



Drainage Reports

Preliminary Basis of Design

Preliminary Drainage

FOR

Acoya Shea & Scottsdale Senior Living

APN# 175-33-093H

7373 E Shea Boulevard

Scottsdale, AZ 85260

Submittal - July 2, 2020

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July 2, 2020

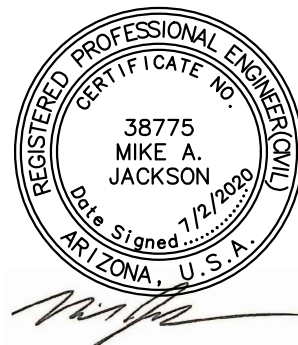


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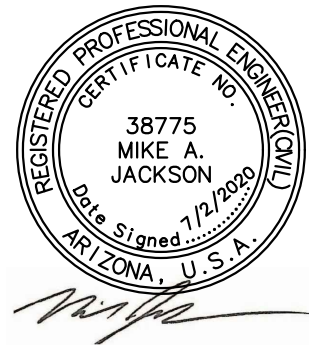
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- Appendix 1: Preliminary Grading/Utility Plan & QS Map
- Appendix 2: Warning and Disclaimer of Liability Form (To be provided)



INTRODUCTION

The purpose of this report is to indicate the methods used and to provide discussion of the proposed stormwater drainage for a new 4 story senior living building at the southwest corner of Shea Boulevard and N. 74th Street, serving the City of Scottsdale. The development is a 2.57 acre site that will consist of 160 units with shared areas to be used for dining and entertainment. The site proposes a total of 137 parking spaces which will be provided in an underground garage and supplemented with minimal surface parking

The proposed improvements include construction of a parking lot, open space areas, a new building, driveways, pedestrian access ramps, sidewalks, utilities, and stormwater drainage structures. This report will indicate how the storm water generated on the subject property is addressed and how it complies with the City of Scottsdale drainage requirements.

EXISTING CONDITIONS

The site is bounded by Shea Boulevard to the north, 74th street to the east and commercial office buildings to the west and south. The total property area is approximately 2.57 acres and the existing development consists of an existing car wash facility and supporting site improvements. Refer to Vicinity Map (Figure 1) below for a general graphical representation of the Site location.

EXISTING DRAINAGE

The Site is currently completely developed as a carwash and auto service facility. The site generally slopes towards the south. There are two catch basins located along the southern most parking curb line. Our site observations show evidence that a pipe drains the eastern catch basin to the western catch basin. The site outlets to the south to a regional storm drain.

Based on field observation and available topographic data there is no evidence of on-site ponding or stormwater storage. All storm water from this site appears to discharge through the existing regional storm drain network. Based upon the city stormwater quarter section map (Appendix 1), the existing storm drain system exits the site near the southwest corner of the property. Once off the property, the existing regional storm drain appears to flow west then to the south where it discharges to a concrete channel on the west side of the Holiday Inn Express before flowing south under Gold Dust in a culvert. The site ultimately overflows to the south onto the private street.

FEMA FLOOD ZONE / FIRM MAP

This is to certify that the above subject property lies within unshaded zone 'x' as designated on the FIRM flood insurance rate map, map number 04013C1760L, dated October 16, 2013. Unshaded zone 'x' is designated as being areas outside of the 0.2% annual chance flood.

PROPOSED CONDITIONS

To mitigate the drainage flows we propose to retain the first flush volume within a combination of above ground and underground storage on-site.

A rational method analysis was performed for the first flush storage volumes for this project. Due to the site being completely developed and lacking any apparent existing retention volume, the first flush volume is greater than the pre vs post volume. See Table 1 below for the required storage volumes.

The site has been divided into four Drainage areas for analysis, these areas are referred to as DA-1 through DA-4. Area DA-1 encompasses the northeastern portion of the site, DA-2 is to the west, DA-3 to the south, and DA-4 to the east. The drainage areas consist of roof and open space while DA-1 also includes the small surface parking lot north of the building.

The required storage volume for areas DA-1, 2, & 4 will be provided in underground storage pipes. The required storage for area DA-3 will be provided in a shallow (1-foot deep) retention basin. See Table 2 for pipe IDs and details

It is proposed both the existing catch basins be removed and the existing pipe allowing on-site discharge to the south remain. The proposed on-site retention pipes will be metered out and the flow will be routed in 18" HDPE storm drainpipe and ultimately discharge via the existing pipe to the south, which ultimately discharges to the existing storm drainage network as described above in the Existing Drainage section.

Drainage easements will be dedicated over retention basins as required by the City of Scottsdale.

FINISHED FLOOR ELEVATION

Building Finished Floor elevation 1356.50 is set a minimum of 6 inches above the high adjacent top of curb, which is well above one foot above the site outfall. The ultimate outfall is located at the south end of the site at an elevation of 1351.21.

DATA ANALYSIS

The computations included in this report are based on the procedure described in the City of Scottsdale Design Standards and Policies Manual and the design standards and methodologies developed by the Flood Control District of Maricopa County. The first flush was used to calculate the retention volume required across the site.

Table 1-Retention Volume Requirements

Drainage Basin ID	Area (sf)	Area (ac)	C _w *	Precipitation** (in)	Retention Volume Required (cf)
DA-1	42,203	0.97	1	0.5	1,758
DA-2	22,339	0.51	1	0.5	931
DA-3	26,127	0.60	1	0.5	1,089
DA-4	21,524	0.49	1	0.5	897

Table 2- Retention Volume Provided

Drainage Basin ID	Retention Type	Pipe Dia (ft)	Pipe area (sf)	Length (ft)	Volume (cf)	Drain Time (hrs)*
DA-1	UG pipe	3	7.07	260	1,838	0.5
DA-2	UG pipe	3	7.07	135	954	0.3
DA-3	Basin	na	na	na	1,100	0.3
DA-3	UG pipe	4	12.56	48		
DA-4	UG pipe	3	7.07	130	919	0.25

*BASED UPON METERING OF 1.0 CFS

WARNING AND DISCLAIMER OF LIABILITY

Refer to **Appendix 2** for a copy of the Warning & Disclaimer of Liability form. (Pending)

CONCLUSIONS

This project has been designed to conform to the City of Scottsdale storm drainage design requirements. Proposed drainage improvements will include an above ground basin and an underground retention system sized to retain the first flush retention volume. Proposed storm drain inlets and storm drainpipes will be adequately sized to convey the expected peak flows to the underground storage system which will ultimately discharge to an existing network south. Excess flows generated onsite will overflow to the existing street to the south, which generally match the historic overflow pattern. No adverse impacts to the offsite downstream properties are anticipated as a result of the proposed improvements.

REFERENCES

City of Scottsdale, Design Standards & Policies Manual, January 2018.

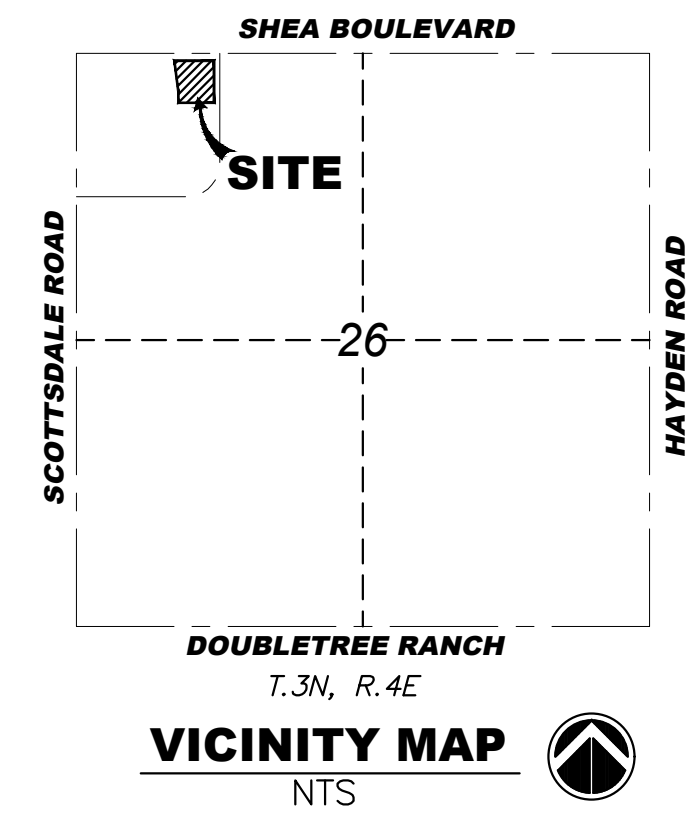
Flood Control District of Maricopa County, Maricopa County Drainage Policies and Standards. Revised, August 22, 2018.

Appendix 1: Preliminary Grading/Utility Plan & QS MAP

7373 E SHEA BOULEVARD SCOTTSDALE, ARIZONA

A PORTION OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 26,
TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN,
MARICOPA COUNTY, ARIZONA

PRELIMINARY GRADING AND DRAINAGE PLAN



LEGAL DESCRIPTION

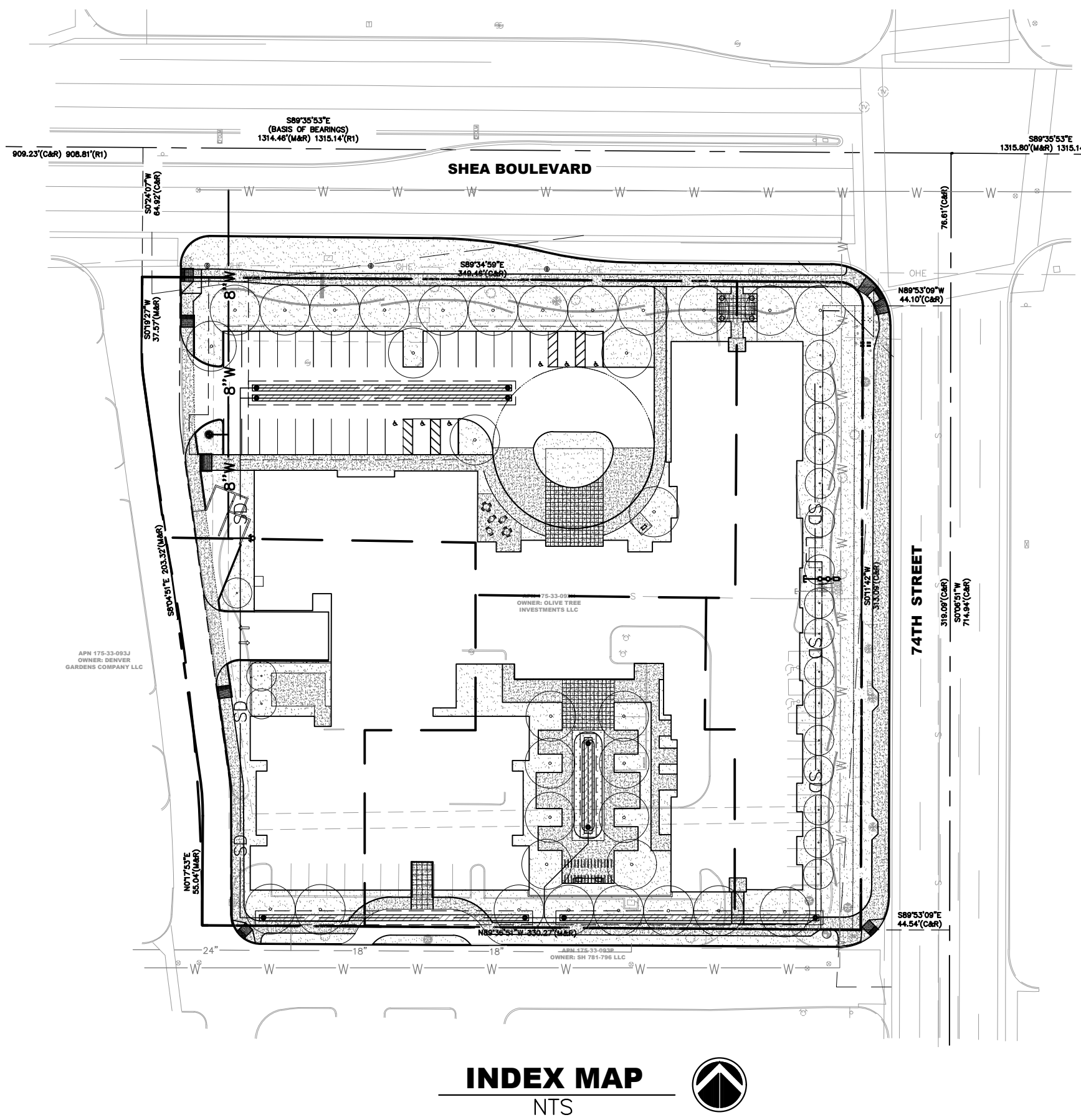
THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF MARICOPA, STATE OF ARIZONA, AND IS DESCRIBED AS FOLLOWS:

PARCEL NO. 1:
A PORTION OF THE EAST HALF OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 26,
TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN,
MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 26; THENCE SOUTH 89 DEGREES 58 MINUTES 07 SECONDS EAST ALONG THE NORTH LINE OF SAID SECTION, A DISTANCE OF 908.81 FEET; THENCE SOUTH 00 DEGREES 01 MINUTES 53 SECONDS WEST, A DISTANCE OF 65.00 FEET TO A POINT ON THE SOUTHERLY RIGHT-OF-WAY LINE OF SHEA BOULEVARD, MARKING THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 58 MINUTES 07 SECONDS EAST ALONG SAID RIGHT-OF-WAY LINE, A DISTANCE OF 349.62 FEET TO THE BEGINNING OF A CURVE WITH A RADIUS OF 12.00 FEET TO THE RIGHT; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 89 DEGREES 46 MINUTES 45 SECONDS, FOR AN ARC DISTANCE OF 18.80 FEET TO THE WESTERLY RIGHT-OF-WAY LINE OF 74TH STREET; THENCE SOUTH 00 DEGREES 11 MINUTES 22 SECONDS EAST ALONG SAID WESTERLY RIGHT-OF-WAY LINE, A DISTANCE OF 313.05 FEET; THENCE NORTH 89 DEGREES 58 MINUTES 07 SECONDS WEST, A DISTANCE OF 330.46 FEET; THENCE NORTH 00 DEGREES 05 MINUTES 41 SECONDS WEST, A DISTANCE OF 55.05 FEET TO THE BEGINNING OF A CURVE WITH A RADIUS OF 115.00 FEET TO THE LEFT; THENCE NORTHERLY, ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 08 DEGREES 20 MINUTES 12 SECONDS, FOR AN ARC DISTANCE OF 16.73 FEET; THENCE NORTH 08 DEGREES 25 MINUTES 53 SECONDS WEST, A DISTANCE OF 203.20 FEET TO THE BEGINNING OF A CURVE WITH A RADIUS OF 100.00 FEET TO THE RIGHT; THENCE NORTHERLY, ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 08 DEGREES 27 MINUTES 46 SECONDS, FOR AN ARC DISTANCE OF 14.77 FEET; THENCE NORTH 00 DEGREES 01 MINUTES 53 SECONDS EAST, A DISTANCE OF 37.57 FEET TO THE POINT OF BEGINNING.

PARCEL NO. 2:
EASEMENTS, INCLUDING ACCESS EASEMENTS, UTILITY EASEMENTS AND OTHER EASEMENT RIGHTS OF WHICH INSURED IS THE BENEFICIARY, AS CONTAINED IN THAT CERTAIN DECLARATION OF RECIPROCAL EASEMENTS AND RESTRICTIONS RECORDED SEPTEMBER 7, 1994 IN DOCUMENT NO. 94-0664703, OF OFFICIAL RECORDS.

LEGEND

---	PROPERTY BOUNDARY	S	SLOPE
---	SAWCUT LINE/LIMITS OF GRADING	FT	FOOT
---	CENTER LINE	TC	TOP OF CURB ELEVATION
---	1581	GB	GRADE BREAK
---	EXISTING MINOR CONTOUR	SW	SIDEWALK
---	1580	P	PAVEMENT
---	EXISTING MAJOR CONTOUR	C	CONCRETE
---	1581	---	GRADE BREAK
---	PROPOSED MINOR CONTOUR	1.0%	FLOW ARROW
---	1580	P=1425.00	PROPOSED SPOT ELEVATION
---	PROPOSED MAJOR CONTOUR	(P=1424.25)	EXISTING SPOT ELEVATION
---	PROPOSED WATER LINE SERVICE		
---	CONCEPTUAL GAS LINE		
---	6" S		
---	PROPOSED SANITARY SEWER LINE		



DRAINAGE STATEMENT

THIS PROJECT HAS BEEN DESIGNED TO CONFORM TO THE CITY OF SCOTTSDALE STORM DRAINAGE DESIGN REQUIREMENTS. DUE TO THE SITE BEING COMPLETELY DEVELOPED AND LACKING ANY APPARENT EXISTING RETENTION VOLUME, THE FIRST FLUSH VOLUME IS GREATER THAN THE PRE VS POST VOLUME. A RATIONAL METHOD ANALYSIS WAS PERFORMED FOR THE FIRST FLUSH AND THE PROPOSED DRAINAGE IMPROVEMENTS WILL INCLUDE AN ABOVE GROUND BASIN AND UNDERGROUND RETENTION SYSTEMS. PROPOSED STORM DRAIN INLETS AND STORM DRAIN PIPES WILL BE ADEQUATELY SIZED TO CONVEY THE EXPECTED PEAK FLOWS TO THE UNDERGROUND STORAGE SYSTEMS. THE UNDERGROUND STORAGE WILL DISCHARGE TO THE EXISTING STORM DRAIN NETWORK SOUTH OF THE PROPERTY. EXCESS FLOWS GENERATED ONSITE WILL OVERFLOW TO THE EXISTING STREETS AND DRAIN TO THE SOUTH, WHICH GENERALLY MATCH THE HISTORIC OVERFLOW PATTERN. NO ADVERSE IMPACTS TO THE OFFSITE DOWNSTREAM PROPERTIES ARE ANTICIPATED AS A RESULT OF THE PROPOSED IMPROVEMENTS.

SHEET INDEX	
DRAWING NUMBER	SHEET TITLE
C1	COVER SHEET
C2	PRELIMINARY GRADING & DRAINAGE PLAN
C3	PRELIMINARY UTILITY PLAN

ARCHITECT

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CONTACT: CARY MOLASH

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IMEG CORP
1600 N. DESERT DRIVE, SUITE 230
TEMPE, AZ 85281
PHONE: 480-378-3925
CONTACT: MIKE JACKSON

SITE DATA

A.P.N.: 175-33-093H
AREA : 112,072 SF OR 2,573 AC.
ADDRESS: 7373 E. SHEA BOULEVARD
SCOTTSDALE, AZ 85260

BASIS OF BEARING

THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 26. SAID LINE BEARS SOUTH 89 DEGREES 35 MINUTES 53 SECONDS WEST.

SITE BENCHMARK

FOUND 3" CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE 160' EAST OF THE INTERSECTION OF SHEA BLVD AND MILLER ROAD. THE NORTH QUARTER CORNER OF SECTION 26

ELEVATION = 1355.13 (NAVD'88)

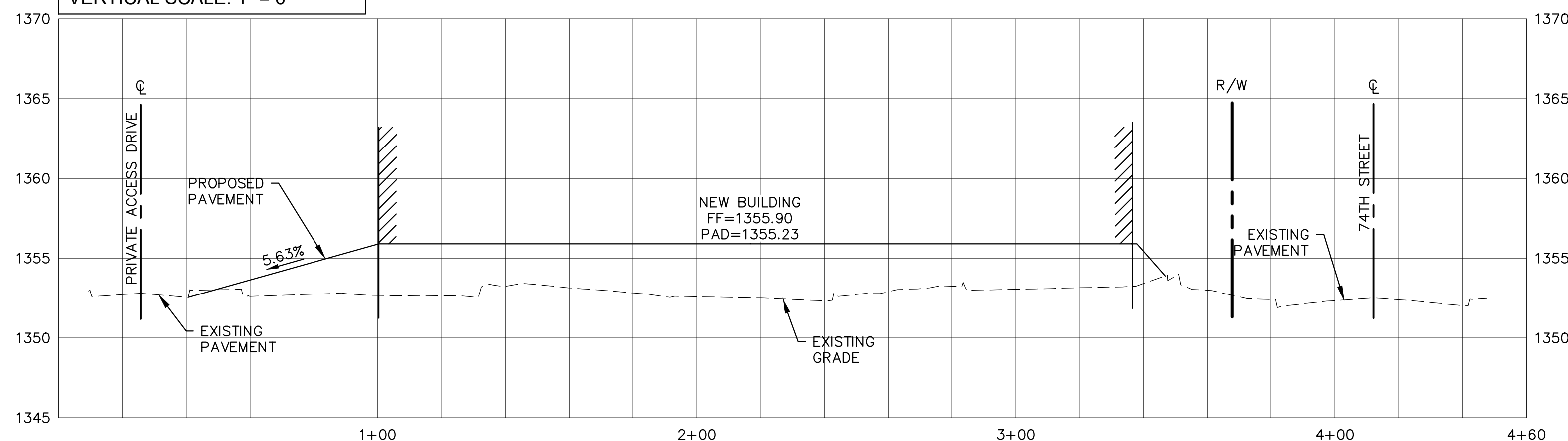
FLOOD PLAIN CERTIFICATION

THIS IS TO CERTIFY THAT THE SUBJECT PROPERTY LIES WITHIN ZONE 'X' AS DESIGNATED ON THE FIRM FLOOD INSURANCE RATE MAP, MAP NUMBER 04013C1760L, DATED OCTOBER 16, 2013.

COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	DATE OF FIRM (INDEX DATE)	FIRM ZONE	BASE FLOOD ELEV (IN AO ZONE, USE DEPTH)
045012	1760 10/16/13	L	12.04.2015	X	N/A

THE LOWEST FLOOR ELEVATION(S) AND/OR FLOOD PROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A 100-YEAR STORM, AND ARE IN ACCORDANCE WITH SCOTTSDALE REVISED CODE, CHAPTER 37 - FLOODPLAIN AND STORMWATER REGULATION.

PROFILE VIEW OF SECTION A-A
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 6'



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Phoenix, AZ 85018
602-322-6100 tel
602-322-6300 fax

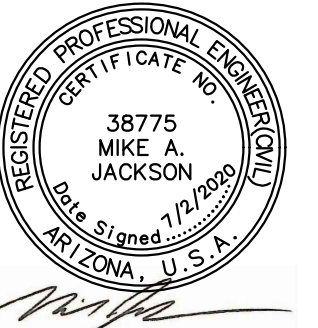
WWW.RYANCOMPANIES.COM

OWNER

CONSULTANTS



1600 N. DESERT DRIVE
SUITE 230
TEMPE, AZ 85281



PROJECT INFORMATION

ACOYA SHEA SENIOR LIVING

7373 E. SHEA BLVD.
SCOTTSDALE, AZ 85260

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Architect under the laws of the State of Arizona

MIKE JACKSON

REGISTRATION NO.	DATE
38775	07.01.2020

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DRAWN BY	CHECKED BY
AM	MJ

JOB NO.	DATE
20001090.00	07.01.2020



COVER SHEET

C1



NOT FOR CONSTRUCTION

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PRELIMINARY
NOT FOR CONSTRUCTION

PRELIMINARY GRADING & DRAINAGE PLAN

C2

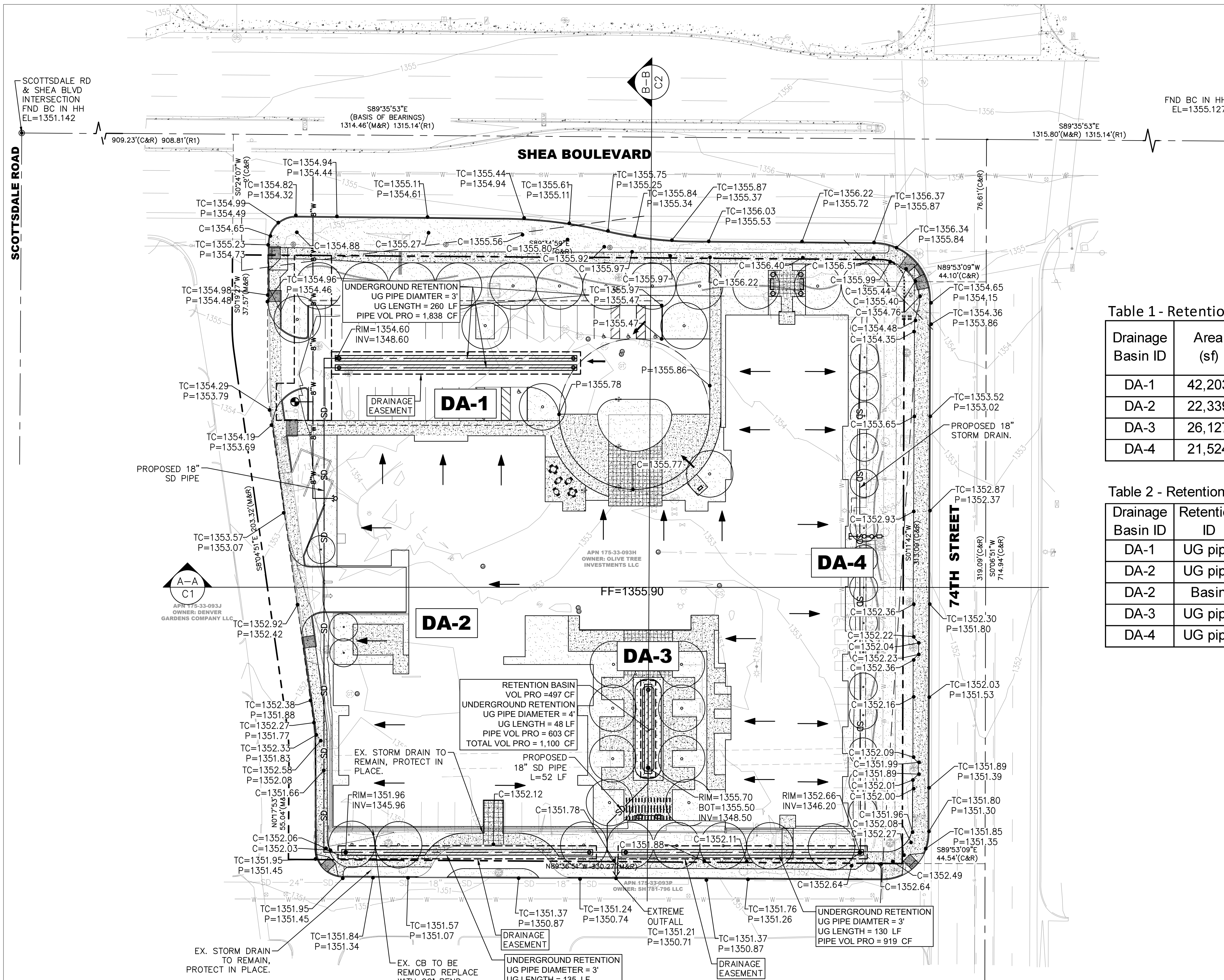


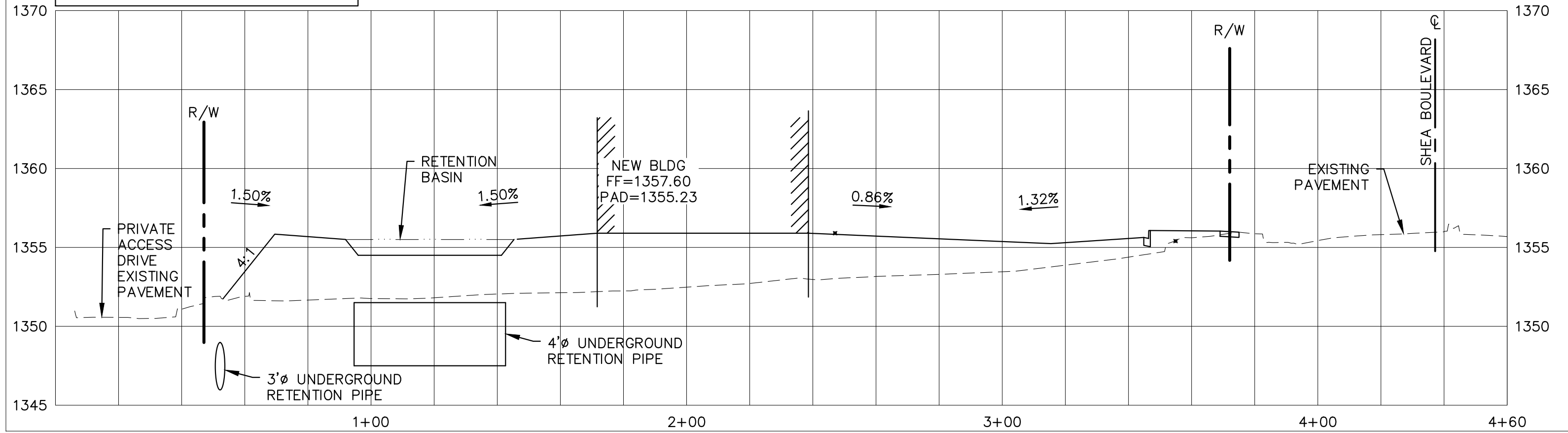
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PROFILE VIEW OF SECTION B-B
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 6'



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AM	MJ
JOB NO.	DATE
20001090.00	07.01.2020

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PRELIMINARY
UTILITY PLAN

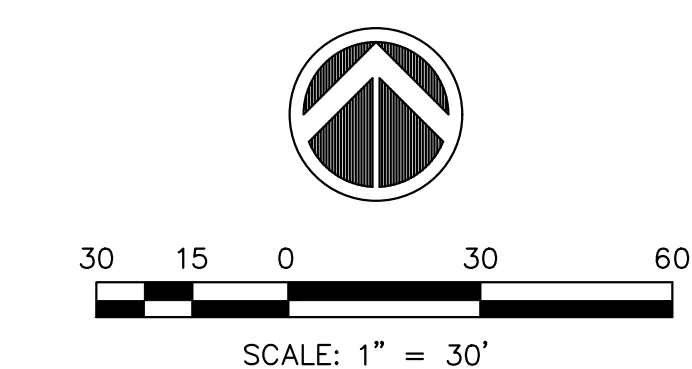
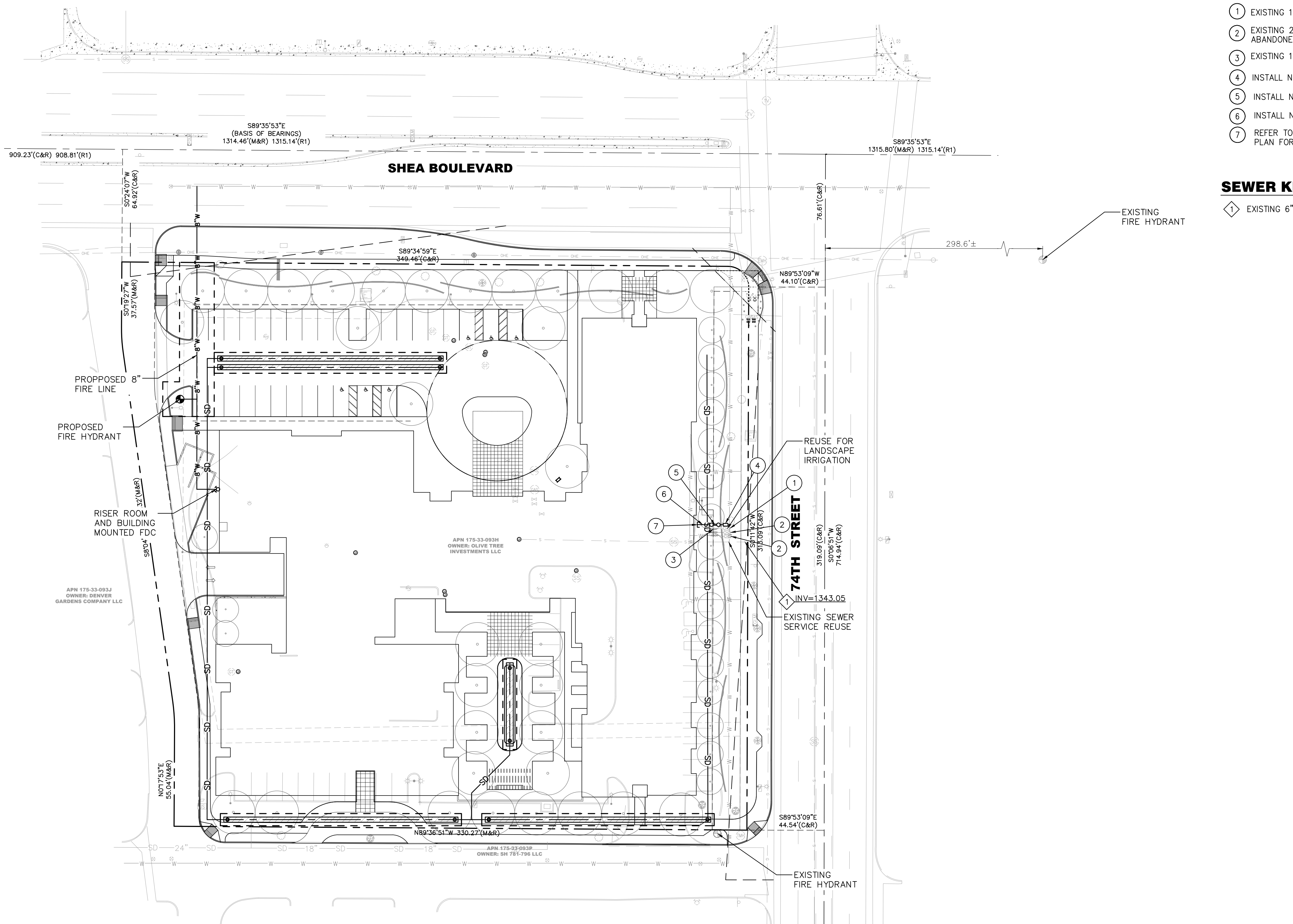
C3

WATER KEYNOTES

- 1 EXISTING 1.5" WATER METER
- 2 EXISTING 2" WATER METER TO BE ABANDONED
- 3 EXISTING 1.5" BACKFLOW
- 4 INSTALL NEW 3" METER
- 5 INSTALL NEW 3" BACKFLOW
- 6 INSTALL NEW 3" WATERLINE
- 7 REFER TO BUILDING PLUMBING PLAN FOR CONTINUATION.

SEWER KEYNOTES

- 1 EXISTING 6" PVC SEWER LATERAL



NOT FOR CONSTRUCTION

