

PRELIMINARY DRAINAGE REPORT PARK VILLAGE

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Case #	13-ZN-2022
Q-S #	_____
<input checked="" type="checkbox"/> Accepted	
<input type="checkbox"/> Corrections	
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Plan Check No.: TBD





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1. INTRODUCTION

This Preliminary Drainage Report represents the storm water analysis for a proposed mixed use commercial project, being a redevelopment of the land currently occupied by the Cracker Jax Family Fun Amusement Park at the NEC of North Scottsdale Road and East Tierra Buena Lane. The purpose of this report is to provide the hydrologic and hydraulic analyses, required by the City of Scottsdale, to support the proposed rezoning for the project. This report includes discussions and calculations defining the storm water management concepts for collection, conveyance, and detention systems necessary to comply with the drainage requirements of the City of Scottsdale and Maricopa County. Preparation of this report has been done in accordance with the requirements of the City of Scottsdale Design Standards & Policies Manual (DS&PM) 2018 ¹, and the Drainage Design Manuals for Maricopa County, Arizona, Volumes I² and Volume II³

2. LOCATION AND PROJECT DESCRIPTION

2.1 LOCATION:

The subject property consists of two parcels of land located in a portion of the Southwest Quarter of Section 2, Township 3 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County Arizona:

- Parcel ID: 215-44-002D and 215-44-002F; Zoning is C-4.
- Address: 16001 N. Scottsdale Rd, Scottsdale 85254.

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:

- North: Across East Paradise Lane
 - Parcels to the north are the Promenade developed retail. Zoning is PRC.
- West: Across North Scottsdale Road
 - Parcels to the west are Kierland Parcels 3, 4C & 6B which are developed office buildings. Zoning is PCD
 - North Scottsdale Road is the boundary line between Scottsdale and Phoenix.
- South: Across East Tierra Buena Lane
 - Parcels to the south consist of developed gas station, car wash and motel. Zoning is C-3
- East: Across North Dial Boulevard (N 73rd Street)
 - Parcels to the east consist of office buildings / industrial Flex Warehouse buildings. Zoning is I-2.

2.3 EXISTING SITE DESCRIPTION:

Land ownership, as defined by ALTA/NSPS Land Title Survey prepared by Superior Surveying Services, Inc, included 1,207,543 sq. ft. (27.72 acres) of Amusement Facility commercially developed land. City of Scottsdale zoning map designates this parcel as C-4.

The north parcel of the site is a driving range and tee structure. The south parcel of the site is fully developed as an amusement park and parking lot. The topography generally slopes from the northeast to the southwest corner at approximately one percent with a change in elevation of approximately twenty (20 feet). Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

2.4 PROPOSED SITE DEVELOPMENT:

Site development includes the demolition of existing structures and designated parking lots for the construction of a new mix used development consisting of hotels, luxury residential units, condominiums, restaurants, and office spaces. Refer to **Preliminary Grading and Drainage Plans** in **APPENDIX IV** for a concept site plan.

2.5 FLOOD HAZARD ZONE:

As defined by the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona, and Incorporated Areas, Community number 045012, Panel 1320 of 4425, as shown on Map Number 04013C1320L dated October 16, 2013, this site is designated as **Zone "X" shaded**. As such, it is determined to be outside the 100-year flood hazard zone. Zone "X" shaded is defined as areas of 0.2-percent-annual-chance flood; areas of 1-percent-annual-chance-flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1-percent-annual-chance-flood. Refer to **FIGURE 3** for the FIRM map.

3. EXISTING DRAINAGE CONDITIONS

3.1 OFF-SITE DRAINAGE PATTERNS

The topographic survey provides the following information for offsite drainage:

- *North*: Half of the runoff from East Paradise Lane flows towards the site, where it is conveyed through curb and gutter into an existing catch basin located near the northwest corner of the site. No offsite flows from the north affect the site.
- *East*: Half of the runoff from N Dial Boulevard flow southerly via curb and gutter away from the site. No offsite flows from the east affect the site.
- *West*: Half of the runoff from North Scottsdale Road flows towards the site, where it is conveyed through curb and gutter into existing catch basins located along the property line. No offsite flows from the west affect the site.
- *South*: Half of the runoff from East Tierra Buena Lane flows towards the site, where it is conveyed through curb and gutter into an existing catch basin located near the southwest corner of the site. No offsite flows from the south affect the site.

3.2 ON-SITE DRAINAGE

The site slopes approximately 1% from the northeast to the southwest corner. Existing driveways from East Tierra Buena Lane and North 73rd Street access the subject parcel to a large parking lot in the southeast corner of the parcel. A small retention basin is located in the southeast corner which retains the existing parking lot located in that area where the runoff discharges to it through an existing catch basin and spillway. Runoff from the parcel generally flows overland to existing retention basins, one separates the driving range on the north parcel from the amusement park on the south parcel. All current retention is above ground. Any offsite storm water is diverted around the parcel within the existing improved streets. According to the Crackerjax Preliminary Drainage report the driving range portion of the site was designed with four (4) drywells.

Refer to **APPENDIX III** for **Crackerjax Preliminary Drainage Report**

4. PROPOSED STORM WATER MANAGEMENT

4.1 DESIGN INTENT:

On-site drainage will be handled within street sections, underground storm systems, onsite channels, or retention basins where necessary. Given that the site has been previously developed, on-site retention shall be calculated per City of Scottsdale DSPM 4-1.201. On-site retention shall be provided to store the difference between the pre vs. post development runoff from the 100-year 2-hour storm event while providing the greater of first flush storage and maintaining existing storage if any.

If required, on-site retention will be provided as allowed by site configuration within underground retention and/or open space and have total discharge of the storm water within thirty-six hours. The ultimate outfall remains the historical outlet over the sidewalk/curb at the southwest corner of the site with an elevation of approximately 1482.

Most of the project will be graded toward the center of the site, where the Central Park of the project will be located. An underground Stormcapture retention system is proposed.

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.

4.3 LAND CHARACTERISTICS:

The proposed project site consists of a new mix used development consisting of hotels, luxury residential units, condominiums, restaurants, and office spaces. Based on the DS&PM, runoff coefficients for the 100-year storm event used are as follows:

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

HYDROLOGIC ANALYSIS: The hydrologic analysis is determined using the procedures in the City of Scottsdale Design Standards & Policies Manual and the Drainage Design Manual for Maricopa County, Arizona, Volume I. The Rational Method will be utilized to compute the on-site peak discharges in the Final Drainage Report.

$$Q = C_{wt}IA$$

where:

Q = Runoff (cfs)

C_{wt} = Weighted runoff coefficient

I = Average rainfall intensity in inches/hour, lasting for T_c

T_c = Time of concentration (minutes)

A = Contributing drainage areas in acres

C_{wt} CALCULATIONS:

- Existing Conditions (Refer to Crackerjax report in Appendix III)
 - Driving Range: 10.33 Ac. @ $C=0.75$
 - Miniature Golf Area: 6.89 Ac. @ $C=0.60$
 - Parking Lots: 3.42 Ac. @ $C= 0.95$
- C_{wt} : *20.64 Ac. @ $C_{wt} = 0.73$

*The reference drainage report does not provide information concerning the 1.32-acre difference in area compared to the current ALTA survey. For the purposes of this report the calculated pre-development C_{wt} is used.

- Proposed Conditions
For design purposes, the entire site is analyzed as per the proposed land use and the areas are as follow:
 - Impervious surfaces 24.86 @ $C = 0.95$
 - Desert or desert landscape 2.86 @ $C = 0.45$
- C_{wt} : 27.72 Ac. @ $C_{wt}=0.90$

Refer to **APPENDIX II** for **Proposed Conditions C_{wt}** .

4.4 STORMWATER RETENTION:

Stormwater storage will be provided based on the difference between existing conditions vs proposed development conditions with the minimum storage being the greater of first flush or existing retention volume plus additional required.

4.4.1 REQUIRED STORAGE

Based on Pre vs Post:

Stormwater storage required is calculated in accordance with the COS – DS&PM. Required Retention (Acre-Feet) = $(P/12)*A*(C_{post} - C_{pre})$

Where:

P = 100 Yr. 2 Hr. Precipitation in Inches (Ref: NOAA Atlas 14 in Appendix I) 2.25 in/hr.

A = Area (Acres)

C = Cpost – Cpre

C post = 0.90

C pre = 0.73

$$V_{\text{Required}} = (2.25/12) * 27.72 \text{ Ac} * (0.90 - 0.73) = 0.884 \text{ ac-ft or } \underline{\mathbf{38,507 \text{ c.f.}}}$$

Based on First Flush:

$$V_{\text{Required}} = (0.5/12) * 27.72 \text{ Ac} * 0.90 = \underline{\mathbf{1.040 \text{ ac-ft or } 45,302 \text{ c.f.}}}$$

Based on existing storage volume: Refer to the “Preliminary Drainage Report for Use Permit – Cracker Jax Site” excerpts in **APPENDIX III**. The following table is a summary of design stormwater storage volume on site.

Table 1: Existing Retention Volume Calculations

Driving Range:	79,313 cf
Miniature Golf:	42,300 cf
Parking Lots:	33,264 cf
TOTAL:	154,877 cf

Based on the above calculations, the minimum required retention volume is based on the existing retention plus existing versus proposed conditions. $V_{\text{req}} = 154,877 \text{ CF} + 38,507 \text{ CF} = \underline{\mathbf{193,384 \text{ CF.}}}$

4.4.2 PROPOSED STORAGE:

A Stormcapture underground system is proposed in the central portion of the project to retain the required volume.

BASIN A – Underground:

Volume provided by Stormcapture underground system is 199,768 CF. Refer to **Appendix II** for calculations exhibit.

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 A:

Total provided storage = **199,768 CF**

199,768 CF / 12,960 CF per drywell = 15.4 = 16 drywells required.

Refer to **Preliminary Grading and Drainage Plan** in **APPENDIX IV**.

4.6 STORM DRAIN INLET AND PIPE CAPACITY CALCULATIONS

These calculations will be provided in the Final Drainage Report.

4.7 ADEQ WATER QUALITY REQUIREMENTS

The total disturbed area of this site is approximately 27.72 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-Shaded" 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 southwest corner of the site at an elevation of approximately 1487 ft.

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.
2. The historical outfall flows will be reduced at proposed conditions compared to existing conditions with increase on-site retention. 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 existing on-site basins required volume.

6.2 PROJECT PHASING:

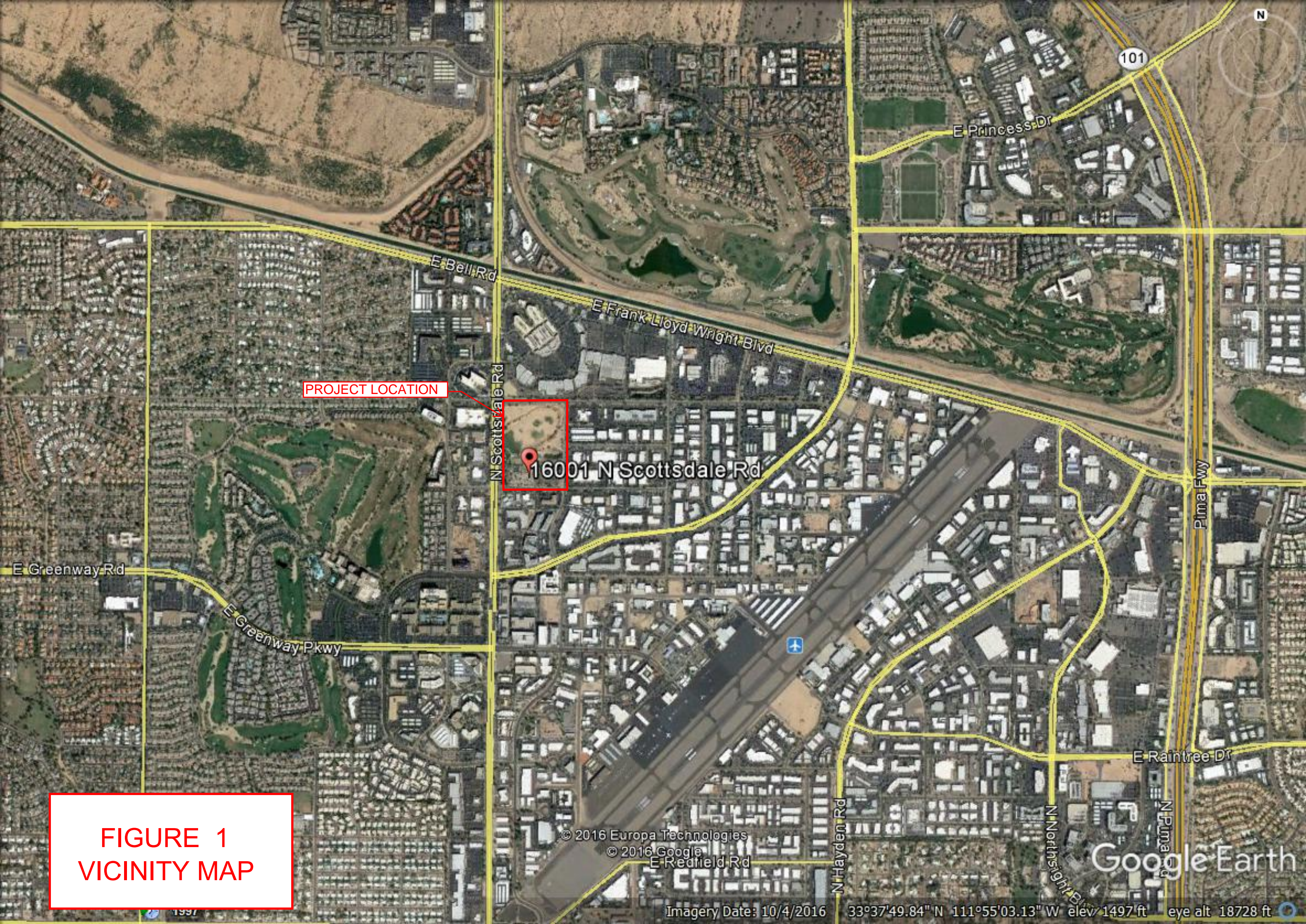
This project will be constructed in a single phase.

7. WARNING AND DISCLAIMER OF LIABILITY

RE: following page (to be provided in the Final Drainage Report).

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*



PROJECT LOCATION



16001 N Scottsdale Rd

**FIGURE 1
VICINITY MAP**

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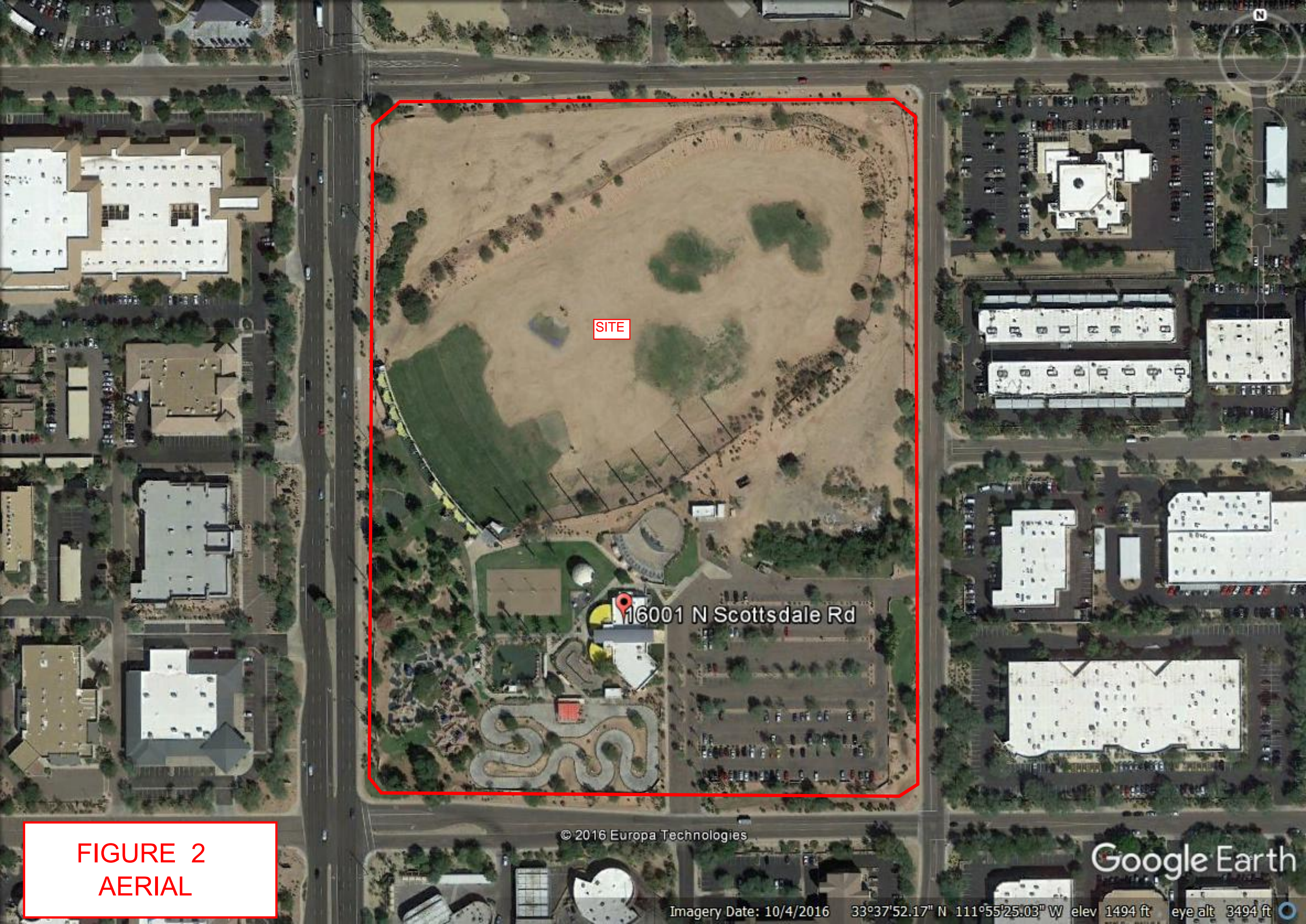
© 2016 Google

E Redfield Rd

Google Earth

Imagery Date: 10/4/2016

33°37'49.84" N 111°55'03.13" W elev 1497 ft eye alt 18728 ft



SITE

16001 N Scottsdale Rd

© 2016 Europa Technologies

Google Earth

Imagery Date: 10/4/2016 33°37'52.17" N 111°55'25.03" W elev 1494 ft eye alt 3494 ft

FIGURE 2
AERIAL

NOTES TO USERS

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

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

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

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

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

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

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

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

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

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

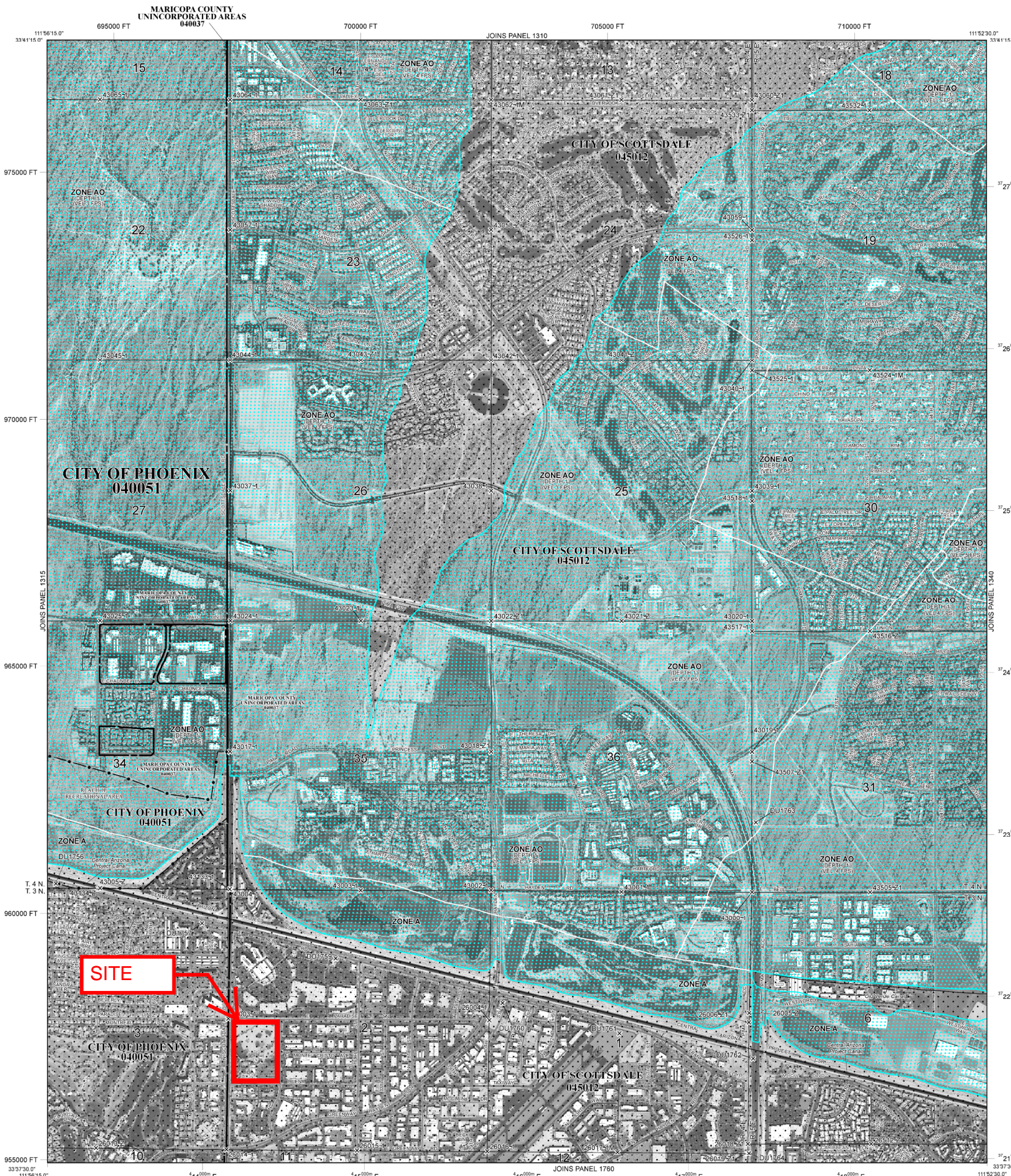
The **profile base line** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the profile base line, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

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

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

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

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



LEGEND

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

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

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

FLOODWAY AREAS IN ZONE AE

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

OTHER FLOOD AREAS

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

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet*

(EL 987)

Elevation in feet where uniform within zone; elevation in feet**

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

Cross section line

Transect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid ticks, zone 12

5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator

Bench mark (see explanation in Notes to Users section of this FIRM panel)

River Mile

MAP REPOSITORIES

Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

December 3, 1993 September 30, 1995 July 12, 2001 September 30, 2005

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

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

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

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1320L

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY,

ARIZONA

AND INCORPORATED AREAS

PANEL 1320 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1320	L
PHOENIX, CITY OF	040051	1320	L
SCOTTSDALE, CITY OF	045012	1320	L

FIGURE 3

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER

04013C1320L

MAP REVISED

OCTOBER 16, 2013

Federal Emergency Management Agency

APPENDIX I

RAINFALL DATA



NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.6303°, Longitude: -111.9238°
Elevation: 1486.88 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Tryppaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	2.29 (1.91-2.81)	3.00 (2.52-3.67)	4.04 (3.36-4.93)	4.86 (4.01-5.89)	5.94 (4.82-7.19)	6.77 (5.44-8.12)	7.63 (6.02-9.16)	8.48 (6.58-10.2)	9.65 (7.30-11.6)	10.5 (7.80-12.6)
10-min	1.75 (1.45-2.14)	2.29 (1.91-2.79)	3.08 (2.55-3.75)	3.70 (3.05-4.49)	4.52 (3.67-5.47)	5.15 (4.14-6.19)	5.81 (4.58-6.97)	6.46 (5.01-7.73)	7.34 (5.55-8.80)	8.01 (5.94-9.62)
15-min	1.44 (1.20-1.76)	1.89 (1.58-2.31)	2.54 (2.11-3.10)	3.05 (2.52-3.71)	3.74 (3.04-4.52)	4.26 (3.42-5.12)	4.80 (3.79-5.76)	5.34 (4.14-6.39)	6.07 (4.59-7.28)	6.62 (4.91-7.95)
30-min	0.974 (0.808-1.19)	1.27 (1.06-1.55)	1.71 (1.42-2.09)	2.06 (1.70-2.50)	2.52 (2.04-3.05)	2.87 (2.30-3.44)	3.23 (2.55-3.88)	3.59 (2.79-4.30)	4.09 (3.09-4.90)	4.46 (3.30-5.35)
60-min	0.603 (0.500-0.736)	0.787 (0.659-0.962)	1.06 (0.879-1.29)	1.27 (1.05-1.55)	1.56 (1.26-1.89)	1.78 (1.43-2.13)	2.00 (1.58-2.40)	2.22 (1.73-2.66)	2.53 (1.91-3.03)	2.76 (2.05-3.31)
2-hr	0.352 (0.297-0.421)	0.456 (0.386-0.546)	0.607 (0.510-0.722)	0.722 (0.600-0.858)	0.882 (0.726-1.04)	1.00 (0.813-1.18)	1.12 (0.897-1.32)	1.25 (0.981-1.46)	1.42 (1.09-1.66)	1.55 (1.16-1.82)
3-hr	0.261 (0.220-0.320)	0.335 (0.283-0.412)	0.437 (0.368-0.534)	0.517 (0.431-0.629)	0.631 (0.517-0.762)	0.722 (0.584-0.866)	0.816 (0.648-0.978)	0.914 (0.714-1.09)	1.05 (0.795-1.25)	1.16 (0.857-1.39)
6-hr	0.158 (0.136-0.188)	0.199 (0.171-0.237)	0.254 (0.217-0.300)	0.298 (0.252-0.351)	0.358 (0.299-0.420)	0.404 (0.332-0.472)	0.453 (0.367-0.527)	0.503 (0.400-0.587)	0.570 (0.441-0.664)	0.623 (0.471-0.727)
12-hr	0.088 (0.076-0.104)	0.111 (0.095-0.131)	0.140 (0.119-0.164)	0.162 (0.138-0.190)	0.193 (0.162-0.225)	0.216 (0.180-0.252)	0.241 (0.197-0.280)	0.265 (0.214-0.308)	0.298 (0.235-0.348)	0.323 (0.250-0.380)
24-hr	0.051 (0.045-0.060)	0.065 (0.057-0.076)	0.084 (0.073-0.098)	0.099 (0.086-0.115)	0.120 (0.103-0.139)	0.137 (0.116-0.158)	0.154 (0.129-0.178)	0.172 (0.143-0.199)	0.197 (0.160-0.228)	0.216 (0.174-0.252)
2-day	0.028 (0.024-0.032)	0.035 (0.030-0.041)	0.046 (0.039-0.053)	0.054 (0.047-0.063)	0.066 (0.056-0.076)	0.075 (0.064-0.087)	0.085 (0.071-0.099)	0.095 (0.079-0.111)	0.110 (0.089-0.128)	0.121 (0.097-0.142)
3-day	0.020 (0.017-0.023)	0.025 (0.022-0.029)	0.033 (0.029-0.038)	0.039 (0.034-0.045)	0.048 (0.042-0.056)	0.056 (0.048-0.064)	0.063 (0.054-0.073)	0.071 (0.060-0.082)	0.083 (0.068-0.096)	0.092 (0.075-0.107)
4-day	0.016 (0.014-0.018)	0.020 (0.018-0.023)	0.027 (0.023-0.031)	0.032 (0.028-0.037)	0.040 (0.034-0.045)	0.046 (0.039-0.052)	0.052 (0.045-0.060)	0.059 (0.050-0.068)	0.069 (0.058-0.080)	0.077 (0.064-0.089)
7-day	0.010 (0.009-0.012)	0.013 (0.011-0.015)	0.017 (0.015-0.020)	0.021 (0.018-0.024)	0.026 (0.022-0.029)	0.030 (0.025-0.034)	0.034 (0.029-0.039)	0.038 (0.032-0.044)	0.045 (0.037-0.052)	0.050 (0.041-0.058)
10-day	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.013 (0.011-0.015)	0.016 (0.014-0.018)	0.019 (0.017-0.022)	0.022 (0.019-0.025)	0.025 (0.022-0.029)	0.029 (0.024-0.033)	0.033 (0.028-0.038)	0.037 (0.031-0.043)
20-day	0.005 (0.004-0.005)	0.006 (0.005-0.007)	0.008 (0.007-0.009)	0.010 (0.008-0.011)	0.012 (0.010-0.013)	0.013 (0.012-0.015)	0.015 (0.013-0.017)	0.017 (0.014-0.019)	0.019 (0.016-0.022)	0.021 (0.017-0.024)
30-day	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.006-0.007)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.012)	0.012 (0.010-0.013)	0.013 (0.011-0.015)	0.015 (0.012-0.017)	0.016 (0.013-0.018)
45-day	0.003 (0.003-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.006)	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.010-0.014)
60-day	0.002 (0.002-0.003)	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.005 (0.004-0.005)	0.006 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.009 (0.008-0.011)

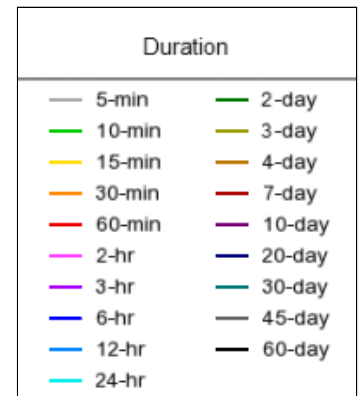
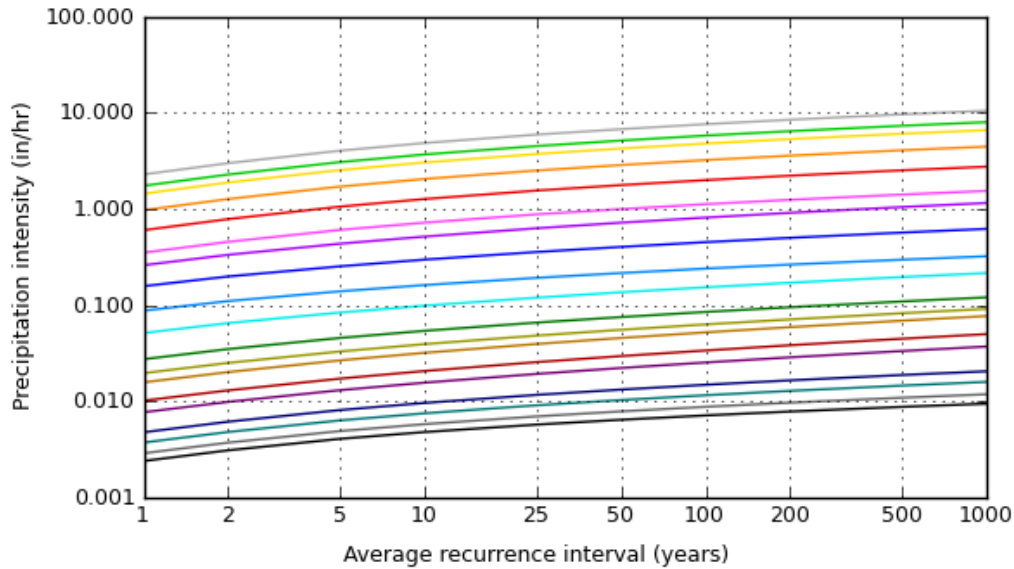
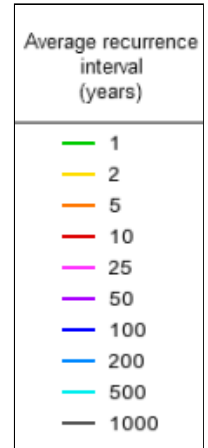
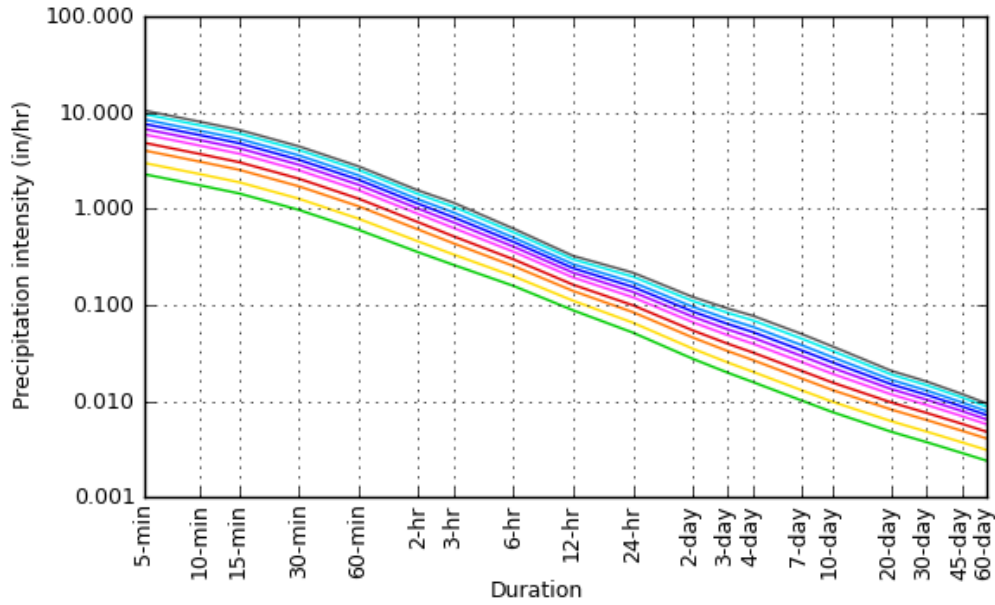
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and 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: 33.6303°, Longitude: -111.9238°



[Back to Top](#)

Maps & aerials

Small scale terrain



NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.6303°, Longitude: -111.9238°
Elevation: 1486.88 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Tryppaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.191 (0.159-0.234)	0.250 (0.210-0.306)	0.337 (0.280-0.411)	0.405 (0.334-0.491)	0.495 (0.402-0.599)	0.564 (0.453-0.677)	0.636 (0.502-0.763)	0.707 (0.548-0.846)	0.804 (0.608-0.964)	0.877 (0.650-1.05)
10-min	0.291 (0.242-0.356)	0.381 (0.319-0.465)	0.513 (0.425-0.625)	0.616 (0.508-0.748)	0.753 (0.612-0.912)	0.859 (0.690-1.03)	0.968 (0.764-1.16)	1.08 (0.835-1.29)	1.22 (0.925-1.47)	1.34 (0.990-1.60)
15-min	0.361 (0.300-0.441)	0.472 (0.395-0.577)	0.636 (0.528-0.775)	0.763 (0.630-0.927)	0.934 (0.759-1.13)	1.07 (0.855-1.28)	1.20 (0.947-1.44)	1.33 (1.03-1.60)	1.52 (1.15-1.82)	1.66 (1.23-1.99)
30-min	0.487 (0.404-0.594)	0.636 (0.532-0.777)	0.856 (0.711-1.04)	1.03 (0.849-1.25)	1.26 (1.02-1.52)	1.43 (1.15-1.72)	1.62 (1.28-1.94)	1.80 (1.39-2.15)	2.04 (1.55-2.45)	2.23 (1.65-2.68)
60-min	0.603 (0.500-0.736)	0.787 (0.659-0.962)	1.06 (0.879-1.29)	1.27 (1.05-1.55)	1.56 (1.26-1.89)	1.78 (1.43-2.13)	2.00 (1.58-2.40)	2.22 (1.73-2.66)	2.53 (1.91-3.03)	2.76 (2.05-3.31)
2-hr	0.705 (0.594-0.842)	0.913 (0.772-1.09)	1.21 (1.02-1.44)	1.45 (1.20-1.72)	1.76 (1.45-2.08)	2.00 (1.63-2.36)	2.25 (1.79-2.64)	2.50 (1.96-2.93)	2.83 (2.18-3.32)	3.09 (2.32-3.64)
3-hr	0.784 (0.661-0.960)	1.00 (0.850-1.24)	1.31 (1.10-1.60)	1.55 (1.29-1.89)	1.90 (1.55-2.29)	2.17 (1.76-2.60)	2.45 (1.95-2.94)	2.75 (2.15-3.28)	3.15 (2.39-3.77)	3.48 (2.57-4.16)
6-hr	0.946 (0.813-1.12)	1.19 (1.02-1.42)	1.52 (1.30-1.80)	1.79 (1.51-2.10)	2.14 (1.79-2.51)	2.42 (1.99-2.83)	2.71 (2.20-3.15)	3.01 (2.39-3.51)	3.41 (2.64-3.98)	3.73 (2.82-4.35)
12-hr	1.06 (0.910-1.25)	1.33 (1.14-1.57)	1.68 (1.44-1.97)	1.96 (1.66-2.29)	2.32 (1.95-2.72)	2.61 (2.17-3.04)	2.90 (2.37-3.37)	3.20 (2.58-3.71)	3.59 (2.83-4.19)	3.90 (3.01-4.58)
24-hr	1.24 (1.08-1.44)	1.57 (1.37-1.83)	2.02 (1.75-2.35)	2.38 (2.06-2.76)	2.88 (2.47-3.34)	3.28 (2.78-3.79)	3.69 (3.10-4.28)	4.12 (3.42-4.77)	4.72 (3.85-5.47)	5.19 (4.17-6.05)
2-day	1.32 (1.14-1.54)	1.68 (1.46-1.96)	2.20 (1.89-2.55)	2.61 (2.24-3.02)	3.17 (2.70-3.67)	3.62 (3.05-4.19)	4.09 (3.42-4.75)	4.58 (3.79-5.33)	5.26 (4.28-6.13)	5.80 (4.65-6.79)
3-day	1.42 (1.24-1.64)	1.81 (1.58-2.09)	2.38 (2.07-2.74)	2.84 (2.46-3.26)	3.49 (3.00-4.00)	4.00 (3.42-4.60)	4.56 (3.86-5.24)	5.14 (4.31-5.93)	5.95 (4.91-6.88)	6.61 (5.38-7.68)
4-day	1.52 (1.34-1.74)	1.94 (1.71-2.22)	2.57 (2.25-2.93)	3.08 (2.69-3.51)	3.80 (3.30-4.34)	4.39 (3.79-5.01)	5.02 (4.29-5.74)	5.69 (4.82-6.53)	6.64 (5.54-7.63)	7.42 (6.12-8.57)
7-day	1.71 (1.50-1.97)	2.19 (1.92-2.52)	2.90 (2.54-3.33)	3.48 (3.03-3.99)	4.31 (3.72-4.93)	4.98 (4.27-5.70)	5.69 (4.85-6.53)	6.46 (5.45-7.43)	7.54 (6.27-8.70)	8.43 (6.92-9.77)
10-day	1.86 (1.63-2.13)	2.38 (2.09-2.73)	3.15 (2.75-3.60)	3.77 (3.28-4.30)	4.64 (4.02-5.29)	5.35 (4.60-6.09)	6.10 (5.21-6.97)	6.90 (5.84-7.90)	8.03 (6.69-9.22)	8.94 (7.36-10.3)
20-day	2.30 (2.02-2.62)	2.96 (2.60-3.37)	3.91 (3.43-4.45)	4.64 (4.06-5.27)	5.62 (4.90-6.39)	6.38 (5.53-7.25)	7.16 (6.18-8.17)	7.96 (6.82-9.10)	9.05 (7.67-10.4)	9.89 (8.31-11.4)
30-day	2.70 (2.36-3.08)	3.47 (3.05-3.96)	4.58 (4.02-5.21)	5.43 (4.75-6.16)	6.57 (5.72-7.46)	7.46 (6.46-8.46)	8.37 (7.21-9.49)	9.29 (7.96-10.5)	10.5 (8.95-12.0)	11.5 (9.68-13.2)
45-day	3.13 (2.76-3.55)	4.04 (3.56-4.58)	5.32 (4.69-6.03)	6.28 (5.52-7.11)	7.56 (6.62-8.56)	8.52 (7.43-9.66)	9.51 (8.24-10.8)	10.5 (9.05-12.0)	11.8 (10.1-13.5)	12.8 (10.9-14.7)
60-day	3.46 (3.07-3.92)	4.48 (3.96-5.06)	5.89 (5.21-6.65)	6.93 (6.11-7.81)	8.28 (7.28-9.35)	9.30 (8.13-10.5)	10.3 (8.98-11.7)	11.3 (9.81-12.8)	12.7 (10.9-14.4)	13.7 (11.6-15.6)

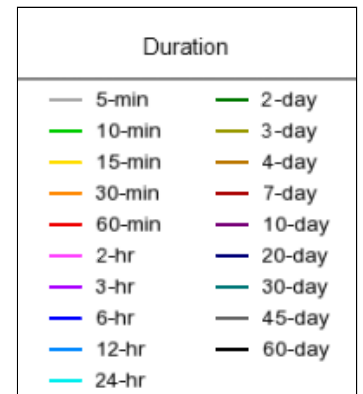
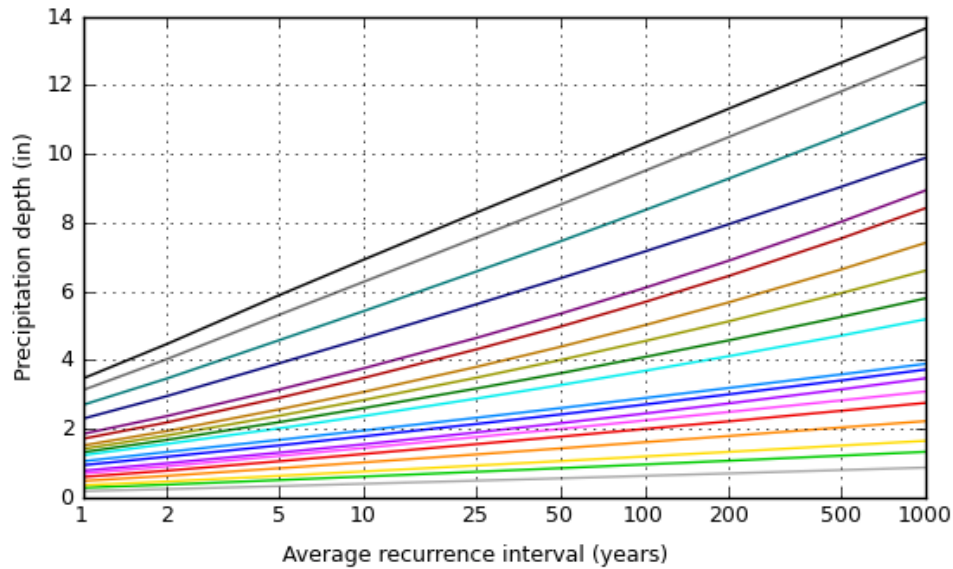
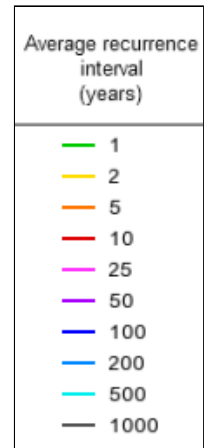
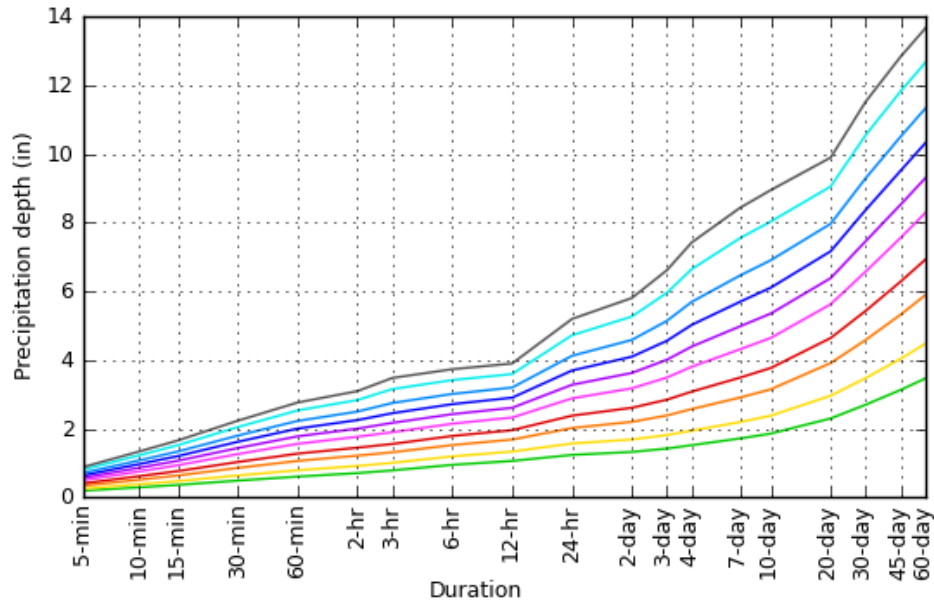
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average 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 depth-duration-frequency (DDF) curves

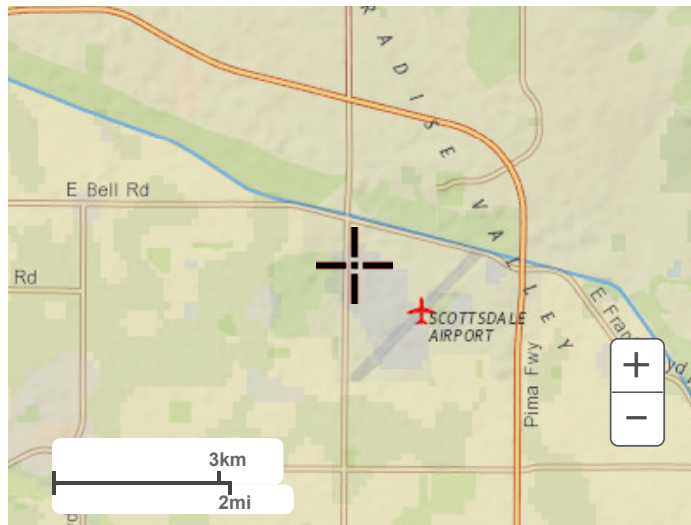
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Maps & arials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



“LEED®ing and Developing Smart Projects”

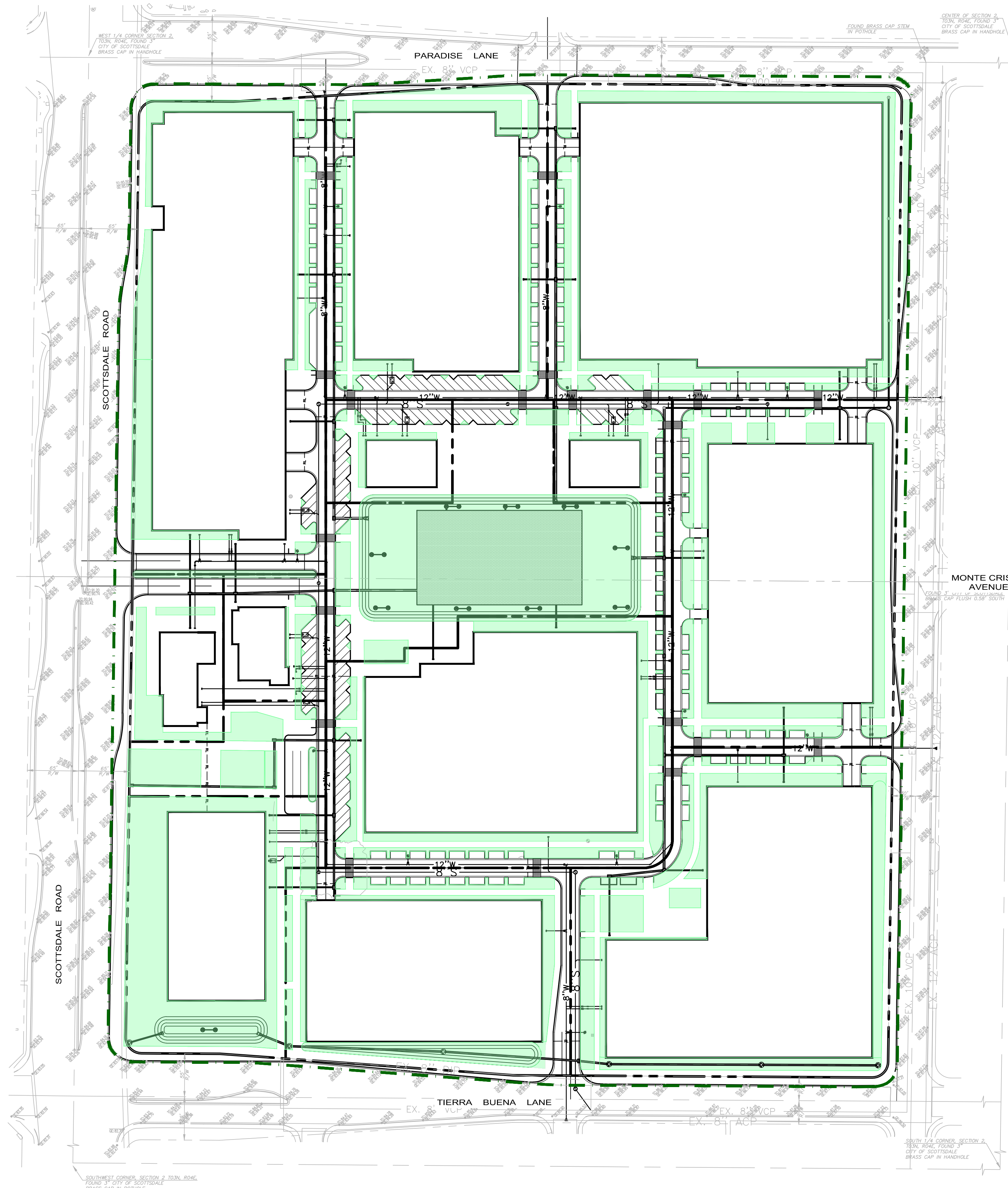
APPENDIX II

CALCULATIONS

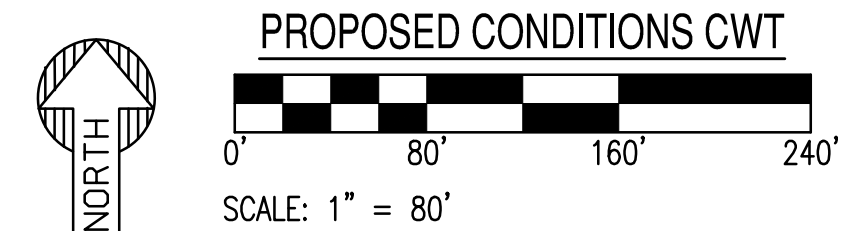
*5240 N 16th Street, Suite 105
Phoenix, AZ 85016*

POST CONDITIONS C_{WT} EXHIBIT

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 A PORTION OF THE NORTHWEST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 4 EAST, OF THE
 GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.



---	PROPERTY LINE		
- . - . -	IMPACT BOUNDARY		
	PERVIOUS AREA	= 2.86 AC	Cwt=0.45
	IMPERVIOUS AREA	= 24.86 AC	Cwt=0.95
	TOTAL Cwt	= 27.72 AC	@ Cwt=0.90



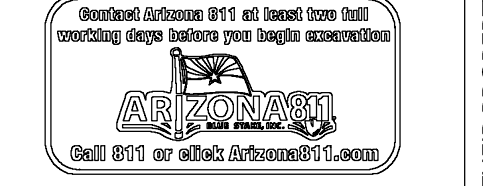
NOT FOR PRELIMINARY

SUSTAINABILITY ENGINEERING GROUP

SEG

5240 N. 16th Street, Suite 105 Phoenix, ARIZONA 85016
 WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.259.3534

NELSEN PARTNERS ARCHITECTS & PLANNERS



PROJECT: PARK VILLAGE
 LOCATION: 16001 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254

DRAWN: _____
 DESIGNED: _____
 QC: _____
 FINAL QC: _____
 PROJ. MGR.: AF

DATE: 02/27/2023
 ISSUED FOR: ZONING

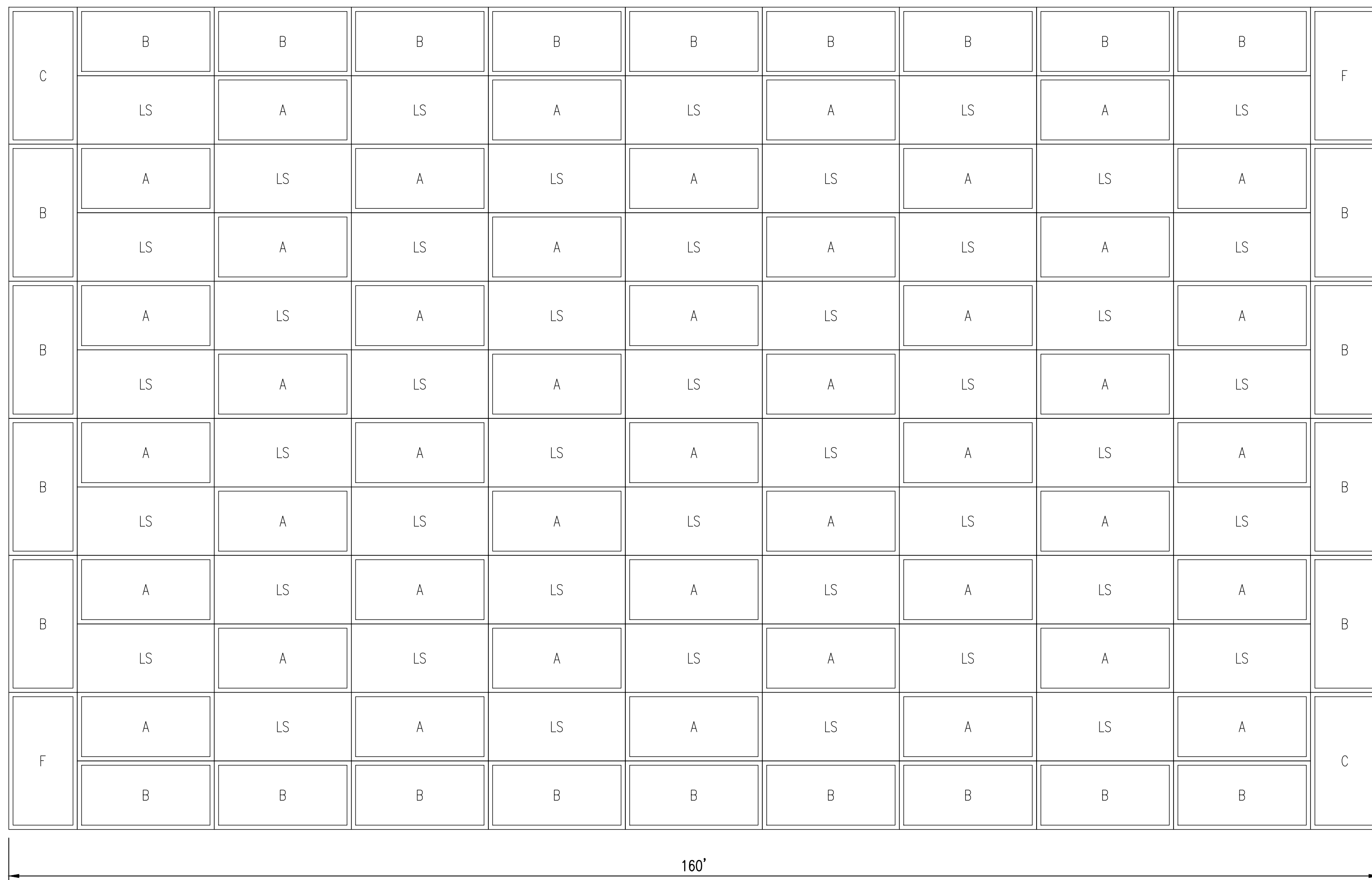
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JOB NO.: 211005

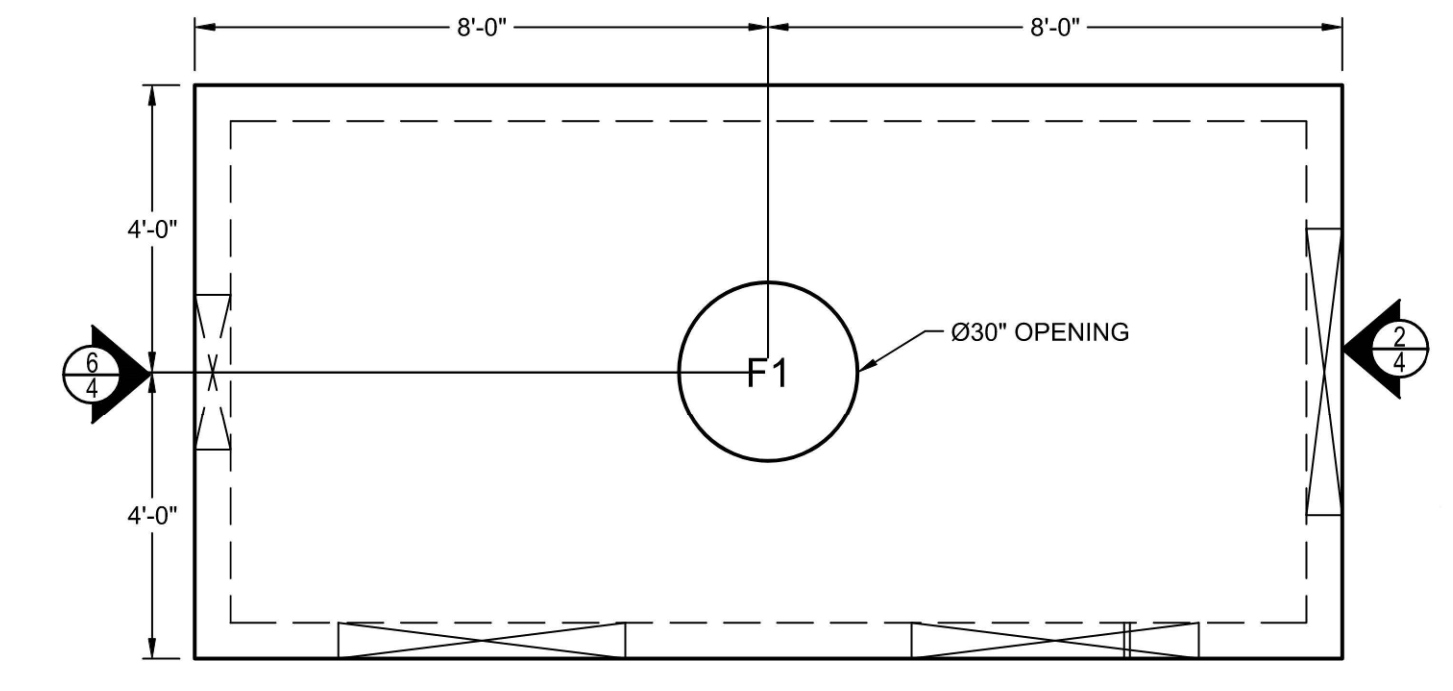
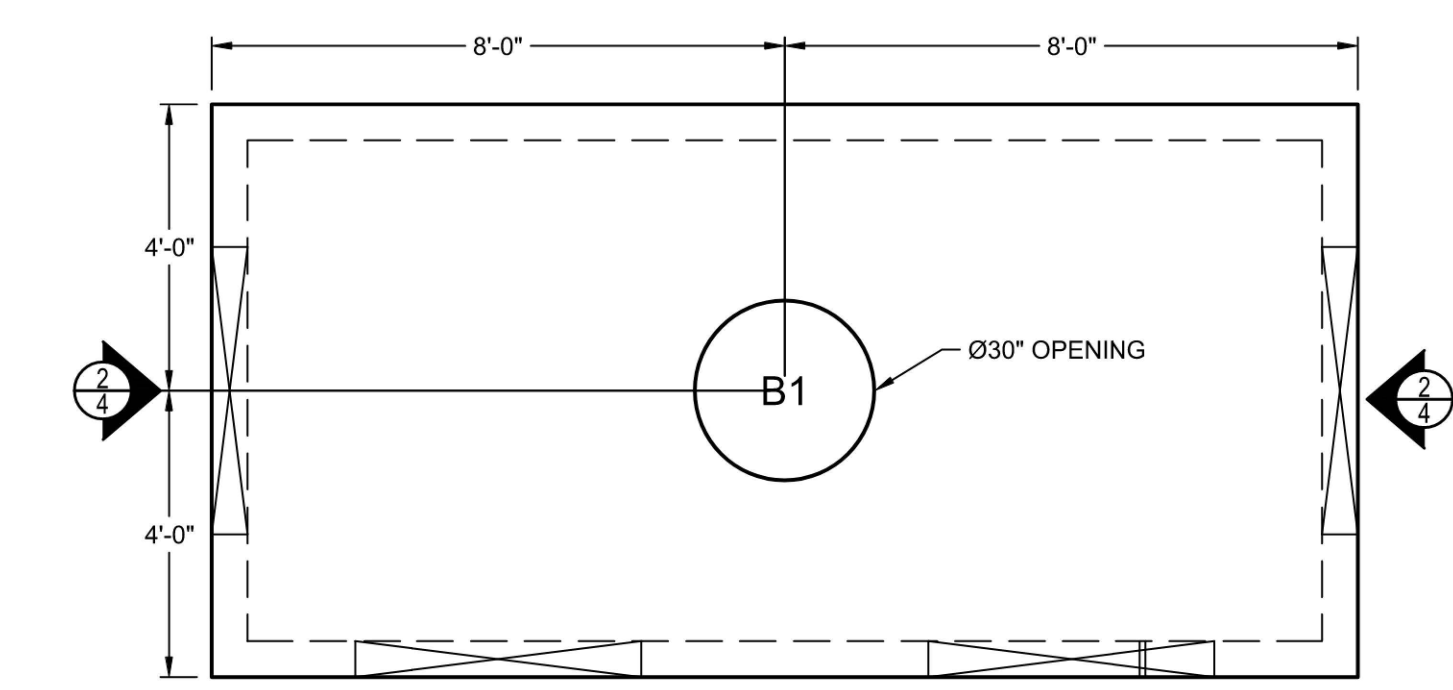
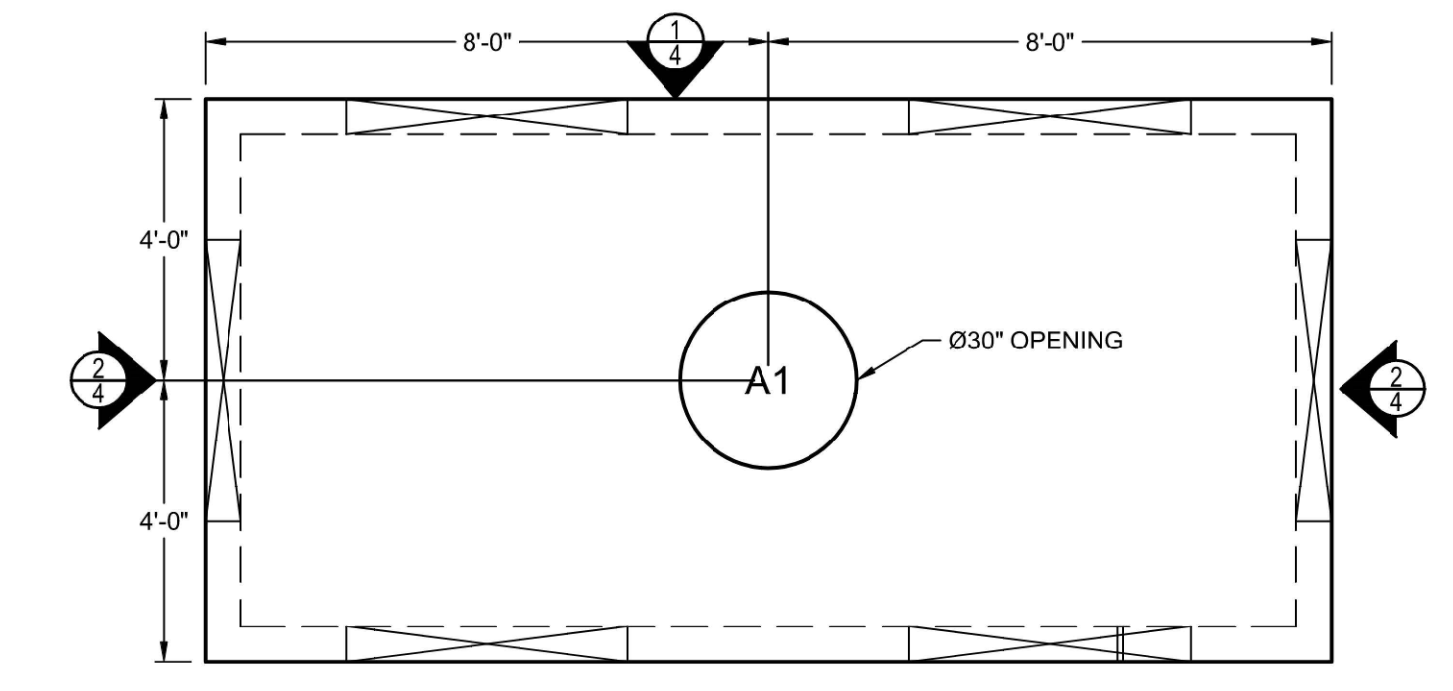
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PROPOSED CONDITIONS CWT EXHIBIT

PAGE NO.: 1 OF 13
 SHEET NO.: P-CWT

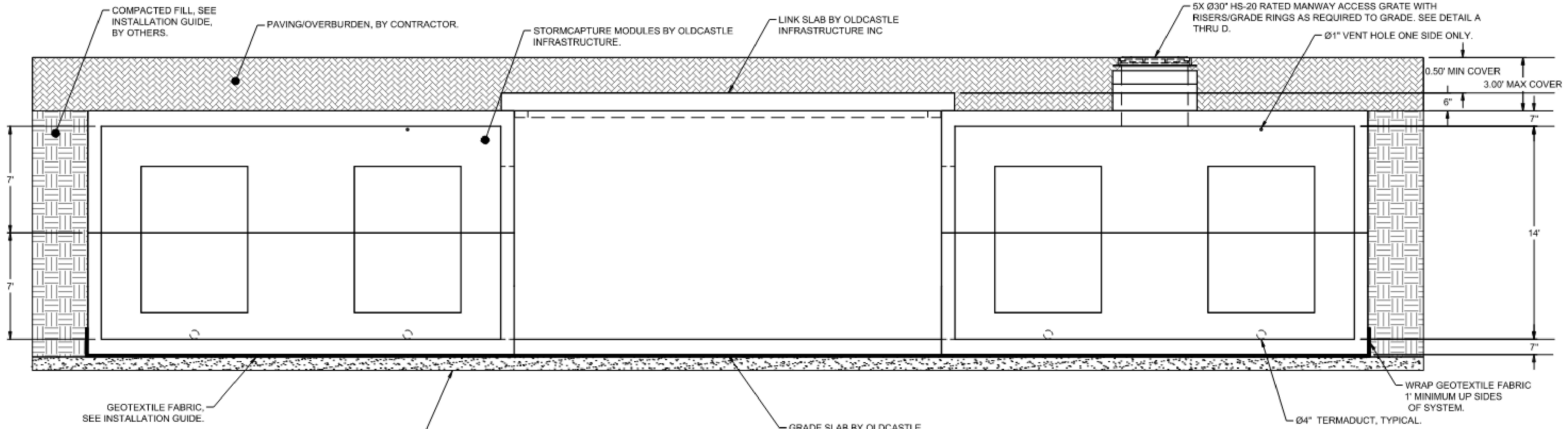
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- LS** LINK SLAB CHAMBER
 = 1,792 CF x45 = 80,640 CF
 - A** MODULE A WITH 6 OPENINGS
 = 1,608 CF x45 = 72,360 CF
 - B** MODULE B WITH 4 OPENINGS
 = 1,562 CF x26 = 40,612 CF
 - C/F** MODULE C/F WITH 3 OPENINGS
 = 1,539 CF x4 = 6,156 CF
- V_p TOTAL = 199,768 CF**



STORMCAPTURE LAYOUT - 199,768 CF
 0' 10' 20' 30'
 SCALE: 1" = 10'



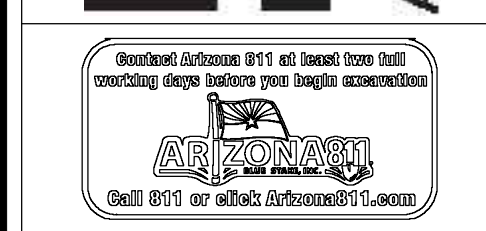
TYPICAL ELEVATION
NTS

NOTE:
TERMADUCT INSERTS TO BE KNOCKED OUT
AT SPECIFIED LOCATIONS ONLY (BY
OTHERS).

SUSTAINABILITY
ENGINEERING
GROUP



**NELSEN
PARTNERS**
ARCHITECTS & PLANNERS



PROJECT:
PARK VILLAGE

LOCATION:
16001 N. SCOTTSDALE ROAD,
SCOTTSDALE, ARIZONA 85254

DRAWN: BK 04/11/2023
 DESIGNED: BK 04/11/2023
 QC: 04/11/2023
 FINAL QC:
 PROJ. MGR.: AF 04/11/2023

DATE: 04/11/2023

ISSUED FOR: REVIEW

REVISION NO.: DATE:

JOB NO.: 211005

SHEET TITLE: STORMCAPTURE EXHIBIT

PAGE NO.: SHEET NO.:

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APPENDIX III

CRACKERJAX PRELIMINARY DRAINAGE

REPORT

**PRELIMINARY DRAINAGE REPORT
FOR
USE PERMIT**

**CRACKERJAX SITE
N.E. CORNER OF SCOTTSDALE RD & TIERRA BUENA**

JULY, 1992



Prepared by:

GILBERTSON ASSOCIATES, INC.
Consulting Civil Engineers
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23733 North Scottsdale Road, Suite B
Scottsdale, Arizona 85255-3465

July 9, 1992

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1.0 INTRODUCTION

This Report addresses the proposed drainage system for the proposed CrackerJax site, at the North East corner of Scottsdale Road and ¹Tierra Buena. The site is located within an area that was previously improved through an Improvement District. To finalize the constructed storm water drainage system a report entitled " Preliminary Storm Drainage Study, Westcor Improvement District, Scottsdale Arizona" dated April, 1984 was submitted and approved by the City of Scottsdale.

The above referenced report identified that stormwater detention for each parcel was required. The volume of storage originally proposed was that associated with 50 year 24 hour storm event. Subsequently the City of Scottsdale has advised that the 100-year 2-hour storm event should be utilized for the detention calculations. This approach minimized impact downstream due to the proposed development.

2.0 METHODOLOGY

The review of the previously constructed storm drainage and roadway infrastructure identified that there is no off-site flow to this site. ¹ Paradise Lane intercepts and channelizes the flow from off-site to the existing storm drain in Scottsdale Road. Rainfall volumes were obtained from the above referenced report. Quantification of the Weighted "C" was obtained utilizing the volume of rainfall in combination with Figure 2-21 of "Drainage Report Preparation, Section 2" for the City of Scottsdale.

The calculations attached in Appendix 'A' indicates that 79,312 cubic feet of storage is required for the driving range portion of the site considering the nature of the proposed development. This retention will be provided within the driving range and will be drained by Maxwell Type IV dry wells. Appendix 'B' presents information regarding the proposed construction of these dry wells. An additional 75,564 cubic feet of storage is required for the remainder of the developed portion of the site. This detention volume will be contained in two basins and discharged to the existing storm drain along Scottsdale Road at a controlled rate of 1 cubic foot per second.

¹ Revised "Tierra Buena" to "Paradise Lane" 8/6/92

3.0 CONCLUSIONS

The three proposed detention/retention facilities can accommodate the required storage. Controlled discharge from the two smaller detention basins will be drained to the existing storm drain located on Scottsdale Road.

Total evacuation of both basins will be complete within 36 hours.

Appendix A
Stormwater Detention

**APPENDIX A
DETENTION CALCULATIONS**

VOLUME #1 (DRIVING RANGE)

$$\text{Average 'C'} = 0.75$$

$$V = 450,000 \text{ ft.}^3 \times 0.75 \times \frac{2.82 \text{ in.}}{12}$$

$$= 79,313 \text{ ft.}^3$$

Capacity of Maxwell IV Dry Well in 12 Hours

$$= 0.5 \text{ cfs} \times 60 \text{ sec/min} \times 60 \text{ min/hr} \times 12 = 21,600 \text{ ft.}^3$$

of Dry Wells Required

$$= \frac{79,313 \text{ ft.}^3}{21,600 \text{ ft.}^3} = 3.7$$

Use 4

VOLUME #2 (MINIATURE GOLF)

$$\text{Average 'C'} = 0.60$$

$$V = 300,000 \text{ ft.}^3 \times 0.60 \times \frac{2.82 \text{ in.}}{12}$$

$$= 42,300 \text{ ft.}^3$$

$$\text{Basin Drain Time} = \frac{42,300 \text{ ft.}^3}{1 \text{ ft.}^3/\text{sec}} \div 60 \text{ sec/min} \div 60 \text{ min/hr} = 11.8 \text{ hours}$$

VOLUME #3 (PARKING LOTS)

$$\text{Average 'C'} = 0.95$$

$$V = 149,000 \text{ ft.}^3 \times 0.95 \times \frac{2.82 \text{ in.}}{12}$$

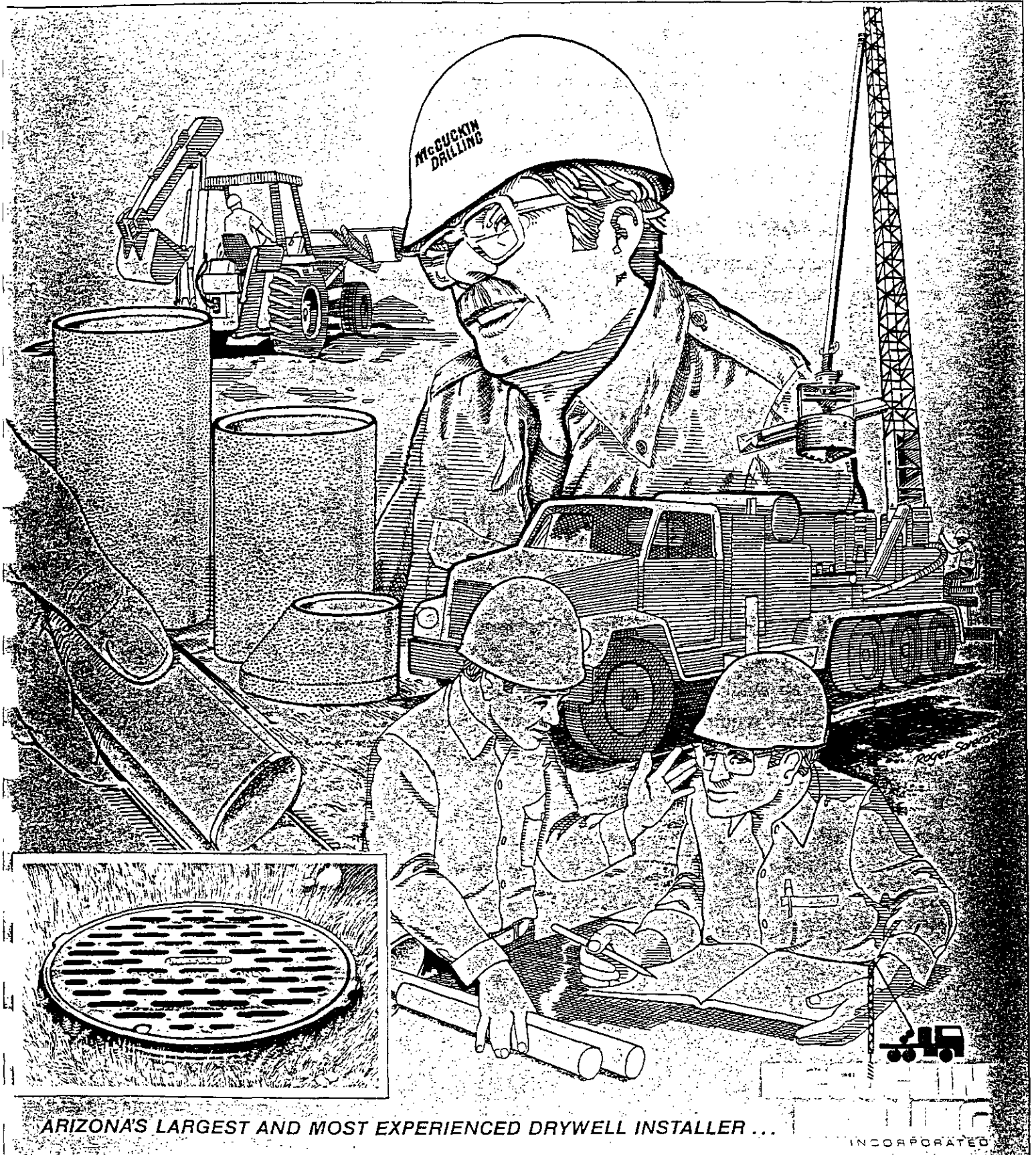
$$= 33,264 \text{ ft.}^3$$

$$\text{Basin Drain Time} = \frac{33,264}{1 \text{ ft.}^3/\text{sec}} \div 60 \text{ sec/min} \div 60 \text{ min/hr} = 9.3 \text{ hours}$$

Appendix B
Maxwell Type IV Dry Well

THE Max Well IV

A NEW HIGH-PERFORMANCE STORM WATER DRYWELL!



ARIZONA'S LARGEST AND MOST EXPERIENCED DRYWELL INSTALLER ...

INCORPORATED

MaxWell® IV

...The Best!

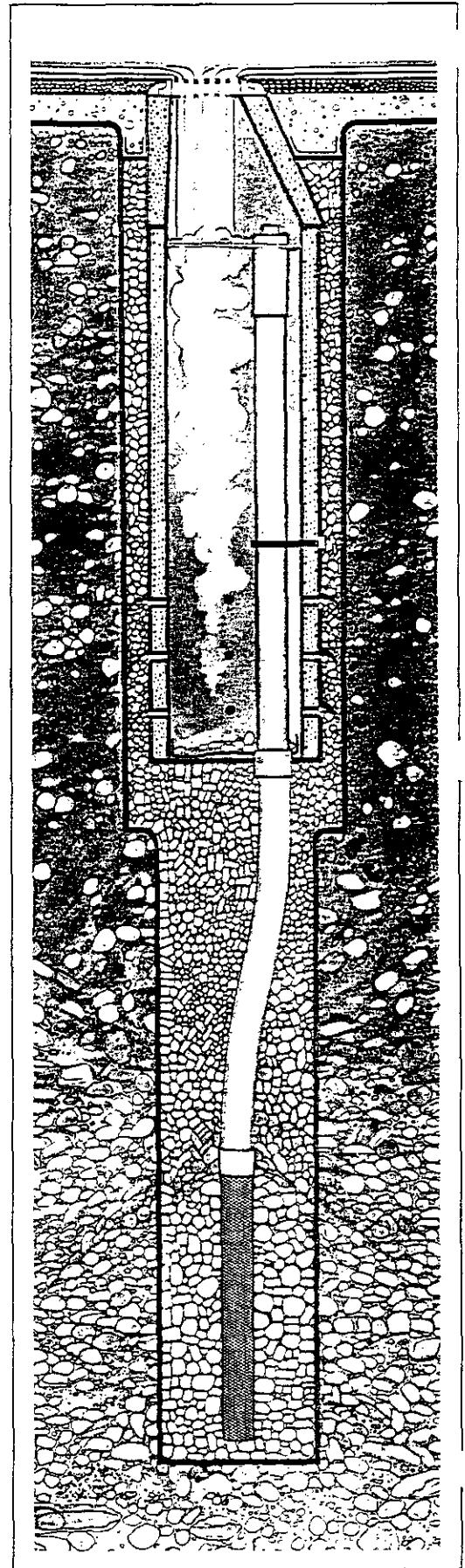
More than 99% of the 7000-plus **MaxWells** ever made are still doing their job . . . solid proof of the performance possible with quality product design, manufacture, application engineering and installation.

Now, the **MaxWell® IV** maintains the high flow rates of the over 5000 proven **Maxwell® III** models, while improving efficiency and extending life . . . all at no increase in cost.

This performance is made possible by a unique PureFlo® debris shield at the top of the well. The PureFlo shield is composed of an outer vented, solid casing that effectively traps all floating debris, including pavement sediment, in the well's cleanable settling chamber. An internal screen that is up to 6 times more effective than previous models, efficiently filters incoming suspended matter.

The large volume of the **Maxwell® III** settling chamber is retained. The debris shield, overflow pipe and FloFast® injection screen are available in 6", 8" and 12" diameters to meet specific load requirements. Mirafi™ filtration fabric across the bottom of the settling chamber assures post-storm dry-up without silt infiltration.

MaxWell® IV drywells are recommended for most medium to high volume storm water applications where permeable soils are more than 20 feet below finished grade. Designs for other applications are described on pages 6-7.



The MaxWell Idea

The silt and debris that flow into a conventional storm water drywell can quickly cut short its life by clogging the soils meant to transmit the water. In addition, pavement sediment can contribute to these problems further restricting long-term performance.

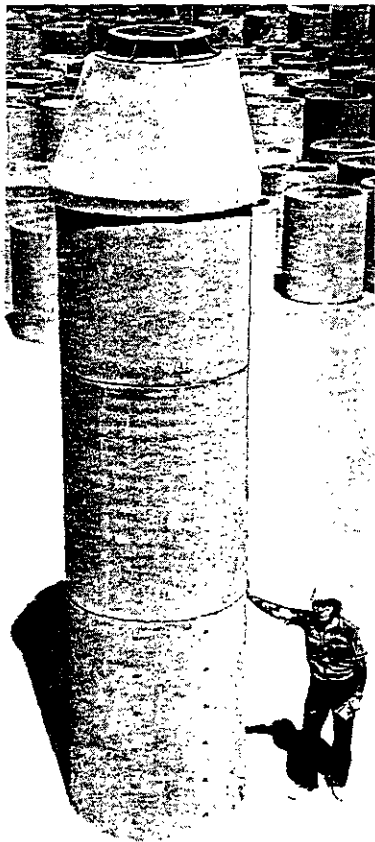
Since 1974, engineers have been specifying the **MaxWell** to bring an end to all these life-expectancy problems and provide a practical solution to today's drainage needs. The **MaxWell® IV** takes the drywell one step further by virtually eliminating problems associated with all floating debris.

What's the secret? Common to all **Max-Well's** is a deep settling chamber that removes most of the silt and other heavy particles carried by the incoming storm water. A tall overflow pipe in this chamber is topped by a two foot long debris shield,

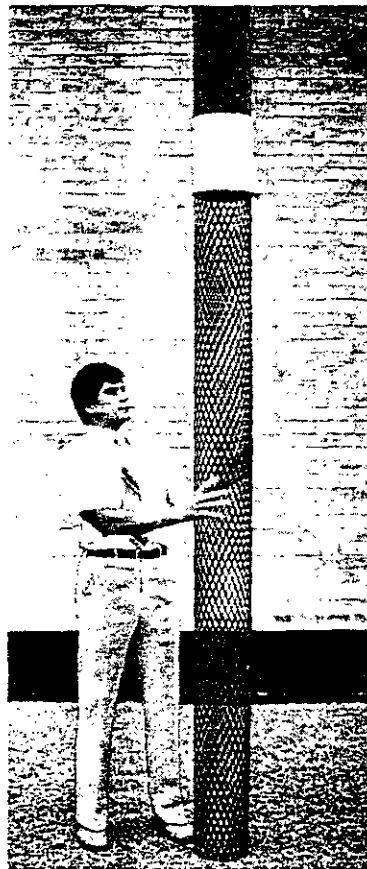
which effectively stops all floating material. An internal screen traps suspended debris. The filtered water is then carried to the permeable soils below by the overflow pipe.

Equally important to long life is the care taken in drilling the drywell and installing the components. At least ten feet of penetration with a large 4 foot diameter hole into the permeable clay-free, sand, gravel, and cobbles is vital. McGuckin Drilling's specialized "crowd" equipped rigs get through the difficult cemented soils to reach clean drainage soils at depths up to 180 feet. Techniques we developed assure that those soils will stay clean too, until the well structure is installed and is put to use.

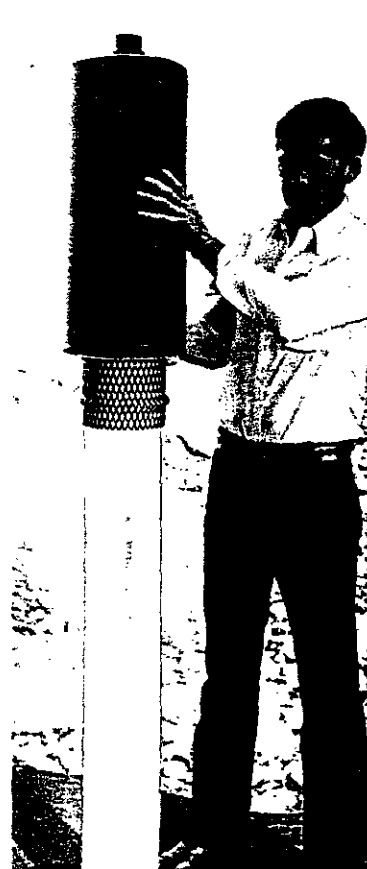
Now, the **MaxWell® IV** brings the drywell to a new level of performance and effectiveness, and with no increase in cost.



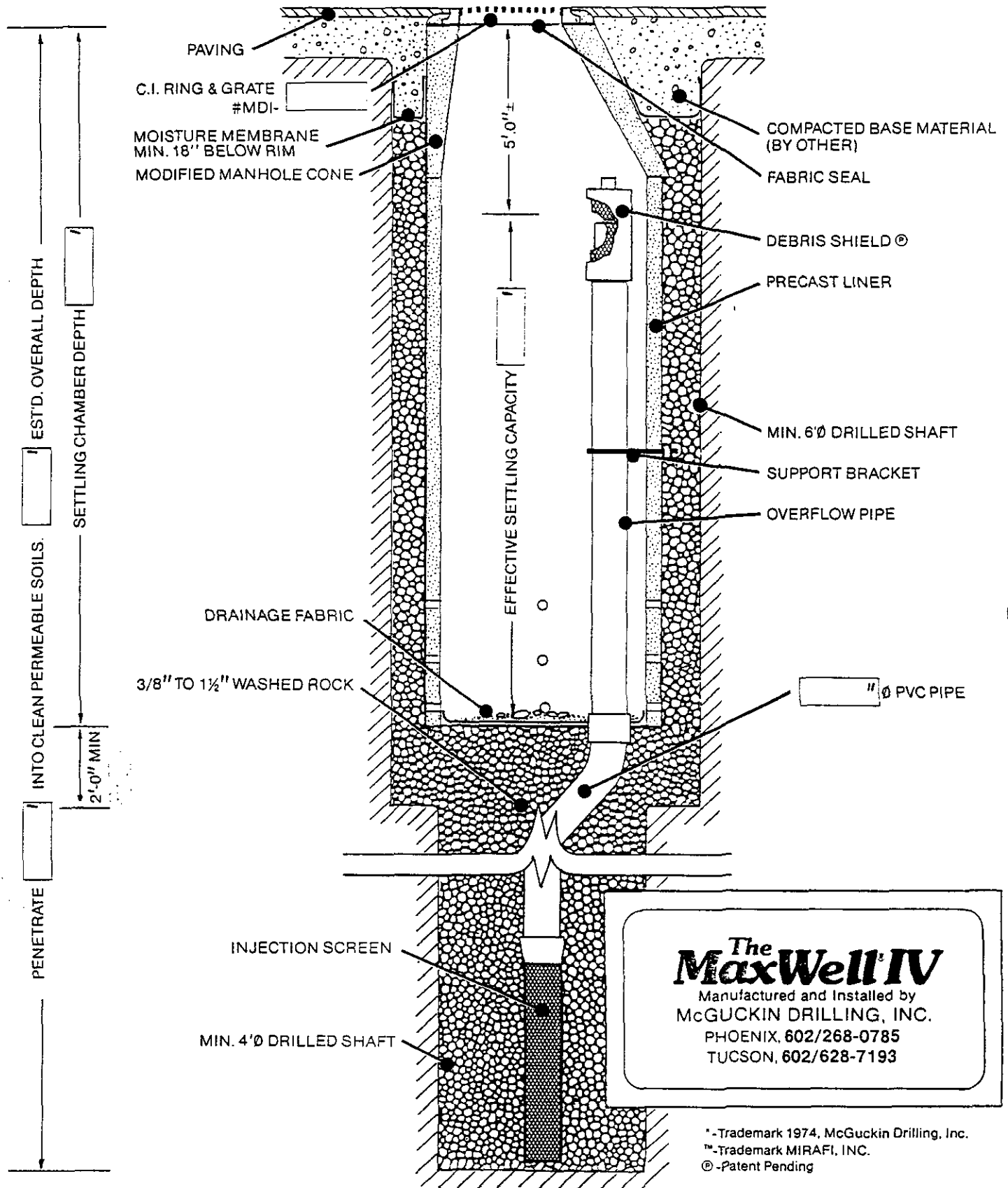
The MaxWell® IV 18 foot settling chamber gives over 200 cubic feet of capacity and a settling time of 13.3 minutes at .25cfs inflow.



The rugged FloFast® Injection screen provides maximum transmissibility. It assures consistent performance and high flow rates.



All floating debris is effectively removed by the PureFlo® Debris Shield in the new MaxWell® IV making it our best drywell ever.



The above drawing and specification are available in reduced scale, printed on inkable self-adhesive matte acetate. Ask for drawing MDI-880 IV. All material in this bulletin is copyrighted, but may be used in construction plans without further release.

DRYWELL SPECIFICATIONS

PRECAST LINER - REINFORCED 4000 PSI CONCRETE. 48" ID, 54" OD. 8 1/4" Ø HOLES/FOOT.

MANHOLE CONE - STANDARD UTILITY CONSTRUCTION, EXCEPT FLAT BOTTOM.

OVERFLOW PIPE - SCHEDULE 40 PVC MATED TO DRAINAGE PIPE BELOW ROCK.

BRACKETS - FORMED 12 GA. STEEL. COAL TAR EPOXY COATED.

DEBRIS SHIELD - ROLLED 16 GA. STEEL X 36" LENGTH WITH ROLLED 16 GA. X .265" MAX SWO FLATTENED EXPANDED STEEL SCREEN X 12" LENGTH, COAL TAR EPOXY COATED.

DRAINAGE PIPE - 100 PSI MIN. PVC PIPE OR EQUAL.

RINGS AND GRATES - CLEAN CAST-IRON WITH WORDING "STORM WATER ONLY" IN RAISED LETTERS. MACHINED MATING SURFACES.

ROCK - CLEAN WASHED ROCK - BETWEEN 3/4" and 1 1/2", SIZED TO COMPLY WITH SOIL CONDITIONS.

MOISTURE MEMBRANE - 6 MIL PLASTIC. PLACE SECURELY AGAINST CONE AND HOLE SIDEWALL.

DRAINAGE FABRIC - MIRAFI™ 140N FABRIC. PLACE FABRIC TIGHTLY AGAINST LINER AND PIPE.

INJECTION SCREENS - ROLLED 10 GA. X .625" MAX. SWO FLATTENED EXPANDED STEEL. COAL TAR EPOXY COATED. 96" OVERALL LENGTH WITH MDI-B COUPLER OR EQUAL.

HOLES ARE TO BE DRILLED IN A MANNER TO PREVENT CONTAMINATION OF PERMEABLE SOILS. HOLE SHAFT TO BE A MINIMUM OF 4' Ø TO MAXIMIZE SURFACE WALL AREA.

PVC PIPE SHALL BE SUSPENDED DURING BACKFILL OPERATIONS TO PREVENT BUCKLING OR BREAKAGE.

CENTER PRECAST LINER IN HOLE AND ALIGN SECTIONS TO MAXIMIZE BEARING SURFACE.

SECURE RING AND GRATE TO CONE WITH MORTAR. RIM ELEVATION ±0.02' OF PLANS.

DRYWELL MANUFACTURER IS TO INSTALL TWO LAYERS OF MIRAFI 100X FABRIC BENEATH GRATE. GENERAL CONTRACTOR TO REMOVE AT END OF PROJECT. AFTER PAVING AND LANDSCAPING ARE COMPLETE.

COMPLETING THE MAXWELL IV DRAWING

To apply the MaxWell IV drawing to your specific project, simply fill in the blue boxes per instructions below.

PENETRATE INTO CLEAN PERMEABLE SOILS

Most cities require at least 10 feet. In most cases we recommend a minimum of 10 feet and in very high-load applications, 15 feet or more. At small cost, this added depth can greatly increase both the absorption rate and drywell life.

EST'D OVERALL DEPTH

Generally used only as a basis for quoting, with add or deduct figures, used to determine final cost to penetrate permeable soils, as specified above. McGuckin Drilling's extensive drilling logs and maps are available to use as a basis for estimated Overall Depth.

SETTLING CHAMBER DEPTH

On **MaxWell® IV**'s of over 30 feet overall depth and up to .25cfs drywell flow rate, the standard settling chamber depth is 18 feet. For higher flow rates or greater peak loads, depths up to 25' are recommended.

EFFECTIVE SETTLING CAPACITY

The effective settling capacity is determined by the height of the overflow pipe. The greater the overflow pipe height, the more effective the settling process. An overflow height of 13 feet is used with the standard settling chamber. Also consider amount of water born debris and maintenance scheduling. For assistance, please consult our design staff.

" PVC PIPE

This dimension also applies to the PureFlo debris shield, couplers, brackets, and FloFast screen. Choices are 6", 8", or 12". Selection is arbitrary based on need for rapid absorption and venting. Again, our design staff can assist you in a final determination.

C.I. RING & GRATE #MDI

Select to match PVC PIPE diameter:

PART NUMBER	CLEAR-OPENING Ø	MATCHES PIPE Ø
MDI - 2024	24", traffic	6"
MDI - 2124B	24", non-traffic, bolted	6"
MDI - 2030	30", traffic	8"
MDI - 2130	30", non-traffic	8"
MDI - 2036	36", traffic or non-traffic	12"

Add a "B" to Part Number for bolted, theft-resistant option.

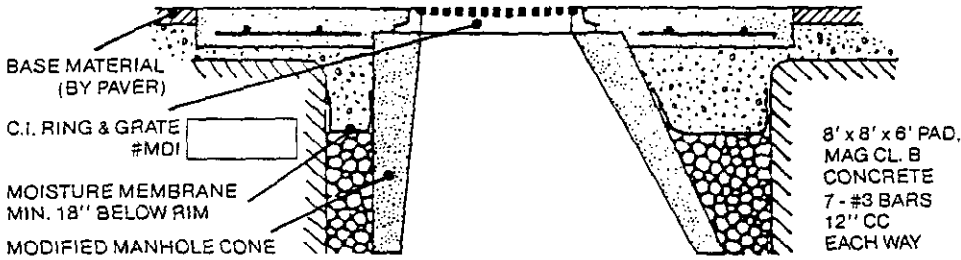
For various SURFACE TREATMENTS that may be specified, See Following Page.

IMPORTANT:

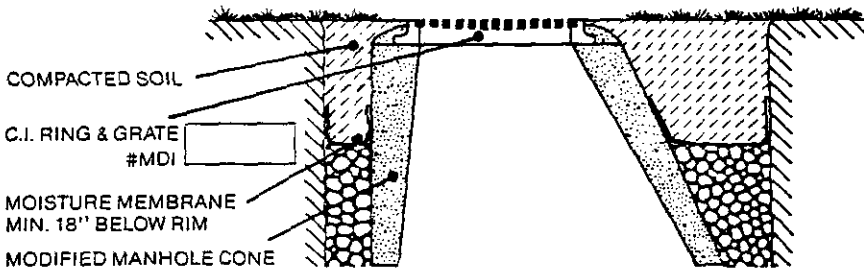
Specifications should be included in plans. Imitation is the sincerest form of flattery, but there have been many failures in imitations of the MaxWell due to inferior materials, inadequately protected steel parts or careless drilling and installation.

SURFACE TREATMENTS-DRAWING A-B-C OR D MAY BE USED IN PLACE OF THE TOP PORTION OF THE BASIC DRAWING ON PAGE 4, TO ADAPT IT TO THE VARYING SURFACE CONDITIONS SHOWN.

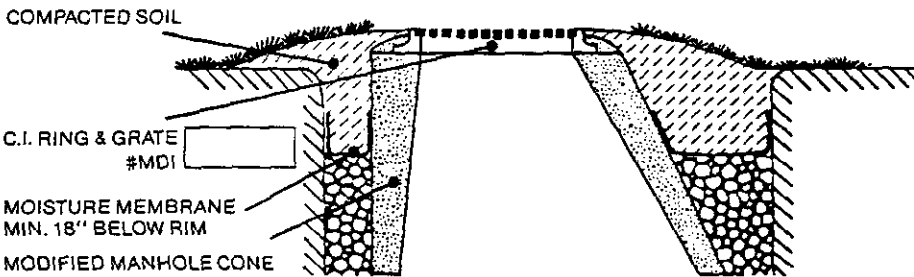
A. Adds a concrete pad for heavy traffic areas.



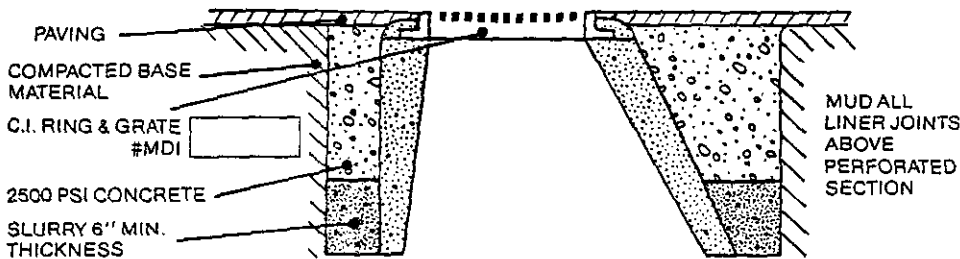
B. For landscaped retention ponds and planters. No paving or pad. In areas where silt might flow to drywell, use C.



C. Use in landscaped retention/detention basins or where heavy silt flow is anticipated. Height should be 4" ±.

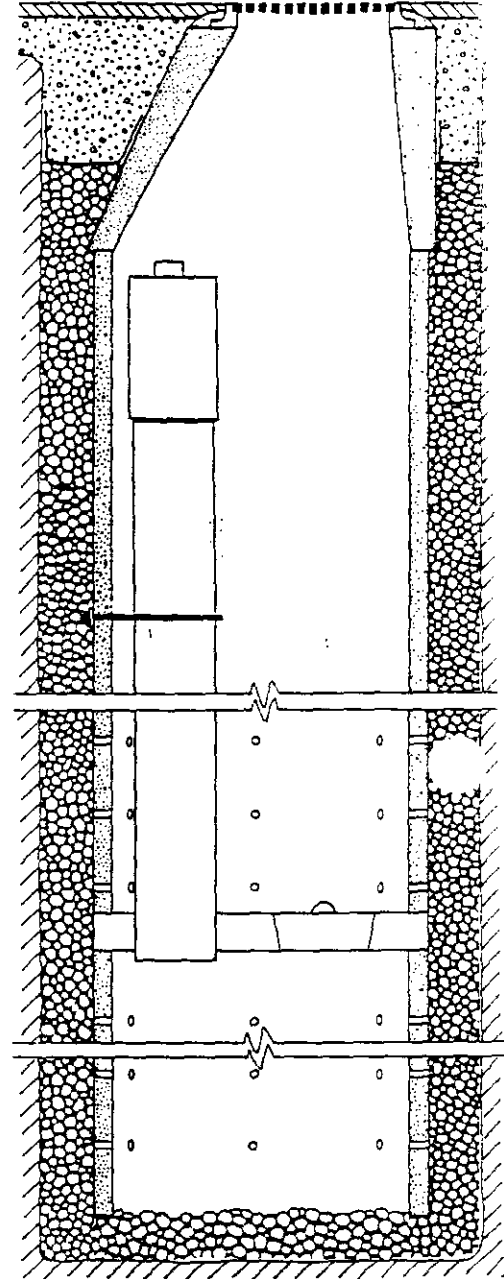


D. A special design where unstable soil conditions could cause surface subsidence. Also installed with connecting pipes and trenches.



Other options are available including: inlets for sump pump discharges or roof, area and storm drains; automatic back-up pumps; and remote catch basin collector systems.

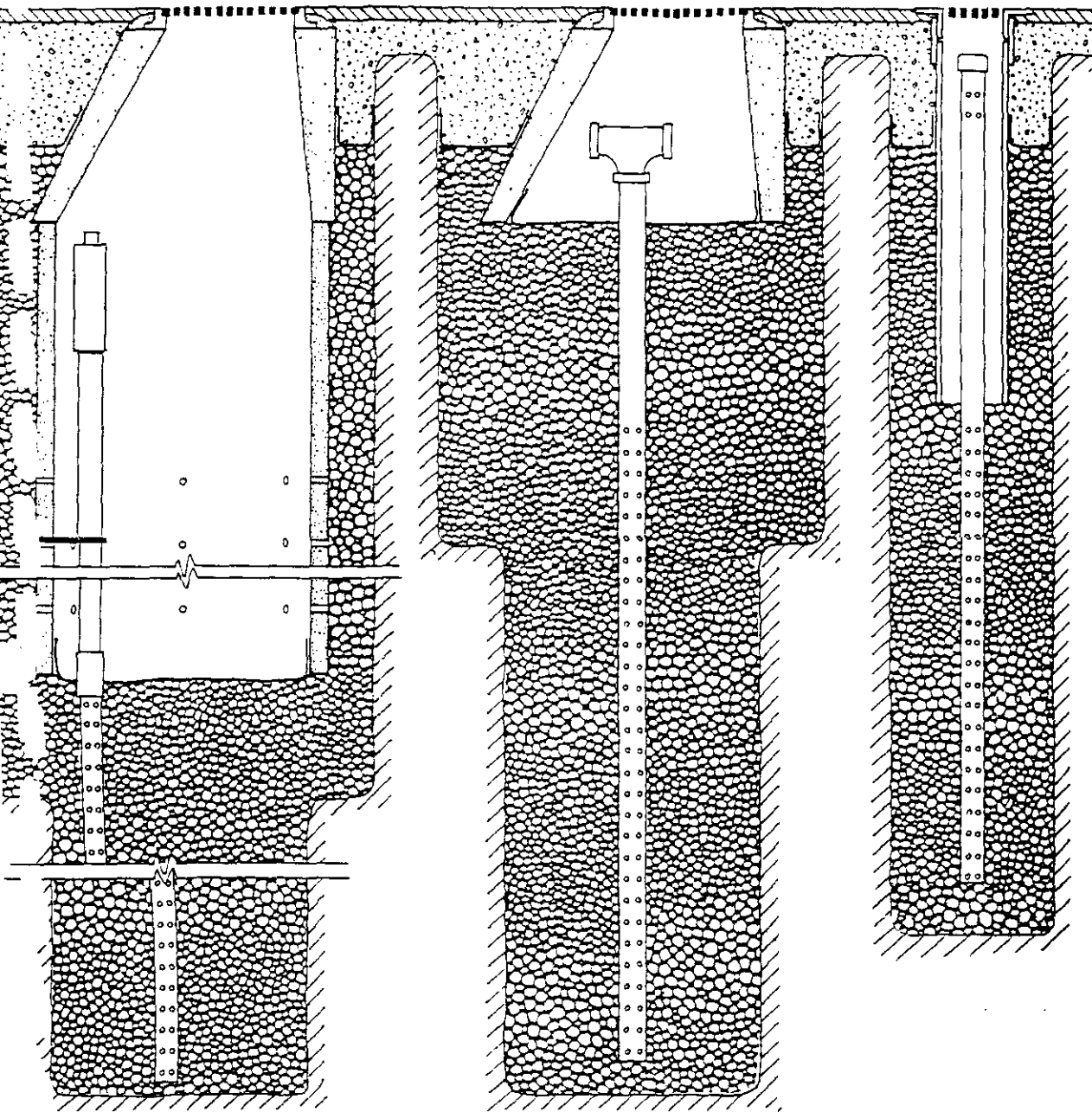
OTHER



MaxWell® I

Useful in high-volume applications where drainage soils are near surface, resulting in a shallow well. Also useful where sandy soils may cause subsidence or where extensive silt and debris may make frequent cleaning necessary. Maximum standard depth, 25 feet.

DESIGNS for special applications



MaxWell® II

This economical model has full settling and filtering capability, but limited flow capacity. Used for low flow-volume applications or where poor soil conditions indicate a limited transmissibility. Maximum depth, 120 feet.

EconoWell®

A budget well with limited settling capacity and no debris shield. Recommended for small spot problems, but only where water flow will be clean and debris-free. Several variations available. Usually specified only where permeable soils are within 25 feet of grade.

MicroWell®

This design was created to dispose of small quantities of clean water, such as from an evaporative cooler discharge, air conditioning condensate or drinking fountain overflow.

The MaxWell®

MAXWELL LIMITED WARRANTY

MaxWell™ Storm Water Drywells are warranted against failures due to workmanship or materials for TWO YEARS. All MaxWells are manufactured using the finest materials and techniques, as described in McGuckin Drilling, Inc.'s latest Product Catalog, but the Company reserves the right to make improvements, and to adapt its designs to specific field situations, material unavailability or other conditions beyond its control. Due to variable soil conditions, no warranty is made on specific performance or life, or against post-installation subsidence. No responsibility will be accepted for consequential damages resulting from MaxWell manufacture, installation or performance.

DESIGN SUGGESTIONS FOR RETENTION + DRYWELL SYSTEMS

by S.C. De Tommaso and P.R. Le Blanc, McGuckin Drilling, Inc.



Designing the Retention Facility

The retention volume for a given property should be calculated according to the requirements of the city or other jurisdiction. Generally, any rainfall in excess of these requirements is allowed to overflow to the streets or storm sewers.

Since no allowance is made for soil or drywell transmissibility, the retention facility must be designed to retain 100% of the calculated rainfall volume. Most retention is achieved using parking lots and/or landscaped areas.

Parking Lots - The most important design factor is **user convenience**. Some engineers design parking lot retention so that most or all of the water is stored in deep sections remote from the project's buildings. This keeps paving near the building useable in light storms, but cars in the deep area may be endangered in a heavy storm.

In an effort to protect all cars in the lot, some engineers design for a more even storage, but at the possible expense of frequent pedestrian inconvenience. Such decisions should consider parking lot size and loading, kind of business, major storm frequency, and the facilities installed for disposing of the retained water.

The speed with which water is removed, and thus the number of **hours acceptable** for disposal, is determined by the number of **MaxWells** and their transmissibility. See "Calculating the Drywell Requirements."

Landscaped Areas - There are many landscaped retention areas that contribute to the aesthetic, and even functional quality of the property they protect. Where space permits, landscaped retention has many benefits, whether in the form of a depressed grass area, rockscape, a playground, sidewalk park or putting green.

Unlandscaped retention ponds are definitely not recommended, since their silt is very hard on drywells. Landscaped retention should be designed to drain quickly so that plants or grass are not damaged.

Calculating The Drywell Requirements

1. Determine the total cubic feet of retention needed to meet code.
2. Determine the number of **hours acceptable** for disposal of water retained.
3. Determine total cfs of disposal needed to drain retention in the hours acceptable:

$$\text{TOTAL CFS} = \frac{\text{Required Retention in Ft}}{\text{Hours Acceptable} \times 3600}$$

4. Determine approximate individual well CFS:
 - a. For non-critical applications, known soil data can be the basis for estimated percolation rates. McGuckin Drilling, Inc., maintains extensive maps, records and drilling logs on its work in Arizona. From this data, our personnel can quickly determine likely soil conditions and percolation rates for most sites requiring drywells.
 - b. For large projects, ones with critical drainage problems, or to verify well performance, a percolation test may be in order. It is common procedure to build one drywell in a location where one will be needed and to then test the completed well. In a finished well, silt cannot wash into the good drainage soils, so per-

formance is optimized and the number of wells required is minimized. Over \$135,000 was saved for a major electronics plant through this testing method. Because MaxWells will often take test water faster than a water truck or firehose can provide it, McGuckin Drilling utilizes a percolation testing apparatus that can bring water to the well from a fire hydrant ½ mile or more away, through large diameter lines. Flow rates up to 3.0 cfs are measured by precision totalizing flow-meters. Tests are usually monitored and reported by a soils laboratory.

For assistance in estimating percolation rates or arranging a percolation test, contact our Design Staff.

5. Calculate the number of drywells required.

$$\text{Number of Wells} = \frac{\text{TOTAL CFS} \times 2^*}{\text{Individual Well CFS}}$$

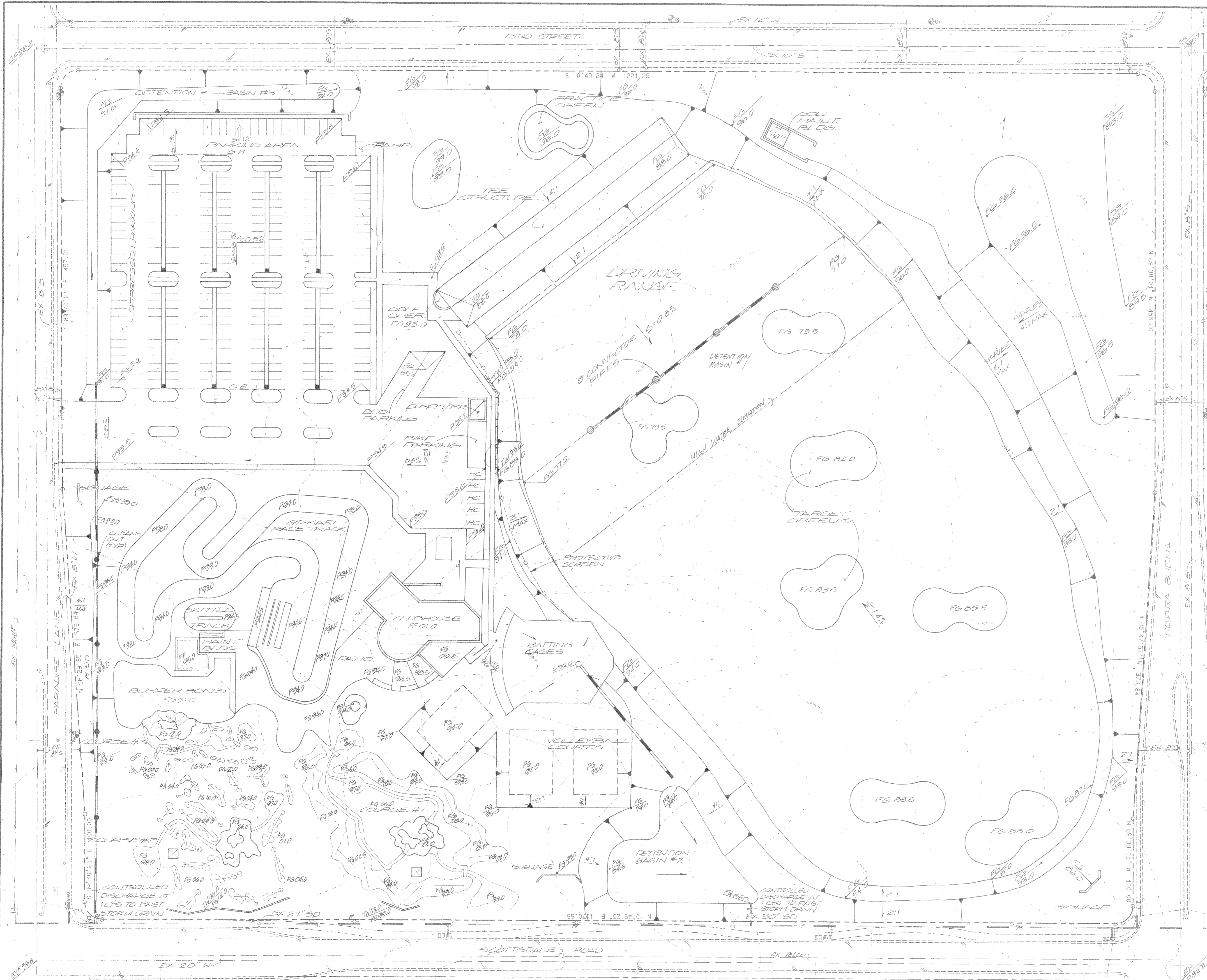
*Derating factor for well aging.
Fine soils may require higher factor.

6. Select and specify the desired drywell. For drawings, specifications and instructions, see pages 4 to 7. Contact our Design Staff for no-charge assistance in any phase of your planning.

Manufactured
and installed by . . .



1509 E. Elwood St., Phoenix, Arizona 85040 602/268-0785
Tucson 602/628-7193

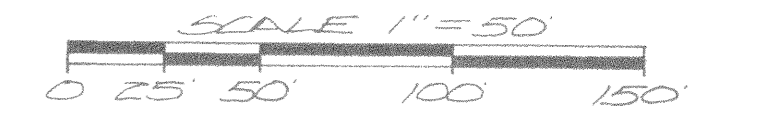


DETENTION CALCULATIONS

VOLUME #1 (DRIVING RANGE)
 Average 'C' = 0.75
 $V = 450,000 \text{ ft}^3 \times 0.75 \times \frac{2.82 \text{ in.}}{12}$
 $= 79,313 \text{ ft}^3$
 Capacity of Maxwell IV Dry Well in 12 Hours
 $= 0.5 \text{ cfs} \times 60 \text{ sec/min} \times 60 \text{ min/hr} \times 12 = 21,600 \text{ ft}^3$
 # of Dry Wells Required
 $= \frac{79,313 \text{ ft}^3}{21,600 \text{ ft}^3} = 3.7$
 Use 4

VOLUME #2 (MINIATURE GOLF)
 Average 'C' = 0.60
 $V = 300,000 \text{ ft}^3 \times 0.60 \times \frac{2.82 \text{ in.}}{12}$
 $= 42,300 \text{ ft}^3$
 Basin Drain Time = $\frac{42,300 \text{ ft}^3}{60 \text{ sec/min} + 60 \text{ min/hr}} = 11.8 \text{ hours}$
 1 ft./sec

VOLUME #3 (PARKING LOTS)
 Average 'C' = 0.95
 $V = 149,000 \text{ ft}^3 \times 0.95 \times \frac{2.82 \text{ in.}}{12}$
 $= 33,264 \text{ ft}^3$
 Basin Drain Time = $\frac{33,264}{60 \text{ sec/min} + 60 \text{ min/hr}} = 9.3 \text{ hours}$
 1 ft./sec



LEGEND

- EXISTING EDGE OF PAVEMENT
- SLOPE BANK PROPOSED
- PAVEMENT ELEVATION
- F.G. 5.1 FINISH GRADE ELEVATION
- 8" W EXISTING UTILITY (SIZE & TYPE NOTED)
- FLOW LINE OF EARTH DITCH EXISTING
- PROPOSED DRYWELL

Grading/Drainage

 [Signature]

GILBERTSON ASSOCIATES, INC.
 CONSULTING CIVIL ENGINEERS
 23733 N. SCOTTSDALE RD., SUITE B
 SCOTTSDALE, ARIZONA 85255
 (602) 585-6464

CRACKERJAX FAMILY CENTER

CONCEPTUAL GRADING & DRAINAGE PLAN

APPENDIX IV

GRADING AND DRAINAGE PLANS

PARK VILLAGE

PRELIMINARY GRADING AND DRAINAGE COVER SHEET & KEYMAP

16001 N SCOTTSDALE RD, SCOTTSDALE, AZ 85254

A PORTION OF THE NORTHWEST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 4 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

WEST 1/4 CORNER SECTION 2,
T3N, R4E,
FOUND 3" CITY OF
SCOTTSDALE
BRASS CAP IN HANDHOLE

CENTER OF SECTION 2,
T3N, R4E,
FOUND 3" CITY OF
SCOTTSDALE
BRASS CAP IN HANDHOLE

INDEX OF DRAWINGS

SHEET INDEX			
SHEET NO.:	DESCRIPTION:	LATEST DATE:	
1	C3.00 PRELIMINARY GRADING AND DRAINAGE COVER SHEET & KEYMAP	4/12/2023	
2	C3.10 PRELIMINARY GRADING & DRAINAGE PLAN	4/12/2023	
3	C3.11 PRELIMINARY GRADING & DRAINAGE PLAN	4/12/2023	
4	C3.12 PRELIMINARY GRADING & DRAINAGE PLAN	4/12/2023	
5	C3.13 PRELIMINARY GRADING & DRAINAGE PLAN	4/12/2023	
6	C3.14 PRELIMINARY GRADING & DRAINAGE PLAN	4/12/2023	
7	C3.15 PRELIMINARY GRADING & DRAINAGE PLAN	4/12/2023	
8	C3.50 CROSS SECTIONS	4/12/2023	
9	C3.51 CROSS SECTIONS	4/12/2023	
10	C3.52 CROSS SECTIONS	4/12/2023	
11	C3.53 CROSS SECTIONS	4/12/2023	
12	C3.54 CROSS SECTIONS	4/12/2023	

● FILLED CIRCLE INDICATES PLAN IS INCLUDED WITH THIS SUBMITAL

ENGINEER'S CERTIFICATION:

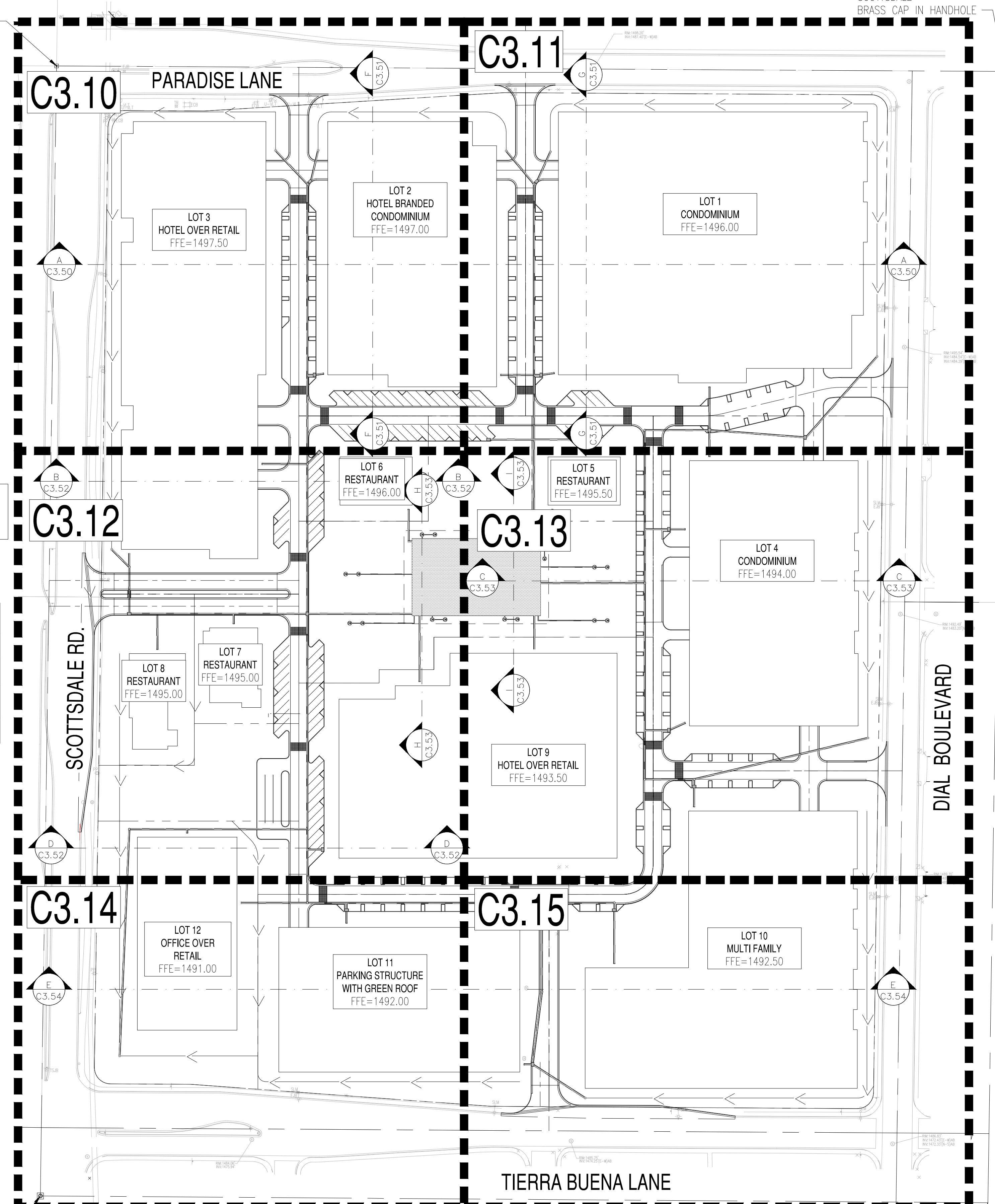
THE LOWEST FLOOR ELEVATION(S) AND/OR FLOOD PROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A 100-YEAR STORM, AND ARE IN ACCORDANCE WITH SCOTTSDALE REVISED CODE, CHAPTER 37 - FLOODPLAIN AND STORMWATER REGULATION.

PROPOSED RETENTION BASIN SUMMARY TABLE

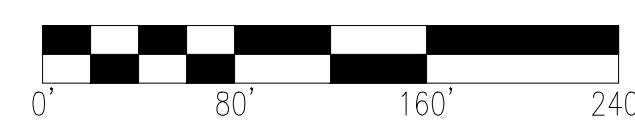
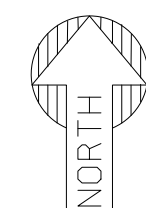
BASIN	TYPE	Vp	Vtotal	Vr
(ID)	(-)	(CF)	(CF)	(CF)
BASIN A	UG	199768	199768	193384
TOTAL		199768	199768	193384

BUILDING FINISHED FLOOR SUMMARY TABLE

BUILDING	FFE	OVERFLOW ELEVATION
LOT 1	1496.00	1494.97
LOT 2	1497.00	1494.19
LOT 3	1497.50	1490.04
LOT 4	1494.00	1492.15
LOT 5	1495.50	1495.32
LOT 6	1496.00	1495.30
LOT 7	1495.00	1490.34
LOT 8	1495.00	1487.56
LOT 9	1493.50	1491.36
LOT 10	1492.50	1486.09
LOT 11	1492.00	1483.80
LOT 12	1491.00	1483.80



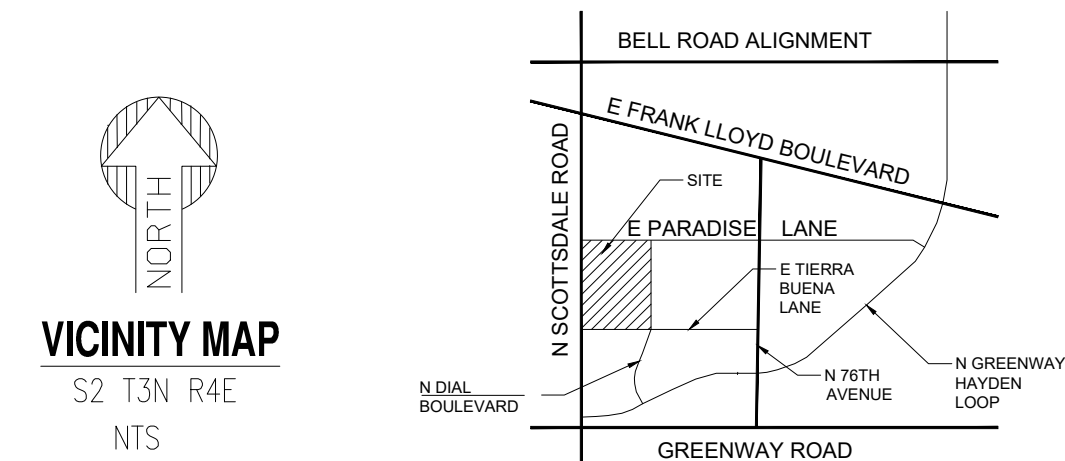
SW CORNER SECTION 2,
T3N, R4E,
FOUND 3" CITY OF
SCOTTSDALE
BRASS CAP IN POTHOLE



SCALE: 1" = 80'

SOUTH 1/4 CORNER,
SECTION 2, T3N, R4E,
FOUND 3" CITY OF
SCOTTSDALE
BRASS CAP IN HANDHOLE

VICINITY MAP



PROJECT TEAM

DEVELOPER /ARCHITECT

NELSEN PARTNERS ARCHITECTS & PLANNERS
15210 NORTH SCOTTSDALE ROAD, SUITE 300,
SCOTTSDALE, ARIZONA 85254
ATTN: PHILIP J. CRISARA
EMAIL: PCRISARA@NELSENPARTNERS.COM

CIVIL ENGINEER

SUSTAINABILITY ENGINEERING GROUP
5240 N. 16TH STREET, SUITE 105
PHOENIX, ARIZONA 85016
PHONE: 480-237-2507
ATTN: ALI FAKIH
EMAIL: ALI@AZSEG.COM

PROJECT INFO

PROJECT LOCATION:

SITE ADDRESS: 16001 N SCOTTSDALE RD, SCOTTSDALE, AZ 85254

PROJECT DESCRIPTION:

THE PROJECT IS A MIXED-USE DEVELOPMENT THAT INCLUDES: CONDOMINIUMS, MULTI-FAMILY UNITS, HOTELS, RESTAURANTS, OFFICE-RETAIL AND A PARKING STRUCTURE.

SITE DATA:

ZONING: PCP-AMU-R-PSD
GROSS AREA: 1,406,793 SF (32.29 AC)
NET AREA: 1,207,435 SF (27.19 AC)

BASIS OF BEARING:

THE BASIS OF BEARING IS THE MONUMENT LINE OF SCOTTSDALE ROAD, ALSO BEING THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 2, USING A BEARING OF NORTH 00 DEGREES 49 MINUTES 25 SECONDS EAST, PER THE MAP OF DEDICATION FOR SCOTTSDALE RESEARCH PARK, RECORDED IN BOOK 259 OF MAPS, PAGE 38, RECORDS OF MARICOPA COUNTY, ARIZONA.

BENCHMARK:

A PORTION OF THE NORTHWEST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 4 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

LEGAL PARCEL DESCRIPTION:

PARCEL NO. 1:
THAT PORTION OF THE SOUTH HALF OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, LYING WEST OF THE EAST LINE OF 73RD STREET AS SHOWN ON THE SCOTTSDALE RESEARCH PARK MAP OF DEDICATION RECORDED DECEMBER 8, 1983 IN BOOK 259 OF MAPS, PAGE 38, RECORDS OF MARICOPA COUNTY ARIZONA;

EXCEPT THE LAND UNDERLYING THE STREETS WHICH WERE DEDICATED ON SAID SCOTTSDALE RESEARCH PARK MAP OF DEDICATION, AND

EXCEPT ONE-SIXTEENTH OF ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES, HELIUM OR OTHER SUBSTANCES OF A GASEOUS NATURE, COAL, METALS, MINERALS, FOSSILS, FERTILIZER OF EVERY NAME AND DESCRIPTION, TOGETHER WITH ALL URANIUM, THORIUM OR ANY OTHER MATERIAL WHICH IS, OR MAY BE, DETERMINED BY THE LAWS OF THE UNITED STATES, THE STATE OF ARIZONA OR DECISIONS OF COURT, TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE, AS RESERVED IN ARIZONA REVISED STATUTES AND IN THE PATENT TO SAID LAND RECORDED MAY 3, 1976 IN DOCKET 11657, PAGE 293, RECORDS OF MARICOPA COUNTY ARIZONA.

PARCEL NO. 2:

THAT PORTION OF THE NORTH HALF OF THE NORTH HALF OF THE SOUTH WEST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, LYING WEST OF THE EAST LINE OF 73RD STREET AS SHOWN ON THE SCOTTSDALE RESEARCH PARK MAP OF DEDICATION RECORDED DECEMBER 8, 1983 IN BOOK 259 OF MAPS, PAGE 38, RECORDS OF MARICOPA COUNTY, ARIZONA;

EXCEPT THE LAND UNDERLYING THE STREETS WHICH WERE DEDICATED ON SAID SCOTTSDALE RESEARCH PARK MAP OF DEDICATION; AND

EXCEPT ONE-SIXTEENTH OF ALL OIL, GAS, OTHER HYDROCARBON SUBSTANCES, HELIUM OR OTHER SUBSTANCES OF A GASEOUS NATURE, COAL, METALS, MINERALS, FOSSILS, FERTILIZER OF EVERY NAME AND DESCRIPTION, TOGETHER WITH ALL URANIUM, THORIUM OR ANY OTHER MATERIAL WHICH IS, OR MAY BE, DETERMINED BY THE LAWS OF THE UNITED STATES, THE STATE OF ARIZONA OR DECISIONS OF COURT, TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE, AS RESERVED IN ARIZONA REVISED STATUTES AND IN THE PATENT TO SAID LAND RECORDED MAY 3, 1976 IN DOCKET 11657, PAGE 293, RECORDS OF MARICOPA COUNTY ARIZONA.

FEMA:

MAP NUMBER	COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE USE DEPTH)
04013C1320L	045012	1320 10/16/2013	L	X	N/A

PRELIMINARY
NOT FOR
CONSTRUCTION

SUSTAINABILITY
ENGINEERING
GROUP

SEG



NELSEN
PARTNERS
ARCHITECTS & PLANNERS



PROJECT: PARK VILLAGE
LOCATION: 16001 N SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254

DRAWN: FV 04/12/2023
DESIGNED: FM 04/12/2023
QC: TM 04/12/2023
FINAL QC: SC 04/12/2023
PROJ. MGR.: AF 04/12/2023

DATE: 04/12/2023

ISSUED FOR: SUBMITTAL

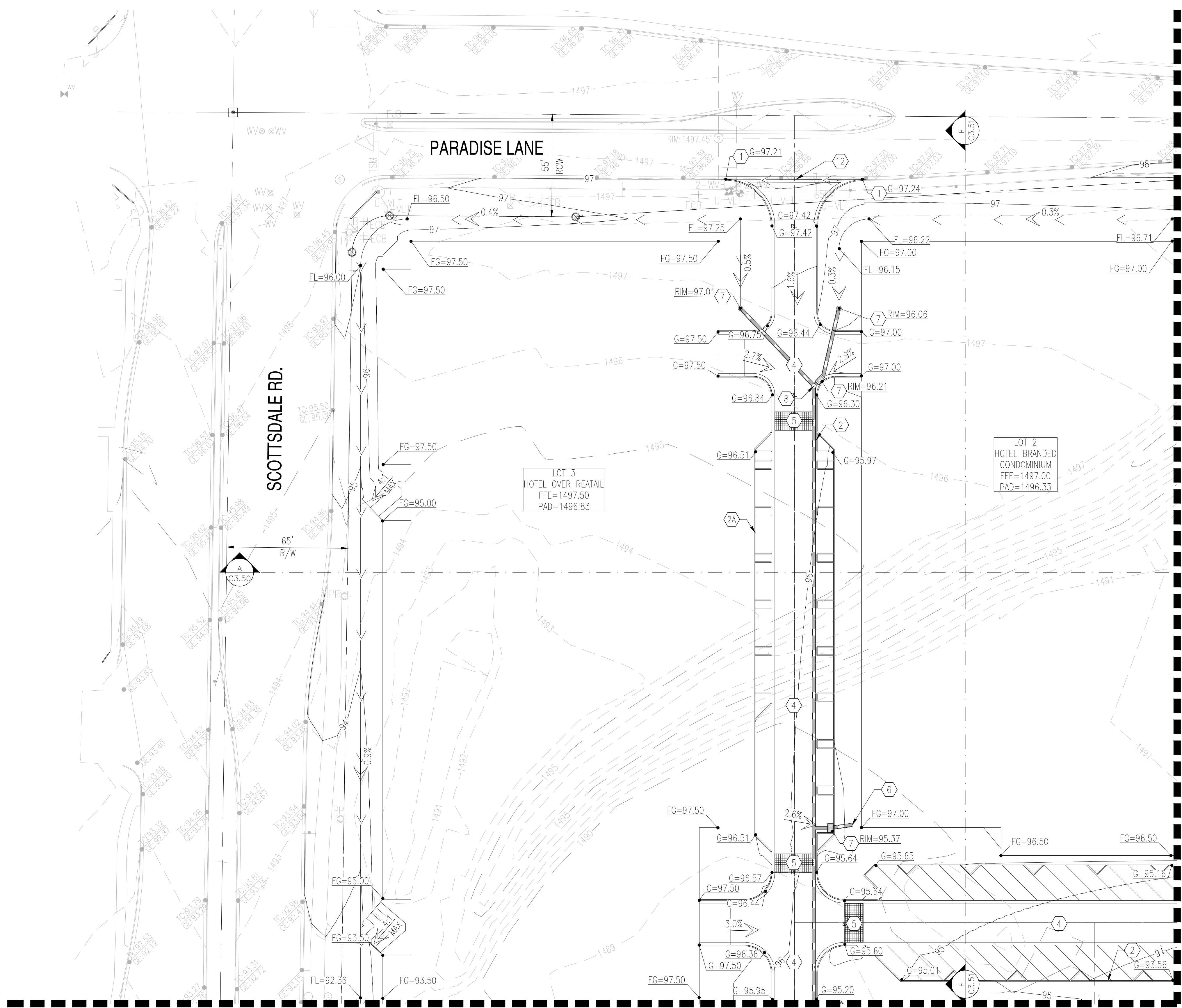
REVISION NO.: DATE:

JOB NO.: 211005

SHEET TITLE:
PRELIMINARY GRADING
AND DRAINAGE COVER
SHEET & KEYMAP

PAGE NO.: 1 OF 12
SHEET NO.: C3.00

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MATCHLINE - REFER TO SHEET C3.11

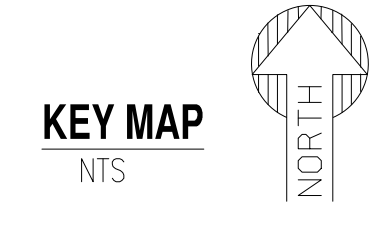
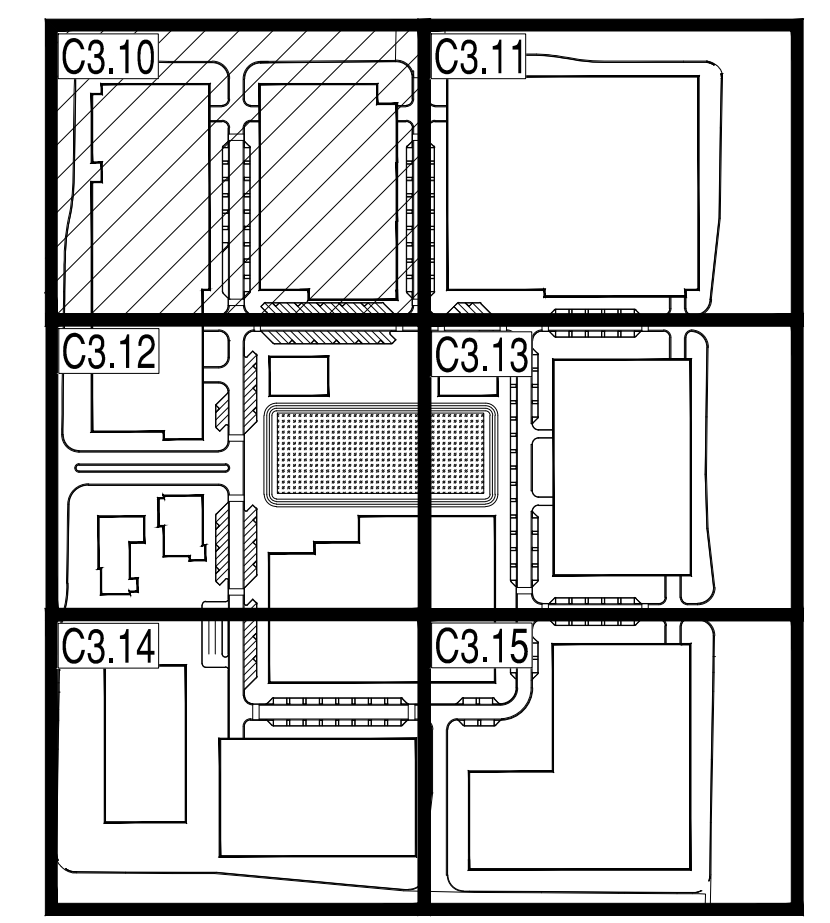
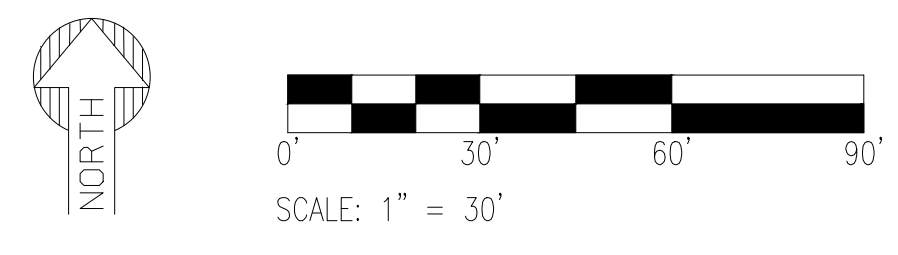
MATCHLINE - REFER TO SHEET C3.12

EXISTING LEGEND:

--- XXXX ---	EX. MAJOR CONTOURS	— EX. S —	SEWER LINE	— — — — —	ROAD CENTERLINE
--- XXXX ---	EX. MINOR CONTOURS	⊙	SEWER MANHOLE	— — — — —	
TC:XX.XX GE:XX.XX	EX. SPOT ELEVATION	— EX. W —	WATER LINE	⊙	
- - - - -	EASEMENT LINE AS NOTED	WV ⊗	WATER VALVE	— GAS —	
		⊕	FIRE HYDRANT	X X	FENCE

PROPOSED GRADING LEGEND:

G=XX.XX	GUTTER ELEVATION, TC = G+0.5'	— — — — —	PROPERTY LINE	— — — — —	SETBACK	⊕	END SECTION	⊕	WATER METER	⊕	RIP-RAP
P=XX.XX	PAVEMENT ELEVATION TC = P+0.5'	— — — — —	RIGHT OF WAY	→	FLOW ARROW	⊙	STORM MANHOLE	⊗	GATE VALVE	⊕	CONCRETE PAVEMENT
C=XX.XX	CONCRETE ELEVATION	— RL —	RIDGELINE	⊕	CATCH BASIN	⊙	DRYWELL	⊕	FIRE HYDRANT	⊕	
		— — — — —		— — — — —	STORM PIPE	⊙	NYLOPLAST BASIN	⊕	SEWER MANHOLE		



PRELIMINARY GRADING NOTES

- 1 MATCH EXISTING GRADE.
- 2 PROPOSED 6" VERTICAL CURB AND GUTTER.
- 2A PROPOSED 6" VERTICAL CURB.
- 3 PROPOSED CONCRETE SIDEWALK.
- 3A PROPOSED ADA RAMP.
- 4 PROPOSED LIGHT DUTY PAVEMENT.
- 5 PROPOSED PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- 6 PROPOSED ROOF DRAIN.
- 7 PROPOSED CATCH BASIN.
- 8 PROPOSED NYLOPLAST WITH SOLID LID.
- 9 PROPOSED HDPE PIPE LENGTH, SIZE AND SLOPE PER PLAN.
- 10 PROPOSED UNDERGROUND STORAGE SYSTEM.
- 11 PROPOSED MAXWELL PLUS DRYWELL.
- 12 PROPOSED VALLEY GUTTER.

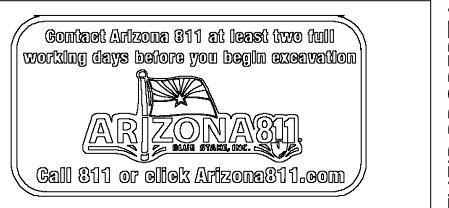
PRELIMINARY
NOT FOR
CONSTRUCTION

SUSTAINABILITY
ENGINEERING
GROUP

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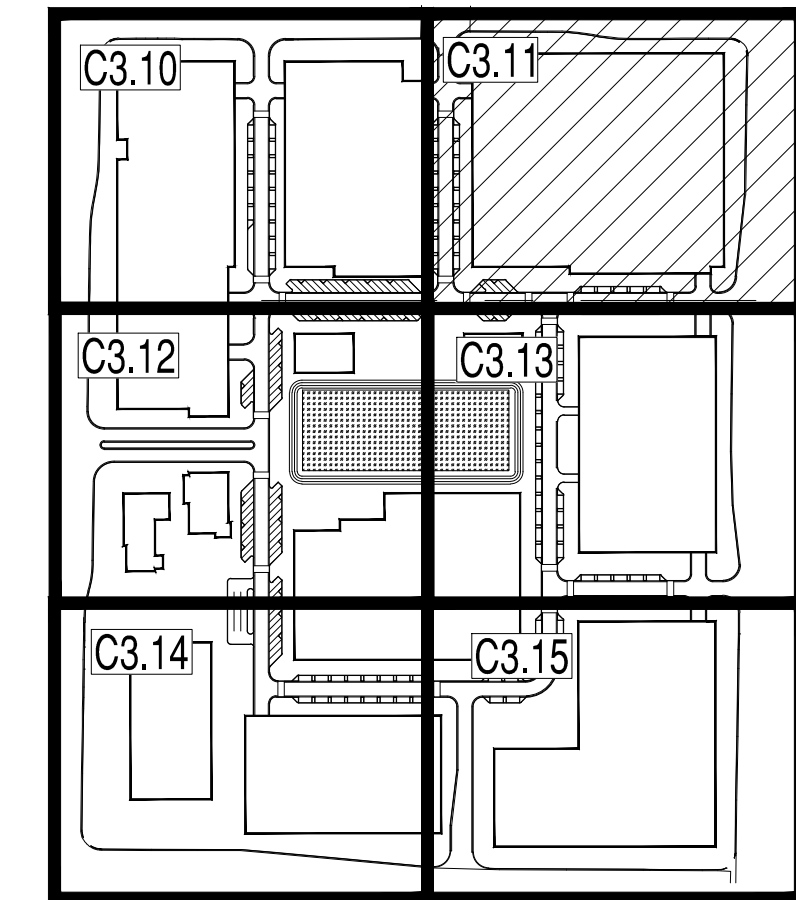
**NELSEN
PARTNERS**
ARCHITECTS & PLANNERS



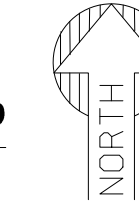
PROJECT PARK VILLAGE	LOCATION 1601 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254
DRAWN FV 04/12/2023	DESIGNED TM 04/12/2023
QC SC 04/12/2023	FINAL QC SC 04/12/2023
PROJ. MGR. AF 04/12/2023	DATE: 04/12/2023
ISSUED FOR: SUBMITTAL	
REVISION NO.:	DATE:
JOB NO.:	211005
SHEET TITLE: PRELIMINARY GRADING & DRAINAGE PLAN	
PAGE NO.:	SHEET NO.:
2 OF 12	C3.10

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5240 N. 16th Street, Suite 105 Phoenix, ARIZONA 85016
WWW.AZSEG.COM TEL: 480.587.7226 FAX: 480.559.3554



KEY MAP
NTS



PRELIMINARY
NOT FOR
CONSTRUCTION

SUSTAINABILITY
ENGINEERING
GROUP



**NELSEN
PARTNERS**
ARCHITECTS & PLANNERS



PROJECT: PARK VILLAGE
LOCATION: 16001 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254

DRAWN	FV	04/12/2023
DESIGNED	FV	04/12/2023
QC	TM	04/12/2023
FINAL QC	SC	04/12/2023
PROJ. MGR.	AF	04/12/2023

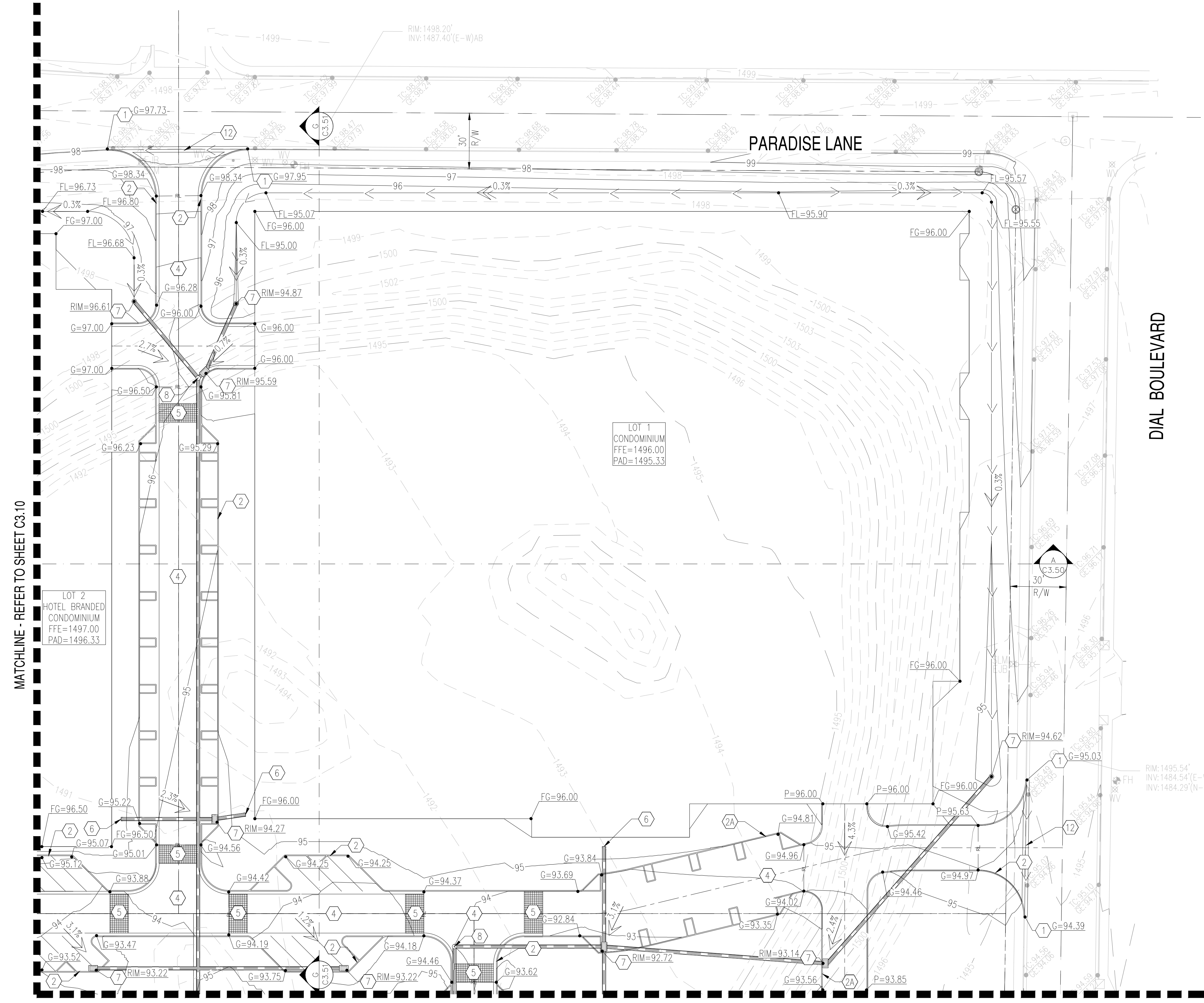
DATE: 04/12/2023
ISSUED FOR: SUBMITTAL

REVISION NO.	DATE

JOB NO.: 211005
SHEET TITLE: **PRELIMINARY GRADING & DRAINAGE PLAN**

PAGE NO.: 3 OF 12
SHEET NO.: **C3.11**

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PRELIMINARY GRADING NOTES

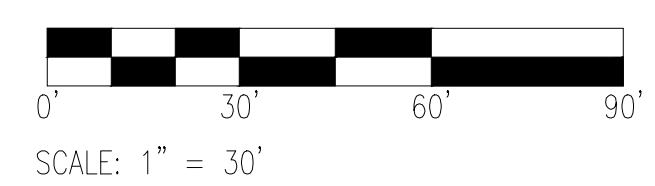
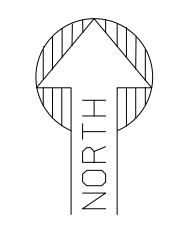
- ① MATCH EXISTING GRADE.
- ② PROPOSED 6" VERTICAL CURB AND GUTTER.
- ②A PROPOSED 6" VERTICAL CURB.
- ③ PROPOSED CONCRETE SIDEWALK.
- ③A PROPOSED ADA RAMP.
- ④ PROPOSED LIGHT DUTY PAVEMENT.
- ⑤ PROPOSED PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- ⑥ PROPOSED ROOF DRAIN.
- ⑦ PROPOSED CATCH BASIN.
- ⑧ PROPOSED NYLOPLAST WITH SOLID LID.
- ⑨ PROPOSED HDPE PIPE LENGTH, SIZE AND SLOPE PER PLAN.
- ⑩ PROPOSED UNDERGROUND STORAGE SYSTEM.
- ⑪ PROPOSED MAXWELL PLUS DRYWELL.
- ⑫ PROPOSED VALLEY GUTTER.

EXISTING LEGEND:

--- XXXX ---	EX. MAJOR CONTOURS	--- EX. S ---	SEWER LINE	--- STORM DRAIN LINE ---	ROAD CENTERLINE
--- XXXX ---	EX. MINOR CONTOURS	⊕	SEWER MANHOLE	CB	STORM CATCH BASIN
TC: XX.XX GE: XX.XX	EX. SPOT ELEVATION	--- EX. W ---	WATER LINE	⊙	STORM MANHOLE
---	EASEMENT LINE AS NOTED	WV ⊗	WATER VALVE	---	GAS LINE
		⊕	FIRE HYDRANT	X X	FENCE

PROPOSED GRADING LEGEND:

G=XX.XX	GUTTER ELEVATION, TC = G+0.5'	---	PROPERTY LINE	---	SETBACK	⊓	END SECTION	⊓	WATER METER	---	RIP-RAP
P=XX.XX	PAVEMENT ELEVATION TC = P+0.5'	---	RIGHT OF WAY	→	FLOW ARROW	⊕	STORM MANHOLE	⊗	GATE VALVE	---	CONCRETE PAVEMENT
C=XX.XX	CONCRETE ELEVATION	---	CURB AND GUTTER	⊕	CATCH BASIN	⊕	DRYWELL	⊕	FIRE HYDRANT		
		---	RIDGELINE	---	STORM PIPE	⊕	NYLOPLAST BASIN	⊕	SEWER MANHOLE		



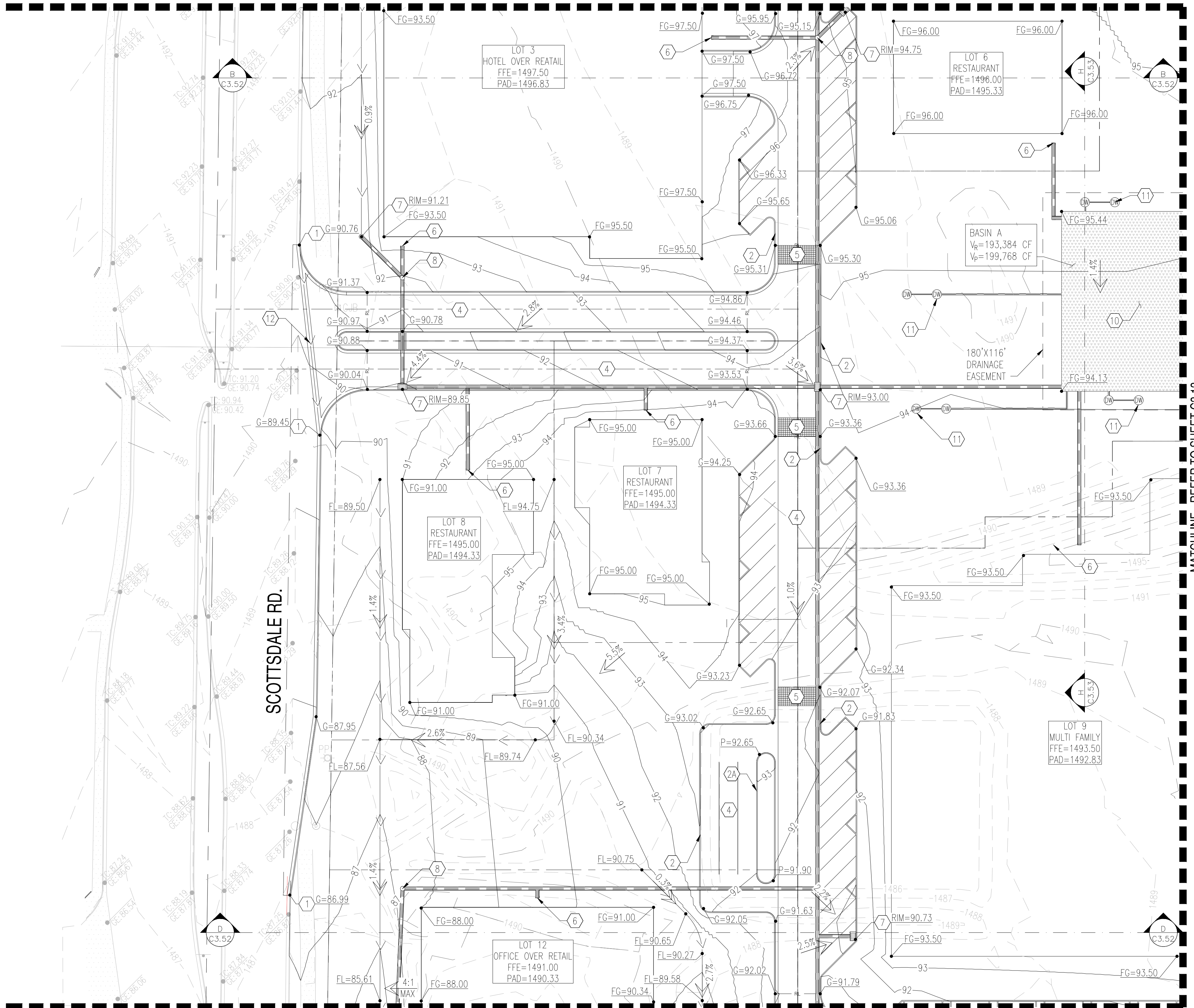
MATCHLINE - REFER TO SHEET C3.10

MATCHLINE - REFER TO SHEET C3.13

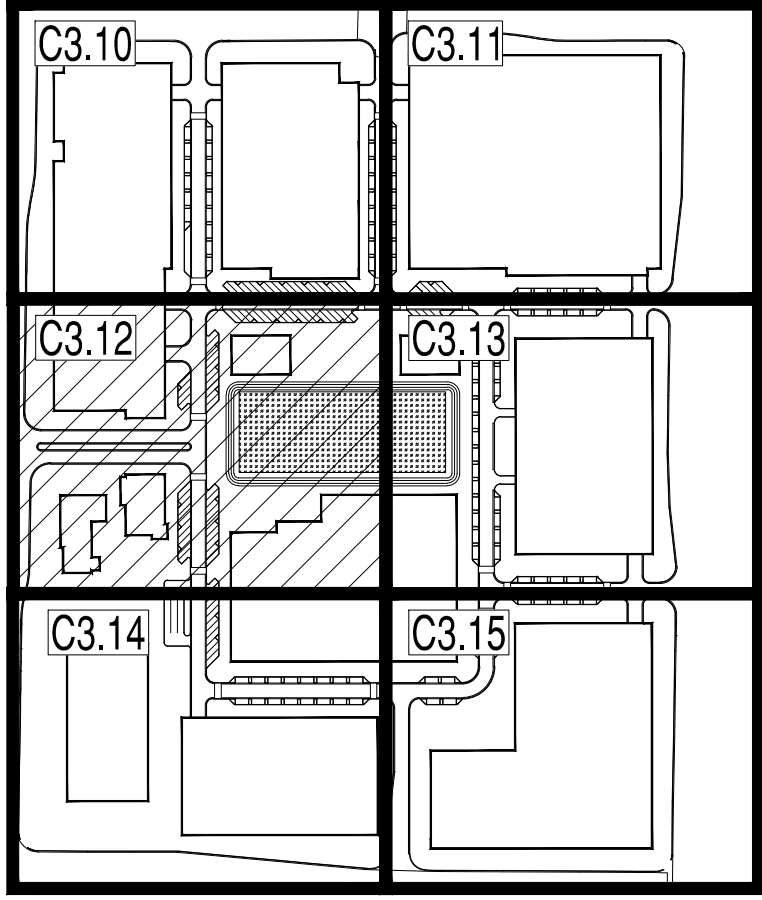
LOT 1
CONDOMINIUM
FFE=1496.00
PAD=1495.33

LOT 2
HOTEL BRANDED
CONDOMINIUM
FFE=1497.00
PAD=1496.33

MATCHLINE - REFER TO SHEET C3.10



MATCHLINE - REFER TO SHEET C3.14



PRELIMINARY GRADING NOTES

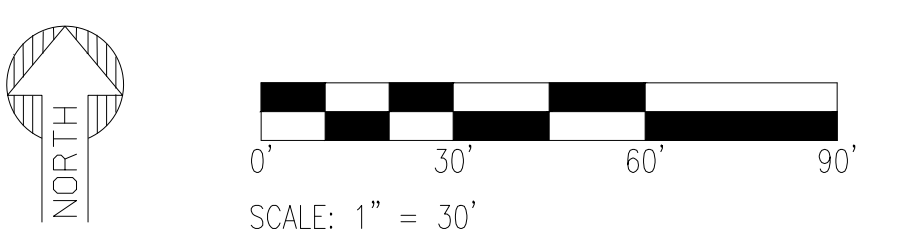
- ① MATCH EXISTING GRADE.
- ② PROPOSED 6" VERTICAL CURB AND GUTTER.
- ②A PROPOSED 6" VERTICAL CURB.
- ③ PROPOSED CONCRETE SIDEWALK.
- ③A PROPOSED ADA RAMP.
- ④ PROPOSED LIGHT DUTY PAVEMENT.
- ⑤ PROPOSED PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- ⑥ PROPOSED ROOF DRAIN.
- ⑦ PROPOSED CATCH BASIN.
- ⑧ PROPOSED NYLOPLAST WITH SOLID LID.
- ⑨ PROPOSED HDPE PIPE LENGTH, SIZE AND SLOPE PER PLAN.
- ⑩ PROPOSED UNDERGROUND STORAGE SYSTEM.
- ⑪ PROPOSED MAXWELL PLUS DRYWELL.
- ⑫ PROPOSED VALLEY GUTTER.

EXISTING LEGEND:

- XXXX --- EX. MAJOR CONTOURS
- XXXX --- EX. MINOR CONTOURS
- TC:XX.XX
GE:XX.XX EX. SPOT ELEVATION
- EASEMENT LINE AS NOTED
- EX. S --- EX. S SEWER LINE
- EX. W --- EX. W WATER LINE
- EX. GAS --- EX. GAS GAS LINE
- EX. ROAD CENTERLINE --- EX. ROAD CENTERLINE
- CB --- STORM CATCH BASIN
- SD --- STORM MANHOLE
- GAS --- GAS LINE
- X X --- FENCE

PROPOSED GRADING LEGEND:

- G=XX.XX GUTTER ELEVATION, TC = G+0.5'
- P=XX.XX PAVEMENT ELEVATION, TC = P+0.5'
- C=XX.XX CONCRETE ELEVATION
- PROPERTY LINE
- RIGHT OF WAY
- CURB AND GUTTER
- RL --- RIDGELINE
- SETBACK
- FLOW ARROW
- CATCH BASIN
- STORM PIPE
- END SECTION
- SD --- STORM MANHOLE
- DW --- DRYWELL
- NYLOPLAST BASIN
- WATER METER
- GATE VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- RIP-RAP
- CONCRETE PAVEMENT

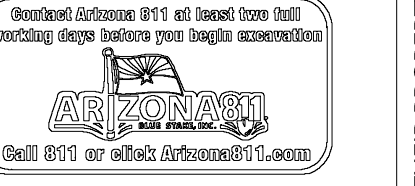


PRELIMINARY
NOT FOR
CONSTRUCTION

SUSTAINABILITY
ENGINEERING
GROUP



**NELSEN
PARTNERS**
ARCHITECTS & PLANNERS



PROJECT: PARK VILLAGE
LOCATION: 16001 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254
DRAWN: FV 04/12/2023
DESIGNED: FV 04/12/2023
QC: TM 04/12/2023
FINAL QC: SC 04/12/2023
PROJ. MGR.: AF 04/12/2023

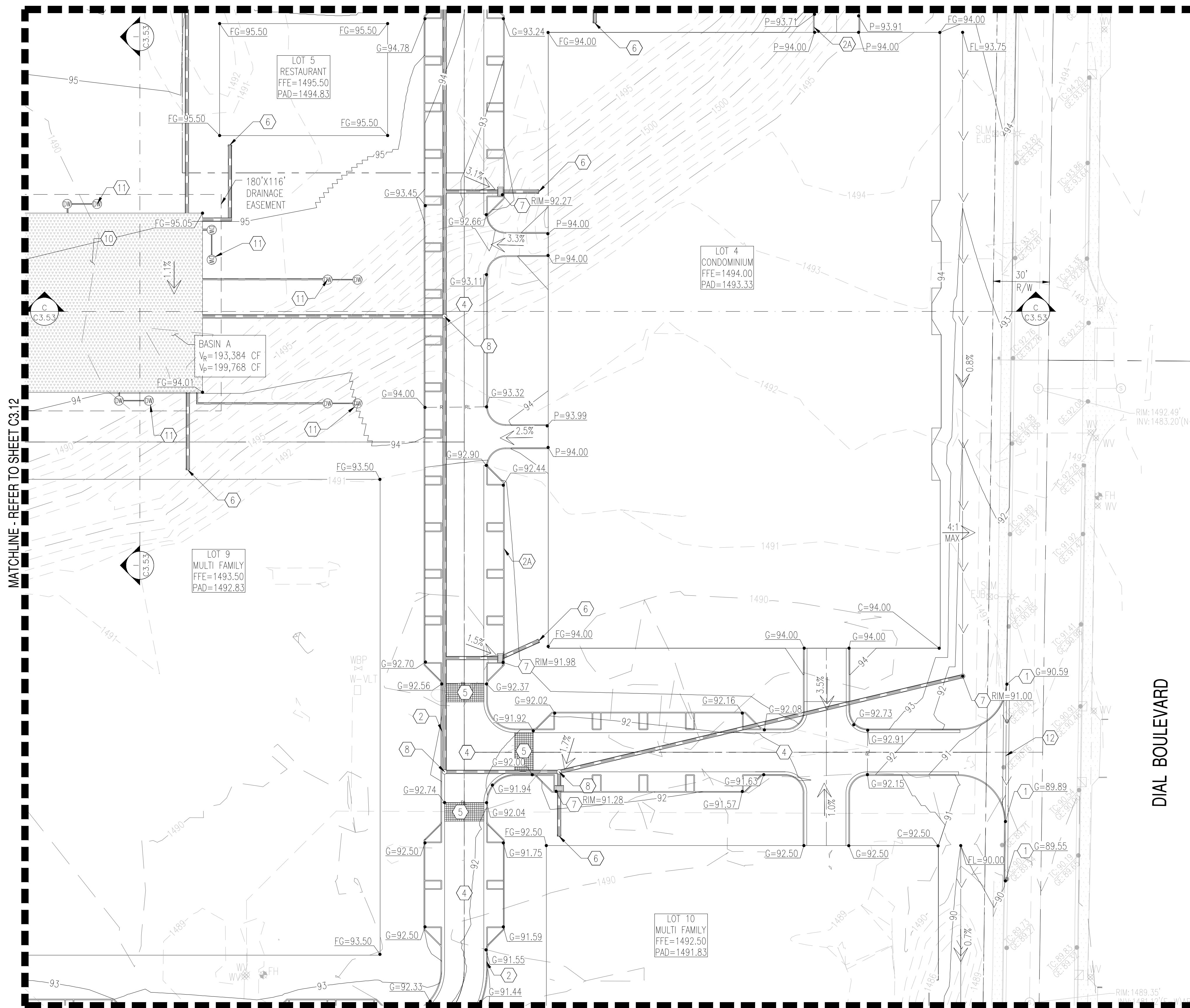
DATE: 04/12/2023
ISSUED FOR: SUBMITTAL

REVISION NO.	DATE

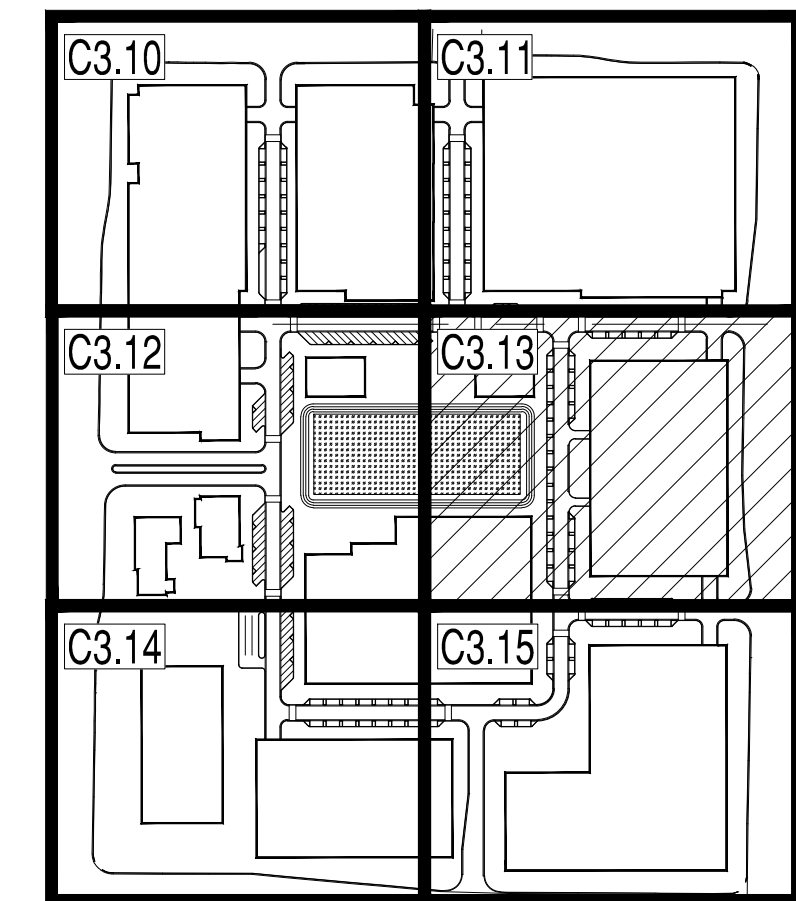
JOB NO.: 211005
SHEET TITLE: **PRELIMINARY GRADING & DRAINAGE PLAN**

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MATCHLINE - REFER TO SHEET C3.11



MATCHLINE - REFER TO SHEET C3.15



PRELIMINARY GRADING NOTES

- ① MATCH EXISTING GRADE.
- ② PROPOSED 6" VERTICAL CURB AND GUTTER.
- ②A PROPOSED 6" VERTICAL CURB.
- ③ PROPOSED CONCRETE SIDEWALK.
- ③A PROPOSED ADA RAMP.
- ④ PROPOSED LIGHT DUTY PAVEMENT.
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- ⑦ PROPOSED CATCH BASIN.
- ⑧ PROPOSED NYLOPLAST WITH SOLID LID.
- ⑨ PROPOSED HDPE PIPE LENGTH, SIZE AND SLOPE PER PLAN.
- ⑩ PROPOSED UNDERGROUND STORAGE SYSTEM.
- ⑪ PROPOSED MAXWELL PLUS DRYWELL.
- ⑫ PROPOSED VALLEY GUTTER.

MATCHLINE - REFER TO SHEET C3.12

DIAL BOULEVARD

EXISTING LEGEND:

- | | | | | | |
|----------------------|------------------------|-----------|---------------------|--------------|-------------------|
| --- XXXX --- | EX. MAJOR CONTOURS | --- S --- | EX. S SEWER LINE | --- | ROAD CENTERLINE |
| --- XXXX --- | EX. MINOR CONTOURS | ⊙ | EX. S SEWER MANHOLE | CB | STORM CATCH BASIN |
| TC:XX.XX
GE:XX.XX | EX. SPOT ELEVATION | --- W --- | EX. W WATER LINE | ⊙ | STORM MANHOLE |
| --- | EASEMENT LINE AS NOTED | WV ⊗ | WV ⊗ WATER VALVE | --- | GAS LINE |
| | | + | + | FIRE HYDRANT | |
| | | X X | X X | FENCE | |

PROPOSED GRADING LEGEND:

- | | | | | | | | | | | | |
|---------|---------------------------------|-----|-----------------|-----|-------------|---|-----------------|---|---------------|-----|-------------------|
| G=XX.XX | GUTTER ELEVATION, TC = G+0.5' | --- | PROPERTY LINE | --- | SETBACK | ⊙ | END SECTION | ⊗ | WATER METER | --- | RIP-RAP |
| P=XX.XX | PAVEMENT ELEVATION, TC = P+0.5' | --- | RIGHT OF WAY | --- | FLOW ARROW | ⊙ | STORM MANHOLE | ⊗ | GATE VALVE | --- | CONCRETE PAVEMENT |
| C=XX.XX | CONCRETE ELEVATION | --- | CURB AND GUTTER | --- | CATCH BASIN | ⊙ | DRYWELL | ⊗ | FIRE HYDRANT | | |
| | | --- | RL | --- | STORM PIPE | ⊙ | NYLOPLAST BASIN | ⊗ | SEWER MANHOLE | | |

PRELIMINARY
NOT FOR
CONSTRUCTION

SUSTAINABILITY
ENGINEERING
GROUP

SEG



**NELSEN
PARTNERS**
ARCHITECTS & PLANNERS



PROJECT: PARK VILLAGE
LOCATION: 16001 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254

DRAWN: FV 04/12/2023
DESIGNED: FV 04/12/2023
QC: TM 04/12/2023
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PROJ. MGR: AF 04/12/2023

DATE: 04/12/2023
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REVISION NO.:	DATE:

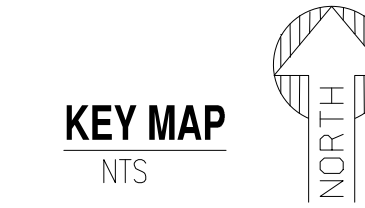
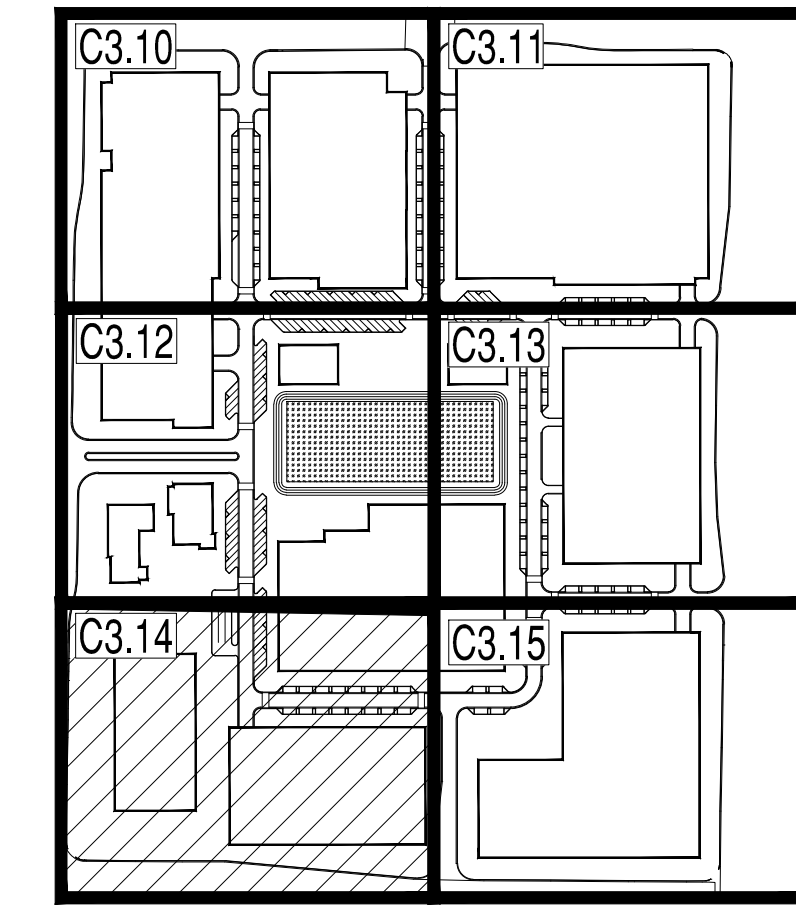
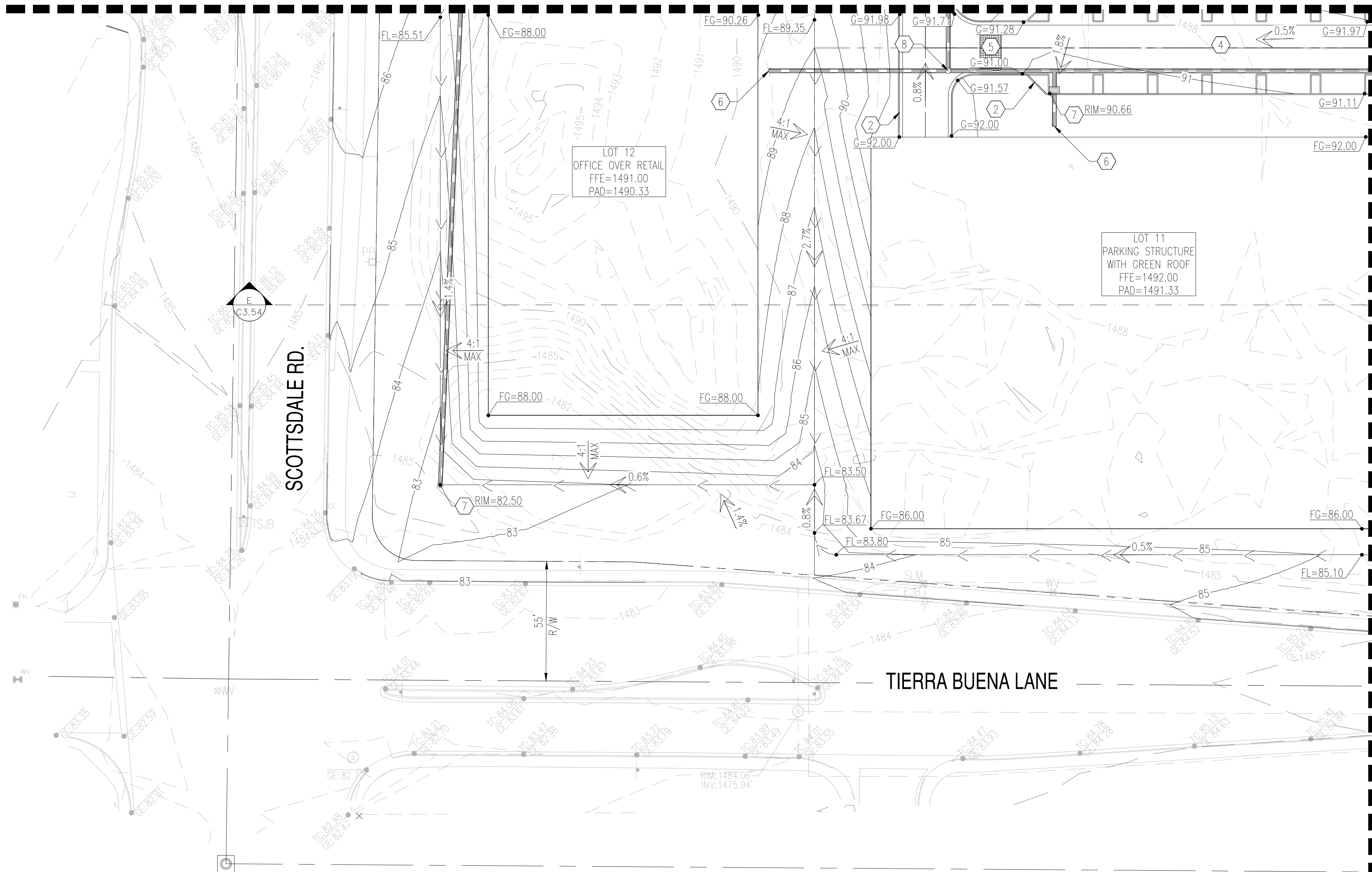
JOB NO.: 211005

SHEET TITLE:
**PRELIMINARY
GRADING &
DRAINAGE PLAN**

PAGE NO.: 5 OF 12
SHEET NO.: C3.13

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MATCHLINE - REFER TO SHEET C3.12



PRELIMINARY GRADING NOTES

- ① MATCH EXISTING GRADE.
- ② PROPOSED 6" VERTICAL CURB AND GUTTER.
- ②A PROPOSED 6" VERTICAL CURB.
- ③ PROPOSED CONCRETE SIDEWALK.
- ③A PROPOSED ADA RAMP.
- ④ PROPOSED LIGHT DUTY PAVEMENT.
- ⑤ PROPOSED PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- ⑥ PROPOSED ROOF DRAIN.
- ⑦ PROPOSED CATCH BASIN.
- ⑧ PROPOSED NYLOPLAST WITH SOLID LID.
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- ⑪ PROPOSED MAXWELL PLUS DRYWELL.
- ⑫ PROPOSED VALLEY GUTTER.

EXISTING LEGEND:

--- XXXX ---	EX. MAJOR CONTOURS	— EX. S —	SEWER LINE	— — — — —	ROAD CENTERLINE
--- XXXX ---	EX. MINOR CONTOURS	⊙	SEWER MANHOLE	▨	STORM CATCH BASIN
TC: XX.XX GE: XX.XX	EX. SPOT ELEVATION	— EX. W —	WATER LINE	⊙	STORM MANHOLE
---	EASEMENT LINE AS NOTED	WV ⊗	WATER VALVE	— GAS —	GAS LINE
		⊕	FIRE HYDRANT	X X	FENCE

PROPOSED GRADING LEGEND:

G=XX.XX	GUTTER ELEVATION, TC = G+0.5'	---	PROPERTY LINE	---	SETBACK	▽	END SECTION	WM	WATER METER	▬▬▬	RIP-RAP
P=XX.XX	PAVEMENT ELEVATION TC = P+0.5'	---	RIGHT OF WAY	→	FLOW ARROW	⊙	STORM MANHOLE	⊗	GATE VALVE	▬▬▬	CONCRETE PAVEMENT
C=XX.XX	CONCRETE ELEVATION	▬▬▬	CURB AND GUTTER	▭	CATCH BASIN	⊙	DRYWELL	⊕	FIRE HYDRANT		
		— RL —	RIDGELINE	▬▬▬	STORM PIPE	⊙	NYLOPLAST BASIN	⊙	SEWER MANHOLE		

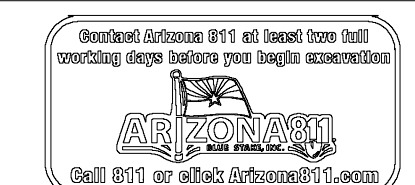
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PROJECT: PARK VILLAGE
LOCATION: 16001 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254

DRAWN: FV 04/12/2023
DESIGNED: FV 04/12/2023
QC: TM 04/12/2023
FINAL QC: SC 04/12/2023
PROJ. MGR: AF 04/12/2023

DATE: 04/12/2023
ISSUED FOR: SUBMITTAL

REVISION NO.:	DATE:

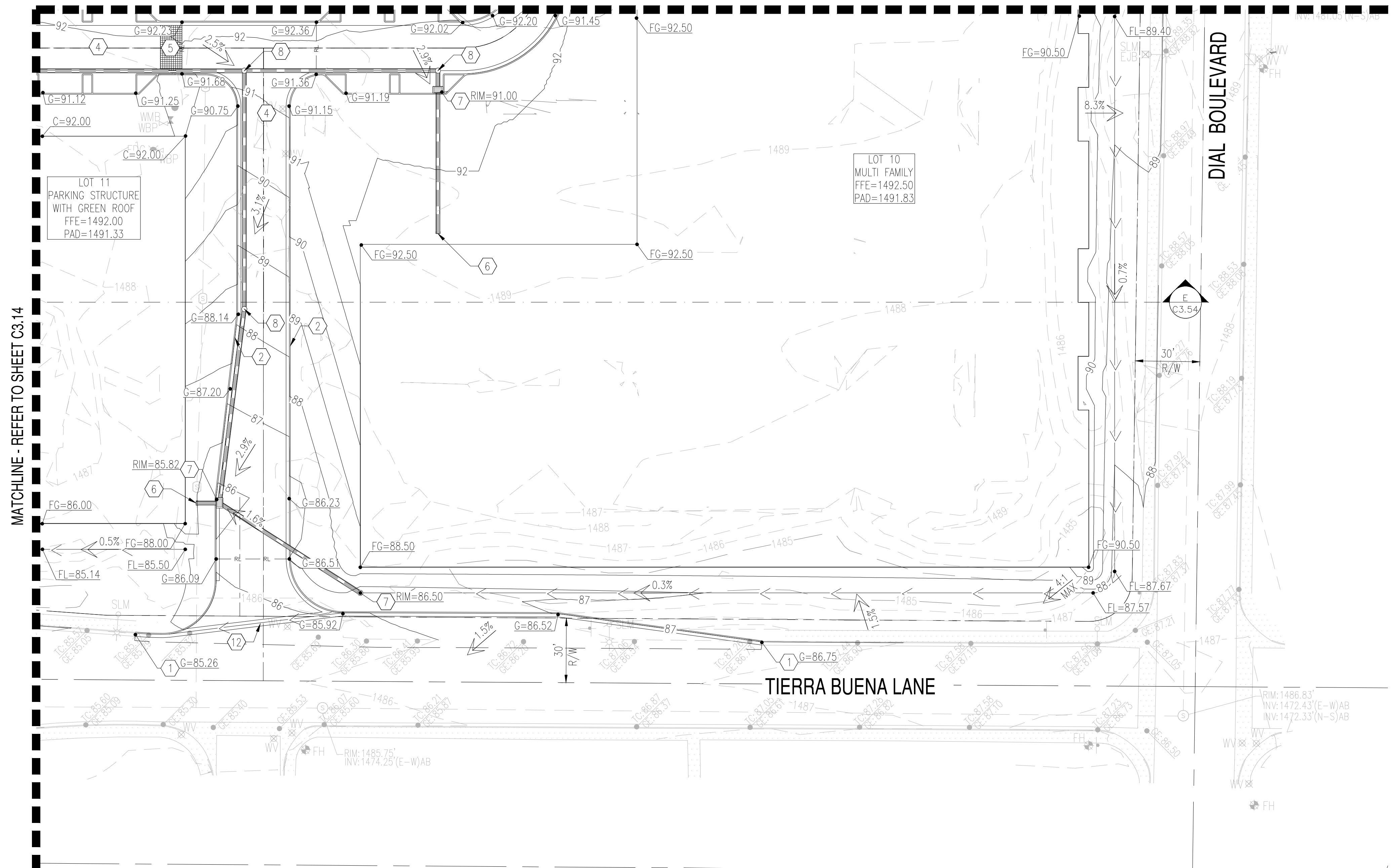
JOB NO.: 211005

SHEET TITLE:
**PRELIMINARY
GRADING &
DRAINAGE PLAN**

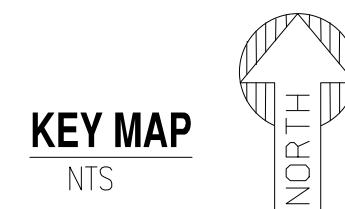
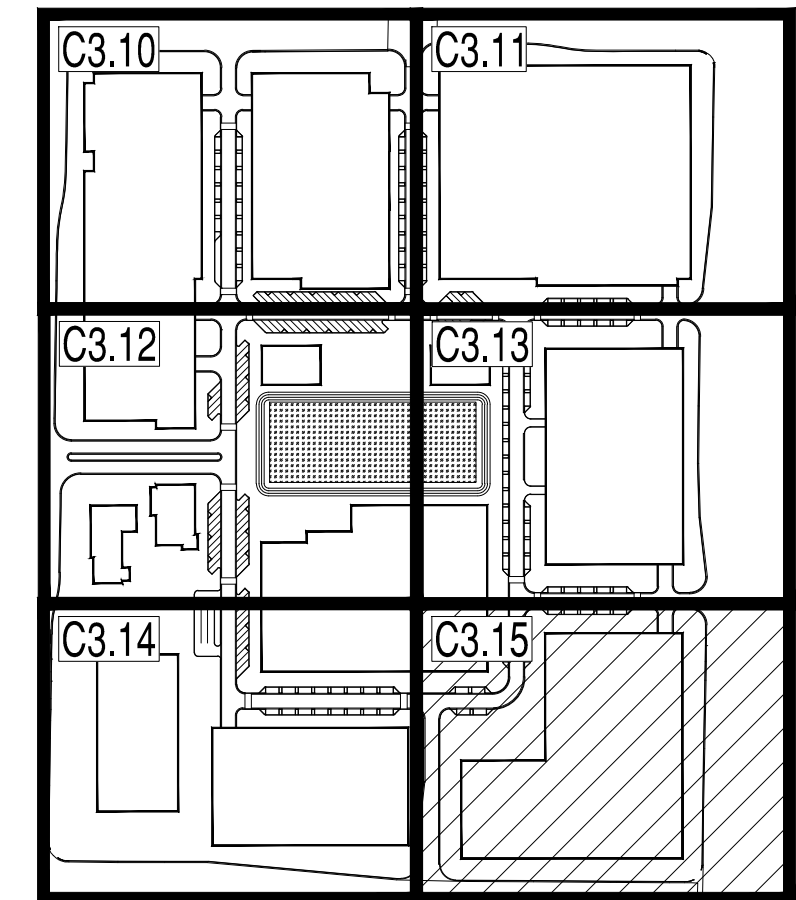
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SHEET NO.: C3.14

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MATCHLINE - REFER TO SHEET C3.13



MATCHLINE - REFER TO SHEET C3.14



PRELIMINARY GRADING NOTES

- ① MATCH EXISTING GRADE.
- ② PROPOSED 6" VERTICAL CURB AND GUTTER.
- ②A PROPOSED 6" VERTICAL CURB.
- ③ PROPOSED CONCRETE SIDEWALK.
- ③A PROPOSED ADA RAMP.
- ④ PROPOSED LIGHT DUTY PAVEMENT.
- ⑤ PROPOSED PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- ⑥ PROPOSED ROOF DRAIN.
- ⑦ PROPOSED CATCH BASIN.
- ⑧ PROPOSED NYLOPLAST WITH SOLID LID.
- ⑨ PROPOSED HDPE PIPE LENGTH, SIZE AND SLOPE PER PLAN.
- ⑩ PROPOSED UNDERGROUND STORAGE SYSTEM.
- ⑪ PROPOSED MAXWELL PLUS DRYWELL.
- ⑫ PROPOSED VALLEY GUTTER.

EXISTING LEGEND:

--- XXXX ---	EX. MAJOR CONTOURS	--- EX. S ---	SEWER LINE	▬▬▬▬	STORM DRAIN LINE	---	ROAD CENTERLINE
--- XXXX ---	EX. MINOR CONTOURS	⊙	SEWER MANHOLE	▬▬▬▬	CB	▬▬▬▬	STORM CATCH BASIN
TC: XXXX	EX. SPOT ELEVATION	--- EX. W ---	WATER LINE	⊙	⊙	⊙	STORM MANHOLE
GE: XXXX		WV ⊗	WATER VALVE	---	---	---	GAS LINE
---	EASEMENT LINE AS NOTED	+	FIRE HYDRANT	X X	X X	X X	FENCE

PROPOSED GRADING LEGEND:

G=XX.XX	GUTTER ELEVATION, TC = G+0.5'	---	PROPERTY LINE	---	SETBACK	⊙	END SECTION	WV	WATER METER	▬▬▬▬	RIP-RAP
P=XX.XX	PAVEMENT ELEVATION TC = P+0.5'	---	RIGHT OF WAY	---	→	SD	STORM MANHOLE	⊗	GATE VALVE	▬▬▬▬	CONCRETE PAVEMENT
C=XX.XX	CONCRETE ELEVATION	▬▬▬▬	CURB AND GUTTER	▬▬▬▬	▬▬▬▬	DW-DW	DRYWELL	+	FIRE HYDRANT		
		---	RIDGELINE	▬▬▬▬	▬▬▬▬	⊙	NYLOPLAST BASIN	⊙	SEWER MANHOLE		

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PROJECT: PARK VILLAGE
LOCATION: SCOTTSDALE ROAD, 16001 N. SCOTTSDALE, ARIZONA 85254

DRAWN: FV 04/12/2023
DESIGNED: FV 04/12/2023
QC: TM 04/12/2023
FINAL QC: SC 04/12/2023
PROJ. MGR: AF 04/12/2023

DATE: 04/12/2023
ISSUED FOR: SUBMITTAL

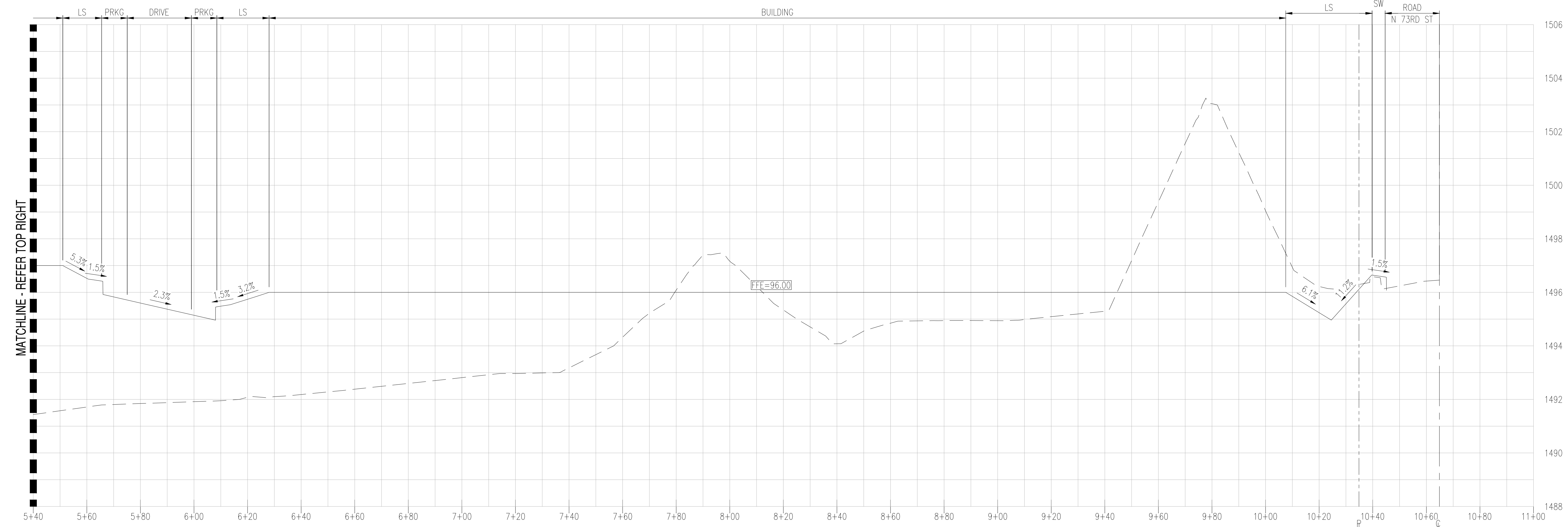
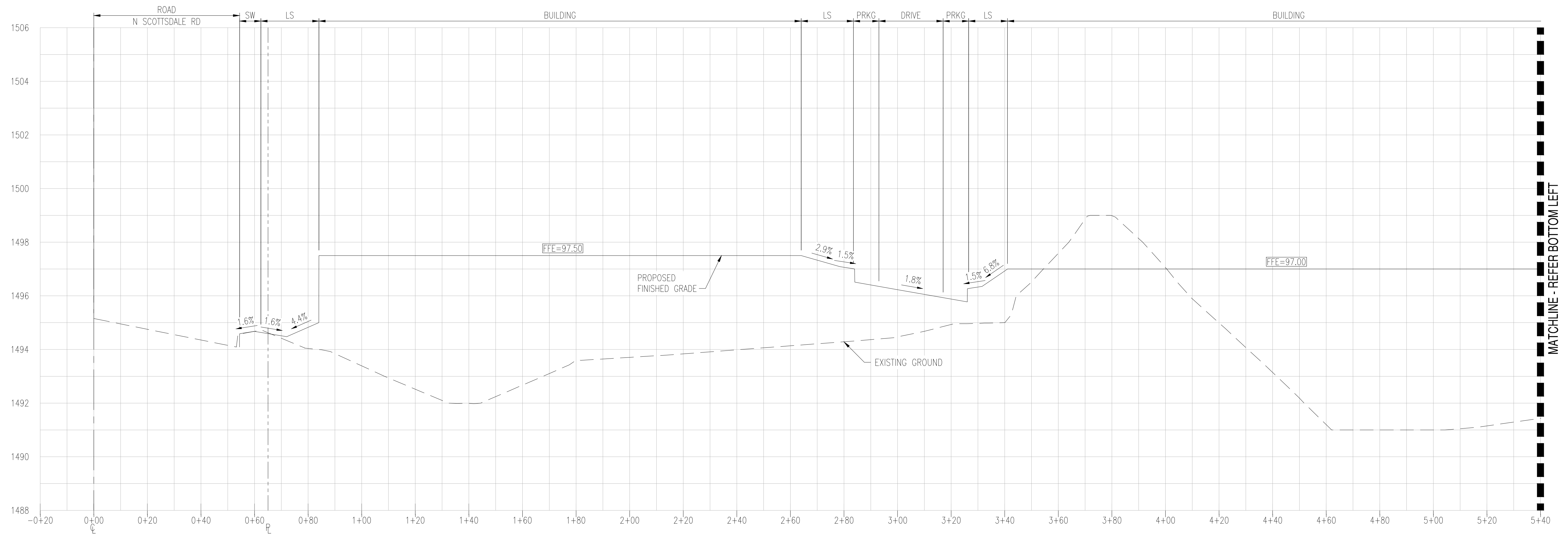
REVISION NO.:	DATE:

JOB NO.: 211005

SHEET TITLE:
**PRELIMINARY
GRADING &
DRAINAGE PLAN**

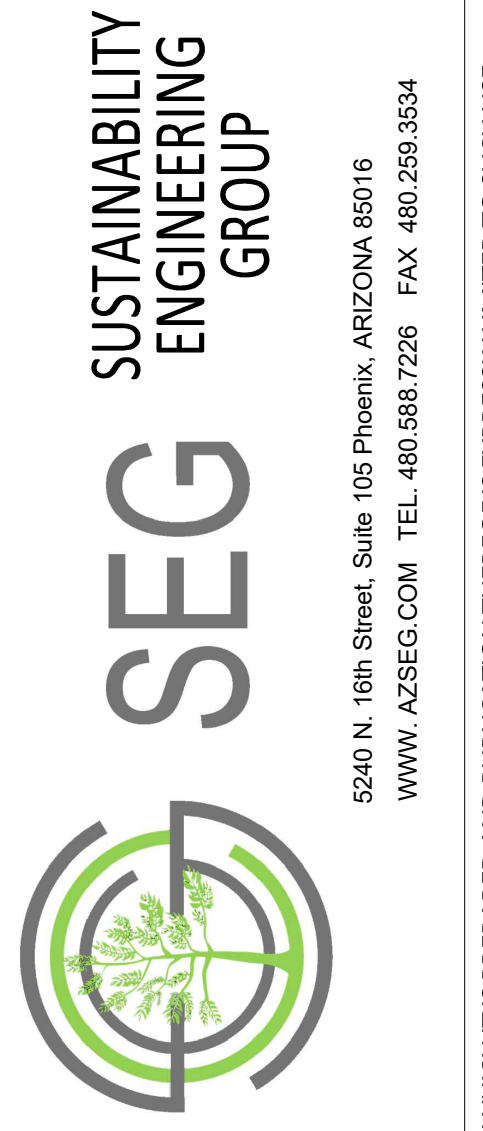
PAGE NO.: 7 OF 12
SHEET NO.: C3.15

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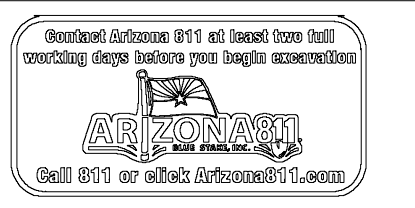


SECTION A-A C3.10 & C3.11
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'

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 LOCATION: 16001 N SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254

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DESIGNED	TM	04/12/2023
FINAL QC	SC	04/12/2023
PROJ. MGR.	AF	04/12/2023

DATE: 04/12/2023
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REVISION NO.:	DATE:

JOB NO.: 211005

SHEET TITLE: CROSS SECTION

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PROJECT: PARK VILLAGE
LOCATION: 16001 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254
DRAWN: FV 04/12/2023
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DATE: 04/12/2023
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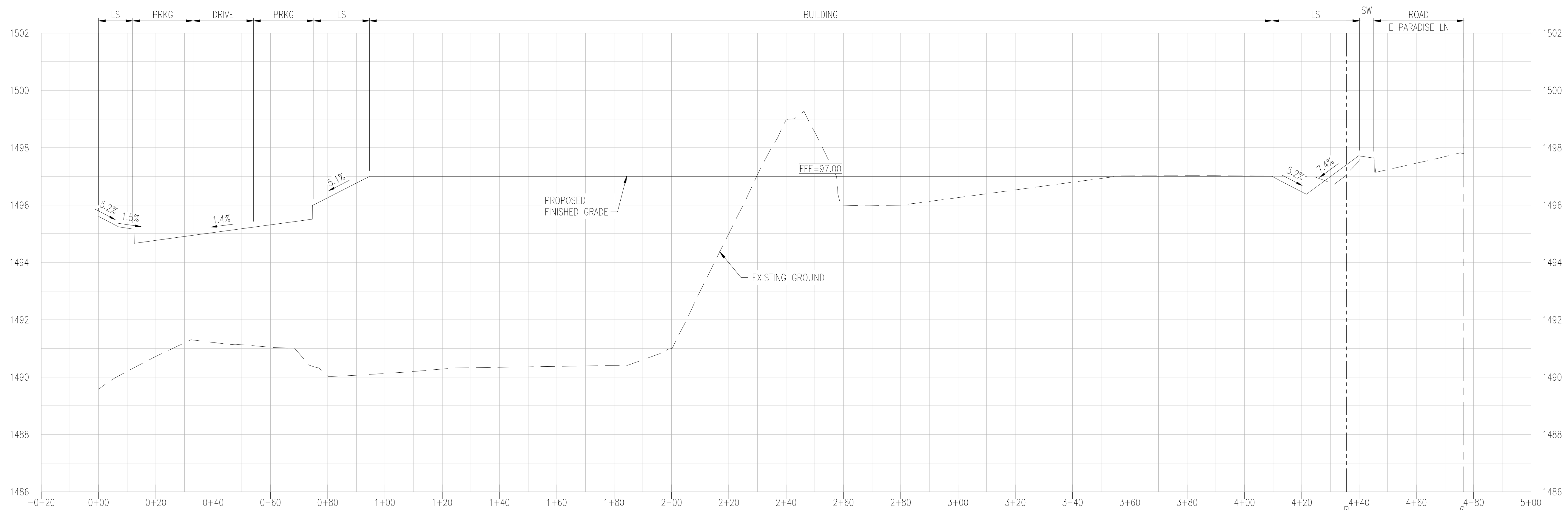
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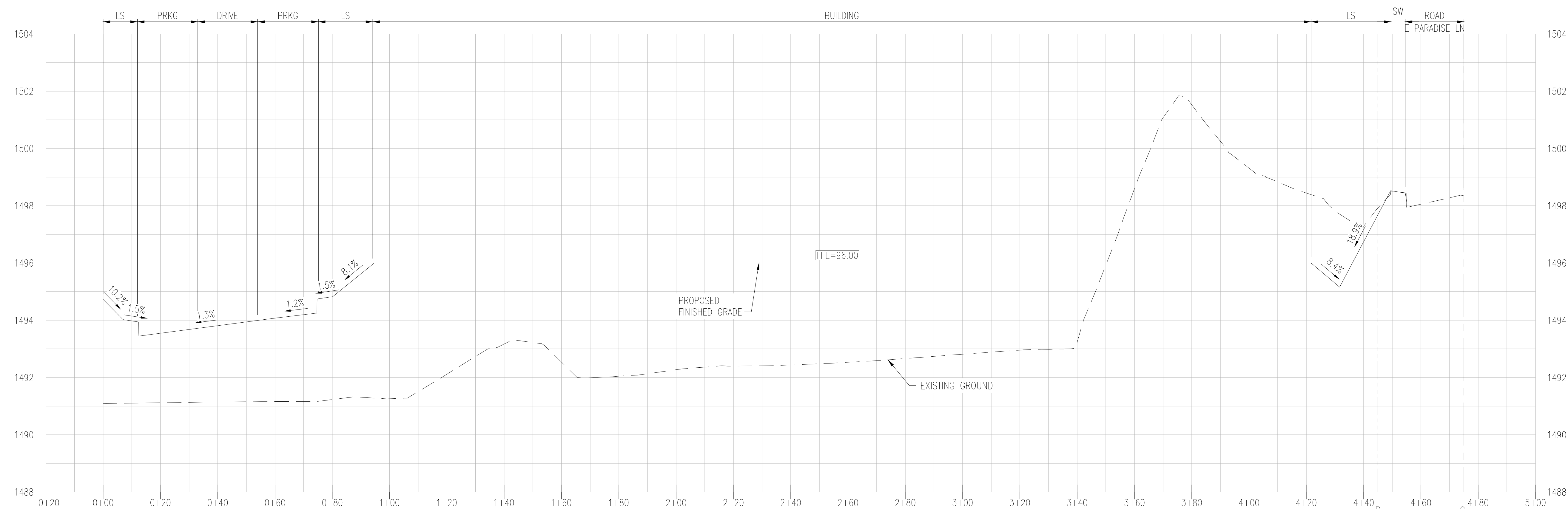
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SECTION F-F C3.10
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



SECTION G-G C3.11
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

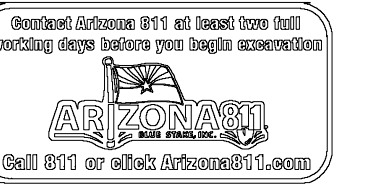
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LOCATION: 16001 N. SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA 85254

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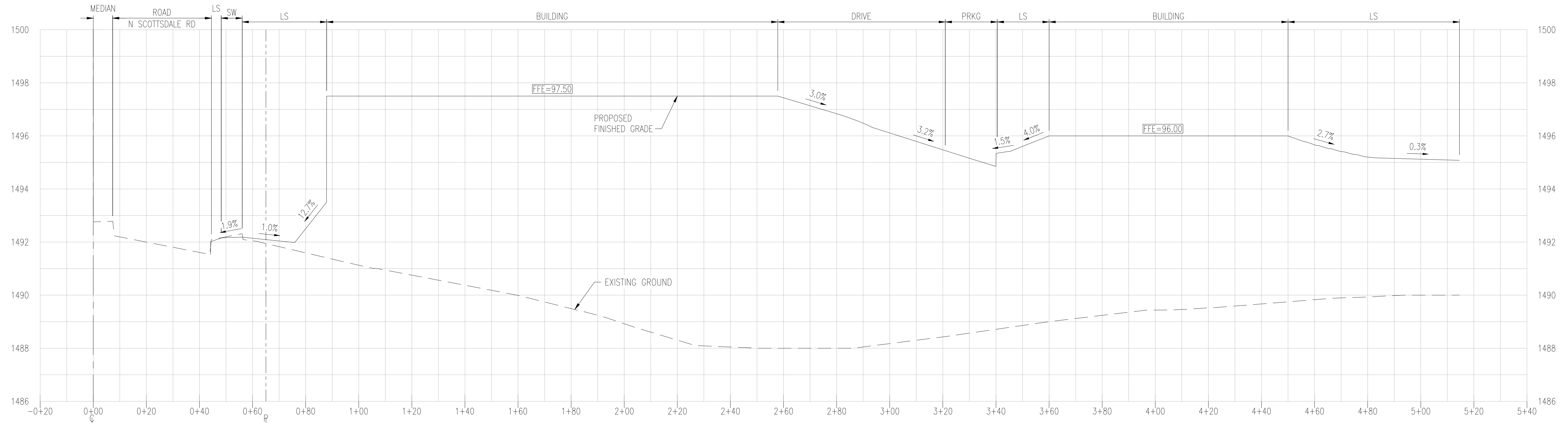
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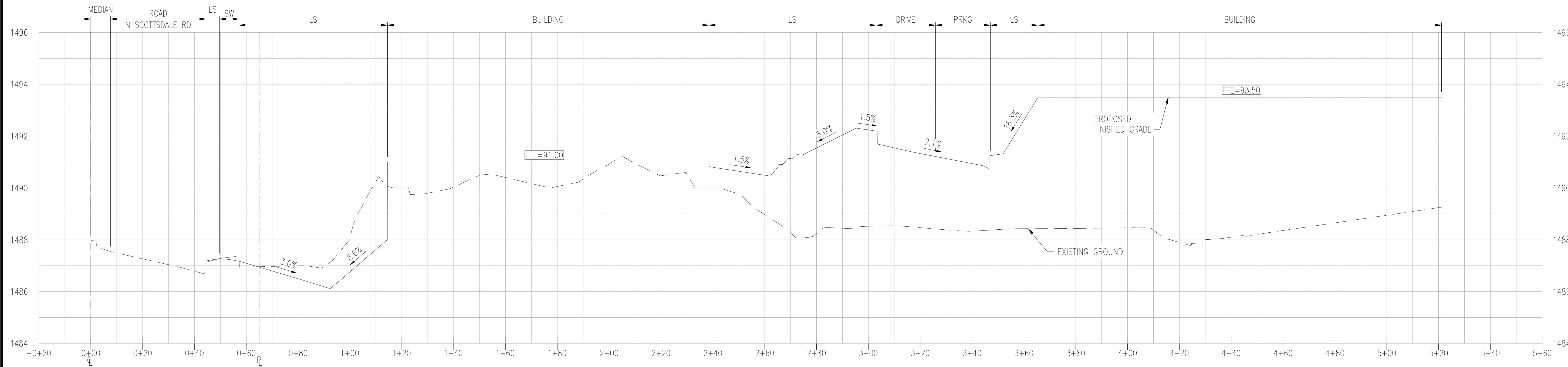
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SHEET NO.: C3.52

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SECTION B-B C3.12
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



SECTION D-D C3.12
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

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PROJECT:
PARK VILLAGE

LOCATION:
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DRAWN	FV	04/12/2023
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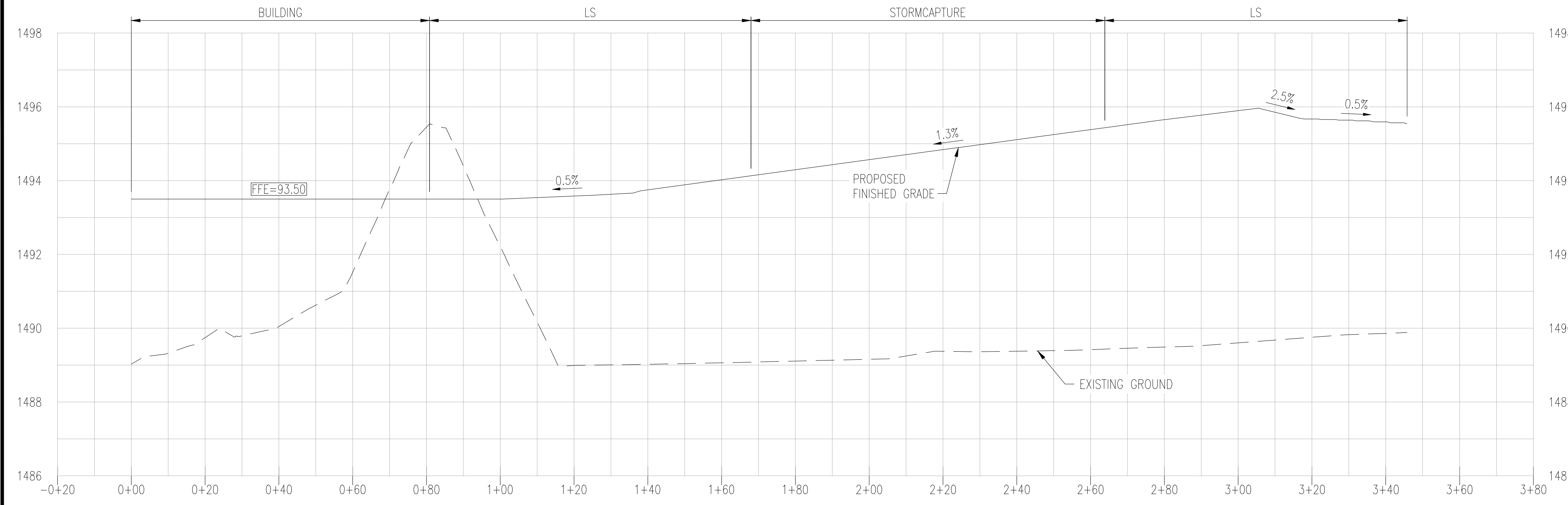
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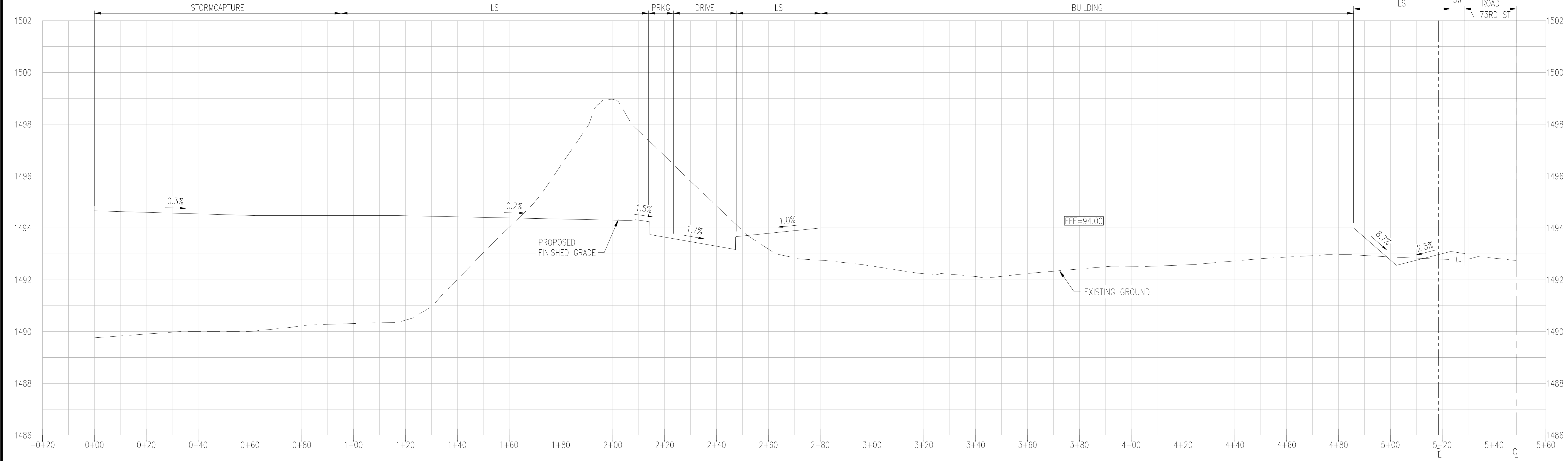
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PAGE NO.: 11 OF 12
SHEET NO.: C3.53

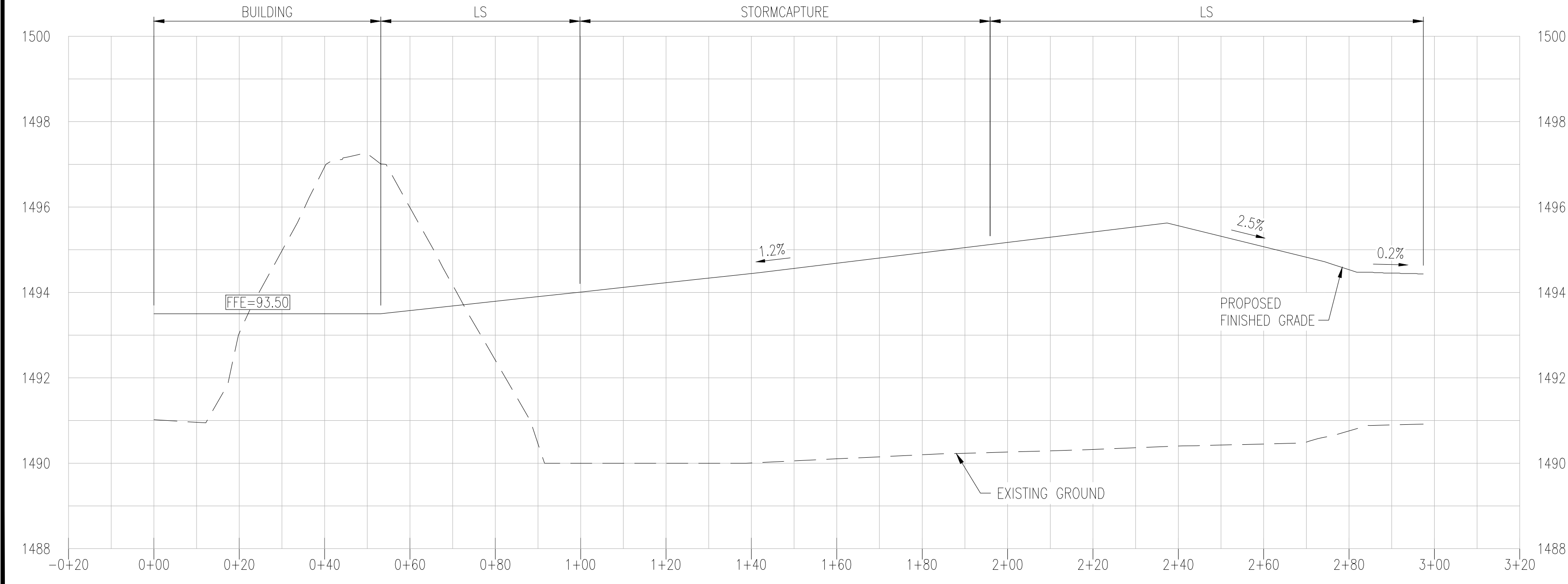
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SECTION H-H C3.12
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



SECTION C-C C3.13
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



SECTION H-H C3.13
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

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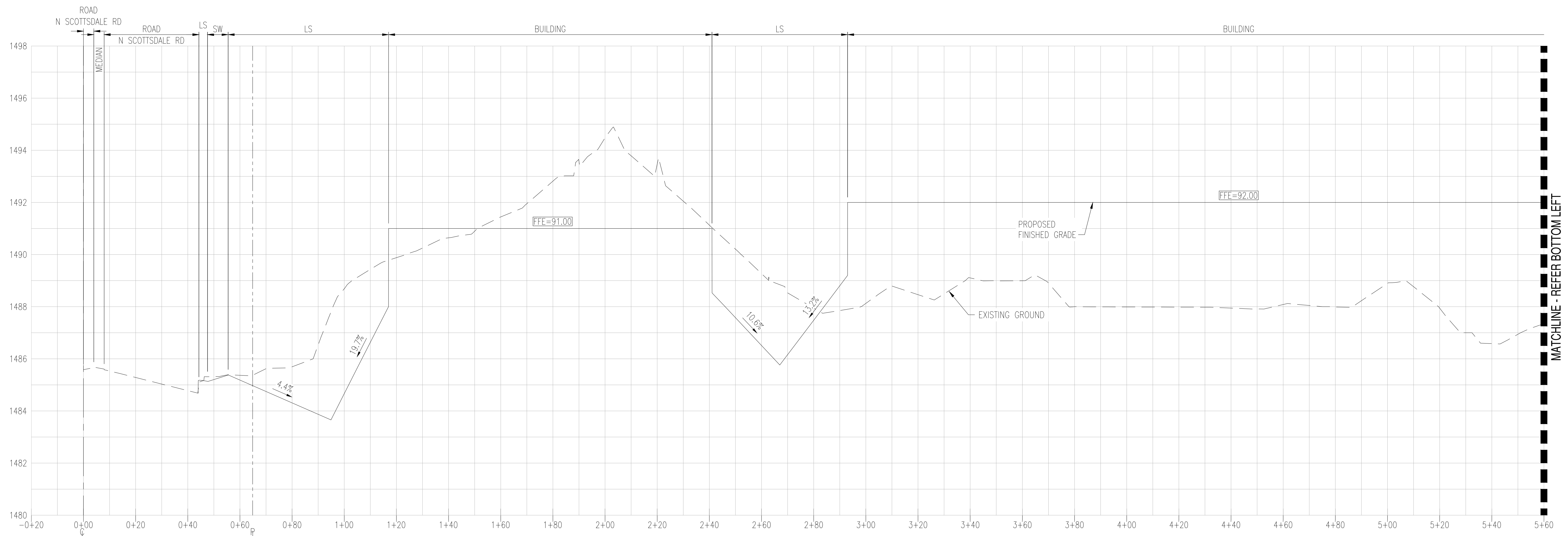
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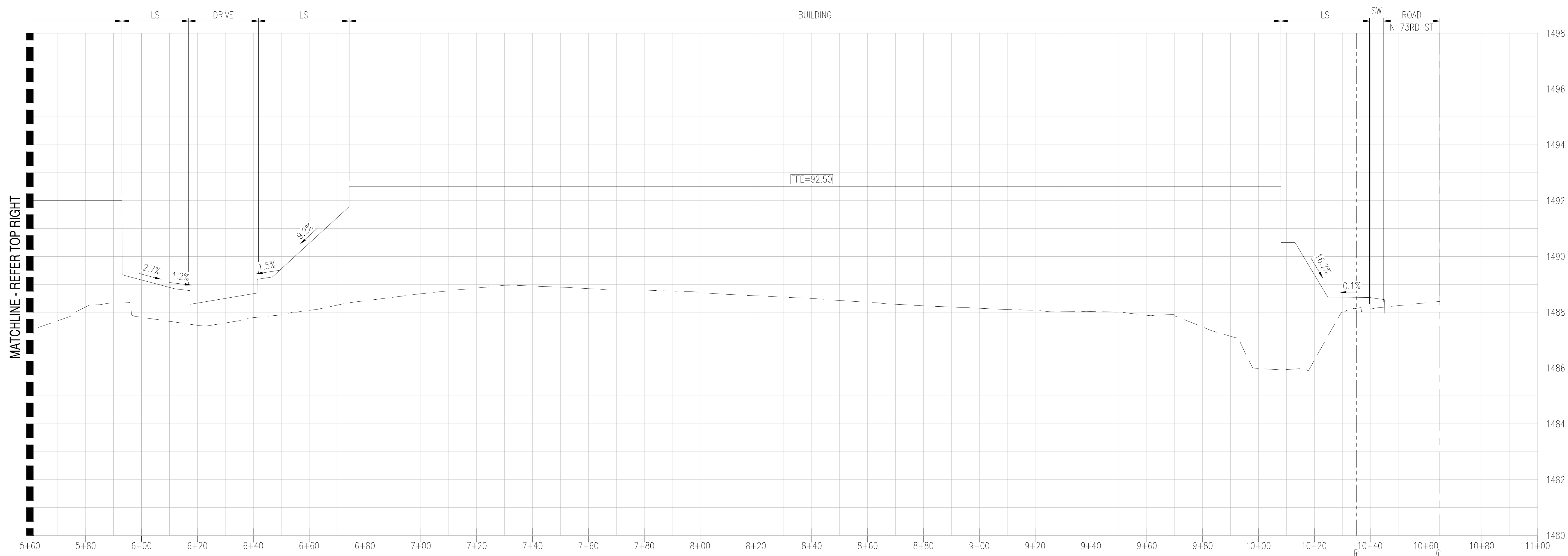
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MATCHLINE - REFER BOTTOM LEFT



MATCHLINE - REFER TOP RIGHT

SECTION E-E C3.14 & C3.15
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'