

Preliminary Drainage Report

For

Circle K / Republic West
8001 / 8101 E. McDowell Road

**Southeast Corner of McDowell Road and
Hayden Road**

Scottsdale, AZ

Scottsdale Case: 86-DR-2010 / 22-UP-2010

Scottsdale Plan Check: 3722-10

Job: 029

Dec 2010

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EXP 9-30-11

**PRELIMINARY DRAINAGE REPORT
FOR
Circle K – McDowell / Hayden
Scottsdale, Arizona**

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1.0 INTRODUCTION

The proposed site is located at the southeast corner of McDowell Road and Hayden Road within the City of Scottsdale, Arizona. The site is situated within the Northwest Quarter of Section 1, Township 1 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site is an existing Convenience Store with fueling adjacent to a vacant site on the hard corner. This project is the corner lot and has industrial buildings on the south and east and is bounded on the north by McDowell and on the west by Hayden.

2.0 OBJECTIVES – PROJECT DEVELOPMENT AND BACKGROUND

The purpose of this report is to verify the site compliance with the drainage requirements set forth in the *Drainage Design Manual for Maricopa County, Volume II “Hydraulics*, prepared by the Maricopa County Flood Control District; and the City of Scottsdale Design Standards and Procedures Manual dated January 2010.

3.0 EXISTING SITE CONDITIONS

Currently, the site is a developed fuel / car wash buildings with a grade from the northwest to southeast at a slope of approximately 0.40%. Both streets are fully developed with half streets constructed. The west side of the overall site currently has near 100% impervious cover with limited retention facilities. The site flows to the southwest corner of the site and outfalls to a small basin at the southwest corner of the site. This basin overtops south along the Hayden Road Right of Way. This site is not within a FEMA floodplain or a City of Scottsdale 50 cfs wash.

4.0 FLOOD PLAIN DESIGNATION

The entire site lies within Zone “X” designated flood zone per the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Map (FIRM), Map Numbers 2160F, dated September 30, 2005. The FEMA designation “Zone X” is described as follows:

Zone X is designated as “areas determined to be outside the of 0.2% annual chance floodplain”

See Figure 3 for a copy of the FEMA map.

5.0 PROPOSED STORMWATER SITE RETENTION

STORMWATER RETENTION

This project is proposed to retain the 100 year 2 hour event for the onsite flows. This project will be developed in two phases, and each phase is designed to be successively independent.

Phase I: The Circle K will redevelop the existing site and will partially develop the vacant site to the west. The Circle K will maintain an independent contributing area to a single retention system onsite. This will be retained in a series of 36" HDPE pipes and will bleed off to the city storm drain system thru an oil/water separator.

Concurrently with this phase, Circle K will construct an access to the east driveway across the future pad parcel. This work will involve modification of the existing retention of the Republic West site. The future pad and Republic West site will have a combined retention system for this phase of work. Retention area 1 on the Republic West site will be partially filled in and replaced with a temporary basin on the pad site. This area will constitute one contributing area will several basins which will equalize at the elevation of 19.50. The basins will be connected by two pipes. A bleedoff line from the lowest basin (temporary basin) will be connected to the city storm drain. The contributing area for this part of Phase I will be the entire developed Republic West site and the north half (disturbed area) of the future pad site.

Phase II: At the time of development of the future pad site, the temporary basin will be replaced with a proposed underground retention system. The pipes which tie into the temporary basin from Phase I will remain in place and will be connected to this underground retention system. The pipe which formerly bled off the temporary basin will be re-used and will provide bleedoff of this underground retention system.

The south side of the future pad will have two small surface basins which will retain the south half of the future pad site. These will have bleed pipes to bleed these basins into the underground retention (which will bleed off to city storm drain).

The future pad site and the Republic West site are viewed as one drainage area as the retention will be shared between both parcels. Volumes required are based on actual areas of the site and the current Maricopa County 100 year 2 hour rainfall depths.

Flows within the private accessway (Commerce Drive) along the back of the properties do not enter The Circle K site site and these flows will remain unchanged for both Phases.

Offsite improvements: limited offsite improvements will be constructed as part of this project. Two driveways on McDowell will be adjusted for the new site. An existing Combo inlet on McDowell will be revised to a grate inlet in the reconstructed driveway.

C FACTORS

Each area was calculated for a weighted C factor. See Appendix 6 for calculations of the weighted C factors.

ULTIMATE OUTFALLS

This project ultimate outfall will remain at the southwest corner of the site. The finish floor is in excess of 2' above this elevation. This outfall is unchanged from historical.

DISPOSAL

The onsite retention will dispose using positive drainage from the shallow underground retention system to a connection to the city storm drain inlet on McDowell Road.

404 AND CONSTRUCTION STORMWATER

This project is not located in a 404 wash. Project exceeds 1 acre and will have a Stormwater Management Plan prepared and an NOI filed with ADEQ upon start of construction.

6.0 SUMMARY

- This project is the redevelopment of an existing carwash / fuel site
- The site does not accept any flows from the offsite streets. Both streets are fully developed. This project will contain two separate drainage areas, one for the Circle K and one for the future pad / Republic West site. The future site will adjust existing shared basins on this site and will provide temporary 100 year 2 hour retention.
- The Project Site is located within FEMA designated flood zone "X".
- Site currently has limited retention and outfalls to the Hayden Rd Right of Way at the southwest corner of this site.
- Circle K site will provide retention in shallow underground retention.

7.0 REFERENCES

1. Maricopa County Flood Control District. Drainage Design Manual for Maricopa County, Volume II "Hydraulics", January 1996.
2. Federal Emergency Management Agency, Flood Insurance Rate Map, Maricopa County, Arizona and Incorporated Areas, Map Number 04013C2160F, Sept 30, 2005.
3. City of Scottsdale, Design Standards and Procedures Manual Chapter 4, January 2010.

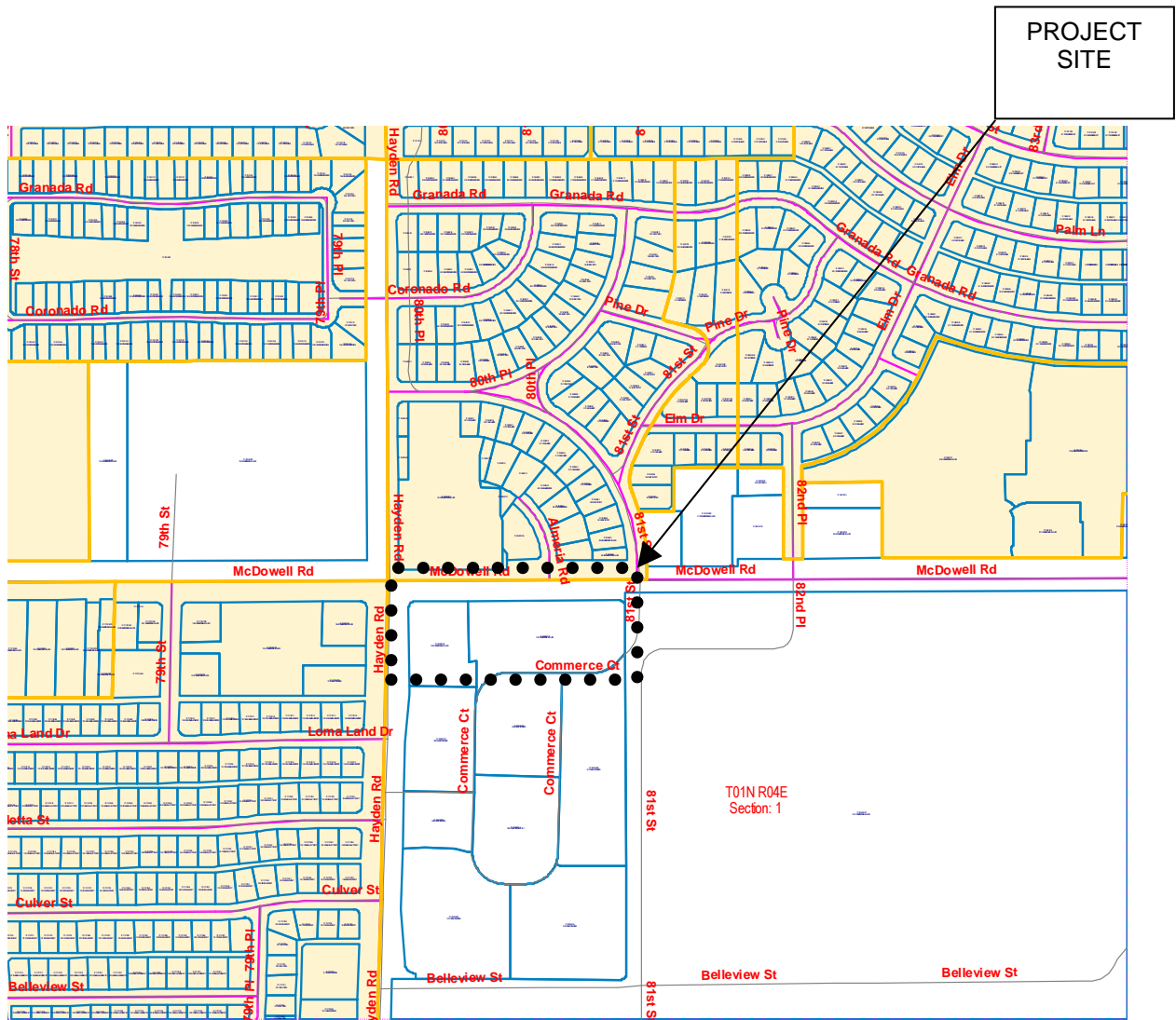


Figure 1-VICINITY MAP

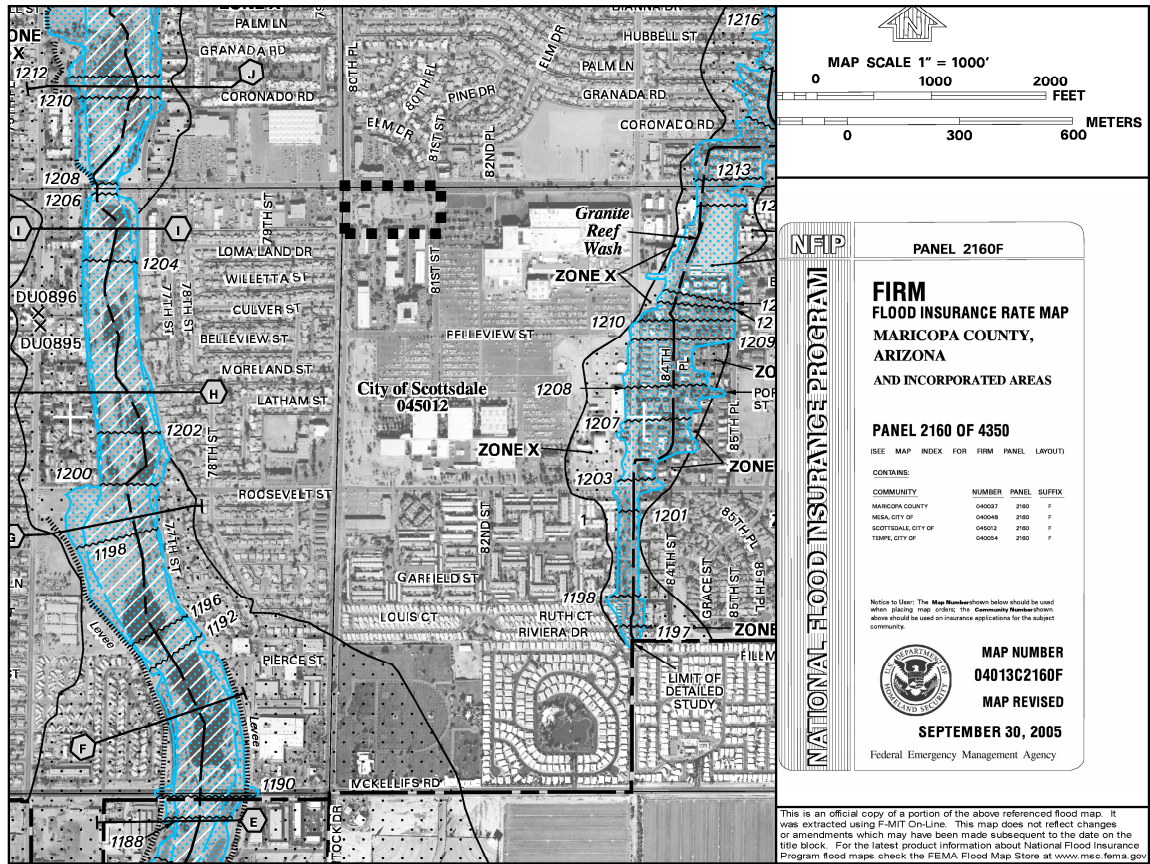
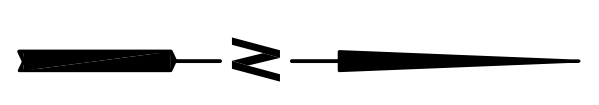
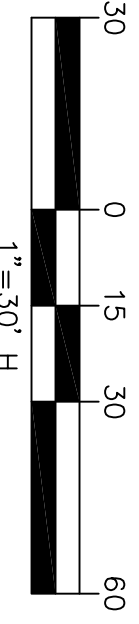
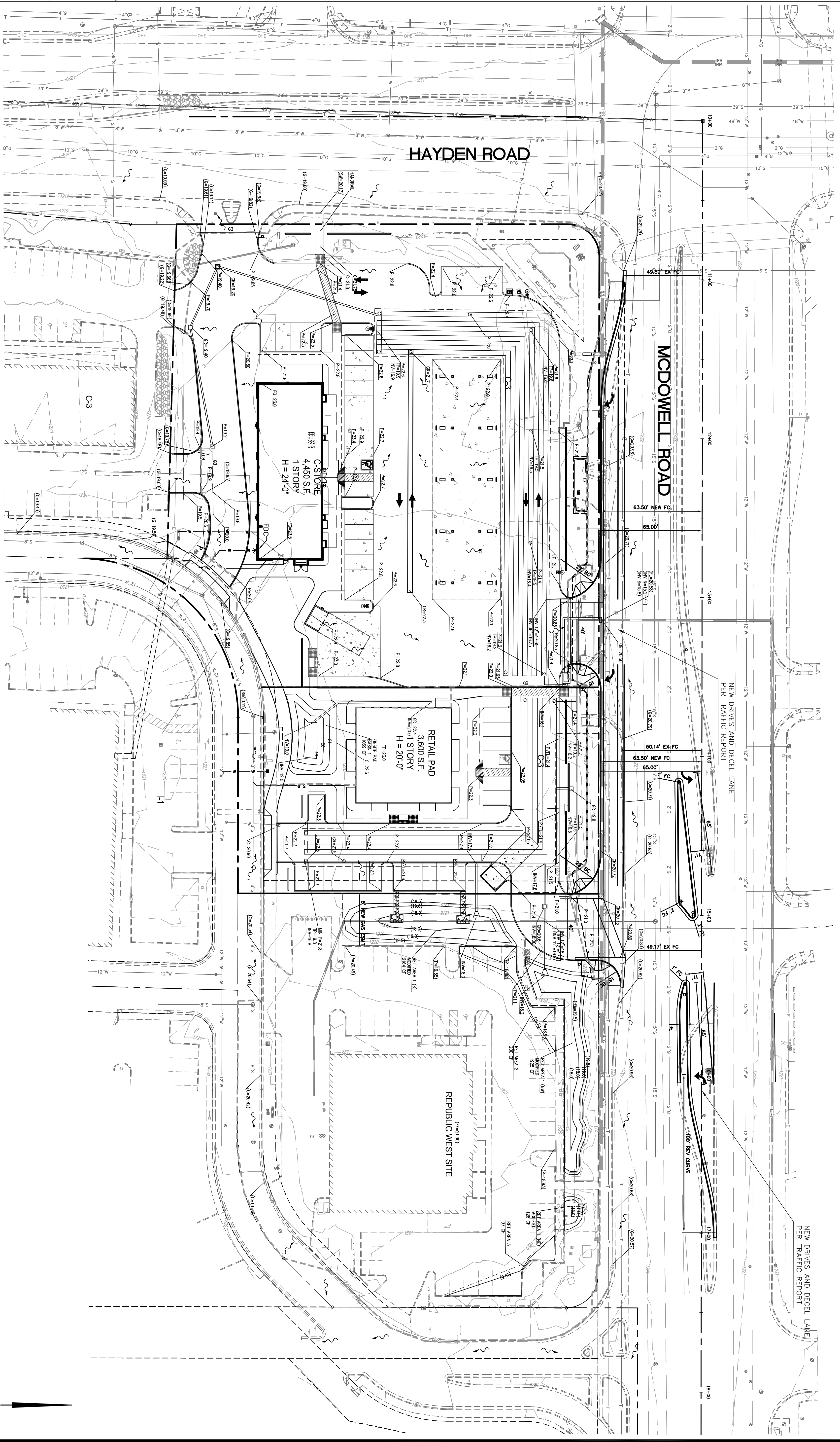
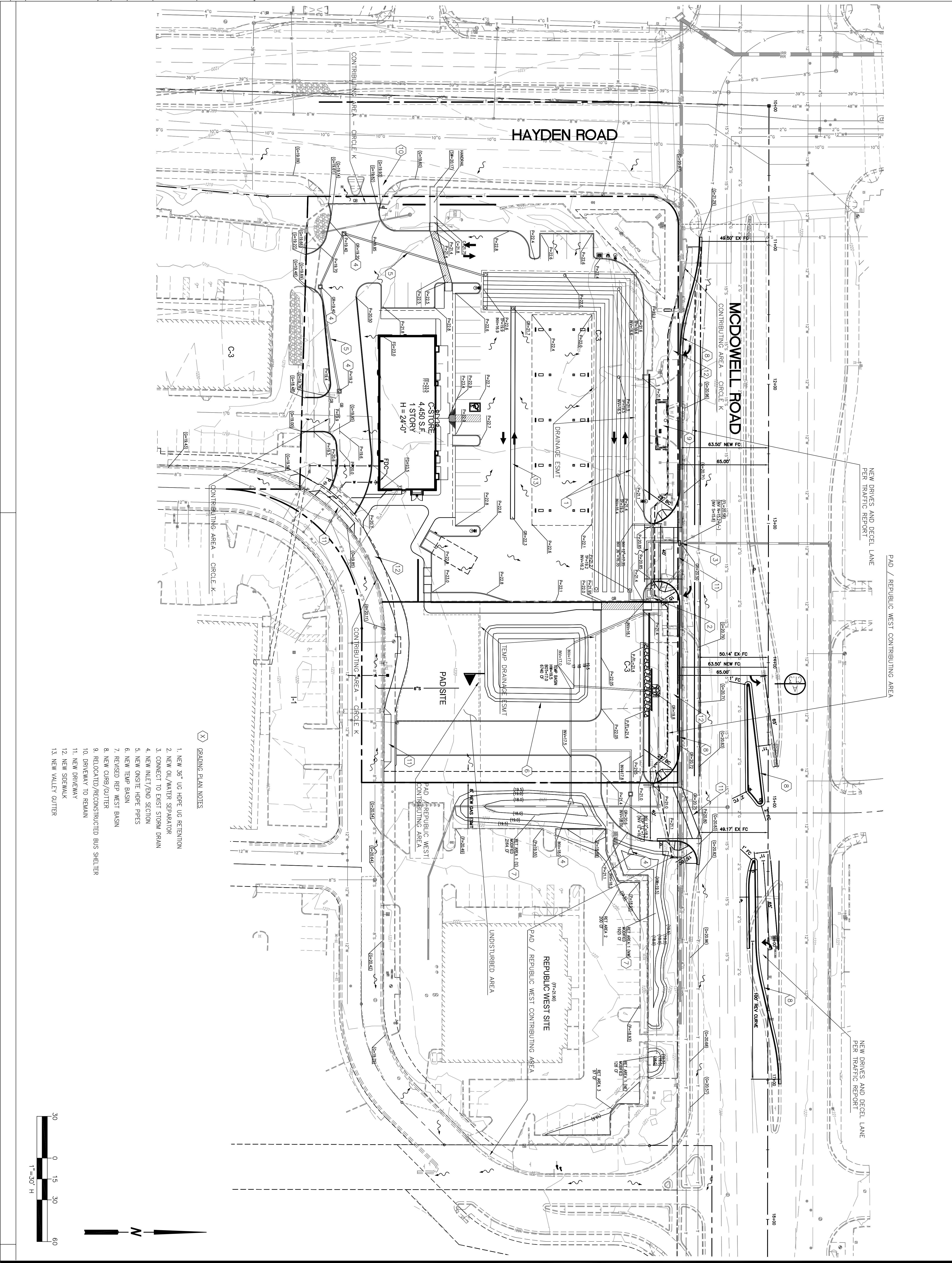


Figure 3-FEMA MAP

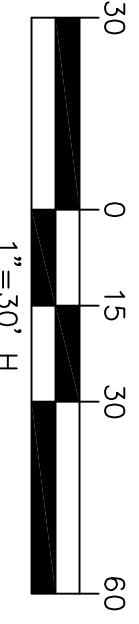
Figure 4-DRAINAGE MAPS



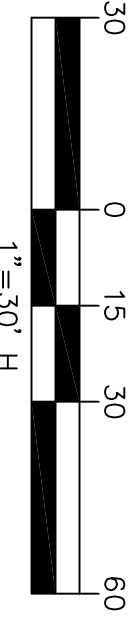
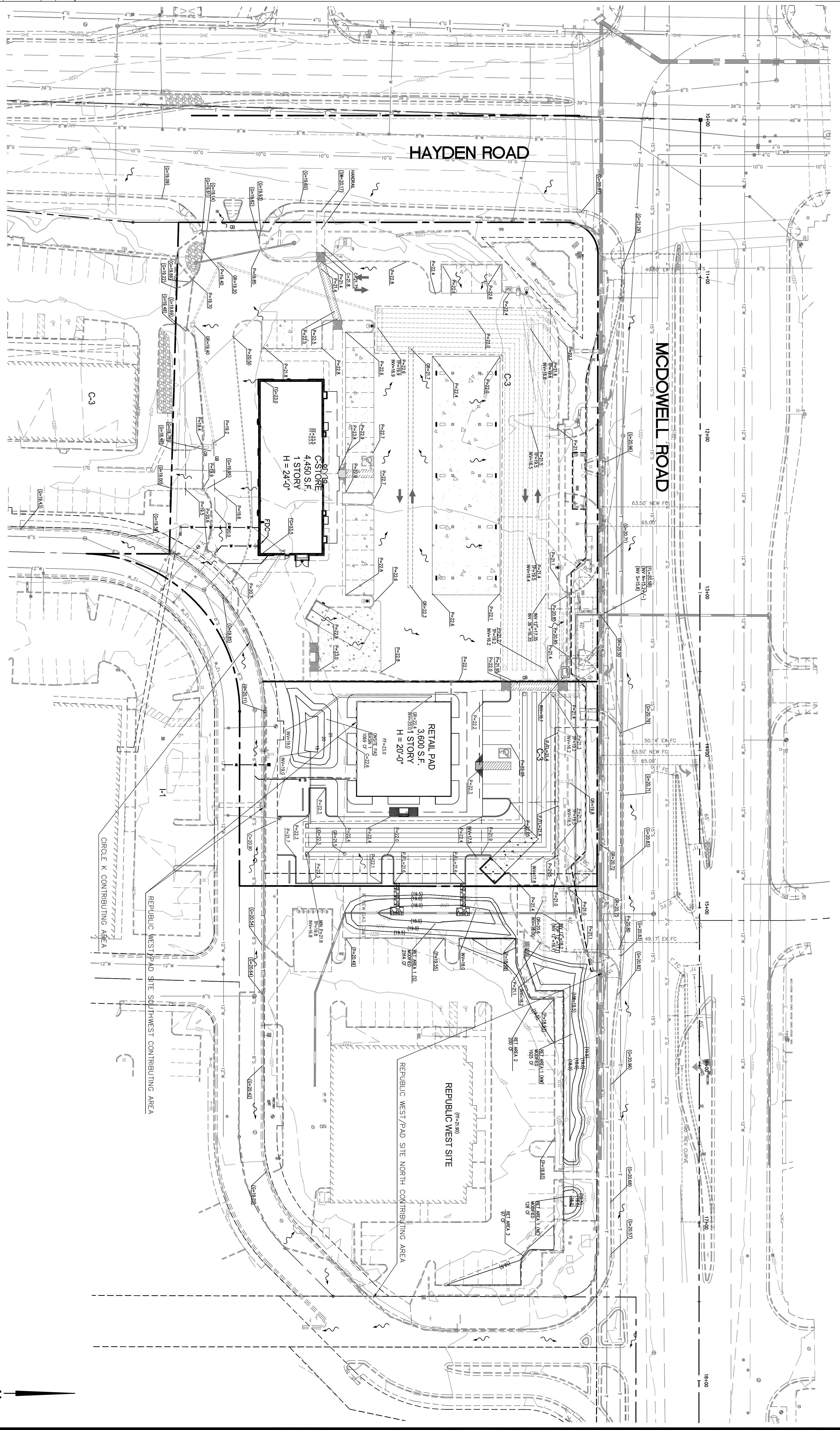
<p>CLIENT: MD Partners, LLC 15001 N. 30th St., Suite A Scottsdale, AZ 85260 PH: 480-275-1012 FAX: 480-275-1080 Contact: Michael Scanlon</p>	<p style="text-align: center;">PRELIMINARY</p>	<p>Helix Engineering, LLC Engineering, Surveying, Consulting 3240 E Union Hills Suite 112 Phoenix AZ 85050 PH: 602-535-1186 www.helixeng.com</p>	<p>THIS DRAWING IS COPYRIGHTED AND IS THE SOLE PROPERTY OF THE OWNER. IT IS PRODUCED SOLELY FOR USE BY THE OWNER AND ITS AFFILIATES. REPRODUCTION OR USE OF THIS DRAWING AND/OR THE INFORMATION CONTAINED HEREIN WITHOUT THE WRITTEN PERMISSION OF THE OWNER.</p>	<p>PRELIM -NOT FOR CONSTRUCTION</p> <p>TWO WORKING DAYS BEFORE YOU DIG CALL FOR THE BLUE STAKES BLUE STAKE CENTER 1-800-782-5348</p>	<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>7-15-10</td> <td></td> <td>PRELIM ENGR</td> </tr> <tr> <td>11-16-10</td> <td></td> <td>1ST DR COMMENTS</td> </tr> <tr> <td>12-15-10</td> <td></td> <td>OWNERS COMMENTS</td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION	7-15-10		PRELIM ENGR	11-16-10		1ST DR COMMENTS	12-15-10		OWNERS COMMENTS
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<p>PROJECT NAME: CIRCLE K PROJECT ADDRESS: 8001/8101 E. McDOWELL RD PROJECT AREA:</p>																	
<p>HELIX JOB NUMBER: 029 IN HOUSE: DRAWN BY: HXE CHECKED BY: SB</p>																	
<p>OVERALL G-D PLAN</p> <p>SHEET C2.1 PAGE 4 OF 10</p> <p>PLOT SCALE: 1"1 @ 24'x36" 1:2.2 @ 11'x17"</p>																	



- (X) GRADING PLAN NOTES
1. NEW 36" UG HOPE UG RETENTION
 2. NEW OIL/WATER SEPARATOR
 3. CONNECT TO EXIST STORM DRAIN
 4. NEW INLET/END SECTION
 5. NEW ONSITE HOPE PIPES
 6. NEW TEMP BASIN
 7. REUSED REP WEST BASIN
 8. NEW CURB/GUTTER
 9. RELOCATED/RECONSTRUCTED BUS SHELTER
 10. DRIVEWAY TO REMAIN
 11. NEW DRIVEWAY
 12. NEW SIDEWALK
 13. NEW VALLEY CUTTER



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<p>SHEET: C22 PAGE: 5 OF 10 PLLOT SCALE: 1"1 @ 24'x36" 1:22 @ 11'x17"</p>	<p>CIRCLE K PH 1 G-D PLAN</p>												



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RELEASE DATE	BY
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12-15-10	OWNERS COMMENTS

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PROJECT NAME: CIRCLE K
PROJECT ADDRESS: 8001/8101 E. MCDOWELL RD
PROJECT AREA:

HELIX JOB NUMBER: 029
DRAWN BY: HXE
CHECKED BY: SB

SHEET TITLE: PHASE II G-D PLAN

SHEET: C2.3 **PAGE:** 6 OF 10

PLOT SCALE: 1/4" @ 24'x36" 1/2" @ 11'x17"

Figure 5-Retention Calculations

Figure 6-C Factor Calculations and 100 Year 2 hour rainfall depths

Weight C Factor Calculations

Area Descriptions	Area (SF)	C Factor	C x A	Comments
Phase I project Pad and Republic West Site				
Landscape	33,216	0.45	14947	
Impervious	46,473	0.95	44149	Existing Republic West Hardsdape plus Access drive on Pad site
TOTALS	79,689	Weighted C factor 0.74	59097	

Phase I Circle K				
Landscape	15,208	0.45	6844	
Impervious	53,150	0.95	50493	Existing Republic West Hardsdape built out Pad site
TOTALS	68,358	Weighted C factor 0.84	57336	

Phase II project Pad and Republic West Site				
Landscape	25,379	0.45	11421	
Impervious	58,431	0.95	55509	Existing Republic West Hardsdape built out Pad site
TOTALS	83,810	Weighted C factor 0.80	66930	

FIGURE A.56
100-YEAR 2-HOUR RAINFALL ISOPLUVIALS

