

TECHNICAL REPORT

Circle K – Yucca Valley

Preliminary Hydrology and Water Quality Technical Report

PREPARED FOR

Circle K Stores, Inc.
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PREPARED BY

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August 2025



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1 INTRODUCTION

1.1 PROJECT SUMMARY

The project site is located on the northwest corner of 29 Palms Highway and is bounded by Avalon Avenue to the East, Paxton Road to the North, Diadem Drive to the Northwest, and an undeveloped lot to the Southwest. The entire project site measures approximately 4.15 acres and is intended to redevelop the existing empty lot. The proposed site breakdown consists of 0.55 acres of new landscaping area, 1.47 acres of hardscape pavement and 2.13 acres of existing landscape to remain for a total of approximately 4.15 acres.

The existing site condition is an undeveloped lot consisting of mostly barren plant cover and dirt. The existing topography shows that runoff within the site primarily flows from the south corner of the property towards the north side.

The proposed site is considered a redevelopment and intends to convert the empty lot into a fuel station and convenience store along with a parking area, drive aisles, trash enclosure and landscaping. The remainder of the site will remain as existing landscaped area and remain undisturbed. The undisturbed area will still be accounted for in the BMP sizing.

1.2 EXISTING CONDITIONS

The existing project site consists mostly of an undeveloped dirt lot. The site slopes moderately with approximately 10 feet of elevation difference. Surface drainage at the site currently sheets from south to northeast of the lot.

1.3 PROPOSED CONDITIONS

Stormwater runoff is proposed to be collected by on-site catch basins and trench drains and conveyed to an underground retention basin where it will infiltrate into the soil for groundwater recharge. Prior to entering the retention basin, runoff will be pretreated via filter inserts placed within each catch basin. Per the Town of Yucca Valley, the site is required to retain 100 cubic feet of water for every 1,000 square feet of impervious area added plus an additional 10%. Therefore, the proposed basin will be sized to retain and infiltrate up to the equivalent of the added impervious area. The retention basin is placed within the drive aisle to Diadem Drive.

2 HYDROLOGIC ANALYSIS

2.1 PROPOSED CONDITION RUNOFF VOLUME

The proposed onsite runoff volume for 100 cubic feet per every 1,000 square feet of new impervious area was based on the total impervious area of the site. The project site proposes a total of 64,351 square feet of impervious areas which include the building, surrounding hardscape paving and parking lot. The required volume to be retained is 7,079 cubic feet.

2.2 BMP DESIGN

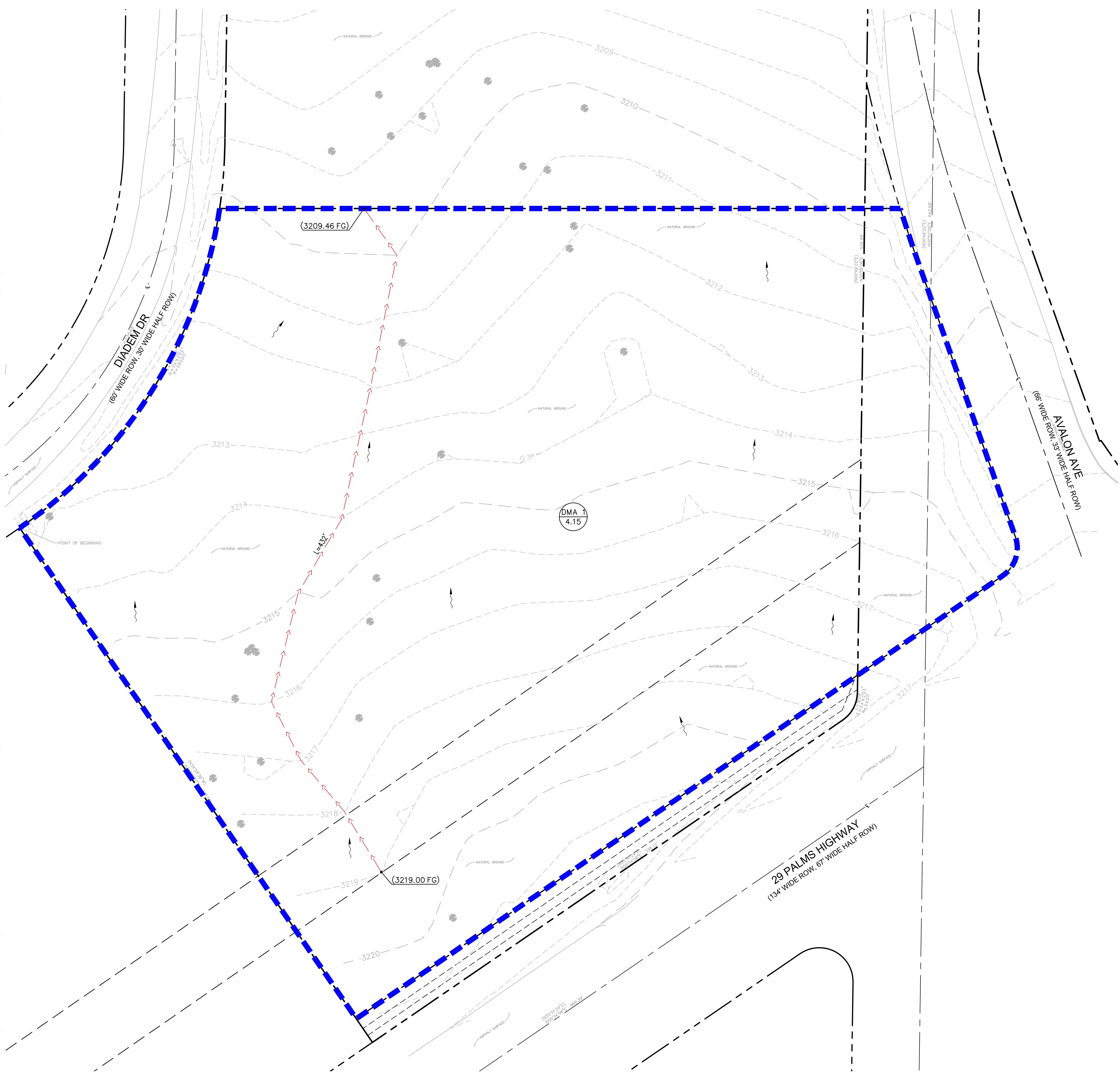
The basin was sized to hold the 100 cubic feet per every 1,000 square feet of impervious area plus 10% of that volume. A stage-storage calculation was done to determine basin dimensions and the provided basin volume. To achieve the required storage volume, the basin was designed to have a bottom elevation of 3203.38 ft and a top elevation of 3209.38 ft, totaling 6 ft of depth. This 6 ft includes a 1 ft freeboard. The stage-storage calculations are included in Appendix B.

3 RESULTS

In summary, the Town of Yucca Valley required storage for a site with 64,351 square feet of impervious new area is 7,079 cubic feet. According to the stage-storage calculations shown in Appendix B, the provided volume of the proposed infiltration basin is approximately 7,200 cubic feet. Since the proposed underground basin volume exceeds that of the required volume, the basin design meets the Town of Yucca Valley standards.

APPENDIX A. FIGURES

Drawing name: K:\CRA_LDE\Circle K\194420063 - Yucca Valley (29 Palms & Avalon)\CADD\Exhibits\Hydrology\HH_Pre_Exhibit.dwg Layout1 Aug 11, 2025 11:01am by: Isabella Valbuena
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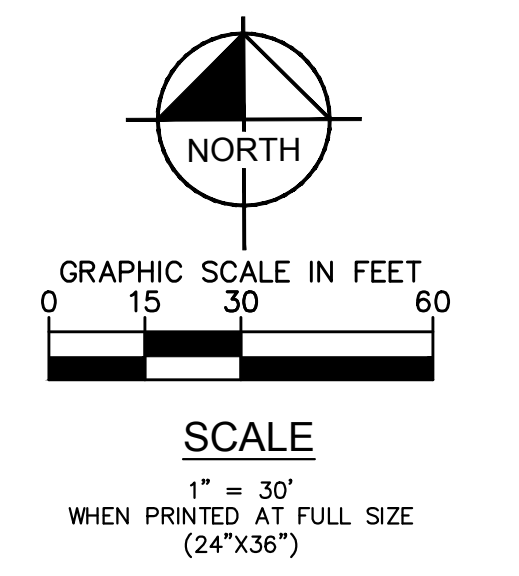


LEGEND

- CENTER LINE
- PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE TO BE ADJUSTED PER TPM BY OTHERS
- EASEMENT LINE
- DRAINAGE AREA (DA LIMITS)/ SITE BOUNDARY
- PROPOSED FLOW LINE
- DIRECTION OF FLOW
- DMA NAME
DMA AREA (IN ACRES)

HYDROLOGY INFORMATION

SITE AREA: 4.15 ACRES
 SOIL TYPE: B (SAN BERNARDINO COUNTY HYDROLOGY MANUAL)
 IMPERVIOUS: 0%
 METHOD: 100 C.F. PER 1,000 S.F. OF IMPERVIOUS (TOWN OF YUCCA VALLEY)



ISSUE	DATE	DESCRIPTION

KV
 DRAWN BY AV
 CHECKED BY AZ
 RECOMMENDED

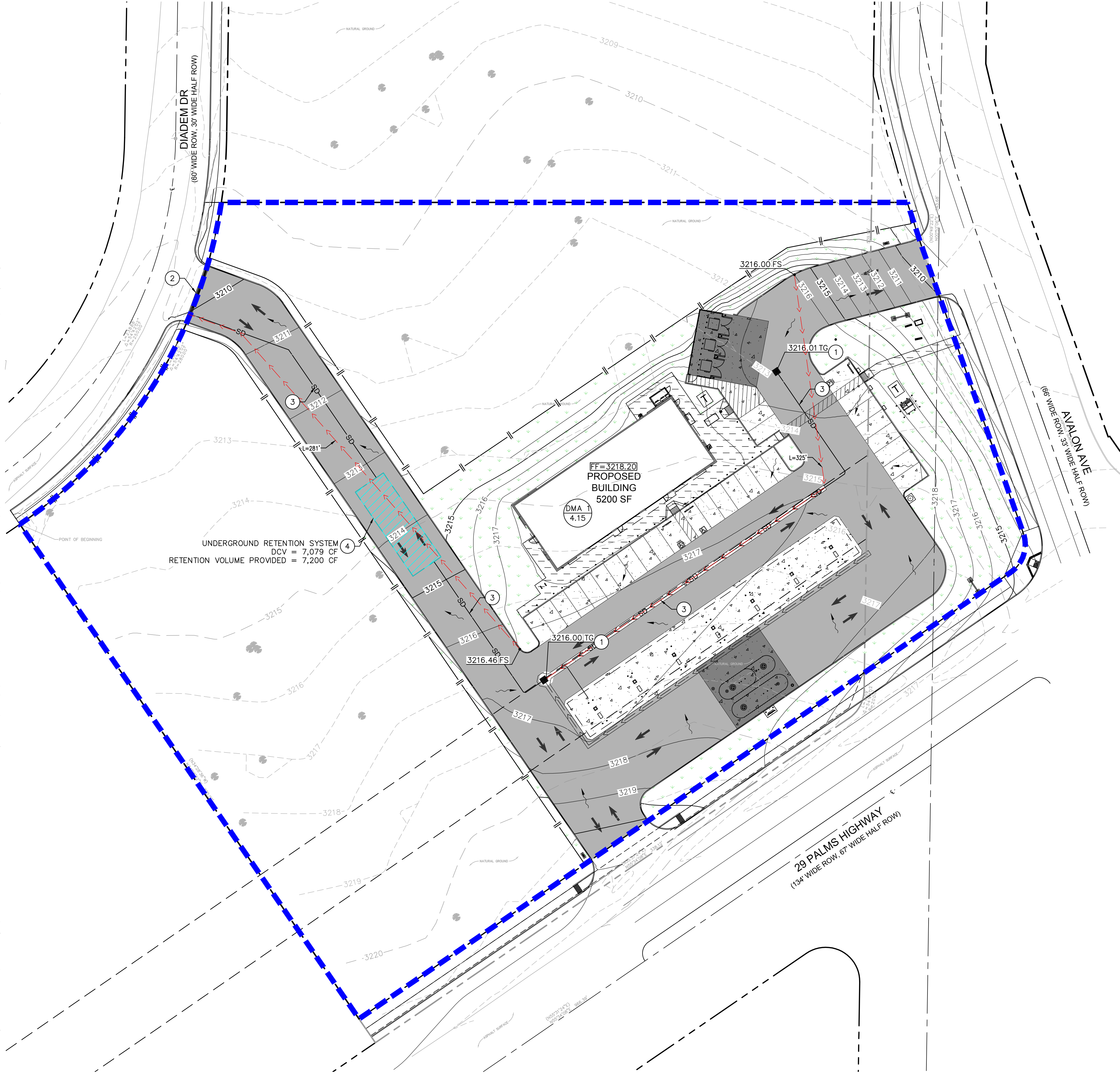
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 DATE: 08/11/2025
 EXP. 03/31/2027

CUP# XXXXXXXXXXXX
 NWC 29 PALMS HWY & AVALON AVE
 YUCCA VALLEY, CA 92284

TOWN OF YUCCA VALLEY
**PRE-DEVELOPMENT
 HYDROLOGY EXHIBIT**

Drawing name: K:\CRA_LDE\Circle K\194420063 - Yucca Valley (29 Palms & Avalon)\CADD\Exhibits\Hydrology\HH_Post_Exhibit.dwg Layout11 Aug 12, 2025 12:44pm by: Isabella Velazquez
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LEGEND

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- EASEMENT LINE
- DRAINAGE AREA (DA LIMITS)/ SITE BOUNDARY
- PROPOSED FLOW LINE
- SD
- PROPOSED STORM DRAIN LINE
- PROPOSED SIDEWALK CONCRETE PAVEMENT
- PROPOSED STANDARD DUTY CONCRETE PAVEMENT
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED LANDSCAPE/PLANTER AREA
- PROPOSED HEAVY DUTY ASPHALT PAVEMENT
- PROPOSED INFILTRATION & RETENTION SYSTEM
- DIRECTION OF FLOW
- DMA NAME
DMA AREA (IN ACRES)

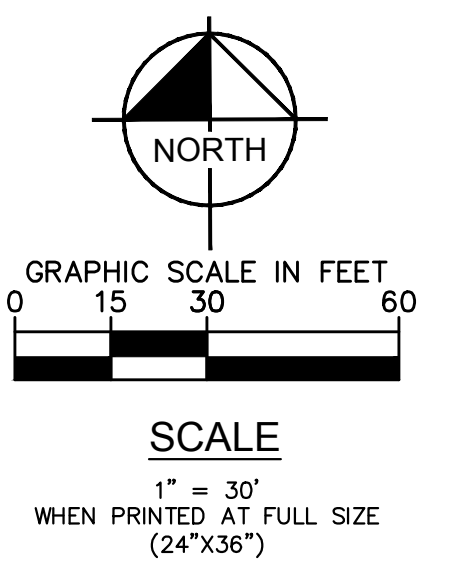
DRAINAGE NOTES

- ① PROPOSED CATCH BASIN
- ② PROPOSED TRENCH DRAIN
- ③ PROPOSED STORM DRAIN PIPE
- ④ PROPOSED BMP - UNDERGROUND BASIN

HYDROLOGY INFORMATION

SITE AREA: 4.15 ACRES
 SOIL TYPE: B (SAN BERNARDINO COUNTY HYDROLOGY MANUAL)
 IMPERVIOUS: 35%
 METHOD: 100 C.F. PER 1,000 S.F. OF IMPERVIOUS (TOWN OF YUCCA VALLEY)

HYDROLOGY SUMMARY					
DRAINAGE AREA NO.	TRIBUTARY AREA (SF)	TRIBUTARY AREA (AC)	IMPERVIOUS RATIO	DCV (CF) *100 CF PER 1,000 SF + 10%	RETENTION PROVIDED (CF)
DMA 1	180,911	4.15	0.35	7,079	7,200



ISSUE	DATE	DESCRIPTION

KV
 DRAWN BY AV
 CHECKED BY AZ
 RECOMMENDED

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 NWC 29 PALMS HWY & AVALON AVE
 YUCCA VALLEY, CA 92284

TOWN OF YUCCA VALLEY
POST-DEVELOPMENT HYDROLOGY EXHIBIT

APPENDIX B. CALCULATIONS

Project Name: Circle K - Yucca Valley
 Project Address: NWC 29 Palms and Avalon Avenue, Yucca Valley, CA 92284
 Date: 7/21/2025

Proposed Area		
Site Area	SF	Acres
Imperious		
Building	5,288	0.12
Pavement	59,063	1.35
Pervious		
(E) Landscape	92,630	2.13
New Landscape	23,930	0.55
Total Area	180,911	4.15

Retention Required	
Total Imp Area (sf)	64,351
Design Volume (cf)	6,435
10% of Volume	644
Req. Design Volume*	7,079

*100 CF for every 1,000 SF impervious area + additional 10% per Town of Yucca Valley