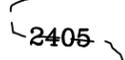


**LEGEND**

 **SITE** Rezoning Site

 Existing Condition Topographic Contour (1' Interval)

Average Cross Slope = 2.15%

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 (Ownership Entity: Mandarin Associates)  
 REZONING: SR to CR-5

EXHIBIT I-B.1a-e  
 TOPOGRAPHIC  
 CHARACTERISTICS  
 PAGE 11

## **C. HYDROLOGY**

### **1. Off-Site Watersheds**

CMG Drainage Engineering, Inc. (CMG) has completed a comprehensive preliminary drainage assessment for four (4) specific properties controlled by Red Point Development, all of which are concurrently proceeding through the rezoning process. This CMG assessment is the source work used in this Site Analysis to present the specific hydrologic findings pertaining to the subject Magee Road property. For this reason, the numbering of concentration points (e.g. CP-2) indicated in the Table below and on the accompanying exhibits has been taken as-is from the original CMG source work.

The findings presented here are based on the above assessments, the results of previous study information, such as FEMA/FIRM flood insurance mapping, as well as more recent hydrologic computations using the PC Hydro method.

The boundary of the off-site watersheds contributing stormwater to the subject Magee Road property are shown on Exhibit I-C.1. Four (4) specific offsite watersheds were delineated for this property, all of which emanate from the northeast and enter the property along its north or east boundary.

All of the washes exist in a natural condition and all can be characterized as sheet flow, except between CP-1 and CP-2, which is fairly well channelized.

CP-2 is the location where the largest off-site flow enters the site by way of a large box culvert located beneath Thornydale Road. This flow subsequently exits the site at CP-1 along its south property boundary. The drainage areas at CP-1 and CP-2 are 648.6 acres and 654.4 acres, respectively.

CP-3 impacts the site at its extreme southeast corner, near the intersection of Magee Road and Thornydale Road. It flows westward, primarily within the public street right-of-way, ultimately draining to CP-1. The drainage area at CP-3 is 33.2 acres.

CP-5 enters the property along the north boundary, traversing the site in sheet flow, and then exits at CP-4 near the property's southwest corner. The drainage area at CP-4 and CP-5 are 19.9 acres and 28.9 acres, respectively.

### **2. Off-Site Natural or Man-Made Features**

There are only a small number of constructed channels and detention basins within the upstream contributing watersheds. The most significant man-made feature is the aforementioned culvert beneath Thornydale Road; this culvert outlets at the extreme northeast corner of the subject property.

**3. Acreages & Discharges of Watersheds**

The upstream areas of the offsite watersheds contributing to this parcel were described above in Item 1. They are summarized in the following Table, along with their existing (pre-development) 100-year peak discharges.

Summary of 100-Year Peak Discharges		
Concentration Point Number	Q <sub>100</sub> (cfs)	Drainage Area (Acres)
1	2022	654.4
2	2011	648.6
3	203	33.2
4	131	28.9
5	107	19.9

**4. On-Site Hydrology**

The rezoning site is vacant and undeveloped in the existing condition. The project parcel consists of 100% pervious soils of hydrologic soil Types A, B & C. See Exhibit I.C.4a-g in support of the following:

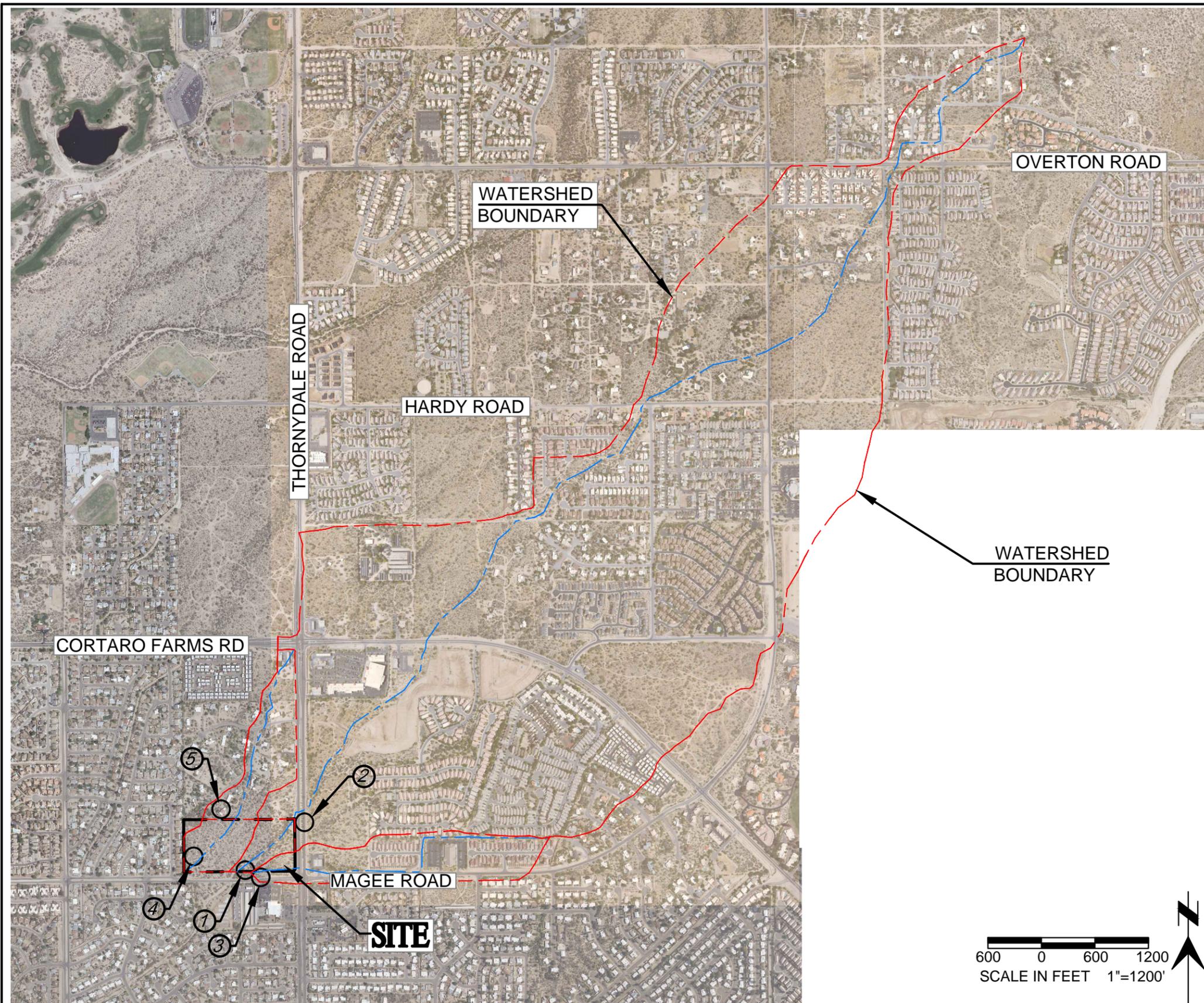
- a. The approximate 100-year regulatory floodplains have been delineated on the Exhibit for the washes in excess of 100 cfs traversing the site.
- b. Most of the rezoning site falls within Zone X (unshaded) on FEMA FIRM Panel #04019C1070L dated June 16, 2011. However, the defined wash diagonally traversing the eastern portion of the property (between CP-1 and CP-2) is mapped by FEMA as Zone A.
- c. The site includes three (3) concentration points (CP-2, 3 & 5) with peak discharges in excess of 100 cfs entering the site. Peak discharges were determined by the Pima County Regional Flood Control District (PCRFCDD) hydrology methods and the PC-Hydro computer program.
- d. The existing washes traversing the site exit the property in their natural state.
- e. The site contains riparian habitat area regulated per the Pima County RFCD Flood Hazard Map; same is delineated on Exhibit I-C.2.
- f. The site contains no existing hydraulic structures or manmade hydraulic features.
- g. There are no sources of perennial surface water located on the site.

- h. According to Pima County Ordinance No. 2010 FC-5, 16.28.030, erosion hazard and building setback distances are required for the above-described watercourses traversing the property. Erosion Hazard Setbacks for each respective wash have been delineated on Exhibit I-C.2.

**5. Qualitative Description of Downstream Drainage Conditions**

There are no unusual conditions along the downstream property boundaries. The washes exit the site in their natural condition and surface drain across Magee Road, continuing in natural channels or ultimately finding their way into man-made channels within the downstream developed properties.

**Exhibits to Follow**



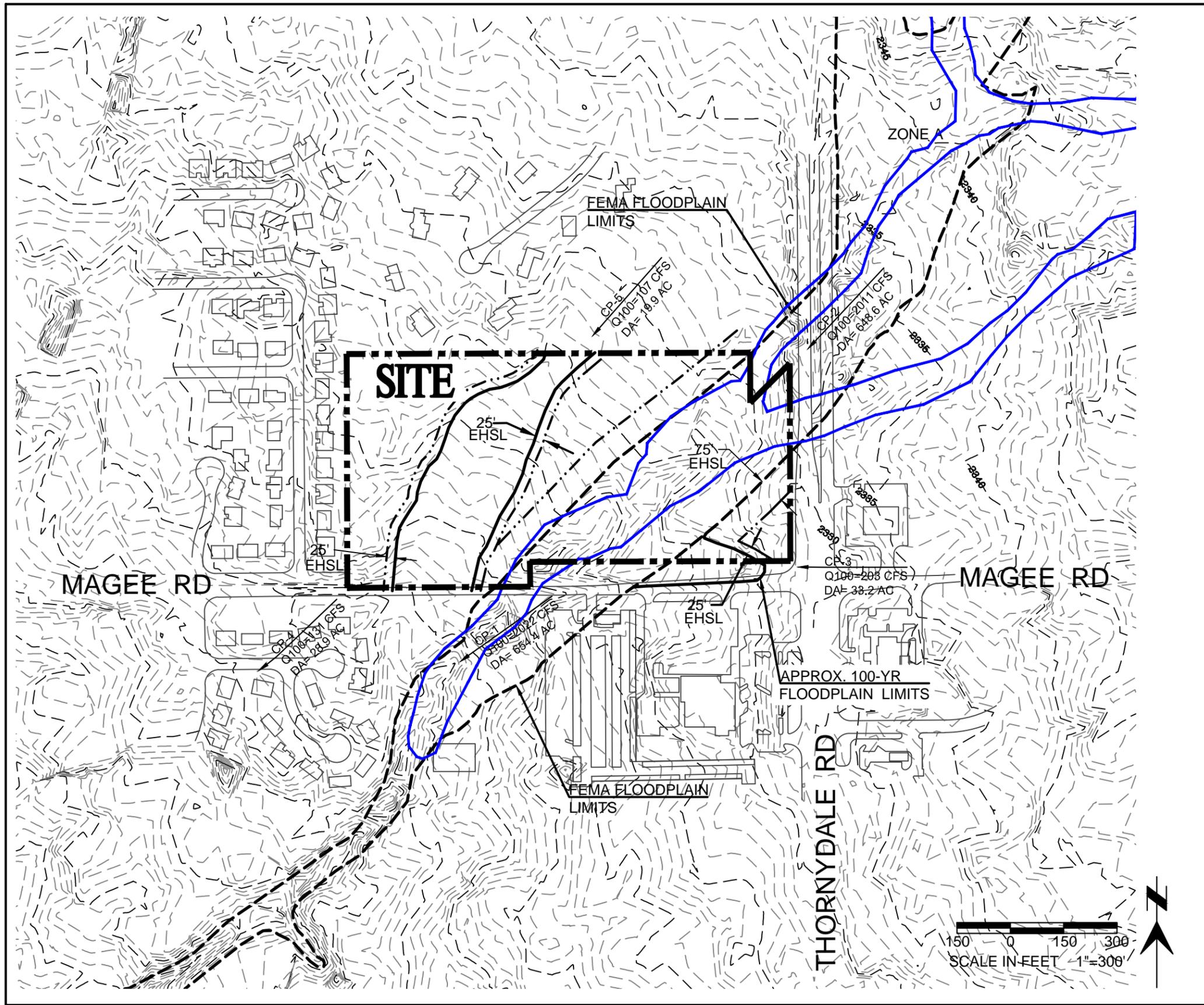
## LEGEND

-  Rezoning Site
-  Watershed Boundary
-  Flow Centerline
-  Concentration Point (CP)

### WATERSHED SUMMARY TABLE

CONCENTRATION POINT ID	Q100 (CFS)	DA (AC)
1 (incl. CP-2)	2022	654.4
2	2011	648.6
3	203	33.2
4 (incl CP-5)	131	28.9
5	107	19.9

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**LEGEND**

-  **SITE** Rezoning Site
-  2405 Existing Condition Topographic Contour (1' Interval)
-  Erosion Hazard Setback Limit
-  Approximate 100-Year Floodplain Limit
-  FEMA Floodplain Limit
-  Mapped Riparian Habitat -- Xeroriparian "C" Riparian Habitat

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**EXHIBIT I-C.4a-e**  
 ONSITE HYDROLOGY  
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**D. BIOLOGICAL RESOURCES**

**1. Conservation Lands System**

Approximately ninety-five percent (95%) of the site falls within the Maeveen Marie Behan Conservation Lands System (MMBCLS), being classified as CLS *Multiple Use Management Area (MUMA)* and containing 16.5 acres of this classification. Approximately 75% of the site within the *MUMA* classification is also designated as *Special Species Management Area (SSMA)*. While not a CLS category, the *MUMA/SSMA* area contains 3.1 acres of Xeroriparian Class “C” habitat. Exhibit I-D.1.2 shows the limits of these respective areas within the property.

**2. Critical Landscape Linkages**

There are no Critical Landscape Linkages on or near this property.

**3. Pima Pineapple Cactus**

No portion of the site is designated as Priority Conservation Area (PCA) for the Pima Pineapple cactus.

**4. Needle-Spined Pineapple Cactus**

No portion of the site is designated as Priority Conservation Area (PCA) for the needle-spined pineapple cactus.

**5. Cactus Ferruginous Pygmy Owl/Western Burrowing Owl**

a. Cactus Ferruginous Pygmy Owl

The entire site is designated as part of Priority Conservation Area (PCA) #1 for the Cactus Ferruginous Pygmy Owl.

b. Western Burrowing Owl

No portion of the site is designated as Priority Conservation Area (PCA) for the Western Burrowing Owl.

**6. Arizona Game & Fish Special-Status Species**

An HDMS report from the Arizona Department of Game & Fish has been obtained for the subject property and is included in Appendix A of this Site Analysis. Eight (8) *Special Status Species* are listed in this report.

**7. Saguaro and Ironwood Inventory**

Saguaro Cactus (*Carnegie gigantea*) have been field surveyed and mapped on the subject rezoning site (See Exhibit I-D.3). A total of three hundred nine (309) saguaros were found on the property. One hundred thirty-nine (139) of these saguaros are six feet (6') tall or less, one hundred sixty-three (163) are greater than six feet (>6') up to eighteen feet (18') tall, and seven (7) are greater than eighteen feet (>18') tall.

Ironwood trees were also field survey and mapped on the rezoning site (see Exhibit I-D.3). Two hundred sixty-three (263) Ironwoods were found, some of which are non-viable.

**8. Open Space Acquisition Status**

The property is not designated on the 2015 Proposed Conservation Bond Program. It is not eligible for acquisition under the 2004 Conservation Bond Program.

**9. Vegetation of Note for Scenic Value, Buffering, etc.**

There are areas on the site with vegetation of generally good quality and aesthetic value; these areas are mapped on Exhibit I.D.3. Substantial portions of the property have been devoted (on the proposed PDP) to set-asides for screening and buffering the neighboring properties.

**10. On-Site Vegetative Communities**

Vegetation on the property is in generally good condition, with the exception of that near the northeast corner of the property, which is impacted by concentrated incoming drainage from culverts beneath Thornydale Road. Channel erosion near these outlets has created vertical earthen cuts upwards of six feet (6') tall, with an associated destruction of vegetation. The following two (2) vegetative zones have been mapped on the subject site (see Exhibit I-D.3,7-10).

**Zone I: Riparian Vegetation - 129,990 SF (approximately 17.2% of the Site)**

This zone represents the most densely vegetated portion of the site. This vegetation is in generally good condition, with the exception of the aforementioned excessive erosion caused by upstream drainage entering the site. Many of the specimens are of large size for their particular species. The predominant species within this Zone are:

- Blue Palo Verde – *Cercidium floridum*
- Mesquite – *Prosopis velutina*
- Whitethorn Acacia – *Acacia constricta*
- Catclaw Acacia – *Acacia greggii*
- Hackberry – *Celtis palida*
- Ironwood – *Olneya tesota* (limited population)

**Zone II: Upland Vegetation & Ironwood/Saguaro Association - 625,391 SF  
(approximately 82.8% of the Site)**

The vegetation within this zone is also in generally good condition. The northwest corner of the site is comprised almost entirely of Cholla cactus, making it somewhat uninviting. This predominance of Cholla is most likely the result of past disturbance of the groundplain and subsequent vegetative regeneration. The primary species within the Zone are the following:

Foothills Palo Verde - *Cercidium microphyllum*

Ironwood - *Olneya tesota*

Blue Palo Verde - *Cercidium floridum*

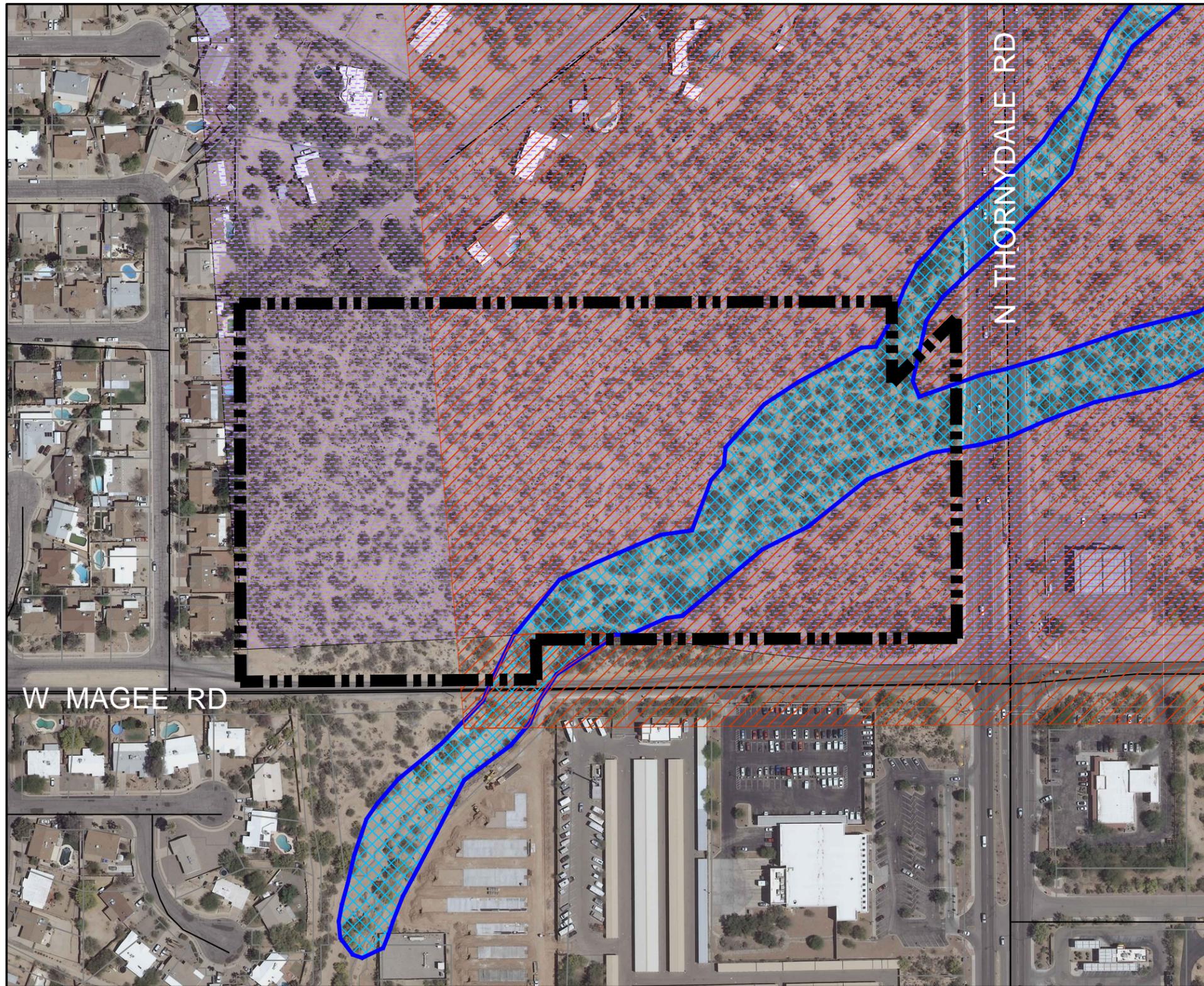
Saguaro - *Carnegiea gigantea*

Barrel Cactus - *Ferrocactus spp.*

Prickly Pear - *Opuntia spp.*

Cholla - *Opuntia spp.*

**Exhibits to Follow**



**LEGEND**

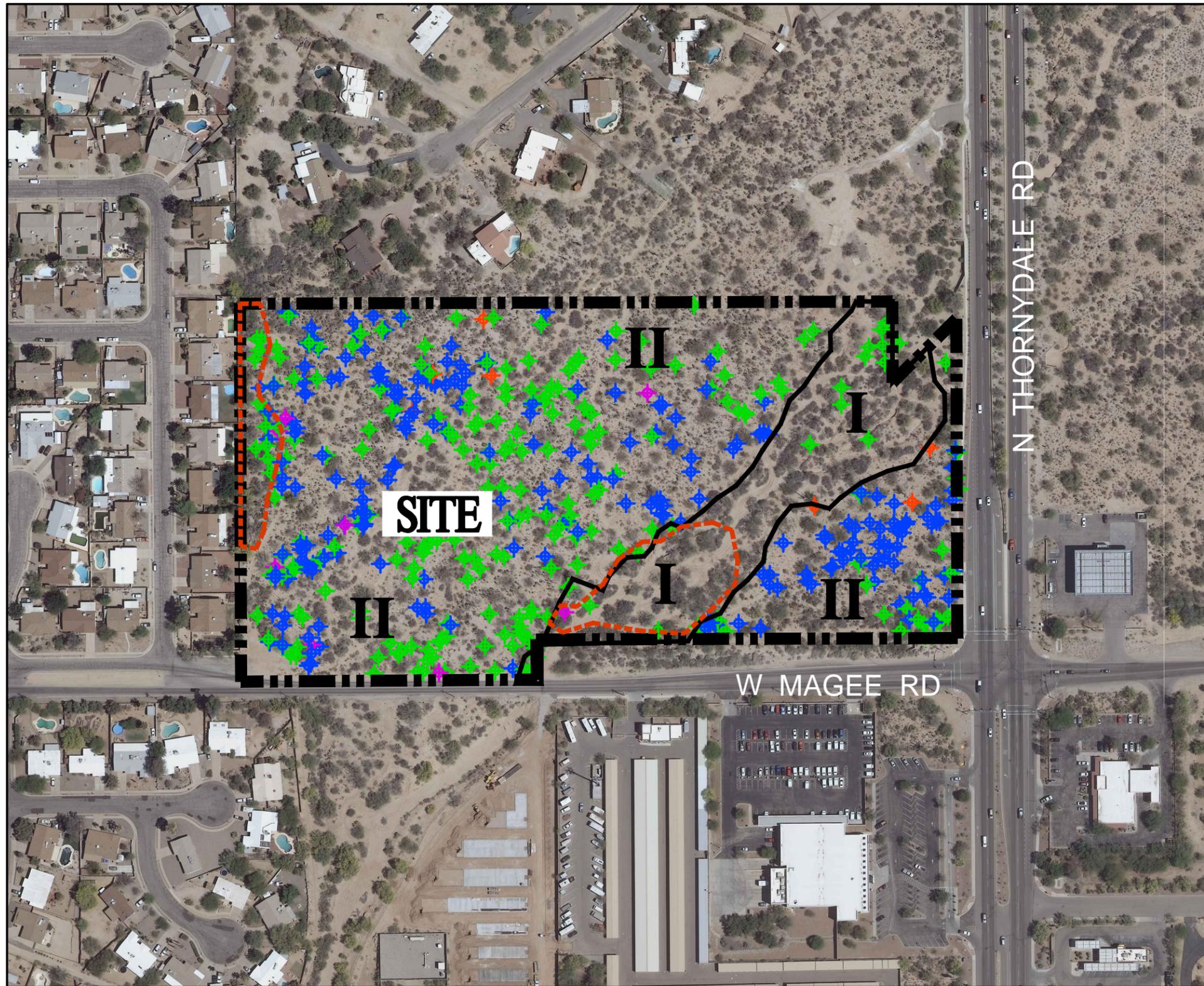
- 
Rezoning Site  
(Approximately 17.7 AC prior to Dedications.)
  
- 
Multiple Use Management Area (MUMA) and Special Species Management Area (SSMA) with underlying Xeroriparian "C" Riparian Area  
Approx. 3.1 AC
  
- 
Multiple Use Management Area (MUMA) and Special Species Management Area (SSMA)  
Approx. 8.6 AC
  
- 
Multiple Use Management Area (MUMA) with no Special Species Management Area (SSMA)  
Approx. 4.8 AC
  
- 
Special Species Management Area (SSMA) Only with underlying Xeroriparian "C" Riparian Area  
Approx. 0.2 AC
  
- 
Special Species Management Area (SSMA) Only  
Approx. 0.1 AC
  
- Total MUMA and SSMA area on Site  
Approximately 16.8 AC

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**EXHIBIT I-D.1,2**  
 PIMA COUNTY CONSERVATION  
 LANDS SYSTEM  
 PAGE 20



**LEGEND**

**SITE** Rezoning Site

**I** Riparian Vegetation

**II** Upland Vegetation with Saguaro - Ironwood - Palo Verde Association

◆ Saguaro ≤ 6' in height

◆ Saguaro >6' - 18' in height

◆ Saguaro >18' in height

◆ Ironwood Tree

○ Vegetation of Special Note for Scenic Value or Buffering

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EXHIBIT I-D.3,7-10  
 VEGETATIVE COMMUNITIES

**E. VIEWSHEDS**

**1. Cluster Development Option**

The proposed project will not be developed under the Cluster Development. As such, no criteria are required nor provided to determine areas of high, medium and low visibility.

**2. Photographic Depiction**

Ground level photographic mosaics have been provided at pertinent boundary locations surrounding the subject property. The photo location points are depicted on Exhibit I-E.2a. The photographic mosaics are depicted on Exhibits I-E.2b through I-E.2g. In general, the views across the site are unremarkable in the foreground and mid-ground ranges. The most notable and high-quality views are northward in the direction of the distant Tortolita Mountains, westward toward the distant Tucson Mountains, eastward in the direction of the distant Santa Catalina Mountains.

**Exhibits Follow**

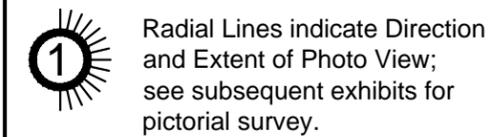


## LEGEND



## Key to Photo Locations & Orientation

1. Looking southeast.
2. Looking southwest.
3. Looking west.
4. Looking east.
5. Looking northeast.
6. Looking northwest.
7. Looking west.
8. Looking east.
9. Looking north.
10. Looking south.
11. Looking north.
12. Looking south.



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PHOTO LOCATION 1: View from northwest corner of the project, looking southeast at the property.



PHOTO LOCATION 2: View from northeast corner of the project, looking southwest at the property.

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PHOTO LOCATION 3: View from north midpoint of the project, looking west.



PHOTO LOCATION 4: View from north midpoint of the project, looking east.

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**PROJECTS INTERNATIONAL, Inc.**  
 STRATEGIC GUIDANCE  
 ENTITLEMENT PROCESSES  
 LOCAL ADVICE & COUNSEL

**GRS**  
 LANDSCAPE ARCHITECTS, LLC

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**EXHIBIT I-E.2c**  
 EXISTING VIEWSHEDS

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PHOTO LOCATION 5: View from southwest corner of the project, looking northeast at the property.



PHOTO LOCATION 6: View from southeast corner of the project, looking northwest at the property.

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Overhead Utilities

Magee Road

PHOTO LOCATION 7: View from south midpoint of the project, looking west.



Overhead Utilities

Magee Road

PHOTO LOCATION 8: View from south midpoint of the project, looking east.

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EXHIBIT I-E.2e  
 EXISTING VIEWSHEDS



PHOTO LOCATION 9: View from west of the project, looking north.



PHOTO LOCATION 10: View from west of the project, looking south.

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PHOTO LOCATION 11: View from east of the project, looking north.



PHOTO LOCATION 12: View from east of the project, looking south.

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## F. TRANSPORTATION

The subject property is located at the immediate northwest corner of Thornydale Road at Magee Road; this is a signalized intersection. Both of these streets are paved, public roadways and both are designated “major streets” (medium volume arterials) and “scenic routes” on the *Pima County Major Streets & Scenic Routes Plan (MSSRP)* per its May 19, 2015 update. Please refer to Exhibit I-F.1a-e (Transportation-Access) for the location and disposition of these streets in relation to the subject property.

### 1. Existing & Proposed Off-Site Streets

#### a. Existing Rights-of-Way

The existing right-of-way in place for Thornydale Road is 150'. Seventy-five feet (75') of this right-of-way lies both east and west of the centerline.

The existing right-of-way in place for Magee Road is 120' for the approximately 700' long segment lying immediately west of Thornydale Road. The majority of this width lies north of the roadway centerline. West of this 120' wide segment, it narrows to a total right-of-way width of 45'; this width is centered on the physical roadway.

#### b. Compliance with Pima County Width Standards

Thornydale Road is designated as a “Medium Volume Arterial” by the *Pima County Major Street & Scenic Routes Plan (MSSRP)*, with a required ultimate right-of-way of one hundred fifty feet (150'). It appears that a right-of-way dedication of thirty feet (30') will be required from the subject property to achieve the ultimate required *MSSRP* width.

Magee Road is designated as a “Low Volume Arterial” by the *Pima County Major Street & Scenic Routes Plan (MSSRP)*, with a required ultimate right-of-way of ninety feet (90'). The existing segment of 120' wide right-of-way described above exceeds the *MSSRP* requirement. West of this segment, it appears that a right-of-way dedication of forty-five feet (45'), for a distance of approximately five hundred feet (500'), will be required from the subject property to achieve the ultimate required *MSSRP* width.

#### c. Right-of-Way Uniformity/Continuity

The existing Thornydale Road and Magee Road rights-of-way are off-set from their respective centerlines and, especially with Magee, have significant jogs in place. The right-of-way dedications described above will effectively rectify these conditions.