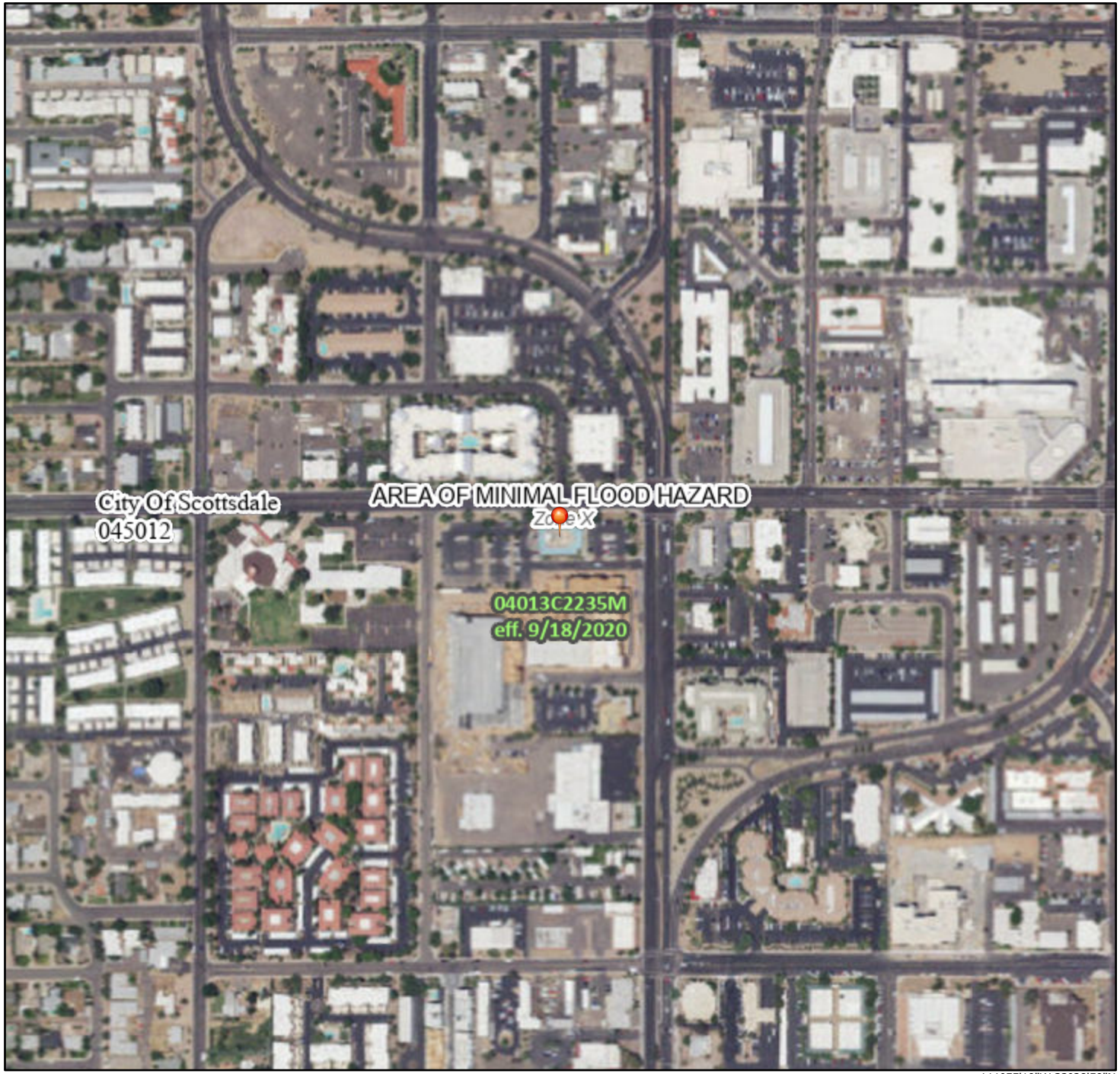
10/7/2021 2:21:50 PM

FIGURE 2. AERIAL

National Flood Hazard Layer FIRMette

FEMA

111°55'56"W 33°29'29"N



111°55'19"W 33°28'59"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

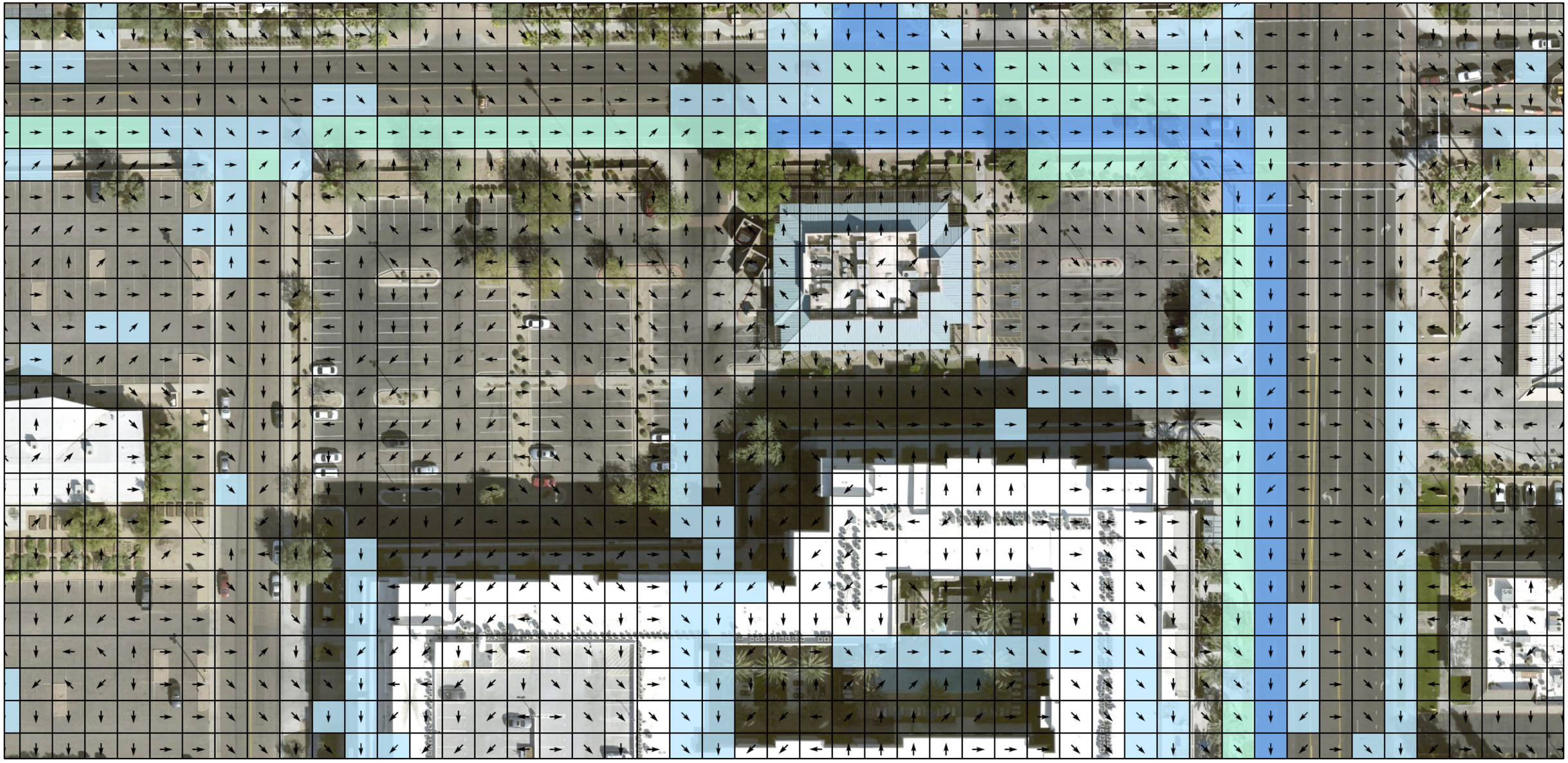
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/11/2021 at 11:50 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

FIGURE 3

679_LIBW - South 100YR6HR



October 15, 2021

Peak Discharge

(cfs)

- <1
- >1 - 5
- >5 - 10
- >10 - 25
- >25 - 50
- >50 - 75
- >75 - 100
- >100 - 150
- >150 - 200
- >200 - 500
- >500

1:720

0 45 90 180 ft

0 12.5 25 50 m

FIGURE 4

FLO-2D MAP

APPENDIX I

RAINFALL DATA

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4873°, Longitude: -111.9271°
Elevation: 1246.83 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** (0.153-0.222)	**0.239** (0.202-0.290)	**0.324** (0.272-0.394)	**0.390** (0.325-0.471)	**0.480** (0.393-0.576)	**0.549** (0.444-0.656)	**0.619** (0.491-0.738)	**0.691** (0.539-0.822)	**0.787** (0.598-0.938)	**0.860** (0.641-1.03)
10-min	**0.278** (0.233-0.338)	**0.363** (0.307-0.442)	**0.494** (0.414-0.599)	**0.594** (0.495-0.717)	**0.730** (0.598-0.876)	**0.835** (0.675-0.998)	**0.941** (0.747-1.12)	**1.05** (0.820-1.25)	**1.20** (0.909-1.43)	**1.31** (0.975-1.56)
15-min	**0.344** (0.289-0.419)	**0.450** (0.380-0.548)	**0.612** (0.513-0.742)	**0.737** (0.613-0.889)	**0.905** (0.741-1.09)	**1.03** (0.837-1.24)	**1.17** (0.926-1.39)	**1.30** (1.02-1.55)	**1.48** (1.13-1.77)	**1.62** (1.21-1.94)
30-min	**0.464** (0.389-0.564)	**0.607** (0.512-0.738)	**0.825** (0.691-1.00)	**0.992** (0.826-1.20)	**1.22** (0.998-1.46)	**1.39** (1.13-1.67)	**1.57** (1.25-1.87)	**1.75** (1.37-2.09)	**2.00** (1.52-2.38)	**2.19** (1.63-2.61)
60-min	**0.574** (0.481-0.698)	**0.751** (0.633-0.913)	**1.02** (0.855-1.24)	**1.23** (1.02-1.48)	**1.51** (1.24-1.81)	**1.73** (1.39-2.06)	**1.95** (1.54-2.32)	**2.17** (1.69-2.59)	**2.47** (1.88-2.95)	**2.71** (2.01-3.23)
2-hr	**0.664** (0.567-0.792)	**0.861** (0.735-1.03)	**1.15** (0.981-1.37)	**1.38** (1.16-1.63)	**1.68** (1.40-1.98)	**1.92** (1.57-2.25)	**2.16** (1.74-2.53)	**2.40** (1.90-2.82)	**2.73** (2.11-3.21)	**2.99** (2.26-3.53)
3-hr	**0.722** (0.613-0.867)	**0.926** (0.790-1.12)	**1.22** (1.03-1.46)	**1.45** (1.22-1.73)	**1.77** (1.47-2.10)	**2.03** (1.66-2.40)	**2.30** (1.85-2.72)	**2.58** (2.04-3.05)	**2.97** (2.27-3.51)	**3.29** (2.45-3.90)
6-hr	**0.869** (0.754-1.02)	**1.10** (0.959-1.30)	**1.41** (1.23-1.66)	**1.66** (1.43-1.94)	**2.00** (1.70-2.32)	**2.27** (1.89-2.62)	**2.55** (2.09-2.94)	**2.83** (2.28-3.27)	**3.22** (2.53-3.73)	**3.52** (2.70-4.10)
12-hr	**0.972** (0.851-1.13)	**1.23** (1.08-1.43)	**1.56** (1.36-1.80)	**1.82** (1.58-2.10)	**2.17** (1.86-2.49)	**2.43** (2.06-2.79)	**2.71** (2.26-3.11)	**2.99** (2.46-3.44)	**3.36** (2.70-3.89)	**3.66** (2.88-4.26)
24-hr	**1.16** (1.04-1.31)	**1.48** (1.32-1.67)	**1.92** (1.71-2.15)	**2.26** (2.01-2.54)	**2.74** (2.42-3.07)	**3.12** (2.74-3.49)	**3.52** (3.06-3.93)	**3.93** (3.39-4.39)	**4.49** (3.84-5.03)	**4.94** (4.18-5.54)
2-day	**1.26** (1.12-1.42)	**1.61** (1.44-1.81)	**2.11** (1.88-2.37)	**2.51** (2.23-2.82)	**3.07** (2.72-3.44)	**3.52** (3.09-3.94)	**3.99** (3.48-4.48)	**4.48** (3.88-5.03)	**5.17** (4.43-5.81)	**5.72** (4.85-6.45)
3-day	**1.33** (1.19-1.50)	**1.70** (1.52-1.91)	**2.24** (1.99-2.51)	**2.67** (2.37-2.99)	**3.28** (2.90-3.67)	**3.77** (3.30-4.21)	**4.28** (3.73-4.80)	**4.83** (4.17-5.41)	**5.60** (4.78-6.28)	**6.21** (5.25-6.99)
4-day	**1.40** (1.25-1.58)	**1.79** (1.60-2.02)	**2.36** (2.10-2.65)	**2.83** (2.51-3.17)	**3.48** (3.07-3.90)	**4.01** (3.52-4.49)	**4.58** (3.98-5.12)	**5.18** (4.47-5.80)	**6.02** (5.13-6.74)	**6.71** (5.66-7.53)
7-day	**1.55** (1.38-1.75)	**1.98** (1.77-2.24)	**2.62** (2.33-2.94)	**3.13** (2.78-3.52)	**3.86** (3.41-4.33)	**4.44** (3.90-4.98)	**5.07** (4.41-5.68)	**5.73** (4.95-6.43)	**6.66** (5.68-7.48)	**7.42** (6.25-8.34)
10-day	**1.69** (1.51-1.90)	**2.16** (1.93-2.43)	**2.85** (2.54-3.20)	**3.41** (3.02-3.81)	**4.18** (3.69-4.67)	**4.81** (4.22-5.37)	**5.47** (4.76-6.11)	**6.16** (5.33-6.89)	**7.14** (6.10-7.99)	**7.92** (6.70-8.88)
20-day	**2.07** (1.86-2.32)	**2.67** (2.39-2.98)	**3.52** (3.15-3.93)	**4.17** (3.71-4.64)	**5.04** (4.47-5.61)	**5.71** (5.05-6.35)	**6.39** (5.62-7.12)	**7.08** (6.20-7.89)	**8.01** (6.95-8.95)	**8.72** (7.51-9.76)
30-day	**2.42** (2.16-2.71)	**3.12** (2.79-3.48)	**4.11** (3.66-4.57)	**4.86** (4.33-5.40)	**5.87** (5.20-6.52)	**6.64** (5.86-7.38)	**7.44** (6.54-8.26)	**8.25** (7.21-9.16)	**9.34** (8.10-10.4)	**10.2** (8.75-11.3)
45-day	**2.81** (2.52-3.13)	**3.62** (3.25-4.03)	**4.76** (4.27-5.31)	**5.61** (5.02-6.25)	**6.73** (6.00-7.49)	**7.57** (6.73-8.43)	**8.42** (7.45-9.38)	**9.27** (8.16-10.3)	**10.4** (9.08-11.6)	**11.2** (9.76-12.6)
60-day	**3.11** (2.80-3.46)	**4.01** (3.61-4.46)	**5.28** (4.74-5.86)	**6.20** (5.55-6.88)	**7.39** (6.61-8.21)	**8.28** (7.37-9.19)	**9.17** (8.13-10.2)	**10.0** (8.87-11.2)	**11.2** (9.81-12.5)	**12.0** (10.5-13.4)

[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

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4873°, Longitude: -111.9271°
Elevation: 1246.83 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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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** (1.84-2.66)	**2.87** (2.42-3.48)	**3.89** (3.26-4.73)	**4.68** (3.90-5.65)	**5.76** (4.72-6.91)	**6.59** (5.33-7.87)	**7.43** (5.89-8.86)	**8.29** (6.47-9.86)	**9.44** (7.18-11.3)	**10.3** (7.69-12.3)
10-min	**1.67** (1.40-2.03)	**2.18** (1.84-2.65)	**2.96** (2.48-3.59)	**3.56** (2.97-4.30)	**4.38** (3.59-5.26)	**5.01** (4.05-5.99)	**5.65** (4.48-6.73)	**6.31** (4.92-7.51)	**7.18** (5.45-8.57)	**7.85** (5.85-9.38)
15-min	**1.38** (1.16-1.68)	**1.80** (1.52-2.19)	**2.45** (2.05-2.97)	**2.95** (2.45-3.56)	**3.62** (2.96-4.34)	**4.14** (3.35-4.95)	**4.67** (3.70-5.56)	**5.21** (4.07-6.20)	**5.94** (4.51-7.08)	**6.49** (4.84-7.76)
30-min	**0.928** (0.778-1.13)	**1.21** (1.02-1.48)	**1.65** (1.38-2.00)	**1.98** (1.65-2.39)	**2.44** (2.00-2.93)	**2.79** (2.25-3.33)	**3.14** (2.49-3.75)	**3.51** (2.74-4.18)	**4.00** (3.04-4.77)	**4.37** (3.26-5.22)
60-min	**0.574** (0.481-0.698)	**0.751** (0.633-0.913)	**1.02** (0.855-1.24)	**1.23** (1.02-1.48)	**1.51** (1.24-1.81)	**1.73** (1.39-2.06)	**1.95** (1.54-2.32)	**2.17** (1.69-2.59)	**2.47** (1.88-2.95)	**2.71** (2.01-3.23)
2-hr	**0.332** (0.284-0.396)	**0.430** (0.368-0.514)	**0.576** (0.490-0.685)	**0.688** (0.578-0.816)	**0.840** (0.698-0.990)	**0.958** (0.785-1.13)	**1.08** (0.870-1.27)	**1.20** (0.952-1.41)	**1.37** (1.06-1.60)	**1.49** (1.13-1.76)
3-hr	**0.240** (0.204-0.289)	**0.308** (0.263-0.372)	**0.406** (0.344-0.487)	**0.483** (0.405-0.576)	**0.590** (0.489-0.701)	**0.676** (0.552-0.800)	**0.766** (0.615-0.906)	**0.859** (0.678-1.01)	**0.989** (0.757-1.17)	**1.09** (0.816-1.30)
6-hr	**0.145** (0.126-0.171)	**0.184** (0.160-0.216)	**0.236** (0.205-0.277)	**0.278** (0.238-0.324)	**0.334** (0.283-0.387)	**0.379** (0.316-0.437)	**0.425** (0.349-0.491)	**0.472** (0.380-0.547)	**0.537** (0.422-0.623)	**0.588** (0.451-0.684)
12-hr	**0.081** (0.071-0.094)	**0.102** (0.089-0.119)	**0.129** (0.113-0.150)	**0.151** (0.131-0.174)	**0.180** (0.154-0.207)	**0.202** (0.171-0.232)	**0.225** (0.188-0.258)	**0.248** (0.204-0.285)	**0.279** (0.224-0.323)	**0.304** (0.239-0.353)
24-hr	**0.048** (0.043-0.055)	**0.062** (0.055-0.069)	**0.080** (0.071-0.090)	**0.094** (0.084-0.106)	**0.114** (0.101-0.128)	**0.130** (0.114-0.145)	**0.147** (0.128-0.164)	**0.164** (0.141-0.183)	**0.187** (0.160-0.209)	**0.206** (0.174-0.231)
2-day	**0.026** (0.023-0.029)	**0.033** (0.030-0.038)	**0.044** (0.039-0.049)	**0.052** (0.047-0.059)	**0.064** (0.057-0.072)	**0.073** (0.064-0.082)	**0.083** (0.073-0.093)	**0.093** (0.081-0.105)	**0.108** (0.092-0.121)	**0.119** (0.101-0.134)
3-day	**0.018** (0.016-0.021)	**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** (0.058-0.075)	**0.078** (0.066-0.087)	**0.086** (0.073-0.097)
4-day	**0.015** (0.013-0.016)	**0.019** (0.017-0.021)	**0.025** (0.022-0.028)	**0.029** (0.026-0.033)	**0.036** (0.032-0.041)	**0.042** (0.037-0.047)	**0.048** (0.041-0.053)	**0.054** (0.047-0.060)	**0.063** (0.053-0.070)	**0.070** (0.059-0.078)
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)	**0.026** (0.023-0.030)	**0.030** (0.026-0.034)	**0.034** (0.029-0.038)	**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)	**0.017** (0.015-0.019)	**0.020** (0.018-0.022)	**0.023** (0.020-0.025)	**0.026** (0.022-0.029)	**0.030** (0.025-0.033)	**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)	**0.010** (0.009-0.012)	**0.012** (0.011-0.013)	**0.013** (0.012-0.015)	**0.015** (0.013-0.016)	**0.017** (0.014-0.019)	**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** (0.006-0.007)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.009-0.011)	**0.011** (0.010-0.013)	**0.013** (0.011-0.014)	**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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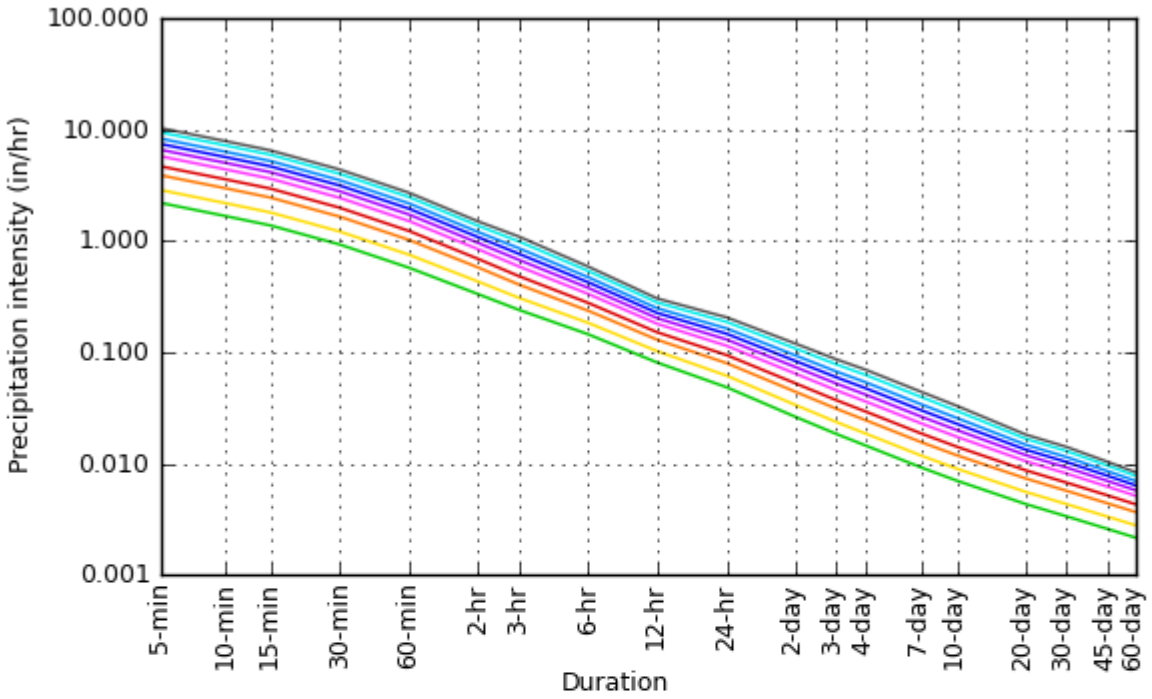
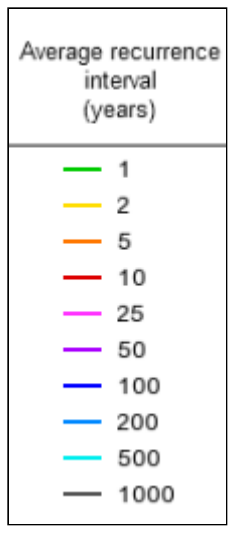
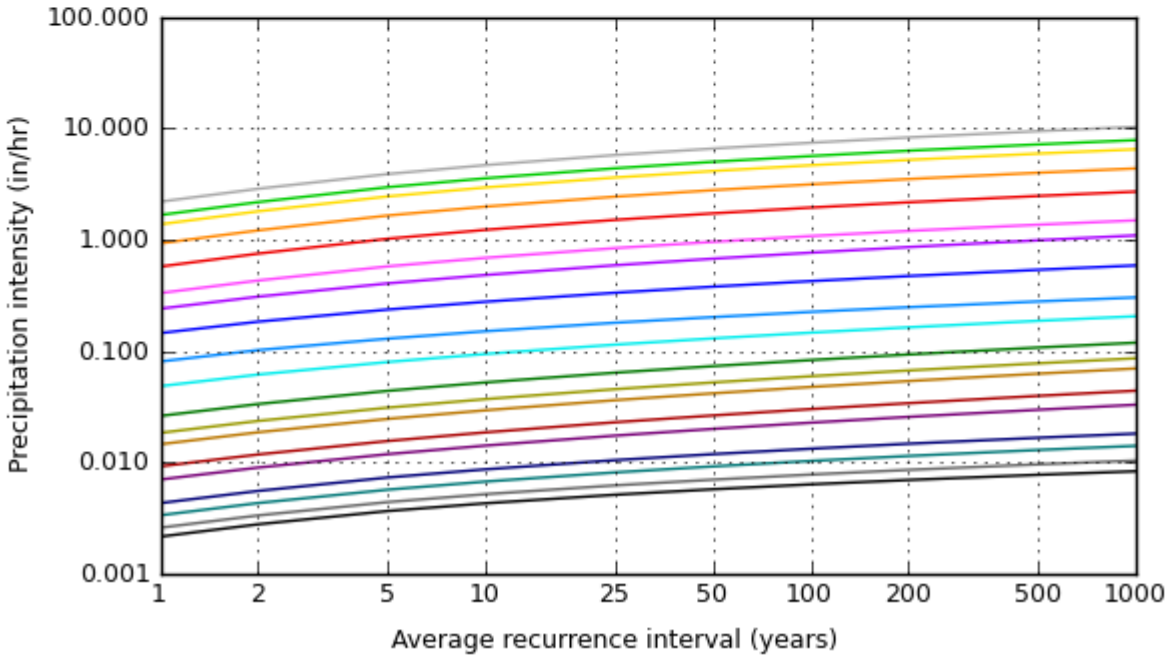
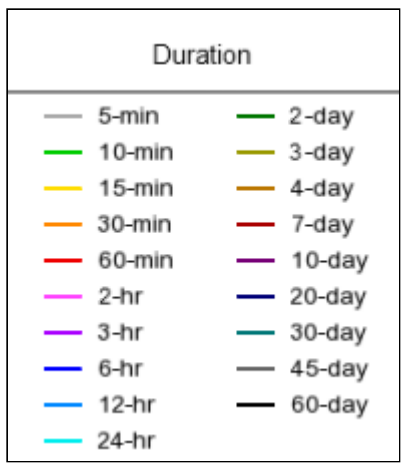
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 33.4873°, Longitude: -111.9271°









NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Mon Oct 11 17:37:50 2021

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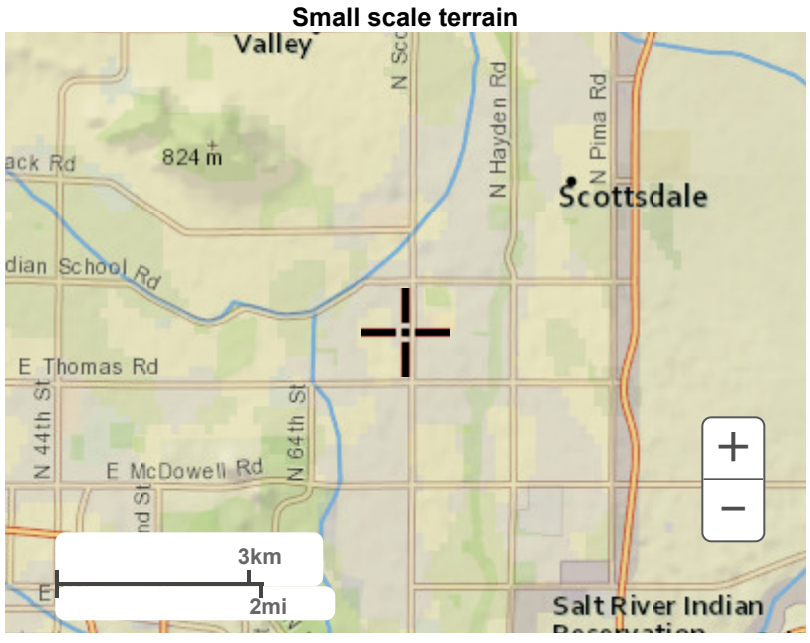
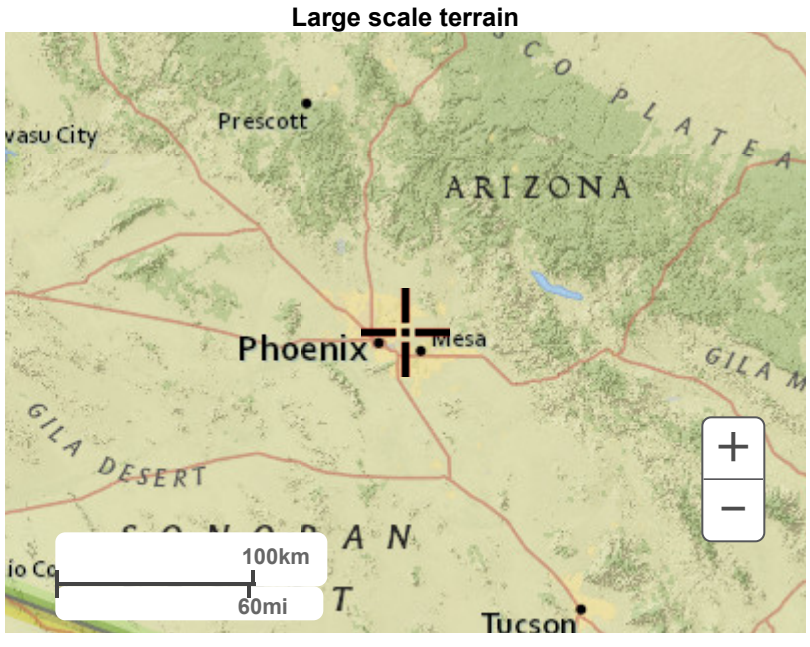
Maps & aerials

Small scale terrain



Large scale terrain



APPENDIX II

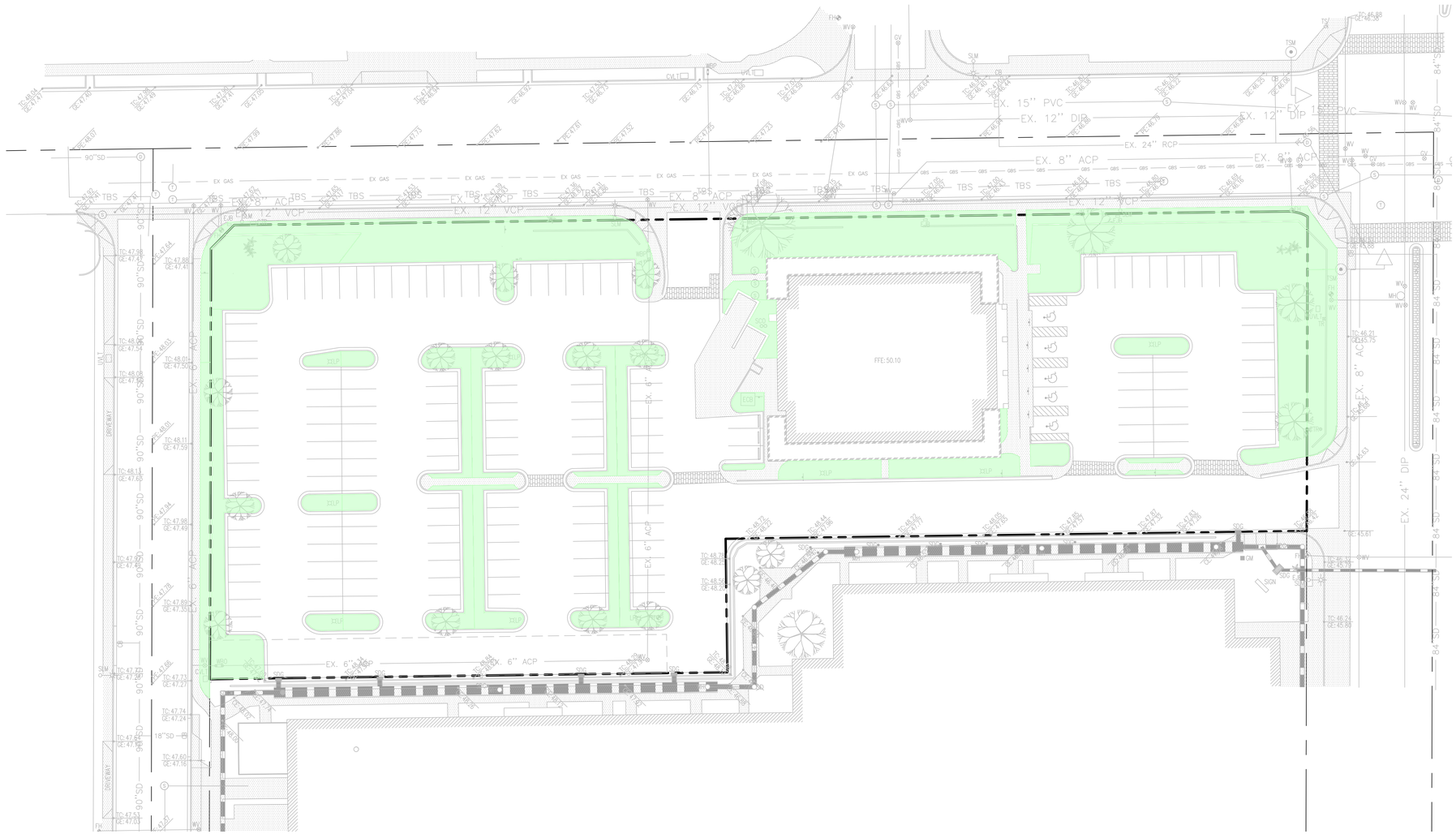
CALCULATIONS

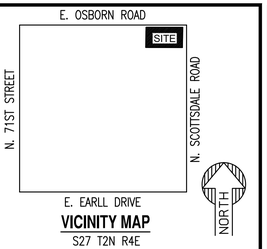
SENIOR LIVING SCOTTSDALE + OSBORN

EXISTING CONDITIONS C_{WT}

3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

A PORTION OF THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE MERIDIAN, MARICOPA COUNTY, ARIZONA.





VICINITY MAP
S27 T2N R4E
NTS

ON-SITE

PROPERTY LINE		
BUILDING/PAVED SURFACE =	88,389 SF (2.03 AC)	@ CWT=0.95
DESERT LANDSCAPE =	23,708 SF (0.54 AC)	@ CWT=0.45
TOTAL ON-SITE CWT =	112,097 SF (2.57 AC)	@ CWT=0.84

OFF-SITE

BUILDING/PAVED SURFACE =	40,544 SF (0.93 AC)	@ CWT=0.95
DESERT LANDSCAPE =	4,190 SF (0.09 AC)	@ CWT=0.45
TOTAL OFF-SITE CWT =	44,734 SF (1.02 AC)	@ CWT=0.91

NORTH

0' 30' 60' 90'

SCALE: 1" = 30'

Registered Professional Engineer
CERTIFICATE NO.
45621
ALI SAMIH FAKIH
Date Signed 11-02-23
ARIZONA, U.S.A.
EXPIRATION DATE: 12-31-2024

SUSTAINABILITY ENGINEERING GROUP

SEG

5240 N. 16TH STREET, SUITE 105, PHOENIX, ARIZONA 85016
WWW. AZSEG.COM TEL. 480.588.7226 FAX. 480.259.3534

EMPIRE

Dial 811 or visit Arizona811.com

PROJECT	SENIOR LIVING SCOTTSDALE + OSBORN
LOCATION	3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

DRAWN	JC	11/02/2023
DESIGNED	JC	09/08/2023
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ISSUED FOR: PERMITS

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JOB NO.: 210126

SHEET TITLE: **EXISTING CONDITIONS C_{WT} EXHIBIT**

PAGE NO.:	SHEET NO.:
1 OF 1	**Ex-C_{WT}**

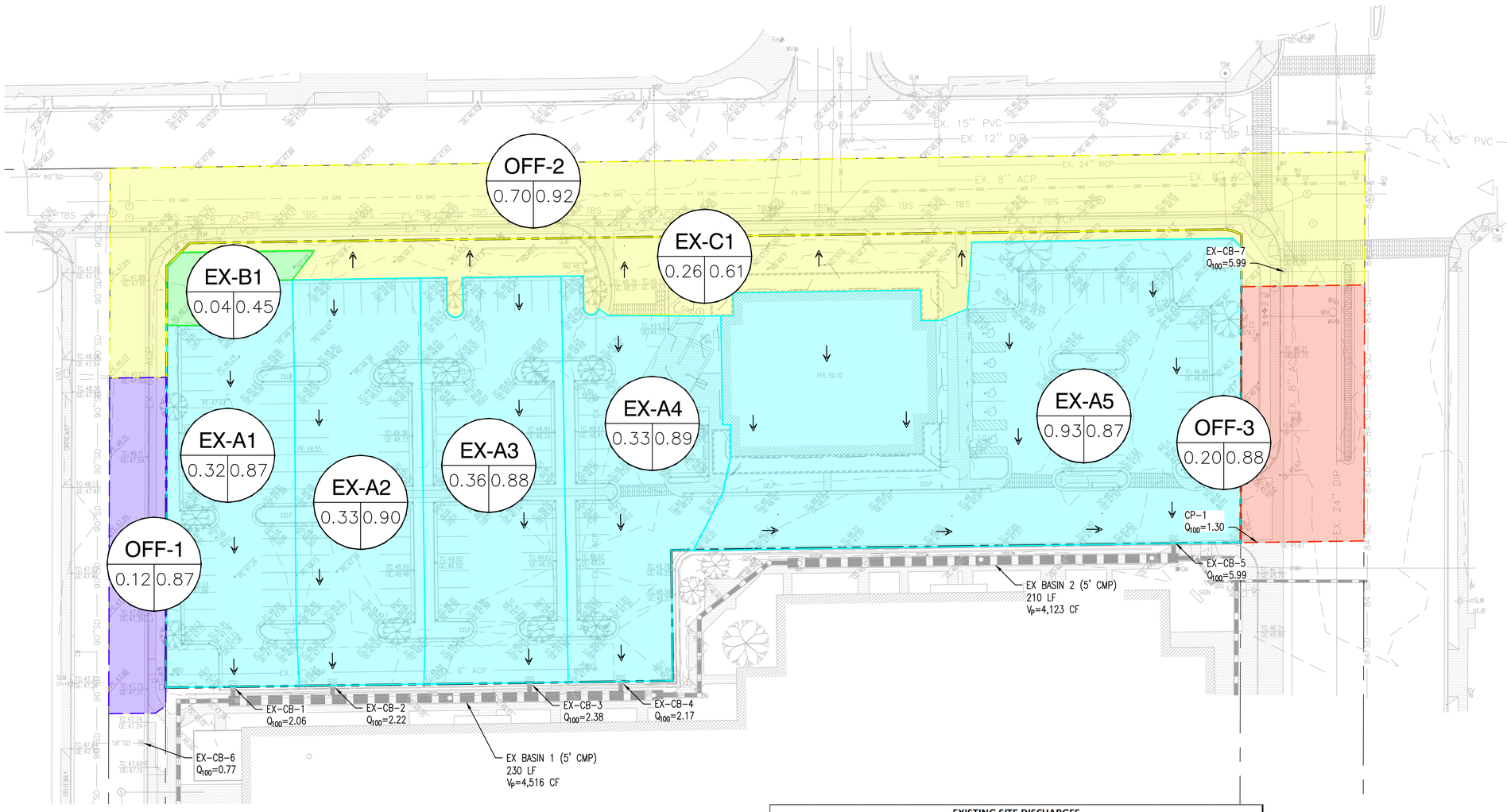
CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

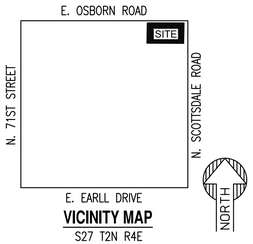
SENIOR LIVING SCOTTSDALE + OSBORN

EXISTING CONDITIONS DRAINAGE AREA MAP

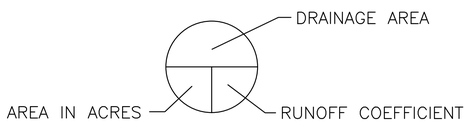
3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

A PORTION OF THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE MERIDIAN, MARICOPA COUNTY, ARIZONA.





VICINITY MAP
S27 T2N R4E
NTS



DRAINAGE AREA KEY

EXISTING LEGEND

- DRAINAGE AREAS DRAINING SOUTH
- DRAINAGE AREA EX-B1 SELF RETAINING
- DRAINAGE AREAS DRAINING TO OSBORN ROAD
- OFFSITE DRAINAGE AREA 1 DRAINING TO 71ST STREET
- OFFSITE DRAINAGE AREA 3 DRAINING TO SCOTTSDALE ROAD
- FLOW ARROW

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)
	3.59	0.86	4.68	-	7.43	-	-	14.50	23.01
EX-A1	0.32	0.87	4.68	1.30	7.43	2.06	EX Basin A	5.56	8.83
EX-A2	0.33	0.90	4.68	1.40	7.43	2.22			
EX-A3	0.36	0.88	4.68	1.50	7.43	2.38			
EX-A4	0.33	0.89	4.68	1.37	7.43	2.17			
EX-A5	0.93	0.87	4.68	3.77	7.43	5.99	EX Basin B	3.77	5.99
EX-B1	0.04	0.45	4.68	0.09	7.43	0.14	EX-B1	0.09	0.14
EX-C1	0.26	0.61	4.68	0.75	7.43	1.19	EX CB-7	3.77	5.99
OFF-2	0.70	0.92	4.68	3.02	7.43	4.79			
OFF-1	0.12	0.87	4.68	0.49	7.43	0.77	EX CB-6	0.49	0.77
OFF-3	0.20	0.88	4.68	0.82	7.43	1.30	CP-1	0.82	1.30

NORTH

0' 30' 60' 90'

SCALE: 1" = 30'

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JOB NO.: 210126

SHEET TITLE: **EXISTING CONDITIONS DRAINAGE AREA MAP**

PAGE NO.: 1 OF 1

SHEET NO.: **EX-DAM**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

SENIOR LIVING SCOTTSDALE + OSBORN

PROPOSED CONDITIONS C_{WT}

3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

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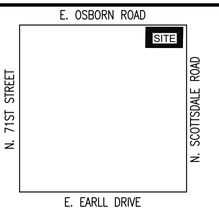
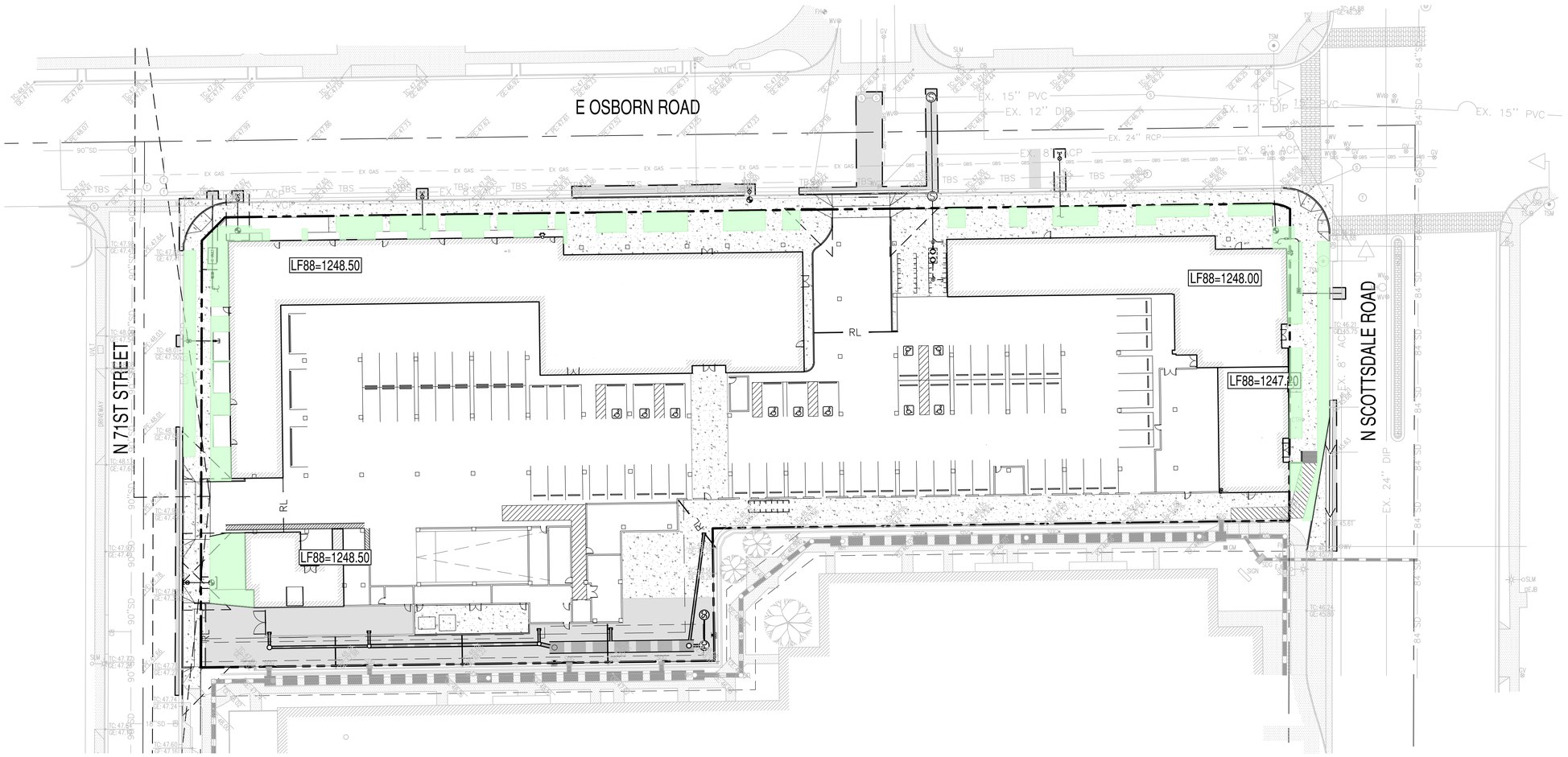


VICINITY MAP
S27 T2N R4E
NTS

NORTH



ON-SITE

PROPERTY LINE			
BUILDING/PAVED SURFACE =	107,657 SF (2.47 AC)	@ CWT=0.95	
DESERT LANDSCAPE =	4,440 SF (0.10 AC)	@ CWT=0.45	
TOTAL ON-SITE CWT =	112,097 SF (2.57 AC)	@ CWT=0.93	

OFF-SITE

BUILDING/PAVED SURFACE =	42,656 SF (0.98 AC)	@ CWT=0.95
DESERT LANDSCAPE =	2,078 SF (0.05 AC)	@ CWT=0.45
TOTAL OFF-SITE CWT =	44,734 SF (1.03 AC)	@ CWT=0.93

NORTH

0' 30' 60' 90'

SCALE: 1" = 30'

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PAGE NO.: 1 OF 1

SHEET NO.: **P-C_{WT}**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

SENIOR LIVING SCOTTSDALE + OSBORN

PROPOSED CONDITIONS DRAINAGE AREA MAP

3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

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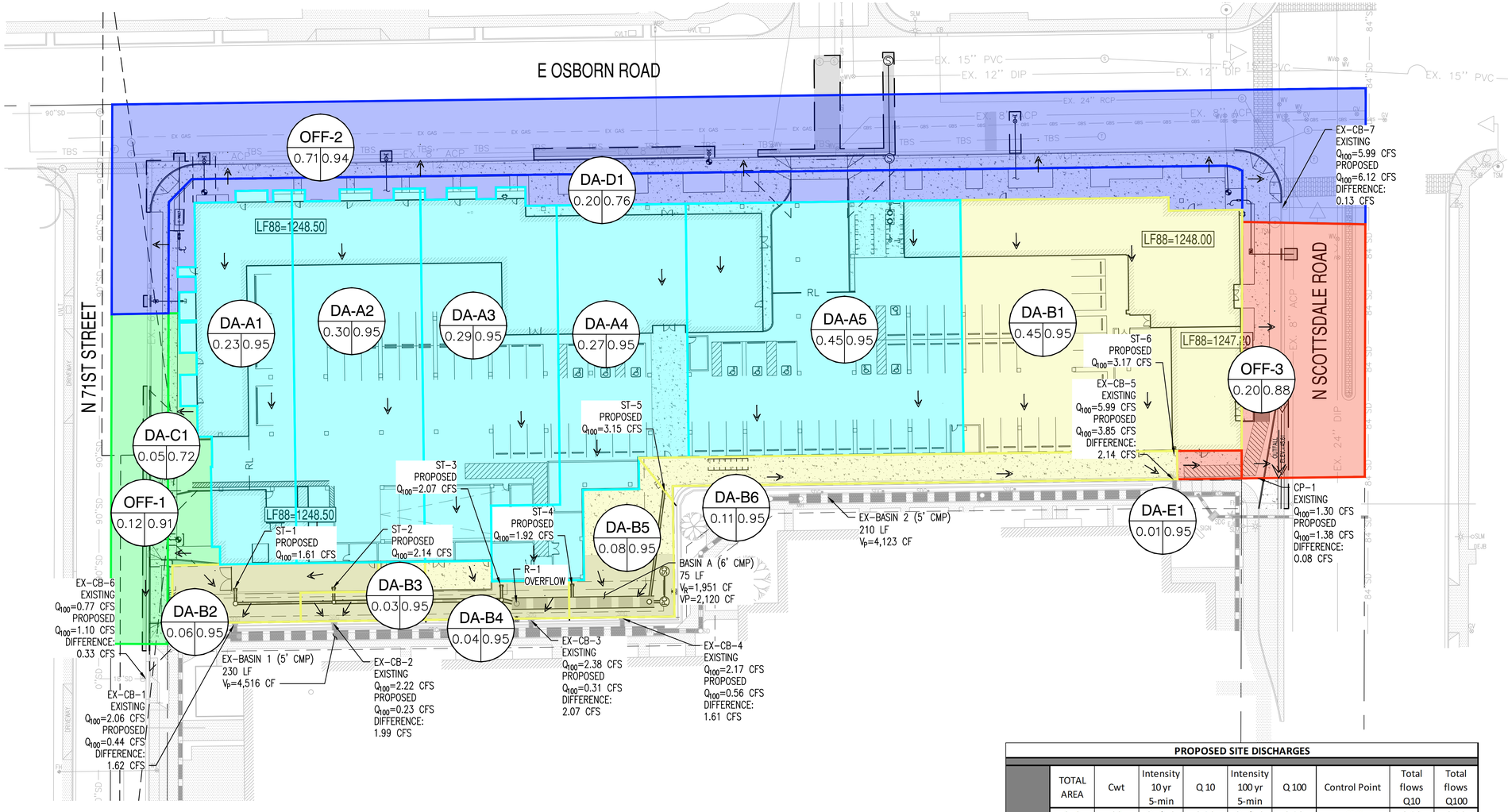
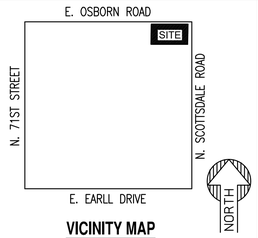
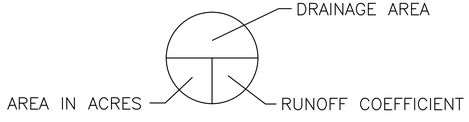




VICINITY MAP
S27 T2N R4E
NTS



DRAINAGE AREA KEY

PROPOSED LEGEND

- DRAINAGE AREAS DRAINING TO BASIN A
- DRAIANGE AREAS DRAINING TO EX-BASIN 1&2
- DRAINAGE AREAS DRAINING TO 71ST STREEET
- DRAINAGE AREAS DRAINING TO OSBORN ROAD
- DRAINAGE AREAS DRAINING TO SCOTTSDALE ROAD
- FLOW ARROW

PROPOSED 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)
	3.60	0.92	4.68	-	7.43	-	-	15.67	24.87
DA-A1	0.23	0.95	4.68	1.01	7.43	1.61	BASIN A	6.86	10.89
DA-A2	0.30	0.95	4.68	1.35	7.43	2.14			
DA-A3	0.29	0.95	4.68	1.31	7.43	2.07			
DA-A4	0.27	0.95	4.68	1.21	7.43	1.92			
DA-A5	0.45	0.95	4.68	1.98	7.43	3.15			
DA-B1	0.45	0.95	4.68	1.99	7.43	3.17	EX-CB-5	2.42	3.85
DA-B6	0.10	0.95	4.68	0.43	7.43	0.68			
DA-B2	0.06	0.95	4.68	0.28	7.43	0.44	EX-CB-1	0.28	0.44
DA-B3	0.03	0.95	4.68	0.14	7.43	0.23	EX-CB-2	0.14	0.23
DA-B4	0.04	0.95	4.68	0.19	7.43	0.31	EX-CB3	0.19	0.31
DA-B5	0.08	0.95	4.68	0.35	7.43	0.56	EX-CB-4	0.35	0.56
DA-C1	0.05	0.72	4.68	0.18	7.43	0.29	EX CB-6	0.69	1.10
OFF-1	0.12	0.91	4.68	0.51	7.43	0.81			
DA-D1	0.20	0.76	4.68	0.72	7.43	1.14	EX-CB-7	3.85	6.12
OFF-2	0.71	0.94	4.68	3.13	7.43	4.97			
DA-E1	0.01	0.95	4.68	0.05	7.43	0.08	CP-1	0.87	1.38
OFF-3	0.20	0.88	4.68	0.82	7.43	1.30			

NORTH

0' 20' 40' 80'
SCALE: 1" = 20'

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PAGE NO.: 1 OF 1
SHEET NO.: **P-DAM**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

EXISTING OVERALL SITE C_w				
	BUILDING/ PAVEMENT	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	2.03	0.54	**2.57**	0.84
EX-A1	0.27	0.05	0.32	0.87
EX-A2	0.30	0.03	0.33	0.90
EX-A3	0.31	0.05	0.36	0.88
EX-A4	0.29	0.04	0.33	0.89
EX-A5	0.78	0.15	0.93	0.87
EX-B1	0.00	0.04	0.04	0.45
EX-C1	0.09	0.18	0.26	0.61

EXISTING OFFSITE SITE C_w				
	BUILDING/ PAVEMENT	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	0.93	0.09	**1.02**	**0.91**
OFF-1	0.10	0.02	0.12	0.87
OFF-2	0.66	0.04	0.70	0.92
OFF-3	0.17	0.03	0.20	0.88

PROPOSED OVERALL SITE C_w				
	BUILDING/ PAVEMENT	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	2.47	0.10	**2.57**	**0.93**
DA-A1	0.23	0.00	0.23	0.95
DA-A2	0.30	0.00	0.30	0.95
DA-A3	0.29	0.00	0.29	0.95
DA-A4	0.27	0.00	0.27	0.95
DA-A5	0.45	0.00	0.45	0.95
DA-B1	0.45	0.00	0.45	0.95
DA-B2	0.06	0.00	0.06	0.95
DA-B3	0.03	0.00	0.03	0.95
DA-B4	0.04	0.00	0.04	0.95
DA-B5	0.08	0.00	0.08	0.95
DA-B6	0.10	0.00	0.10	0.95
DA-C1	0.03	0.02	0.05	0.72
DA-D1	0.13	0.08	0.20	0.76
DA-E1	0.01	0.00	0.01	0.95

PROPOSED OFFSITE SITE C_w				
	BUILDING/ PAVEMENT	DESERT LANDSCAPE	TOTAL AREA	Cwt
C-VALUE	0.95	0.45		
AREA (ac)	0.98	0.05	**1.03**	**0.93**
OFF-1	0.11	0.01	0.12	0.91
OFF-2	0.70	0.01	0.71	0.94
OFF-3	0.17	0.03	0.20	0.88

ST-1 TO BASIN A PIPES HYDRAULIC CALCULATIONS

#Line	Pipe	From	To	3D Length - Center to Center	Drainage Area Inc	Drainage Area Total	Runoff Coeff "C"	Area X "C" Inc	Area X "C" Total	Time of Concentration Inlet	Time of Concentration System	Rain "I"	Runoff "Q"	Known Q	Total Q	Pipe Dia.	Full Q	Velocity Full	Velocity Design	Sec Time	Invert Elevation U/S	Invert Elevation D/S	Crown Drop	Slope
				(ft)	(sq. ft)	(sq. ft)		(sq. ft)	(sq. ft)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(cu. ft/sec)	(ft)	(cu. ft/sec)	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
1	Pipe - (29)	MH-1	UGC-1	5.65	0	0	0	0	0	0	0	0	0	0	5.82	1.5	7.435	4.207	4.652	0.02	1242.828	1242.8	N/A	0.50%
2	Pipe - (7)	ST-3	MH-1	7.922	0	0	0	0	0	0	0	0	0	2.07	2.07	1	5.043	6.421	6.101	0.022	1242.986	1242.828	N/A	2.00%
3	Pipe - (8)	MH-2	MH-1	88.544	0	0	0	0	0	0	0	0	0	0	3.75	1.5	7.435	4.207	4.213	0.35	1243.271	1242.828	N/A	0.50%
4	Pipe - (5)	ST-2	MH-2	7.922	0	0	0	0	0	0	0	0	0	2.14	2.14	1	5.043	6.421	6.154	0.021	1243.429	1243.271	N/A	2.00%
5	Pipe - (27)	MH-3	MH-2	51.948	0	0	0	0	0	0	0	0	0	0	1.61	1	2.522	3.211	3.402	0.255	1243.531	1243.271	N/A	0.50%
6	Pipe - (2)	ST-1	MH-3	7.983	0	0	0	0	0	0	0	0	0	1.61	1.61	1	5.043	6.421	5.705	0.023	1243.691	1243.531	N/A	2.00%

#Line	Struct. ID	D	Q	L	V	d	dc	v^2/2g	EGLo	HGLo	Sf	Total Pipe Loss	EGLi	HGLi	Ea	EGLa	U/S TOC	Surface Elev.	Step4*	Step7*	Step14*
		(ft)	(cu. ft/sec)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)			
0	UGC-1								1244.37	1244.37							1244.3	1244.444			
1	MH-1	1.5	5.82	5.65	3.293	1.5	n/a	0.169	1244.539	1244.37	0.003	0.017	1244.556	1244.387	1.809	1244.637	1243.828	1247.784	Case A	N/A	Case A
2	ST-3	1	2.07	7.922	2.636	1	n/a	0.108	1244.68	1244.572	0.003	0.027	1244.707	1244.599	1.742	1244.728	---	1244.091	Case B	N/A	Case A
3	MH-2	1.5	3.75	88.544	2.122	0.754	0.74	0.07	1244.665	1244.595	0.001	0.113	1244.778	1244.708	1.548	1244.819	1244.271	1247.935	Case B	N/A	Case B
4	ST-2	1	2.14	7.922	2.725	1	n/a	0.115	1244.865	1244.75	0.004	0.029	1244.894	1244.778	1.487	1244.917	---	1244.534	Case B	N/A	Case A
5	MH-3	1	1.61	51.948	2.05	1	n/a	0.065	1244.845	1244.78	0.002	0.106	1244.951	1244.886	1.475	1245.006	1244.531	1247.265	Case B	N/A	Case A
6	ST-1	1	1.61	7.983	2.05	1	n/a	0.065	1245.032	1244.967	0.002	0.016	1245.048	1244.983	1.371	1245.061	---	1244.796	Case B	N/A	Case A

*URBAN DRAINAGE DESIGN MANUAL - Hydraulic Engineering Circular No.22 Third Edition

#Line	Struct. ID	Exit Ho	Hf	Hb	Hc	He	Hj	Total	Ei	y+(P/gamma)	DI	Eai	CB	C-theta	Cp	Ha	Ea
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)				(ft)	(ft)
0	UGC-1																
1	MH-1	0.169	0.017	0	0	0	0	0.017	1.728	1.559	0.474	1.761	0	1.397	0	0.047	1.809
2	ST-3	0.043	0.027	0	0	0	0	0.027	1.72	1.612	0.465	1.742	0	0	0	0	1.742
3	MH-2	0.028	0.113	0	0	0	0	0.113	1.507	1.437	0.306	1.521	0	1.951	0	0.027	1.548
4	ST-2	0.046	0.029	0	0	0	0	0.029	1.464	1.349	0.48	1.487	0	0	0	0	1.487
5	MH-3	0.026	0.106	0	0	0	0	0.106	1.42	1.355	0.361	1.434	0	3.186	0	0.042	1.475
6	ST-1	0.026	0.016	0	0	0	0	0.016	1.358	1.292	0.361	1.371	0	0	0	0	1.371

ST-4 TO BASIN A PIPES HYDRAULIC CALCULATIONS

#Line	Pipe	From	To	3D Length - Center to Center	Drainage Area Inc	Drainage Area Total	Runoff Coeff "C"	Area X "C" Inc	Area X "C" Total	Time of Concentration Inlet	Time of Concentration System	Rain "I"	Runoff "Q"	Known Q	Total Q	Pipe Dia.	Full Q	Velocity Full	Velocity Design	Sec Time	Invert Elevation U/S	Invert Elevation D/S	Crown Drop	Slope
				(ft)	(sq. ft)	(sq. ft)		(sq. ft)	(sq. ft)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(cu. ft/sec)	(ft)	(cu. ft/sec)	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
1	Pipe - (10)	ST-4	UCG-3	6.856	0	0	0	0	0	0	0	0	0	1.92	1.92	1	5.043	6.421	5.981	0.019	1242.932	1242.795	N/A	2.00%

#Line	Struct. ID	D	Q	L	V	d	dc	v^2/2g	EGLo	HGLo	Sf	Total Pipe Loss	EGLi	HGLi	Ea	EGLa	U/S TOC	Surface Elev.	Step4*	Step7*	Step14*
		(ft)	(cu. ft/sec)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)			
0	UCG-3								1244.37	1244.37							1243.795	1244.028			
1	ST-4	1	1.92	6.856	2.445	1	n/a	0.093	1244.463	1244.37	0.003	0.02	1244.483	1244.39	1.569	1244.501	---	1244.165	Case A	N/A	Case A

*URBAN DRAINAGE DESIGN MANUAL - Hydraulic Engineering Circular No.22 Third Edition

#Line	Struct. ID	Exit Ho	Hf	Hb	Hc	He	Hj	Total	Ei	y+(P/gamma)	DI	Eai	CB	C-theta	Cp	Ha	Ea
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)				(ft)	(ft)
0	UCG-3																
1	ST-4	0.093	0.02	0	0	0	0	0.02	1.551	1.458	0.431	1.569	0	0	0	0	1.569

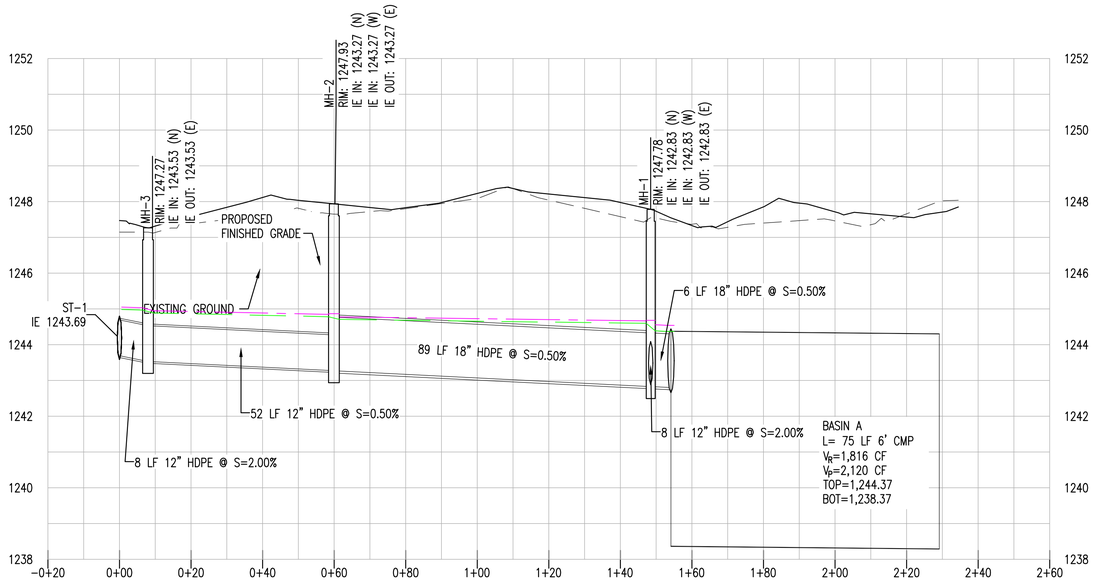
ST-5 TO BASIN A PIPES HYDRAULIC CALCULATIONS

#Line	Pipe	From	To	3D Length - Center to Center	Drainage Area Inc	Drainage Area Total	Runoff Coeff "C"	Area X "C" Inc	Area X "C" Total	Time of Concentration Inlet	Time of Concentration System	Rain "I"	Runoff "Q"	Known Q	Total Q	Pipe Dia.	Full Q	Velocity Full	Velocity Design	Sec Time	Invert Elevation U/S	Invert Elevation D/S	Crown Drop	Slope
				(ft)	(sq. ft)	(sq. ft)		(sq. ft)	(sq. ft)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(cu. ft/sec)	(ft)	(cu. ft/sec)	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
1	Pipe - (20)	ST-5	UCG-2	56.238	0	0	0	0	0	0	0	0	0	3.15	3.15	1	5.043	6.421	6.77	0.138	1243.875	1242.75	N/A	2.00%

#Line	Struct. ID	D	Q	L	V	d	dc	v^2/2g	EGLo	HGLo	Sf	Total Pipe Loss	EGLi	HGLi	Ea	EGLa	U/S TOC	Surface Elev.	Step4*	Step7*	Step14*
		(ft)	(cu. ft/sec)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)			
0	UCG-2								0	0							1243.75	1243.855			
1	ST-5	1	3.15	56.238	6.77	0.573	0.761	0.712	1244.035	1243.323	0	0	1245.16	1244.447	1.285	1245.16	---	1244.98	N/A	Case A	N/A

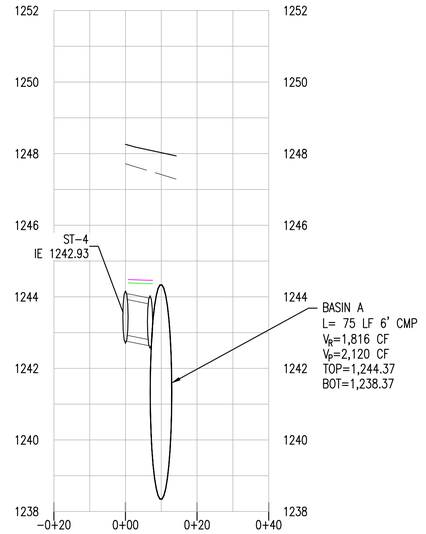
*URBAN DRAINAGE DESIGN MANUAL - Hydraulic Engineering Circular No.22 Third Edition

#Line	Struct. ID	Exit Ho	Hf	Hb	Hc	He	Hj	Total	Ei	y+(P/gamma)	DI	Eai	CB	C-theta	Cp	Ha	Ea
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		(ft)				(ft)	(ft)
0	UCG-2																
1	ST-5	0	0	0	0	0	0	0	1.285	0.573	0.707	1.269	0	0	0	0	1.285



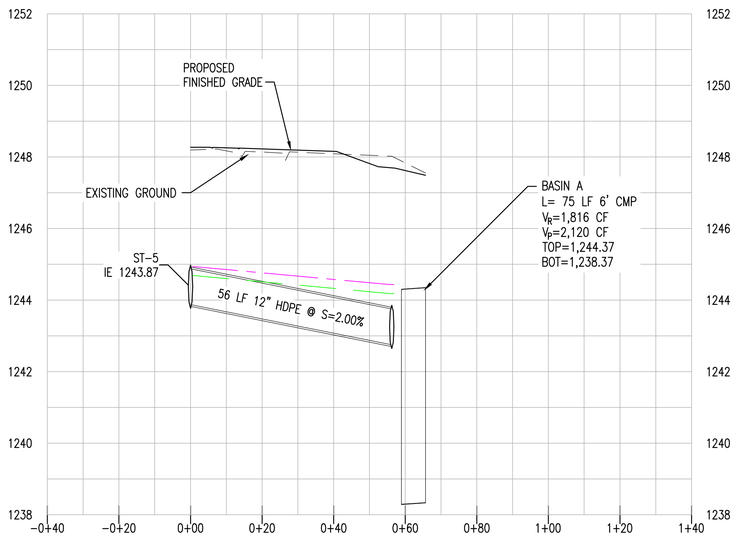
ST-1 TO BASIN A PROFILE VIEW

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



ST-4 TO BASIN A PROFILE VIEW

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



ST-5 TO BASIN A PROFILE VIEW

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

ENERGY GRADE LINE

HYDRAULIC GRADE LINE

Registered Professional Engineer
CERTIFICATE NO.
45621
ALI SAMIH FAKIH
Date Signed 11-02-23
ARIZONA, U.S.A.

EXPIRATION DATE: 12-31-2024

SEG SUSTAINABILITY ENGINEERING GROUP

5240 N. 16TH STREET, SUITE 105, PHOENIX, ARIZONA 85016
WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.259.3534

PROJECT
SENIOR LIVING
SCOTTSDALE + OSBORN

LOCATION
3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

DRAWN	JC	11/02/2023
DESIGNED	JC	09/08/2023
CHECKED	SC	06/16/2023
FINAL QC	AB	11/02/2023
PROJ. MGR.	AF	11/02/2023

DATE: 11/02/2023

ISSUED FOR: PERMITS

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 210126

SHEET TITLE:
HYDRAULIC GRADE LINE 100 YR

PAGE NO.: 1 OF 1

SHEET NO.: **HGL**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

APPENDIX III

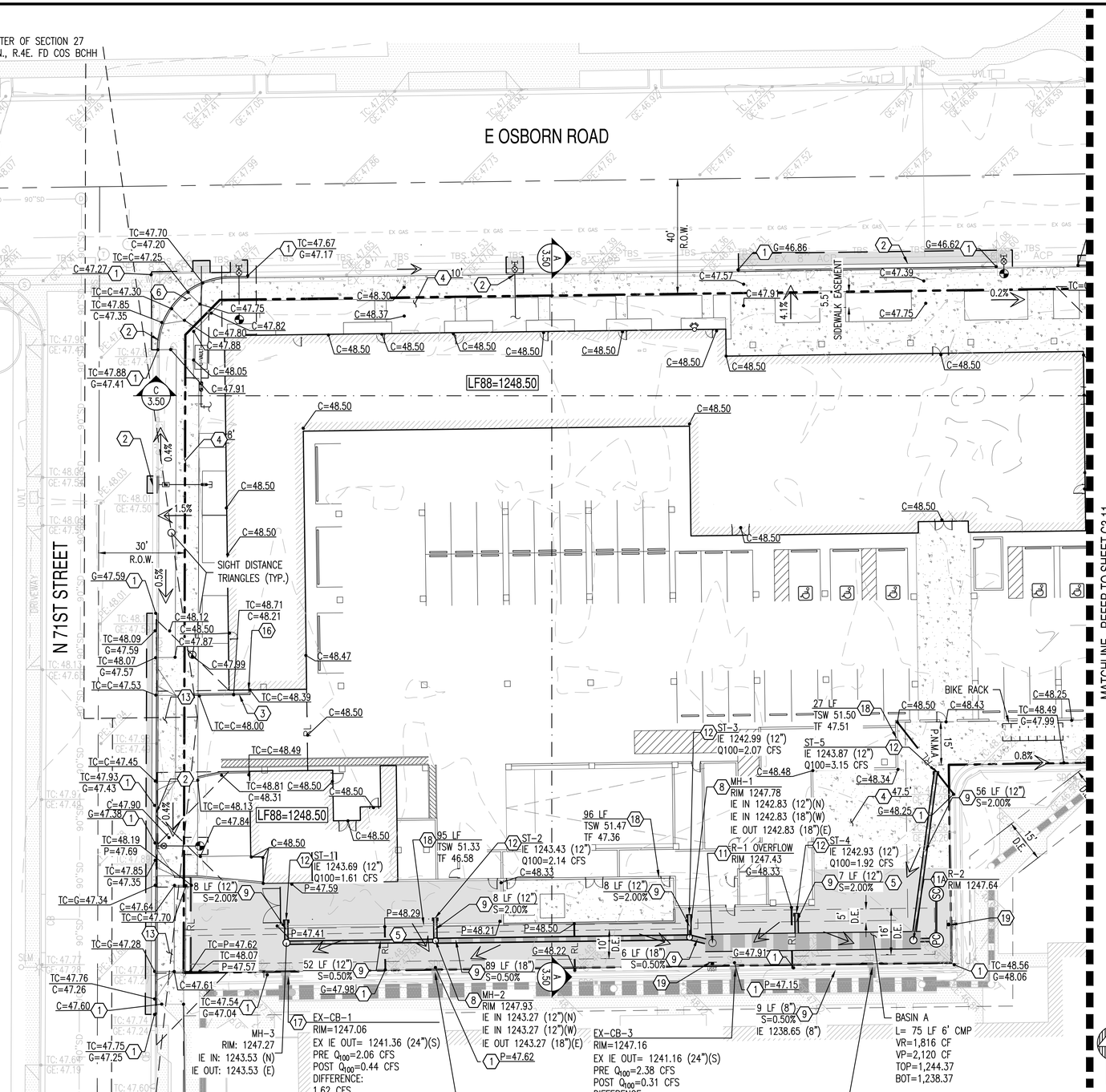
Grading & Drainage Plans

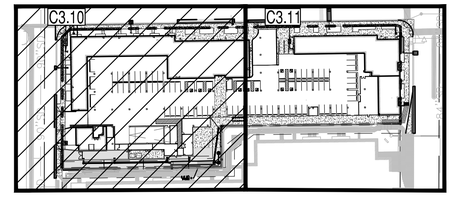
SENIOR LIVING SCOTTSDALE + OSBORN

GRADING AND DRAINAGE PLAN

3380 N. SCOTTSDALE ROAD, SCOTTSDALE AZ 85251

A PORTION OF THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA.





VICINITY MAP
S27 T2N R4E
NTS

GRADING CONSTRUCTION KEY NOTES

1. MATCH EXISTING GRADE; CONTRACTOR TO VERIFY IN FIELD ALL GRADES PRIOR TO CONSTRUCTION ACTIVITIES AND CONTACT ENGINEER IN CASE OF ANY DISCREPANCIES.
2. CONSTRUCT 6" CONCRETE CURB AND GUTTER PER MAG STD. DET. 220-1 TYPE "A".
3. CONSTRUCT 6" VERTICAL CURB MAG STD. DET. 220-1 TYPE "A".
4. CONSTRUCT CONCRETE SIDEWALK PER MAG STD. DET. 230. WIDTH PER PLAN.
5. CONSTRUCT HEAVY DUTY PAVEMENT. PER DET. 7/C3.21. GEOTECHNICAL REPORT TO BE PROVIDED.
6. CONSTRUCT ADA RAMP PER C.O.S. STD. DET. 2234.
8. FURNISH AND INSTALL 24" NYLOPLAST DRAIN BASIN WITH STANDARD SOLID LID, INCLUDING CONCRETE COLLAR. PER DET. 4/C3.21
9. FURNISH AND INSTALL HDPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH, SIZE AND SLOPE PER PLAN.
10. FURNISH AND INSTALL 12 GAGE ALUMINIZED COATED 72" CMP STORMWATER STORAGE SYSTEM. PIPE MATERIAL PER MAG SPECIFICATION 621. LENGTH AND SLOPE PER PLAN. INVERT OF PIPE TO BE PAVED PER C.O.S. STD. DET. 2554. CONTRACTOR TO PROVIDE SIGNED AND SEALED SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO MANUFACTURING. TRENCHING PER DET. 2/C3.20. PROVIDE FIXED LADDER PER DET. 3/C3.20.
11. FURNISH AND INSTALL 30" CMP RISER WITH VENTED SOLID LID, INCLUDING CONCRETE COLLAR, PER DETAIL 1/C3.20.
12. ROOF DRAIN. REFER TO MEP PLANS FOR CONTINUATION.
13. CONSTRUCT DRIVE ENTRANCE PER C.O.S. STD. DET. 2251-2 TYP.
16. CONSTRUCT 2'-6" CURB END TERMINATION PER MAG STD. DET. 222.
17. CORE EXISTING CATCH BASIN AND PROVIDE WATERTIGHT CONNECTION FOR NEW STORM DRAIN.
18. 3' SCREEN WALL. REFER TO ARCHITECTURAL PLANS FOR DETAILS.
19. FURNISH AND INSTALL (2) UNDERGROUND STORMWATER STORAGE TANK (USST) SIGNS READING "NOTICE-UNDERGROUND STORMWATER STORAGE TANK".
20. CONSTRUCT PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
22. FURNISH AND INSTALL MAXWELL PLUS DRYWELL. REFER TO SHEET C3.22 FOR DETAIL. NOTE: CONTRACTOR TO HAVE A PERCOLATION TEST DONE ON FIRST CONSTRUCTED DRYWELL AND PROVIDE RESULTS TO ENGINEER FOR DETERMINATION OF ULTIMATE NUMBER OF REQUIRED DRYWELLS.

NORTH

GRADING AND DRAINAGE PLAN
0' 20' 40' 60'
SCALE: 1" = 20'

EXISTING LEGEND:

XXXX EX. MAJOR CONTOURS	EX. S SEWER LINE	SDG STORM DRAIN LINE	SIGN	BACK FLOW PREVENTER
XXXX EX. MINOR CONTOURS	SEWER MANHOLE	STORM DRAIN GRATE	STREET LIGHT	TELEPHONE MANHOLE
TC:XX.XX GE:XX.XX EX. SPOT ELEVATION	EX. W WATER LINE	STORM MANHOLE	TREE	PALM TREE
EASEMENT LINE AS NOTED	WATER VALVE	EX. GAS GAS LINE	ROAD CENTERLINE	TRAFFIC SIGNAL MAST
	FIRE HYDRANT	FENCE		

PROPOSED GRADING LEGEND:

G=XX.XX GUTTER ELEVATION, TC = G+0.5'	PROPERTY LINE	XX MAJOR CONTOUR	STORM PIPE	CONCRETE PAVEMENT
P=XX.XX PAVEMENT ELEVATION	CURB AND GUTTER	XX MINOR CONTOUR	SD STORM MANHOLE	HEAVY DUTY PAVEMENT
C=XX.XX CONCRETE ELEVATION	VERTICAL CURB	FLOW ARROW	WM WATER METER	
	RL RIDGELINE	CATCH BASIN	GATE VALVE	

Registered Professional Engineer
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EMPIRE

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or eBuild Arizona811.com

PROJECT: SENIOR LIVING SCOTTSDALE + OSBORN
LOCATION: 3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

DRAWN	JC	11/02/2023
DESIGNED	JC	09/08/2023
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DATE: 11/02/2023
ISSUED FOR: PERMITS

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3	
4	

JOB NO.: 210126

SHEET TITLE: **GRADING AND DRAINAGE PLAN**

PAGE NO.: 5 OF 16
SHEET NO.: **C3.10**

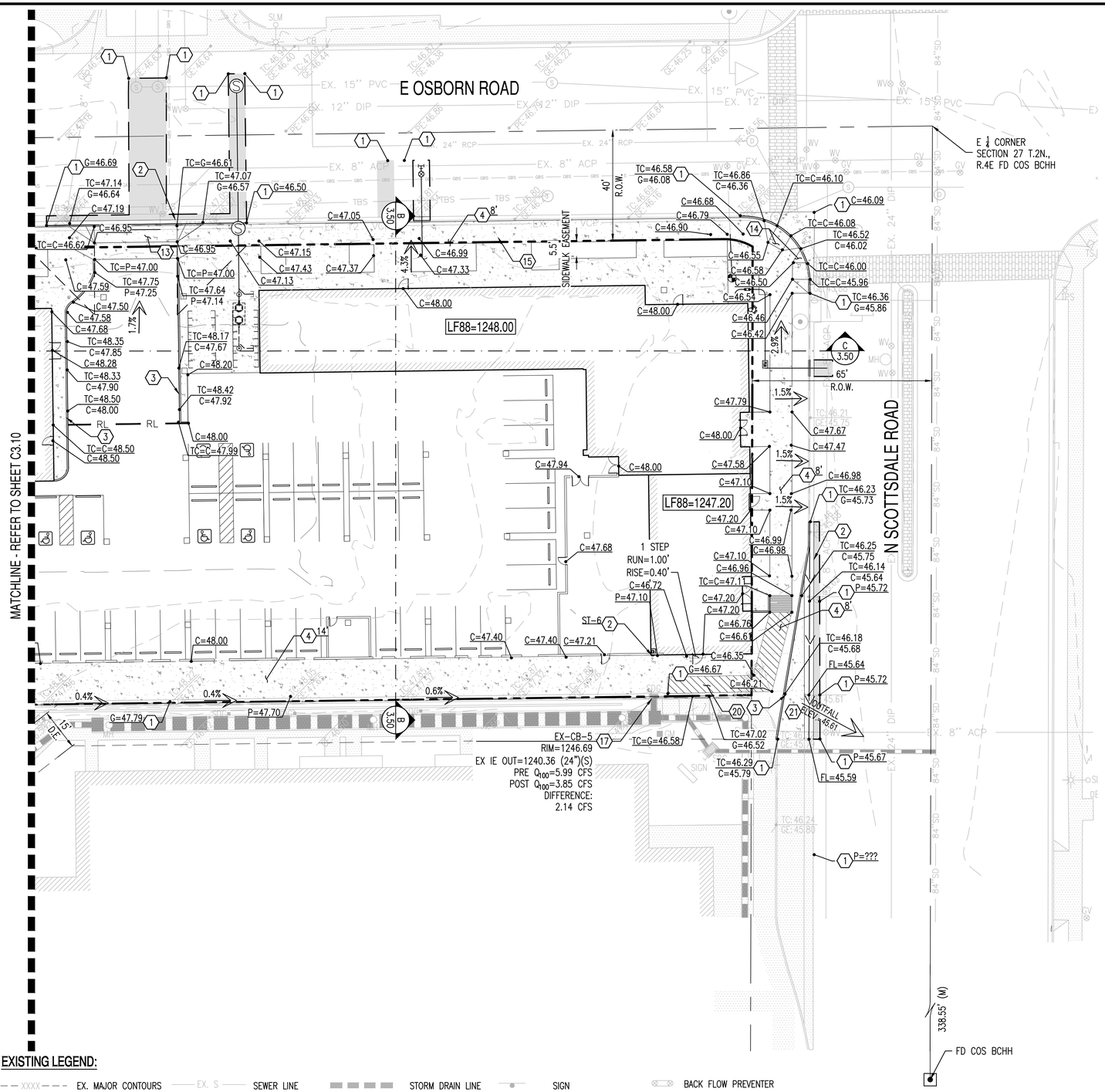
CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

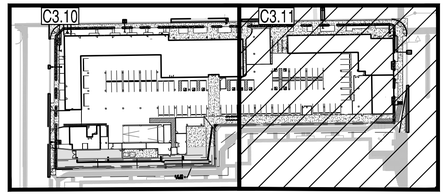
SENIOR LIVING SCOTTSDALE + OSBORN

GRADING AND DRAINAGE PLAN

3380 N. SCOTTSDALE ROAD, SCOTTSDALE AZ 85251

A PORTION OF THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA.





VICINITY MAP
S27 T2N R4E
NTS

GRADING CONSTRUCTION KEY NOTES

1. MATCH EXISTING GRADE; CONTRACTOR TO VERIFY IN FIELD ALL GRADES PRIOR TO CONSTRUCTION ACTIVITIES AND CONTACT ENGINEER IN CASE OF ANY DISCREPANCIES.
2. CONSTRUCT 6" CONCRETE CURB AND GUTTER PER MAG STD. DET. 220-1 TYPE "A".
3. CONSTRUCT 6" VERTICAL CURB MAG STD. DET. 220-1 TYPE "A".
4. CONSTRUCT CONCRETE SIDEWALK PER MAG STD. DET. 230. WIDTH PER PLAN.
7. FURNISH AND INSTALL NYLOPLAST DRAIN BASIN WITH 30" RISER AND 2'X3' STEEL GRATE. PER DET. 5/C3.21 AND 6/C3.21.
9. FURNISH AND INSTALL HDPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH, SIZE AND SLOPE PER PLAN.
12. ROOF DRAIN. REFER TO MEP PLANS FOR CONTINUATION.
14. CONSTRUCT ADA DUAL RAMP PER MAG STD. DET. 237-2.
15. INSTALL SAFETY HANDRAIL PER MAG STD. DET. 145.
20. CONSTRUCT PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.

EXISTING LEGEND:

- EX. MAJOR CONTOURS
- EX. MINOR CONTOURS
- EX. SPOT ELEVATION (TC: XX.XX / GE: XX.XX)
- EASEMENT LINE AS NOTED
- SEWER LINE (EX. S)
- SEWER MANHOLE
- WATER LINE (EX. W)
- WATER VALVE (WV)
- FIRE HYDRANT
- STORM DRAIN LINE
- STORM DRAIN GRATE (SDG)
- STORM MANHOLE (D)
- GAS LINE (EX. GAS)
- FENCE
- SIGN
- STREET LIGHT
- TREE
- ROAD CENTERLINE
- BACK FLOW PREVENTER
- TELEPHONE MANHOLE
- PALM TREE
- TRAFFIC SIGNAL MAST

PROPOSED GRADING LEGEND:

- G=XX.XX — GUTTER ELEVATION, TC = G+0.5'
- P=XX.XX — PAVEMENT ELEVATION
- C=XX.XX — CONCRETE ELEVATION
- PROPERTY LINE
- CURB AND GUTTER
- VERTICAL CURB
- RIDGELINE (RL)
- MAJOR CONTOUR (XX)
- MINOR CONTOUR (XX)
- FLOW ARROW
- CATCH BASIN
- STORM PIPE
- STORM MANHOLE (SD)
- WATER METER (WM)
- GATE VALVE
- CONCRETE PAVEMENT
- HEAVY DUTY PAVEMENT

GRADING AND DRAINAGE PLAN

NORTH

0' 20' 40' 60'

SCALE: 1" = 20'

Registered Professional Engineer
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Date Signed 11-02-23
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EMPIRE

Dial 811 or visit azbluestake.com

Download Arizona 811 at least two full working days before you begin excavation

ARIZONA811 Arizona Blue Stake, Inc. Call 811 or visit AZBlueStake.com

PROJECT	SENIOR LIVING SCOTTSDALE + OSBORN
LOCATION	3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

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PROJ. MGR.	AF	11/02/2023

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JOB NO.: 210126

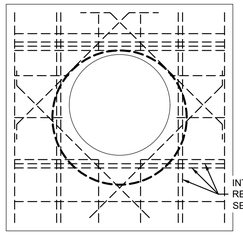
SHEET TITLE: **GRADING AND DRAINAGE PLAN**

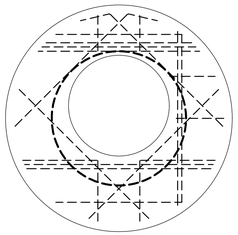
PAGE NO.:	SHEET NO.:
6 OF 16	C3.11

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

NOTES:

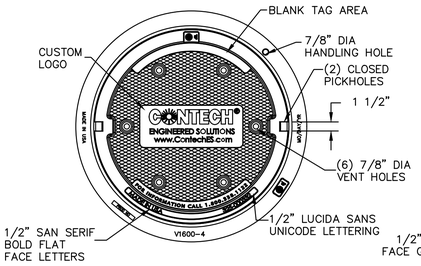
1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION AND ACI 350.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 4,000 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERS, ARCHITECTS AND LAND SURVEYORS, ENDWELL, NY.

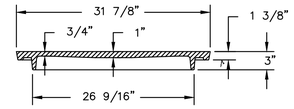




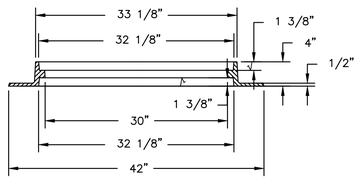
REINFORCING TABLE				
Ø CMP RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	Ø 4' 4'x4'	26"	#5 @ 10" OCEW #5 @ 10" OCEW	2,540 1,900
30"	Ø 4'-6" 4'-6" x 4'-6"	32"	#5 @ 10" OCEW #5 @ 9" OCEW	2,260 1,670
36"	Ø 5' 5' x 5'	38"	#5 @ 9" OCEW #5 @ 8" OCEW	2,060 1,500
42"	Ø 5'-6" 5'-6" x 5'-6"	44"	#5 @ 8" OCEW #5 @ 8" OCEW	1,490 1,370
48"	Ø 6' 6' x 6'	50"	#5 @ 7" OCEW #5 @ 7" OCEW	1,210 1,270

30"x4" REVERSIBLE FRAME & SOLID COVER



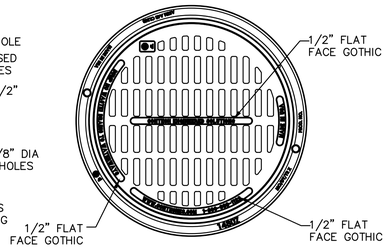


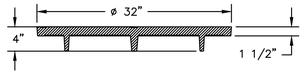
COVER SECTION



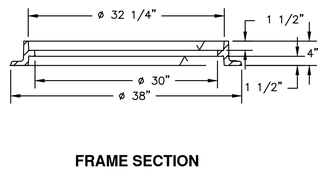
FRAME SECTION

30"x4" REVERSIBLE FRAME & GRATE





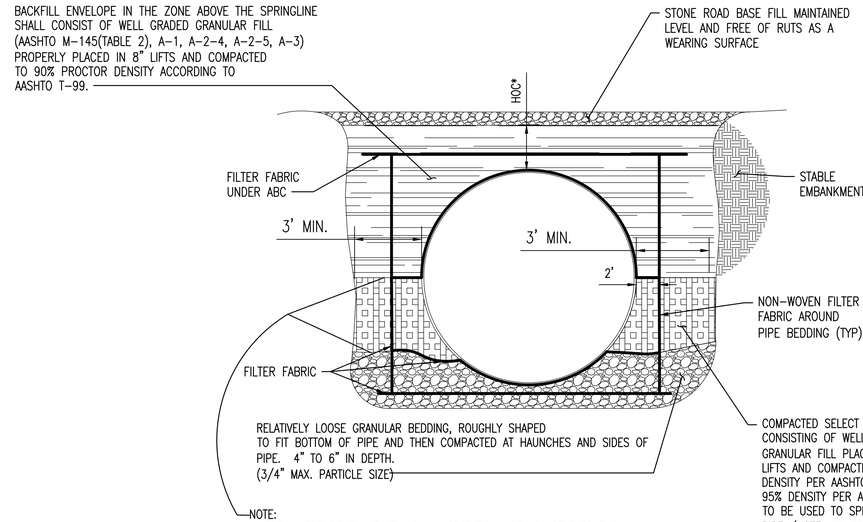
COVER SECTION



FRAME SECTION

CMP RISER WITH STANDARD SOLID OR GRATE LID

1

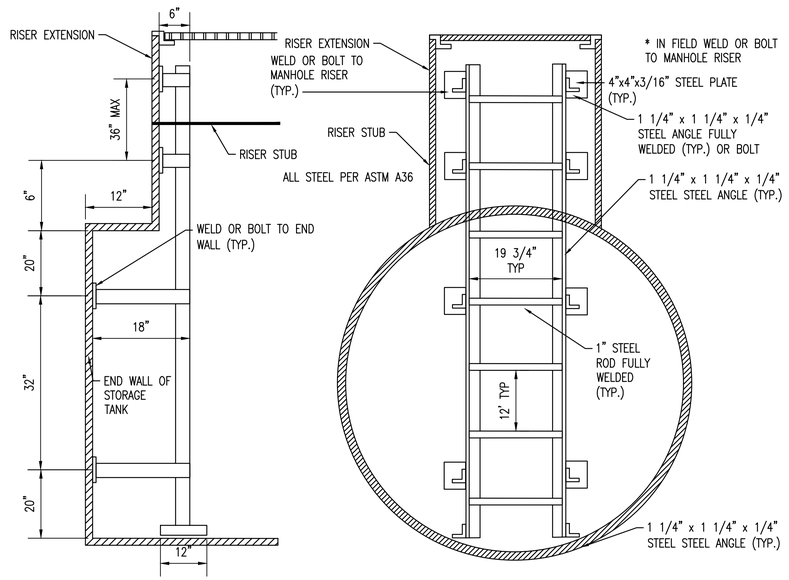


NOTE:
WHERE LAYERS OF FILL THAT VARY IN GRADATION ARE ADJACENT TO EACH OTHER, A FILTER FABRIC BARRIER SHOULD BE USED TO PREVENT MIGRATION OF FINES. (i.e. WHERE A FINER GRAINED SELECT FILL IS PLACED ON TOP OF, OR BELOW, AN OPEN-GRADED STONE FILL.)

* MINIMUM HEIGHT OF COVER(HOC) VARIES DEPENDING UPON QUALITY OF SELECT FILL USED. FOR CRUSHED STONE A-1-a SELECT FILL, OR EQUIVALENT MATERIAL, 2.5' MIN. COVER TO THE BOTTOM OF BASE COURSE IS REQUIRED. FOR OTHER SELECT FILL MATERIAL , 3' MIN. COVER IS REQUIRED TO BOTTOM OF BASE COURSE WEARING SURFACE.

CMP TRENCH DETAIL
TYPICAL SINGLE BARREL CROSS-SECTION
NTS

2



72" DETENTION PIPE LADDER

3

Registered Professional Engineer
CERTIFICATE NO.
45621
ALI SAMIH FAKIH
Date Signed 11-02-23
ARIZONA, U.S.A.
EXPIRATION DATE: 12-31-2024

SEG SUSTAINABILITY ENGINEERING GROUP
5240 N. 16TH STREET, SUITE 105, PHOENIX, ARIZONA 85016
WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.259.3534

PROJECT
SENIOR LIVING SCOTTSDALE + OSBORN

LOCATION
3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

DRAWN	JC	11/02/2023
DESIGNED	JC	09/08/2023
CHECKED	SC	06/16/2023
FINAL QC	AB	11/02/2023
PROJ. MGR.	AF	11/02/2023

DATE: 11/02/2023
ISSUED FOR: PERMITS

REVISION NO.:	DATE:
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4	

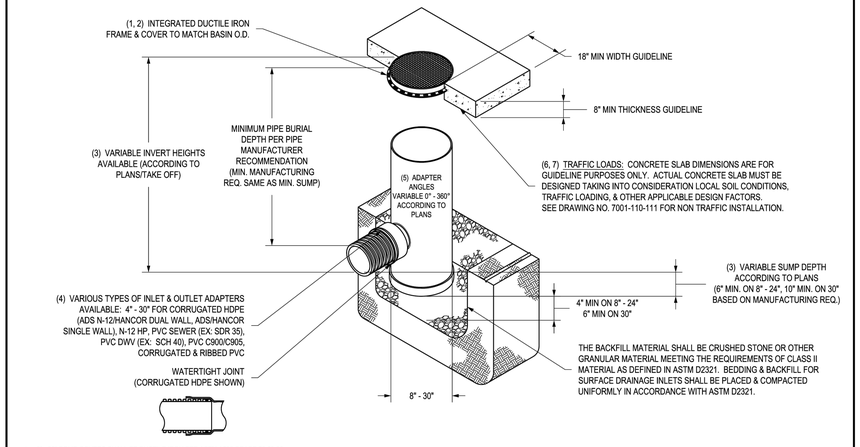
JOB NO.: 210126

SHEET TITLE:
GRADING AND DRAINAGE DETAILS

PAGE NO.: 7 OF 16
SHEET NO.: **C3.20**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

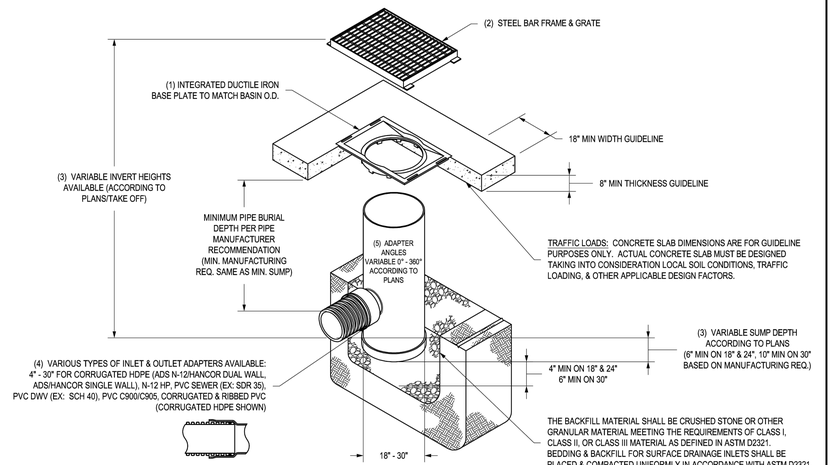
NYLOPLAST DRAIN BASIN WITH SOLID COVER



1 - 8" - 30" SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 8" & 10" SOLID COVERS FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7001-110-045.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - 12" - 30" SOLID COVERS SHALL MEET H-20 LOAD RATING.
7 - 8" & 10" SOLID COVERS ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY; NO CONCRETE COLLAR NEEDED FOR LIGHT DUTY RATING.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 9-14-07			
REVISED BY EBC	PROJECT NO./NAME	TITLE	DRAIN BASIN WITH SOLID COVER QUICK SPEC INSTALLATION DETAIL
DATE 3-14-10			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7001-110-298	REV B

NYLOPLAST DRAIN BASIN WITH 2 FT X 3 FT STEEL BAR GRATE

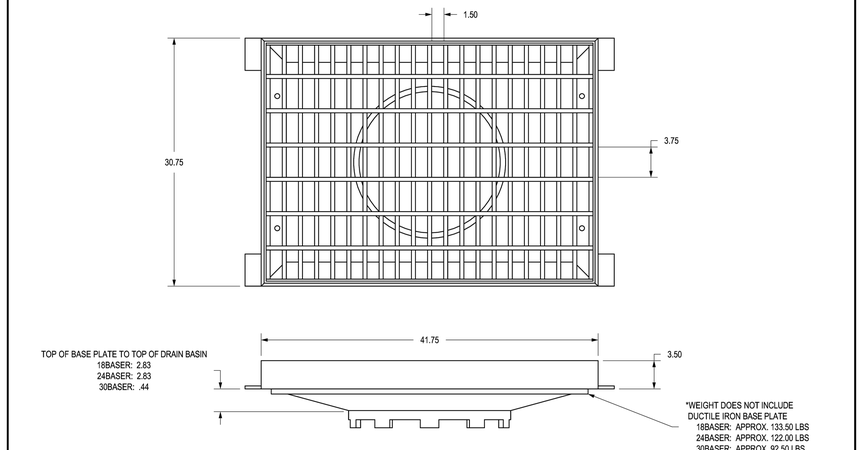


1 - 18" - 30" BASE PLATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - FRAME & GRATE SHALL BE STEEL PER ASTM A36.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - STEEL BAR GRATE SHALL MEET H-20 LOAD RATING.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 03-22-10			
REVISED BY NMH	PROJECT NO./NAME	TITLE	DRAIN BASIN WITH 2 FT X 3 FT STEEL BAR GRATE QUICK SPEC INSTALLATION DETAIL
DATE 03-16-16			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7001-110-395	REV D

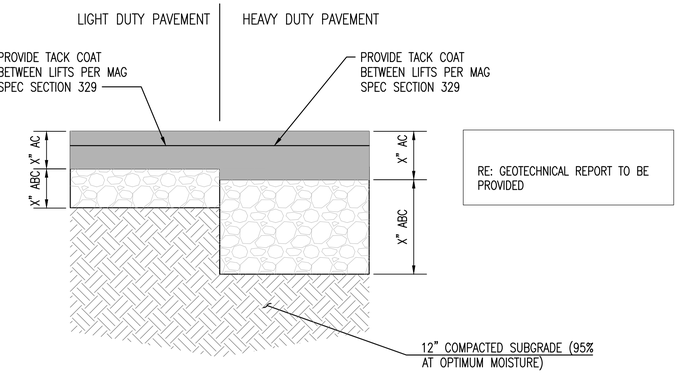
3299CGRSB

APPROX. GRATE DRAIN AREA = 761.18 SQ IN
*APPROX. WEIGHT WITH FRAME = 354.00 LBS



ALL DIMENSIONS IN INCHES UNLESS NOTED OTHERWISE
GRATE MEETS H-20 LOAD RATING
QUALITY: FRAME & GRATE MATERIALS SHALL CONFORM TO ASTM A-36 STEEL, BASE PLATE MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05 DUCTILE IRON
LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO. 7001-110-257

DRAWN BY CJA	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 02-28-03			
REVISED BY CCA	PROJECT NO./NAME	TITLE	2 FT X 3 FT STEEL BAR GRATE ASSEMBLY
DATE 09-04-13			
DWG SIZE A	SCALE 1:10 SHEET 1 OF 1	DWG NO. 7001-110-259	REV F



Registered Professional Engineer
CERTIFICATE NO.
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WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.259.3534

PROJECT: SENIOR LIVING SCOTTSDALE + OSBORN
LOCATION: 3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

DRAWN	JC	11/02/2023
DESIGNED	JC	09/06/2023
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PROJ. MGR.	AF	11/02/2023

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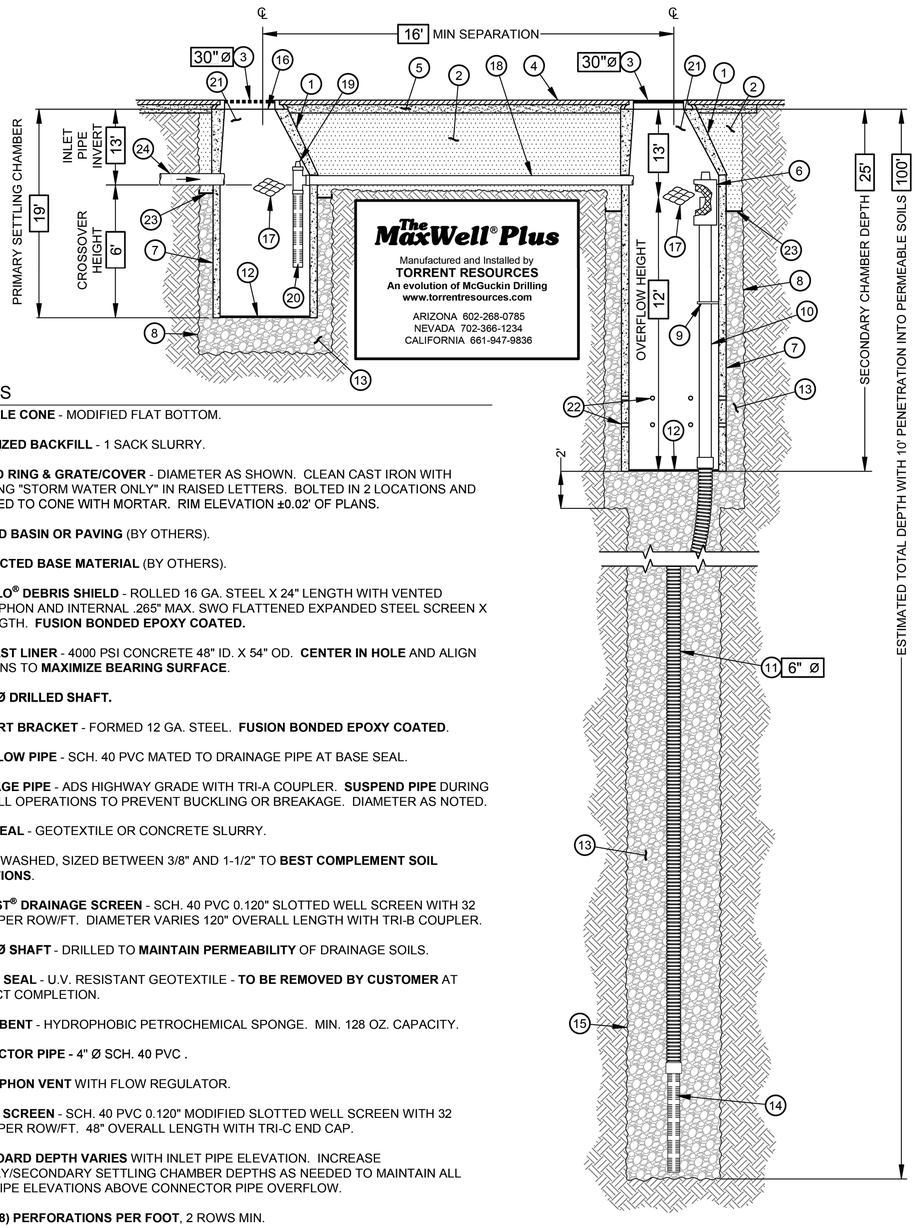
JOB NO.: 210126
SHEET TITLE: **GRADING AND DRAINAGE DETAILS**
PAGE NO.: 8 OF 16
SHEET NO.: **C3.21**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

The MaxWell® Plus Drainage System Detail And Specifications



NOTES

1. **MANHOLE CONE** - MODIFIED FLAT BOTTOM.
2. **STABILIZED BACKFILL** - 1 SACK SLURRY.
3. **BOLTED RING & GRATE/COVER** - DIAMETER AS SHOWN. CLEAN CAST IRON WITH WORDING "STORM WATER ONLY" IN RAISED LETTERS. BOLTED IN 2 LOCATIONS AND SECURED TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.
4. **GRADED BASIN OR PAVING** (BY OTHERS).
5. **COMPACTED BASE MATERIAL** (BY OTHERS).
6. **PUREFLO® DEBRIS SHIELD** - ROLLED 16 GA. STEEL X 24" LENGTH WITH VENTED ANTI-SIPHON AND INTERNAL .265" MAX. SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH. **FUSION BONDED EPOXY COATED.**
7. **PRE-CAST LINER** - 4000 PSI CONCRETE 48" ID. X 54" OD. **CENTER IN HOLE** AND ALIGN SECTIONS TO **MAXIMIZE BEARING SURFACE**.
8. **MIN. 6' Ø DRILLED SHAFT.**
9. **SUPPORT BRACKET** - FORMED 12 GA. STEEL. **FUSION BONDED EPOXY COATED**.
10. **OVERFLOW PIPE** - SCH. 40 PVC MATED TO DRAINAGE PIPE AT BASE SEAL.
11. **DRAINAGE PIPE** - ADS HIGHWAY GRADE WITH TRI-A COUPLER. **SUSPEND PIPE** DURING BACKFILL OPERATIONS TO PREVENT BUCKLING OR BREAKAGE. DIAMETER AS NOTED.
12. **BASE SEAL** - GEOTEXTILE OR CONCRETE SLURRY.
13. **ROCK** - WASHED, SIZED BETWEEN 3/8" AND 1-1/2" TO **BEST COMPLEMENT SOIL CONDITIONS**.
14. **FLOFAST® DRAINAGE SCREEN** - SCH. 40 PVC 0.120" SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. DIAMETER VARIES 120" OVERALL LENGTH WITH TRI-B COUPLER.
15. **MIN. 4' Ø SHAFT** - DRILLED TO **MAINTAIN PERMEABILITY** OF DRAINAGE SOILS.
16. **FABRIC SEAL** - U.V. RESISTANT GEOTEXTILE - **TO BE REMOVED BY CUSTOMER** AT PROJECT COMPLETION.
17. **ABSORBENT** - HYDROPHOBIC PETROCHEMICAL SPONGE. MIN. 128 OZ. CAPACITY.
18. **CONNECTOR PIPE -** 4" Ø SCH. 40 PVC **.**
19. **ANTI-SIPHON VENT** WITH FLOW REGULATOR.
20. **INTAKE SCREEN** - SCH. 40 PVC 0.120" MODIFIED SLOTTED WELL SCREEN WITH 32 SLOTS PER ROW/FT. 48" OVERALL LENGTH WITH TRI-C END CAP.
21. **FREEBOARD DEPTH VARIES** WITH INLET PIPE ELEVATION. INCREASE PRIMARY/SECONDARY SETTLING CHAMBER DEPTHS AS NEEDED TO MAINTAIN ALL INLET PIPE ELEVATIONS ABOVE CONNECTOR PIPE OVERFLOW.
22. **EIGHT (8) PERFORATIONS PER FOOT**, 2 ROWS MIN.
23. **MOISTURE MEMBRANE** - 6 MIL. PLASTIC. PLACE SECURELY AGAINST ECCENTRIC CONE AND HOLE SIDEWALL. USED IN LIEU OF SLURRY IN LANDSCAPED AREAS.
24. **INLET PIPE** (BY OTHERS).

AZ Lic. ROC070465 A, ROC047067 B-4, ADWR 363
CA Lic. 528080, C-42, HAZ,
NV Lic. 0035350 A - NM Lic. 90504 GF04

U.S. Patent No. 4,923,330 - ™ Trademark 1974, 1990, 2004

AZ MAXWELL PLUS

NYLOPLAST DRAIN BASIN WITH SOLID COVER

8

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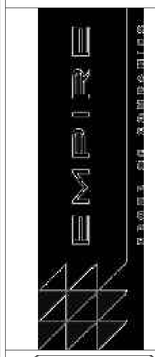

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

PROJECT
SENIOR LIVING
SCOTTSDALE + OSBORN

LOCATION
3380 N. SCOTTSDALE ROAD, SCOTTSDALE, AZ 85251

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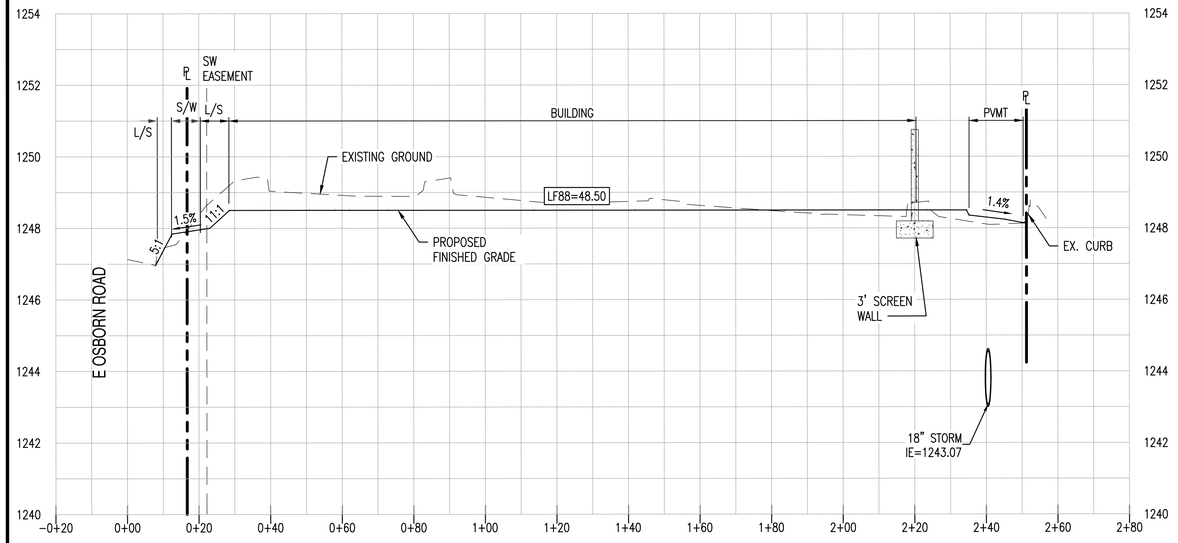
JOB NO.: 210126

SHEET TITLE:
GRADING AND DRAINAGE DETAILS

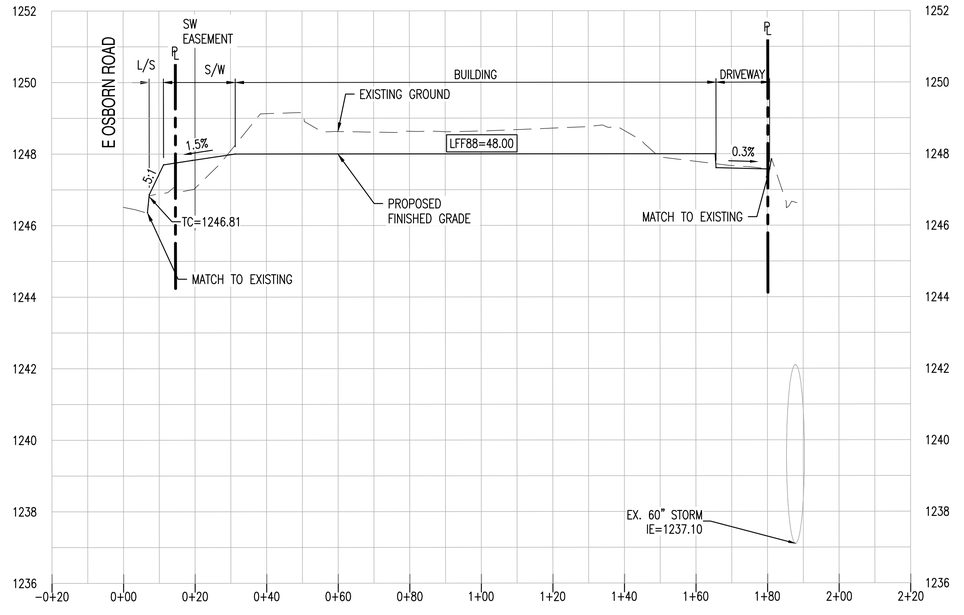
PAGE NO.: 9 OF 16
SHEET NO.: **C3.22**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD



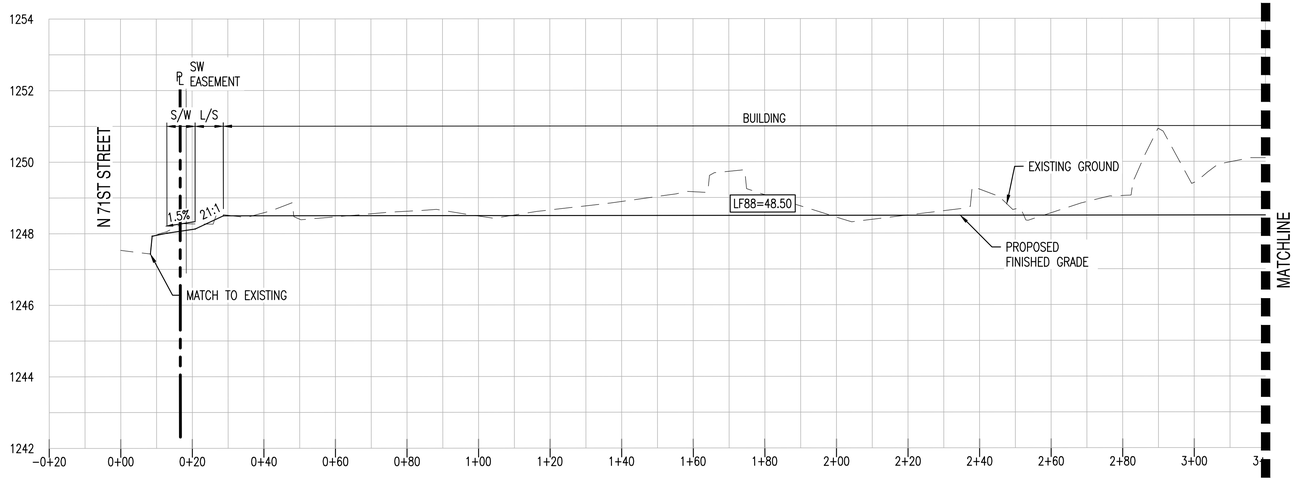
SECTION A-A C3.10

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



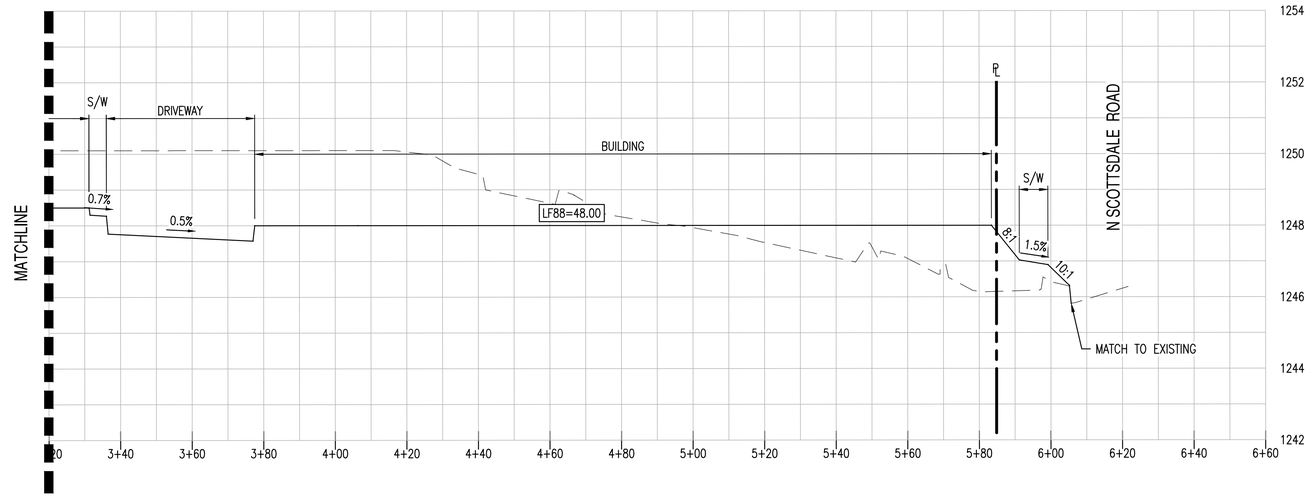
SECTION B-B C3.11

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



SECTION C-C C3.10 / C3.11

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



SECTION C-C C3.10 / C3.11

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

Registered Professional Engineer
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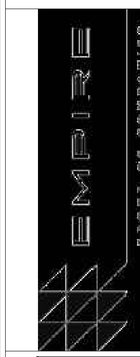

PROJECT
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JOB NO.: 210126

SHEET TITLE:

SITE CROSS-SECTIONS

PAGE NO.: 10 OF 16

SHEET NO.: **C3.50**

CASE NO.: 15-DR-2023 PLAN CHECK#: TBD

APPENDIX IV

Inlet Capacity Chart

Inlet Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Aug 24 2023

EX-CB-5

Grate Inlet

Location	=	On grade
Curb Length (ft)	=	-0-
Throat Height (in)	=	-0-
Grate Area (sqft)	=	-0-
Grate Width (ft)	=	1.50
Grate Length (ft)	=	3.00

Gutter

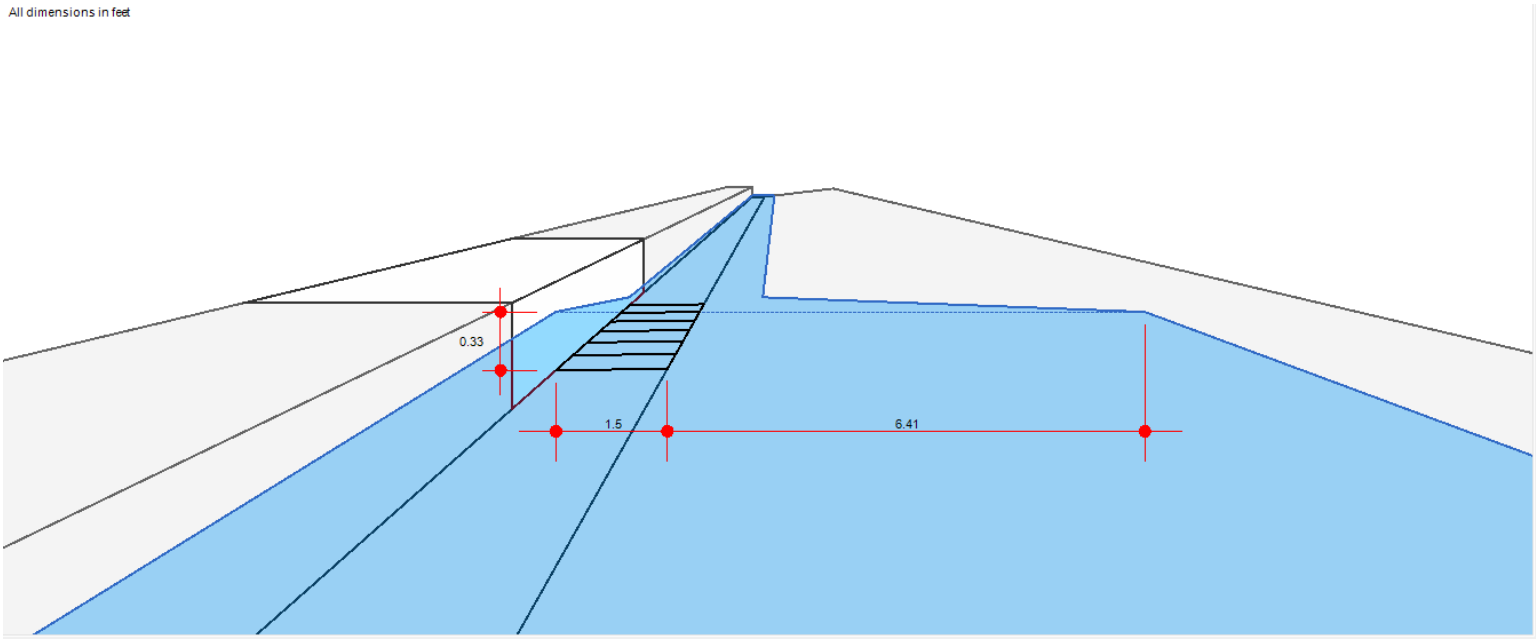
Slope, Sw (ft/ft)	=	0.006
Slope, Sx (ft/ft)	=	0.050
Local Depr (in)	=	-0-
Gutter Width (ft)	=	1.50
Gutter Slope (%)	=	0.01
Gutter n-value	=	0.013

Calculations

Compute by:		Known Q
Q (cfs)	=	0.68

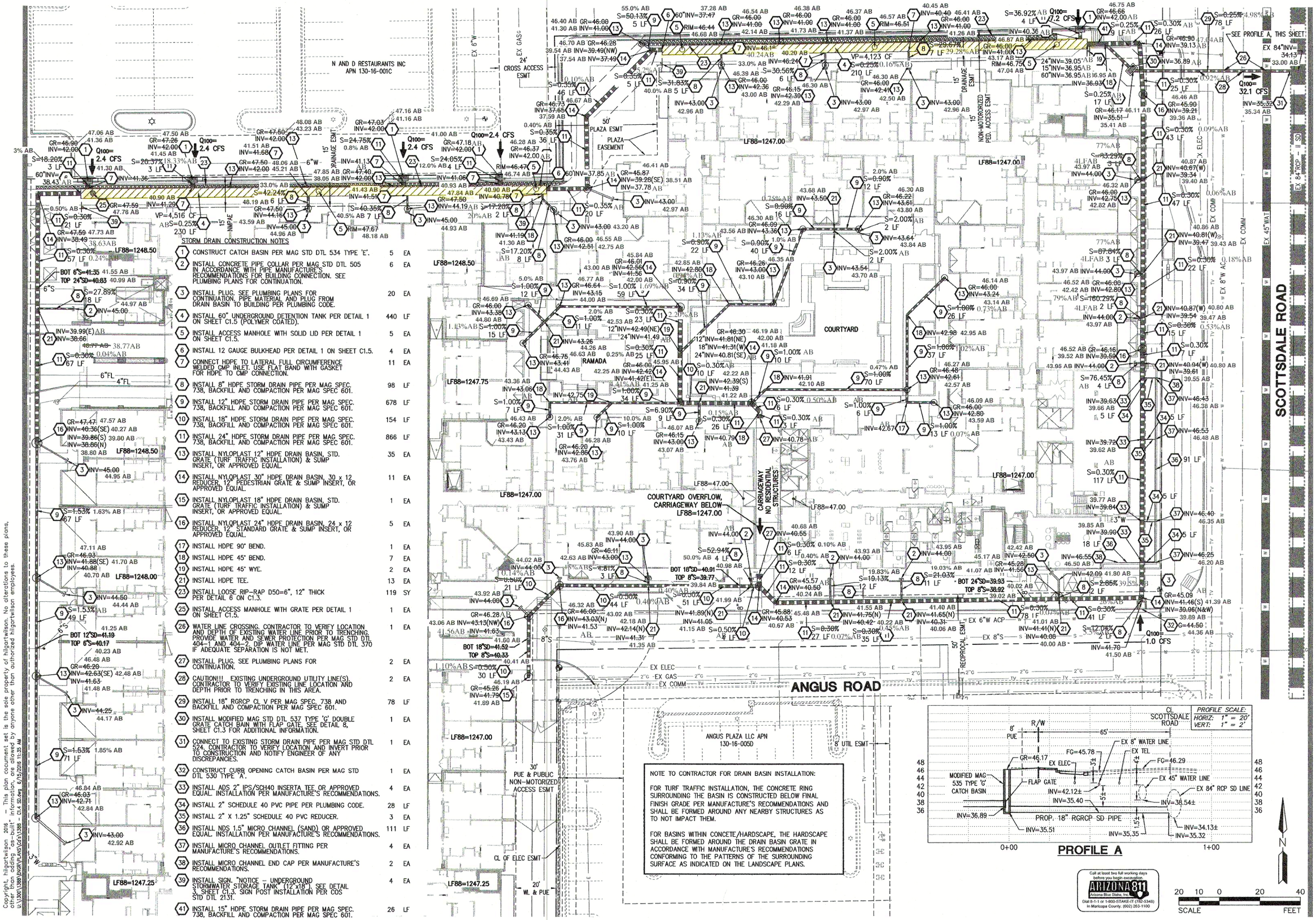
Highlighted

Q Total (cfs)	=	0.68
Q Capt (cfs)	=	0.66
Q Bypass (cfs)	=	0.02
Depth at Inlet (in)	=	3.96
Efficiency (%)	=	97
Gutter Spread (ft)	=	7.91
Gutter Vel (ft/s)	=	0.45
Bypass Spread (ft)	=	2.69
Bypass Depth (in)	=	0.82



APPENDIX V

Plan C1.4 "Stormdrain Plan" – Hilgart Wilson



STORM DRAIN CONSTRUCTION NOTES

1	CONSTRUCT CATCH BASIN PER MAG STD DTL 534 TYPE 'E'.	5	EA
2	INSTALL CONCRETE PIPE COLLAR PER MAG STD DTL 505 IN ACCORDANCE WITH PIPE MANUFACTURE'S RECOMMENDATIONS FOR BUILDING CONNECTION. SEE PLUMBING PLANS FOR CONTINUATION.	6	EA
3	INSTALL PLUG. SEE PLUMBING PLANS FOR CONTINUATION, PIPE MATERIAL AND PLUG FROM DRAIN BASIN TO BUILDING PER PLUMBING CODE.	20	EA
4	INSTALL 60" UNDERGROUND DETENTION TANK PER DETAIL 1 ON SHEET C1.5 (POLYMER COATED).	440	LF
5	INSTALL ACCESS MANHOLE WITH SOLID LID PER DETAIL 1 ON SHEET C1.5.	5	EA
6	INSTALL 12 GAUGE BULKHEAD PER DETAIL 1 ON SHEET C1.5.	4	EA
7	CONNECT HDPE TO LATERAL FULL CIRCUMFERENCE WELDED CMP INLET. USE FLAT BAND WITH GASKET FOR HDPE TO CMP CONNECTION.	11	EA
8	INSTALL 8" HDPE STORM DRAIN PIPE PER MAG SPEC. 738, BACKFILL AND COMPACTION PER MAG SPEC 601.	98	LF
9	INSTALL 12" HDPE STORM DRAIN PIPE PER MAG SPEC. 738, BACKFILL AND COMPACTION PER MAG SPEC 601.	678	LF
10	INSTALL 18" HDPE STORM DRAIN PIPE PER MAG SPEC. 738, BACKFILL AND COMPACTION PER MAG SPEC 601.	154	LF
11	INSTALL 24" HDPE STORM DRAIN PIPE PER MAG SPEC. 738, BACKFILL AND COMPACTION PER MAG SPEC 601.	866	LF
13	INSTALL NYLOPLAST 12" HDPE DRAIN BASIN, STD. GRATE (TURF TRAFFIC INSTALLATION) & SUMP INSERT, OR APPROVED EQUAL.	35	EA
14	INSTALL NYLOPLAST 30" HDPE DRAIN BASIN, 30 x 12 REDUCER, 12" PEDESTRIAN GRATE & SUMP INSERT, OR APPROVED EQUAL.	11	EA
15	INSTALL NYLOPLAST 18" HDPE DRAIN BASIN, STD. GRATE (TURF TRAFFIC INSTALLATION) & SUMP INSERT, OR APPROVED EQUAL.	1	EA
16	INSTALL NYLOPLAST 24" HDPE DRAIN BASIN, 24 x 12 REDUCER, 12" STANDARD GRATE & SUMP INSERT, OR APPROVED EQUAL.	5	EA
17	INSTALL HDPE 90° BEND.	1	EA
18	INSTALL HDPE 45° BEND.	7	EA
19	INSTALL HDPE 45° WYE.	2	EA
21	INSTALL HDPE TEE.	13	EA
23	INSTALL LOOSE RIP-RAP D50=6", 12" THICK PER DETAIL 6 ON C1.3.	119	SY
25	INSTALL ACCESS MANHOLE WITH GRATE PER DETAIL 1 ON SHEET C1.5.	1	EA
26	WATER LINE CROSSING. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING WATER LINE PRIOR TO TRENCHING. PROVIDE WATER AND SEWER PROTECTION PER MAG STD DTL 404-1 AND 404-2. DIP WATER LINE PER MAG STD DTL 370 IF ADEQUATE SEPARATION IS NOT MET.	1	EA
27	INSTALL PLUG. SEE PLUMBING PLANS FOR CONTINUATION.	2	EA
28	CAUTION!!! EXISTING UNDERGROUND UTILITY LINE(S). CONTRACTOR TO VERIFY EXISTING LINE LOCATION AND DEPTH PRIOR TO TRENCHING IN THIS AREA.	2	EA
29	INSTALL 18" RGRCP CL V PER MAG SPEC. 738 AND BACKFILL AND COMPACTION PER MAG SPEC 601.	78	LF
30	INSTALL MODIFIED MAG STD DTL 537 TYPE 'G' DOUBLE GRATE CATCH BAIN WITH FLAP GATE, SEE DETAIL 8, SHEET C1.3 FOR ADDITIONAL INFORMATION.	1	EA
31	CONNECT TO EXISTING STORM DRAIN PIPE PER MAG STD DTL 524. CONTRACTOR TO VERIFY LOCATION AND INVERT PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.	1	EA
32	CONSTRUCT CURB OPENING CATCH BASIN PER MAG STD DTL 530 TYPE 'A'.	1	EA
33	INSTALL ADS 2" IPS/SCH40 INSERTA TEE OR APPROVED EQUAL. INSTALLATION PER MANUFACTURE'S RECOMMENDATIONS.	4	EA
34	INSTALL 2" SCHEDULE 40 PVC PIPE PER PLUMBING CODE.	28	LF
35	INSTALL 2" X 1.25" SCHEDULE 40 PVC REDUCER.	3	EA
36	INSTALL NDS 1.5" MICRO CHANNEL (SAND) OR APPROVED EQUAL. INSTALLATION PER MANUFACTURE'S RECOMMENDATIONS.	111	LF
37	INSTALL MICRO CHANNEL OUTLET FITTING PER MANUFACTURE'S RECOMMENDATIONS.	4	EA
38	INSTALL MICRO CHANNEL END CAP PER MANUFACTURE'S RECOMMENDATIONS.	2	EA
39	INSTALL SIGN. "NOTICE – UNDERGROUND STORMWATER STORAGE TANK" (12"x18"). SEE DETAIL 3, SHEET C1.3. SIGN POST INSTALLATION PER COS STD DTL 2131.	4	EA
41	INSTALL 15" HDPE STORM DRAIN PIPE PER MAG SPEC. 738, BACKFILL AND COMPACTION PER MAG SPEC 601.	26	LF

NOTE TO CONTRACTOR FOR DRAIN BASIN INSTALLATION:

FOR TURF TRAFFIC INSTALLATION, THE CONCRETE RING SURROUNDING THE BASIN IS CONSTRUCTED BELOW FINAL FINISH GRADE PER MANUFACTURE'S RECOMMENDATIONS AND SHALL BE FORMED AROUND ANY NEARBY STRUCTURES AS TO NOT IMPACT THEM.

FOR BASINS WITHIN CONCETE/HARDSCAPE, THE HARDSCAPE SHALL BE FORMED AROUND THE DRAIN BASIN GRATE IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS CONFORMING TO THE PATTERNS OF THE SURROUNDING SURFACE AS INDICATED ON THE LANDSCAPE PLANS.

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

SCALE 20 10 0 20 40 FEET

Project No. 1388
Drawn By: James Weber
PLOT DATE: 6/15/2016
ISSUE FOR PERMIT: JUNE 15, 2016
REVISIONS PER CITY COMMENTS:
ISSUE FOR CONSTRUCTION:
Revisions:

The Agave Residences

Scottsdale, Arizona
J L B P A R T N E R S

7372 CASEY R. WHITEMAN 6/15/16 REGISTERED LANDSCAPE ARCHITECT ARIZONA U.S.A. Expires 03/31/2017

CASE HISTORY:
CASE NO.: # 20-DR-2015
CASE NO.: # 43-UP-2015
CASE NO.: # 20-PA-2015
CASE NO.: # 1-ZN-2015

HILGARTWILSON
ENGINEER | PLAN | SURVEY | MANAGE
2141 E. HIGHLAND AVE., STE 250 | PHOENIX, AZ 85016
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PLAN REVIEW# 6929-15-5 QS# DR# 38-DR-2015

STORMDRAIN PLAN

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APPENDIX VI

Storm Water Operation and Maintenance Plan

STORM WATER
OPERATION & MAINTENANCE PLAN

For:

Senior Living Scottsdale + Osborn
6617 N. Scottsdale Road, Suite 105
Scottsdale, AZ 85250
Maricopa County

July 18, 2023

STORM WATER OPERATIONS & MAINTENANCE PLAN
For
Senior Living Scottsdale + Osborn

5240 N. 16th Street., Suite 105
Phoenix, AZ 85016

1.0 INTRODUCTION

1.1 This Stormwater Operations & Maintenance Plan (the "Plan") has been developed to assist the Senior Living Scottsdale + Osborn facility personnel to operate and maintain the stormwater system.

1.2 The responsibility for performing and funding the stormwater system maintenance work is directed by the Declaration of Covenants, Conditions, Restrictions and Easements ("CC&Rs") as mutually agreed by the Development property and summarized in Section 3.0 of this Plan.

2.0 KROGER FOOD 4 LESS KEY CONTACTS

2.1 Facility Name and Address:	Senior Living Scottsdale + Osborn 3380 N. Scottsdale Road Scottsdale, AZ 85250
2.2 Facility Ownership:	Empire Group. 6617 N. Scottsdale Road, Suite 101 Scottsdale, AZ 85250
2.3 Key Contacts:	Empire Group 480-546-7900

3.0 SITE SUMMARY & MAINTENANCE RESPONSIBILITY

3.1. The Association shall be solely responsible for operations, maintenance and liability for all drainage channels, drainage structures and underground storm water retention systems (collectively, the "Drainage Facilities").

3.2. City of Scottsdale staff may periodically inspect the Drainage Facilities to verify that scheduled and unscheduled maintenance activities are being performed adequately. The Association shall reimburse The City of Scottsdale for any and all costs associated with maintenance of the Drainage Facilities should the City find the Association deficient in its obligation to adequately operate and maintain the Drainage Facilities.

3.3. Empire Group shall maintain the stormwater lines, retention basins and underground storage for the Development. The other property owners will pay a set fee to Empire Group each year. The other property owners will pay a prorate share of the actual cost of the needed repairs or capital improvements when invoiced each year.

3.4. The Development has common and shared Development access areas and street frontage. The maintenance for the common and shared areas is done by:

a. Maintenance Party TBD shall maintain and repair the major drive lanes and access ways. The other property owners will pay a set maintenance fee to Maintenance Party TBD, for their share.

4.0 STORM WATER DRAINAGE SYSTEM

4.1 **Rooftop Drains**

The canopy drains collect rooftop stormwater which will convey to the proposed below-ground stormwater collection system.

4.2 **Catch Basins**

The stormwater basins with grated steel covers in the parking lot and drive aisles do not have inverted traps on the outlets which capture sediment and floating debris/petroleum products within the basin. Regular maintenance of the underground storage system is required.

4.3 **Underground Conveyance Pipe**

The conveyance pipes from the building roof drains and catch basins vary in size and can be inspected and cleaned through the provided catch basins, or storm manholes. The outlet pipes and valves, if provided, shall be inspected to ensure they are operating properly as well.

4.4 **Underground Retention - CMP**

4.4.1 Inspect a minimum of every 12 months or when ponding is occurring indicating the system is not functioning properly. Annual inspection / maintenance should be scheduled during dry weather if possible.

4.4.2 When the inspection reveals accumulated sediment or trash near the discharge orifices, evacuate the system through the manhole near the outlet orifice.

4.4.3 Should it be necessary to get inside the system to perform maintenance activities, all appropriate precautions regarding confined space entry and OSHA regulations should be followed.

4.4.4 Securely seat the access riser cover following cleaning activities.

5.0 STORMWATER MAINTENANCE REPORTING

The Association shall have a California registered professional civil engineer prepare a certified inspection report for the Drainage Facilities at least once every six (6) months, and these regular inspection reports will be on file with the Association for review by Cathedral City staff, upon written request.

Empire Group will keep records internally of inspections and maintenance.