
Planning & Zoning Commission Draft

P16RZ00005
Site Inventory & Land Use Proposal

**Hardy Road Approximately ¼ Mile East of Thornydale Rd.
(Rezoning Application from SR to CR-5)**



Property Owner:

**Whisper Canyon Holdings, LLC
4727 N. Camino Ocotillo
Tucson, AZ 85718**

Pima County Case No. P16RZ00005

June, 2016

P16RZ00005
Whisper Canyon Holdings, LLC – Hardy Road Rezoning

Rezoning Request from SR to CR-5
Pima County, Arizona

Submitted to:

Pima County Development Services Department
Planning Division
201 N. Stone Avenue
Tucson, Arizona 85701

Property Owner:

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June, 2016

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SECTION I:
Site Inventory

A. EXISTING LAND USES

1. Site Location and Context

The subject rezoning property is located in the SW ¼ of Section 30, T12S, R13E, more particularly located on the north side of Hardy Road, approximately ¼ mile east of Thornydale Road. The rezoning site consists of a single parcel (Assessors Parcel No. 225-02-029c) approximately twenty (20) acres in gross area. See Exhibit I-A.1: Location & Regional Context.

The property sits within a developed, urbanizing context. Thornydale Road is a major north-south arterial and a designated “Major Street” on the *Pima County Major Streets & Routes Plan*; it is earmarked as a 4-lane road improvement project that is slated to begin in 2018. The rezoning site is bordered by fully developed residential subdivisions on all four sides. An existing City of Tucson water tank complex also lies to the immediate east.

2. Description of Existing Land Uses

a. Existing Land Uses On-Site

The site is vacant, natural desert (see Exhibit I-A.2a-b, 4b: Existing Land Use).

b. Easements

The site is encumbered by the following recorded easements:

- Per Docket 7118 @ Page 134, the south thirty feet (30’) of the site is subject to a right-of-way easement granted to the City of Tucson for ingress & egress and the installation and maintenance of water distribution lines and other facilities appurtenant to the water tank facility located immediate east of the subject property (now operated jointly with the Metropolitan Water Improvement District).
- Per Docket 991 @ Page 544, the same south thirty feet (30’) of the site as above is subject to a public roadway and utility easement granted to Pima County for the purposes of constructing and maintaining the existing Hardy Road pavement that occurs on the property.
- Per Docket 6973 @ Page 702, the same south thirty feet (30’) as above is granted as an ingress and egress easement to the City of Tucson.
- Per the record of survey recorded in Sequence No. 2014-0370504, there are some minor encroachments comprised of: 1) a dirt trail and access gate, at the extreme southwest corner of the property, leading from Lot 2 of the Hardydale II subdivision to the immediate

west; and 2) a masonry wall, along the northern portion of the east boundary, near Lot 19 of the Saguaro Vista subdivision to the immediate east.

As part of this project, the south forty-five feet (45') of the rezoning site will be formally dedicated, in fee, to Pima County and all utility companies, so as to complete the required ninety foot (90') right-of-way width of Hardy Road, thereby obviating the above easements.

c. Comprehensive Plan Designation

The Comprehensive Plan designation for the subject property was amended to MIU (Medium Intensity Urban) per approved Comprehensive Plan amendment Case No. Co7-14-02 and adopted Resolution No. 2015-28. This MIU designation was later modified to MLIU (Medium-Low Intensity Urban) with the adoption of Pima Prospers later in 2015. Please refer to Exhibit I-A.2c, 4e for a graphic depiction of surrounding Pima Prospers designations. The following rezoning policies apply to this rezoning site per the aforementioned Resolution:

- A. The preliminary development plan submitted with the rezoning application shall demonstrate avoidance of the regulatory floodplain and Important Riparian Area associated with the Hardy Wash.
- B. Post-development floodplains shall be designated as Resource Transition.
- C. The location of off-site mitigation property should be within the same general geographic region as the original project site.
- D. Off-site mitigation property should provide the same or better resource values as the original project site including, but not limited to:
 1. Conservation Lands System (CLS) designations inclusive of 2004 Conservation Bond Habitat Protection Priority designations;
 2. Vegetation community type(s);
 3. Habitat values for applicable CLS Special Species (e.g. breeding and dispersal);
 4. Surface water or unique landforms such as rock outcrops; and
 5. Contribution to landscape connectivity.
- E. Demonstration that the resource and conservation values of the off-site mitigation property will be protected in perpetuity. .

3. Aerial Photograph

An aerial photo (showing the site and surrounding properties within 600' of the site) is provided as Exhibit I-A.3.

4. Property Characteristics Within ¼ Mile

a. Existing Zoning & Overlay Zones

The subject property is zoned SR (Suburban Ranch). See Exhibit I-A.4a-d: Existing Zoning. The property and its surrounding area within ¼ mile are

not subject to any of the following overlay zones: the Buffer Overlay Zone, Gateway Overlay Zone, Hillside Development Zone, Cluster Development Option, Historic Zone, or Airport Environs Zone.

Existing Zoning to the North:	CR-5, SR
Existing Zoning to the South:	CB-1, CR-5 & SR with conditional CR-5 approval
Existing Zoning to the East:	CR-4, SR
Existing Zoning to the West:	CR-3, CR-4

In referring to the above list of surrounding zoning classifications, the abbreviations used therein respectively denote the following:

CB-1 denotes a Business Zone
CR-5, CR-4 & CR-1 denote Residential Zones
SR denotes the Suburban Ranch Zone

b. Existing Land Uses

The lands within ¼ mile of the subject property are a mixture of: 1) developed, single-family detached residential subdivisions of low and medium densities; 2) a professional office complex; 3) a church; 4) Arthur Pack Regional Park; 5) the Tucson Audubon Society; 6) a municipal water tank complex; and 7) vacant land. Please refer to Exhibit I-A.2a-b, 4b (Existing Land Use).

c. Stories & Heights of Existing Structures

The adjacent single-family detached residences within ¼ mile are primarily single-story, with some two-story homes, and range in height from approximately 12' - 24'. The non-residential structures within ¼ mile are comprised of: 1) a single-story office complex with buildings ranging from approximately 16' - 24' in height, 2) a church campus whose tallest building approaches 26' in height; and 3) the respective improvements at Arthur Pack Regional Park and Tucson Audubon Society, including visitor buildings, shade structures and activity buildings ranging in height from 16' to 28'.

d. Pending or Conditionally Approved Rezonings, etc.

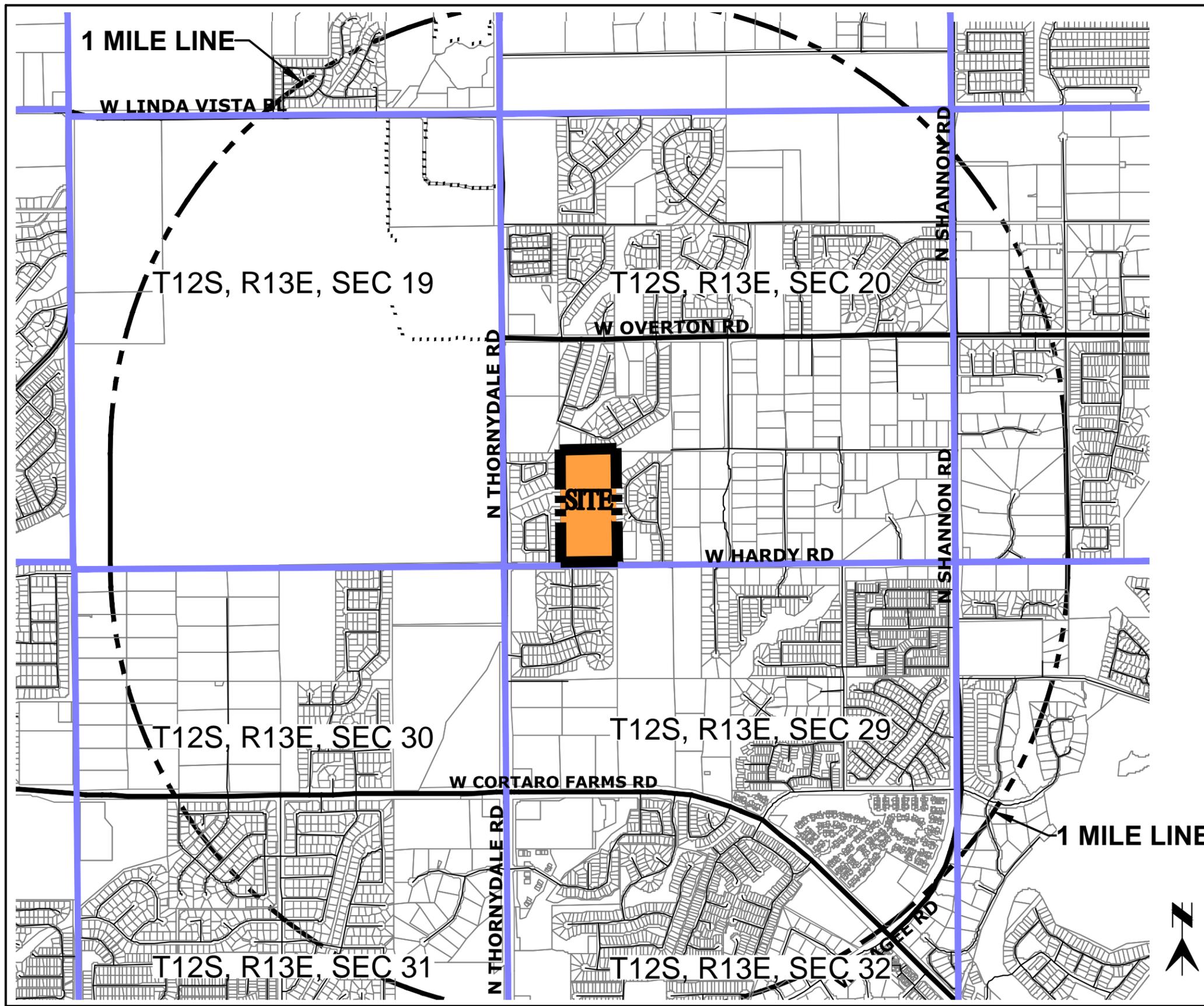
There are no (0) other pending rezonings within ¼ mile of the property.

e. Comprehensive Plan Designations

The surrounding properties are a mix of the following Pima County Comprehensive Plan designations: LIU (Low Intensity Urban) and MIU (Medium Intensity Urban). Please refer to Exhibit I-A.2c, 4e (Comprehensive Plan Designations).

To the North:	MLIU & LIU 0.3
To the South:	MLIU & NAC
To the East:	MLIU & LIU 0.3
To the West:	MLIU, LIU 0.3 & RC

Exhibits to Follow



LEGEND



Rezoning Site



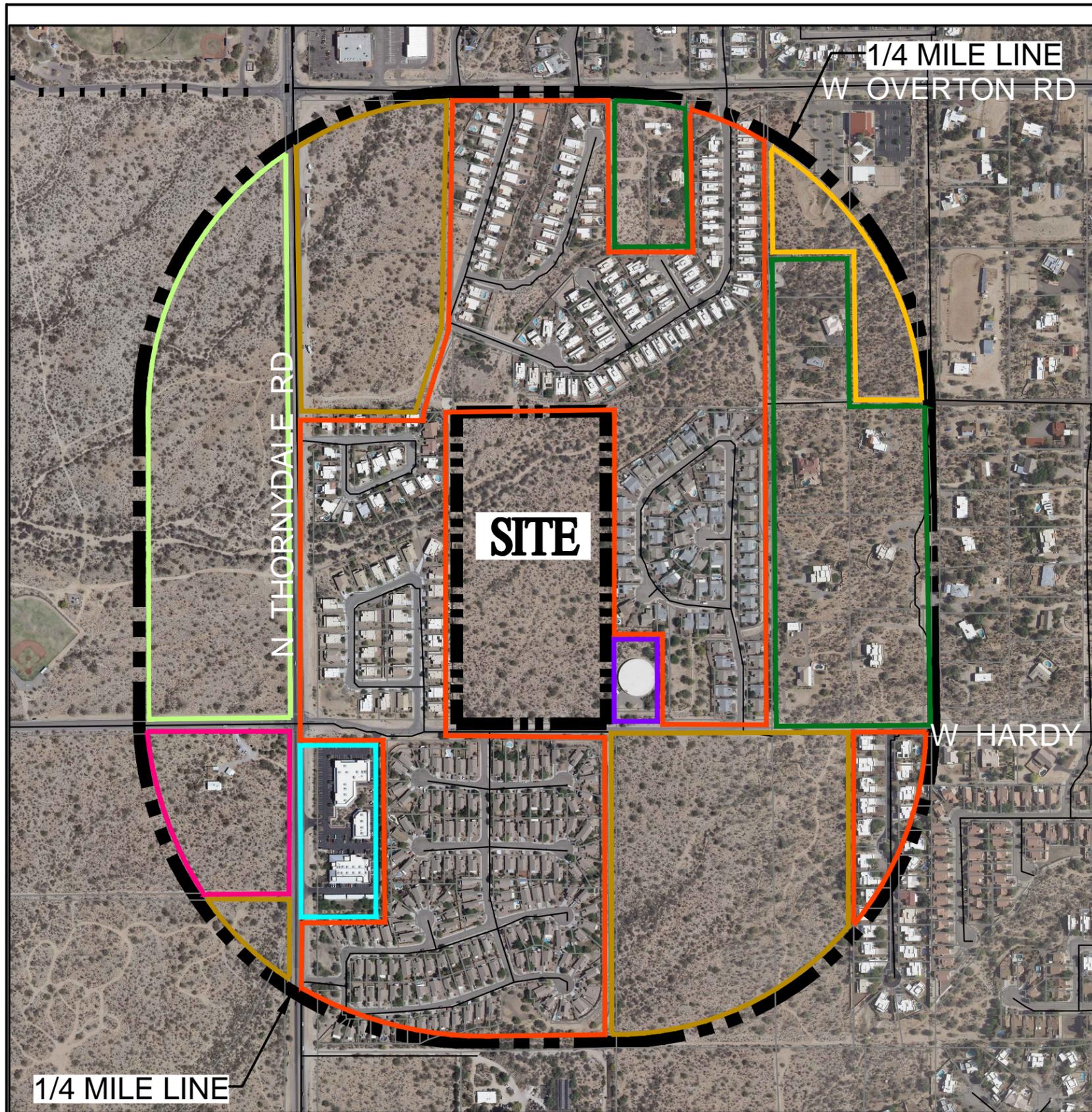
Section Boundary
(e.g. T12S, R13E, SEC 30)

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 520 850-0917



Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-A.1
 LOCATION & REGIONAL
 CONTEXT
 PAGE 5



LEGEND

-  Rezoning Site
-  Residential Subdivisions
-  Unsubdivided Residential
-  Professional Offices
-  Church Property
-  Arthur Pack Regional Park
-  Tucson Audubon Society
-  Municipal Water Tank Complex
-  Vacant Land

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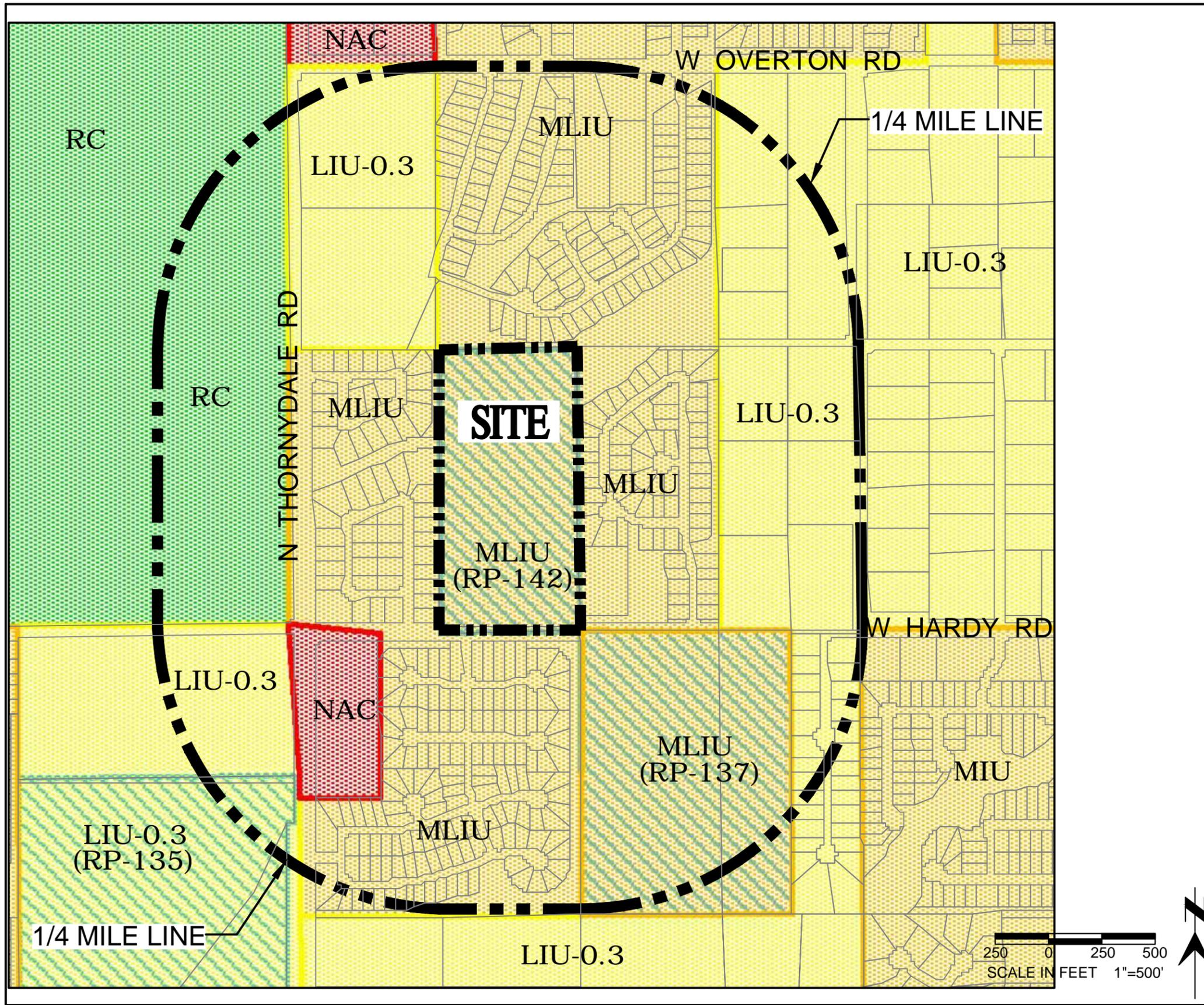


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 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
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EXHIBIT I-A.2a-2b, 4b
 EXISTING LAND USE
 PAGE 6



LEGEND

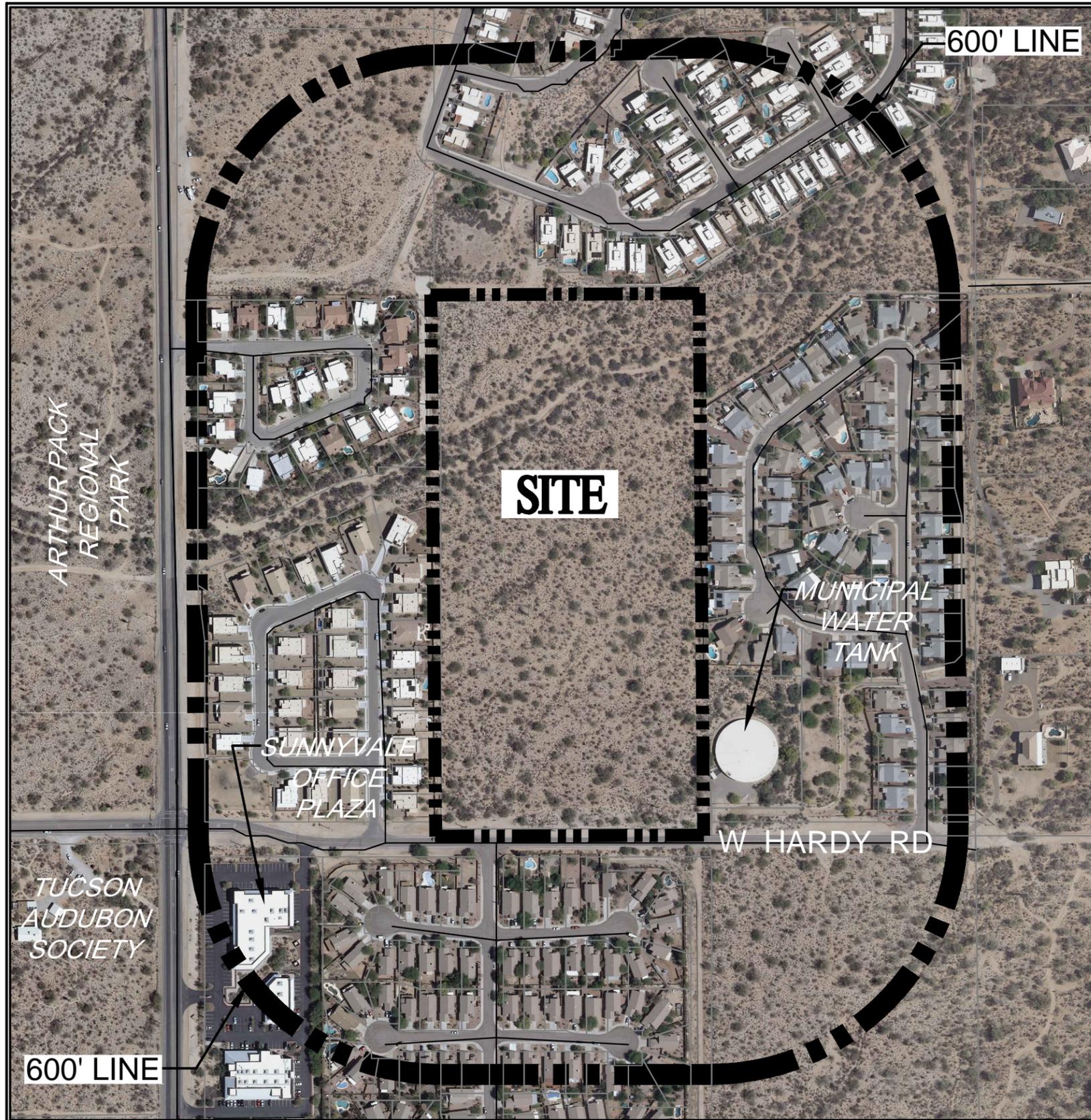
-  Rezoning Site
-  Medium Intensity Urban (MIU)
-  Comprehensive Plan Designation
-  NAC -- Neighborhood Activity Center
-  MLIU -- Medium Low Intensity Urban
-  MIU -- Medium Intensity Urban
-  LIU-0.3 -- Low Intensity Urban 0.3
-  RC -- Resource Conservation
-  RP -- Rezoning Policy

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Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-A.2c, 4e
 COMPREHENSIVE PLAN
 DESIGNATIONS
 PAGE 7



LEGEND



Rezoning Site

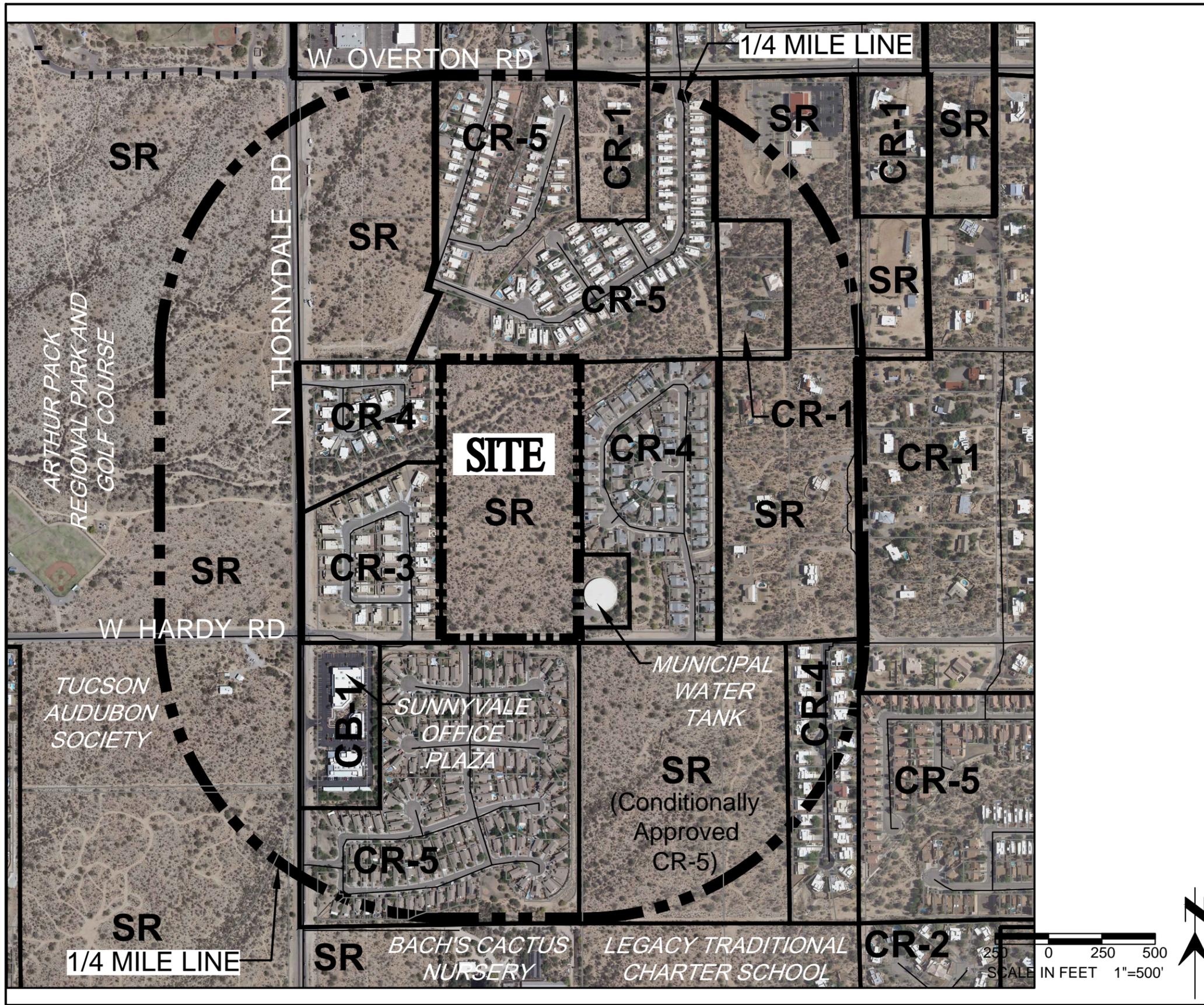
Year of Aerial Photo: 2011

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Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-A.3
 AERIAL PHOTO



LEGEND



Rezoning Site
(Existing Zoning: SR)

CR-4

Existing Zoning, typ.

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Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-A.4a-d
 EXISTING ZONING

B. TOPOGRAPHY & GRADING

1. Topographic Characteristics

The rezoning site is relatively flat, with a uniform downward slope across the property from northeast to southwest; it is traversed by one (1) well-defined natural wash, this being Hardy Wash, which flows in the same northeast-to-southwest direction. This drainage feature is discussed in more detail in Section I.C (Hydrology) of this Site Analysis. See Exhibit I-B.1a-e for existing-condition topography.

a. Restricted Peaks & Ridges

There are no restricted peaks or ridges on the property.

b. Rock Outcroppings, etc.

There are no rock outcroppings, etc. on the subject property.

c. Slope of 15% or Greater

The rezoning site contains no (0) slopes of fifteen percent (15%) or greater, and which are both longer than fifty feet (50') when measured in any horizontal direction, and taller than seven and one half feet (7.5') when measured vertically.

d. Other Significant Topographic Features

Other than the aforementioned Hardy Wash that traverses the site, there are no significant or remarkable topographic features on the property.

e. Existing Grading and/or Ground Disturbance

The majority of the site is natural desert. Some minor ground disturbance has occurred along the Hardy Road street frontage.

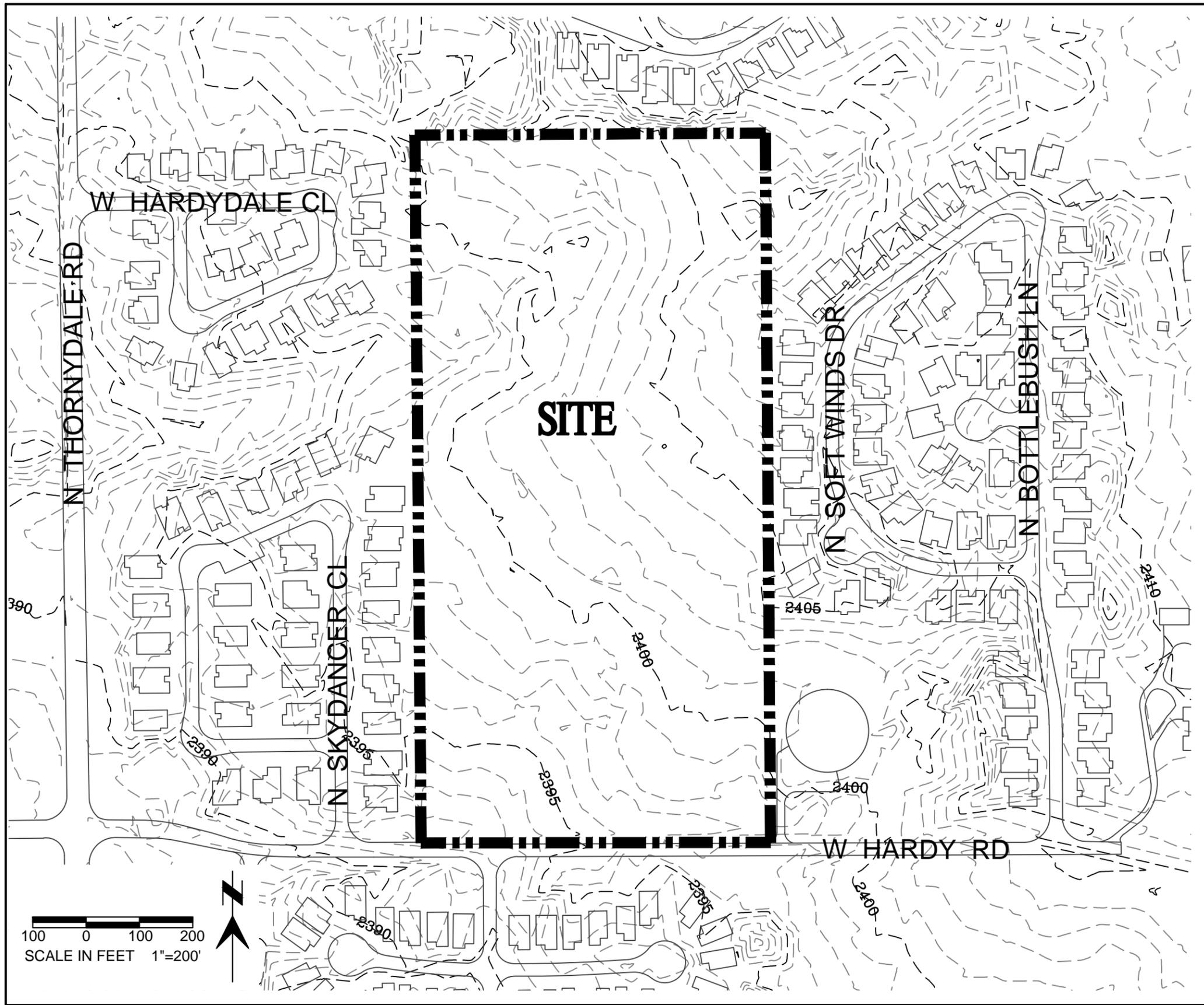
2. Pre-Development Average Cross-Slope

The average cross-slope calculation for the subject property, in accordance with Chapter 18.61 (Hillside Development Zone), is as follows:

$$(1' \text{ Contour Interval}) \times (10,145' \text{ Total Length of Contours}) \times (0.0023 \text{ Conversion})$$

(20.00 AC Total Site Area)

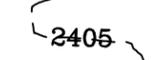
The resultant Average Cross Slope (ACS) = 1.17%.



LEGEND



Rezoning Site



Existing Condition Topographic Contour
(1' Interval)

Average Cross Slope = 1.17%

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 LANDSCAPE ARCHITECTS, LLC

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

C. HYDROLOGY

1. Off-Site Watersheds

Alliance Engineering has completed a preliminary drainage assessment for Parcel 225-02-029C, the 19.99-acre parcel that is the subject of this rezoning application. The findings presented here are based on the above assessment, 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 offsite watersheds contributing stormwater to the subject Hardy Road property are depicted on Exhibit-I-C.1. The Hardy Wash watershed is the primary one impacting the subject property, and the 100-year flows associated with it have been previously accepted by Pima County via the adjacent subdivision platting.

The total offsite area in the contributing upstream watershed is approximately 143 acres. Several prior subdivision plats analyzed and determined the Q100 for this wash. Of these, the Hardydale II (Lots 1-32) plat was most conservative and designated the Q100 as 1,225 cfs. With the current drainage assessment, Hec-RAS was utilized to delineate the 100-year water surface elevation across the site and the associated 50' erosion hazard setback (EHS).

The Hardy Wash flow enters the site near its northeast corner and exits along its western boundary, approximately 400 feet south of the north property line. Hardy Wash is undisturbed across the property. The developments to the west and east have encroached into the original natural wash channel.

The existing residential subdivisions to the north, west, and east of the subject property do not contribute to the offsite flows. Hardy Road lies to the south of the property, but drains away from the site.

2. Off-Site Natural or Man-Made Features

The upstream watershed (Hardy Wash) features some constructed channels and several developed subdivisions with detention basins. No offsite features will be affected by the surface drainage traversing the subject property, as Hardy Wash will remain in its natural state (including the erosion hazard setback areas).

3. Acreages & Discharges of Watersheds

The upstream area of the offsite watershed contributing to this parcel was also described above in Item 1. The total offsite drainage area is 143.8 acres, with an associated Q100 of 1,225 cfs as previously accepted by Pima County.

4. On-Site Hydrology

The rezoning site is vacant and undeveloped in the existing condition. The project parcel consists of 100% hydrologic soil type B. 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 Hardy wash.
- b. No FEMA mapped floodplains exist on the property. The site and surrounding properties do fall within an area designated by FEMA as having sheet flow (0.5' depth).
- c. The site includes one (1) concentration point with peak discharges in excess of 100 cfs entering the site. Peak discharge was accepted from the most conservative adjacent subdivision, Hardydale II (Lots 1-32).
- d. The existing washes traversing the site exit the property along the west boundary into a previously developed subdivision. Hardy Wash at the west boundary has a natural bottom, but the adjacent development encroaches into the floodplain and directs it to a developed channel.
- e. The site contains riparian habitat area regulated per the Pima County RFCFD Flood Hazard Map; same is delineated in 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 Hardy Wash.

5. Qualitative Description of Downstream Drainage Conditions

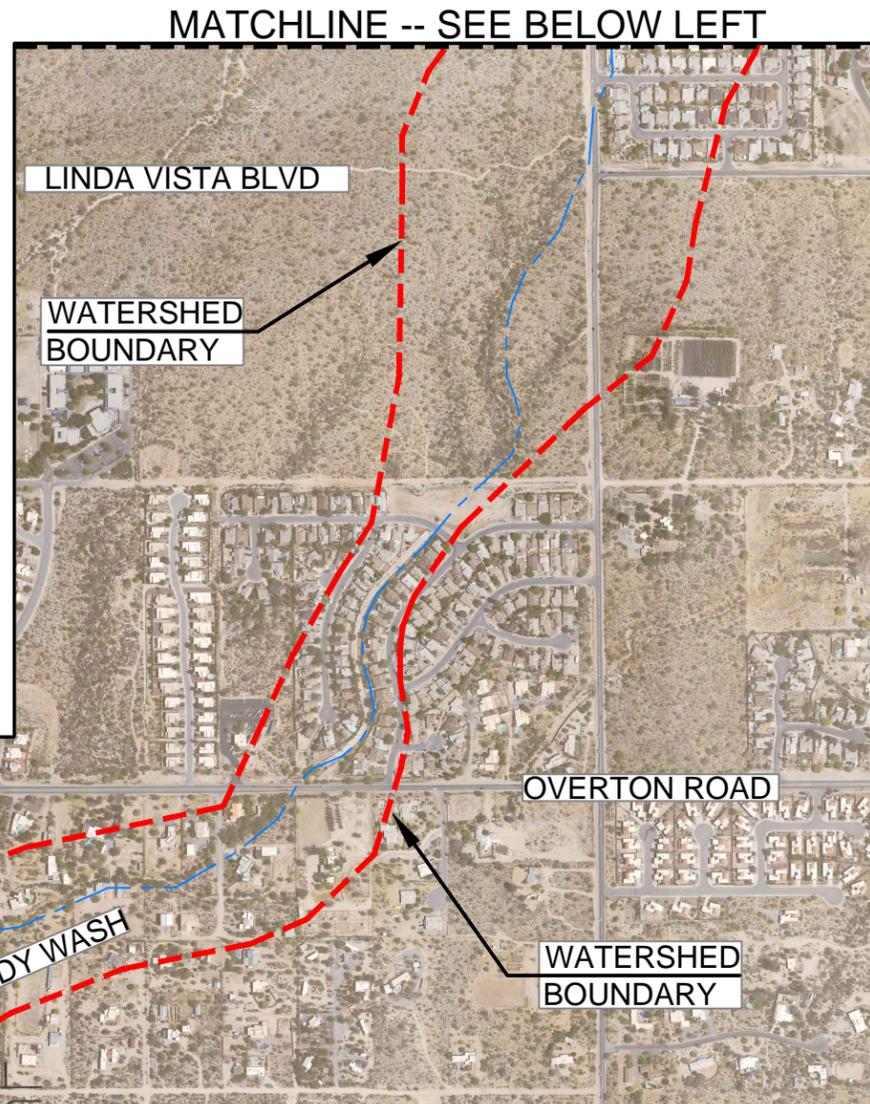
The on-site Hardy Wash exits the subject site into the Hardydale II development to the immediate/adjacent west. Hardy Wash then traverses west, from Hardydale II, joining several unnamed washes and eventually discharging in to the Santa Cruz River.

The onsite localized sheet flows exit the site at the southwest corner and enter the Hardy Road right-of-way.

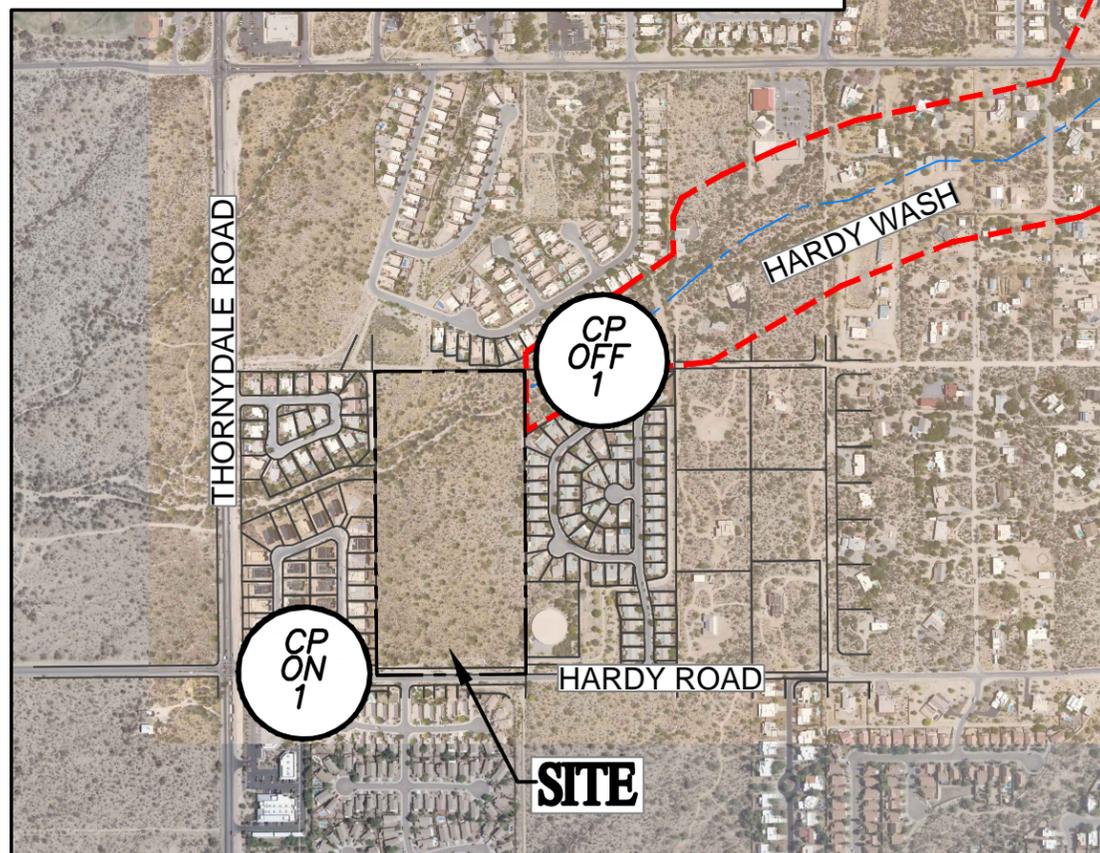
Exhibits to Follow



MATCHLINE -- SEE ABOVE RIGHT



MATCHLINE -- SEE BELOW LEFT



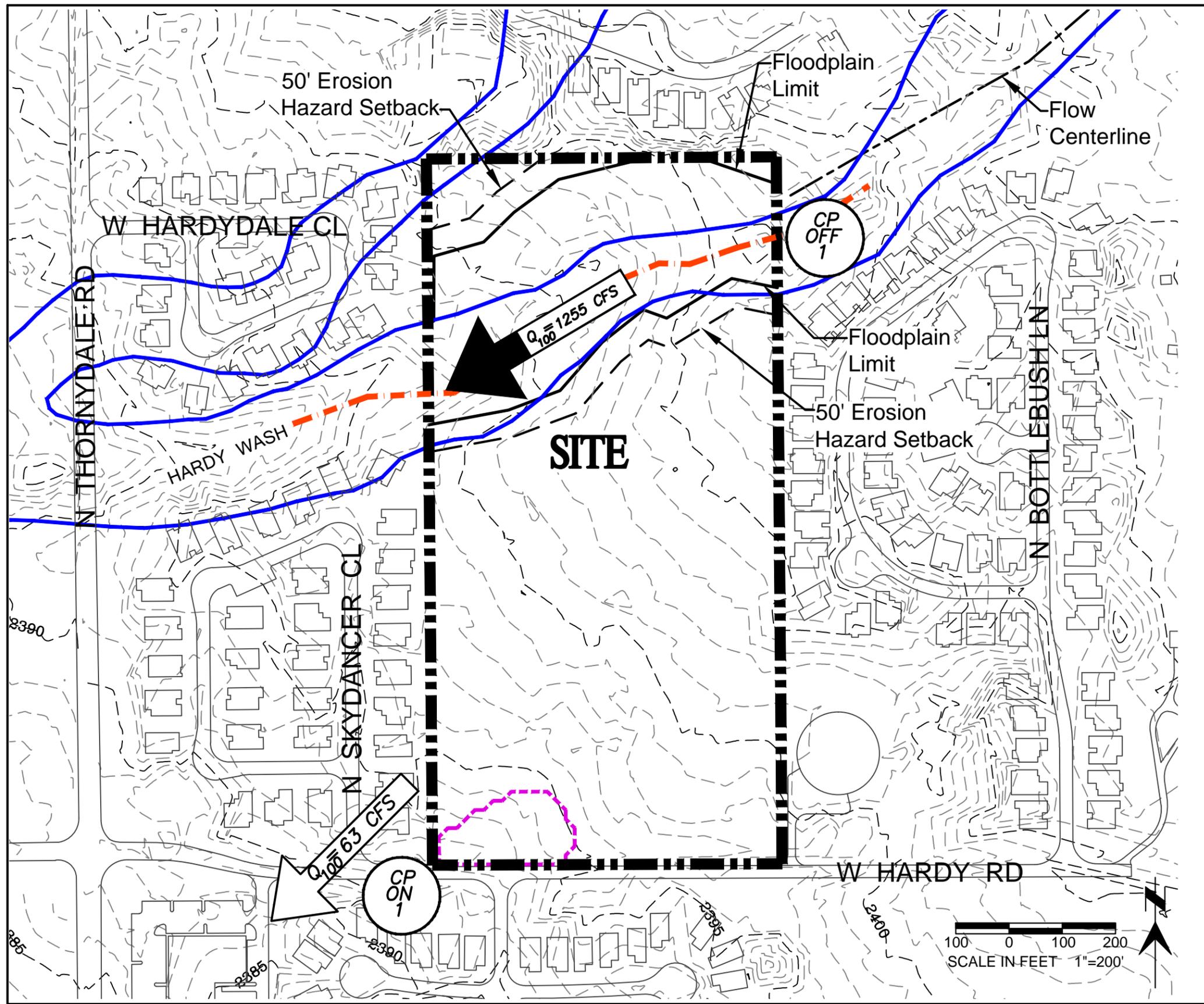
LEGEND

-  Rezoning Site
-  Watershed Boundary
-  Flow Centerline
-  Concentration Point

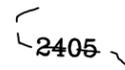
WATERSHED SUMMARY TABLE

CONCENTRATION POINT ID	Q100 (CFS)	DA (AC)
OFF 1	1225	143.8
ON 1	63	14.3

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LEGEND

-  Rezoning Site
-  Existing Condition Topographic Contour (1' Interval)
-  Erosion Hazard Setback Limit (EHSL)
-  Approximate 100-Year Floodplain Limit
-  Mapped Riparian Habitat -- Important Riparian Areas (CLS-IRA) with Underlying Xeroriparian "C"
-  Area removed from riparian designation, per discussion with Flood Control
-  Hardy Wash
-  Concentration Point

NOTE:
 Subject Property and several surrounding properties are located within a FEMA designated sheet flow area (0.5' depth).

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 LOCAL ADVICE & COUNSEL



GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-C.4a-e
 ONSITE HYDROLOGY
 PAGE 15

D. BIOLOGICAL RESOURCES

1. Conservation Lands System

The entire site falls within the Maeveen Marie Behan Conservation Lands System (MMBCLS) and is primarily classified as CLS *Multiple Use Management Area (MUMA)*, with the entire property also being overlaid by the *Special Species Management Area (SSMA)*. Approximately 2.6 acres is also classified as CLS *Important Riparian Area (IRA)* with underlying Xeroriparian "C" regulated habitat. Exhibit I-D.1.2 shows the limits of these 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. Four (4) *Special Status Species* are listed in this report.

7. Saguaro and Ironwoods Inventory

Saguaro Cactus (*Carnegiea gigantea*) have been field surveyed and mapped on the subject rezoning site (See Exhibit I-D.3). A total of two hundred ten (210) saguaros were found on the property. Ninety-six (96) of these saguaros are six feet (6') tall or less, ninety-six (96) are greater than six feet up to eighteen feet (>6' to 18') tall, and eighteen (18) are greater than eighteen feet (>18') tall. Refer to Exhibit I-D.3.

The site was also surveyed for Ironwood trees. One hundred ninety-four (194) Ironwoods were found. Refer to Exhibit I-D.3.

8. Open Space Acquisition Status

The property was not designated for acquisition on the 2004 Conservation Bond Program.

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

There are some areas on the site with significant vegetation with respect to quality and aesthetic value. This is due to a combination of the size of individual plants and the density of plantings. These areas generally occur in the northern portion of the property and are associated with the Hardy Wash corridor; these have been delineated on Exhibit I-D.3. We have targeted these areas for use as CLS set-asides and for screening/buffering of the neighboring properties.

10. On-Site Vegetative Communities

Vegetation on the property is in generally good condition, with some minor destructive impacts along the eastern edge of the property. These are due to the incoming drainage from the upstream Hardy Wash. The following two (2) vegetative zones have been mapped on the subject site (see Exhibit I-D.3,7-10).

Zone I: Ironwood – Saguaro – Palo Verde Association – 18.0 Acres (90% of the Site)

The vegetation within this zone is in generally good condition. The predominant species within the Zone are:

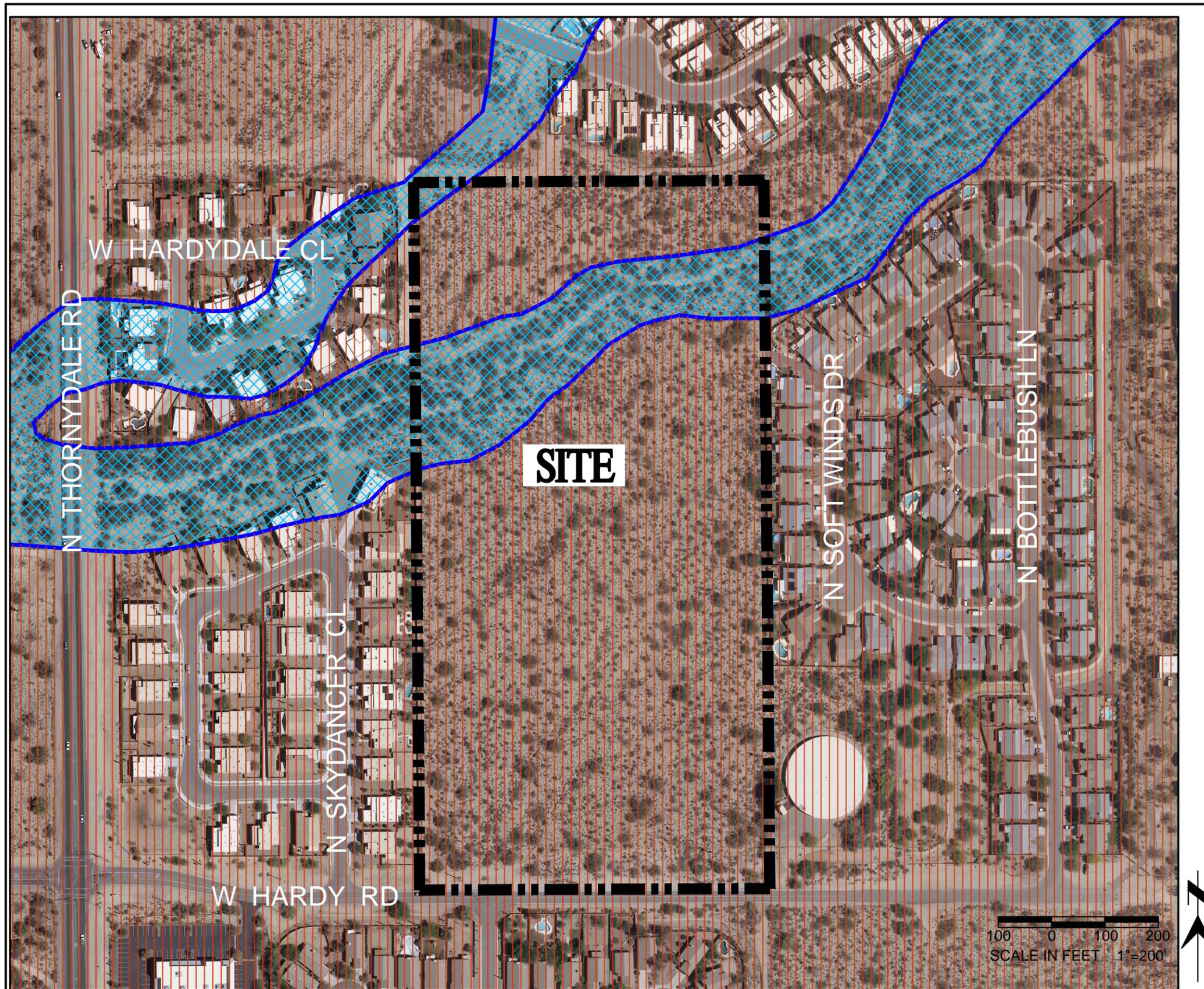
- Ironwood – *Olneya tesota*
- Foothills Palo Verde – *Cercidium microphyllum*
- Blue Palo Verde – *Cercidium floridum*
- Saguaro – *Carnegiea gigantea*
- Barrel Cactus – *Ferrocactus spp.*
- Prickly Pear – *Opuntia spp.*
- Cholla – *Opuntia spp.*
- Creosote – *Larrea tridentata*

Zone II: Riparian Vegetation – 2.0 Acres (10% of the Site)

The vegetation within this zone is also in generally good condition and is characterized by many large specimens. The predominant species found within this Zone are:

Ironwood – *Olneya tesota* (limited population)
Foothills Palo Verde – *Cercidium microphyllum*
Whitethorn Acacia – *Acacia constricta*
Catclaw Acacia – *Acacia greggii*
Blue Palo Verde – *Cercidium floridum*
Saguaro – *Carnegiea gigantean* (limited population)
Barrel Cactus – *Ferrocactus spp.*
Prickly Pear – *Opuntia spp.*
Cholla – *Opuntia spp.*
Creosote – *Larrea tridentata*

Exhibits to Follow



LEGEND



Rezoning Site
 Entire site and surrounding area falls within
 Multiple Use Management Area (MUMA) and
 Special Species Management Area (SSMA)
 CLS Designation.
 (Approximately 20.0 AC)



Multiple Use Management Area (MUMA) and Special
 Species Management Area (SSMA) with underlying
 Important Riparian Areas with Xeroriparian "C"
 (Approx 2.6 AC)



Multiple Use Management Area (MUMA)
 and Special Species Management Area (SSMA)
 (Approx 17.3 AC)

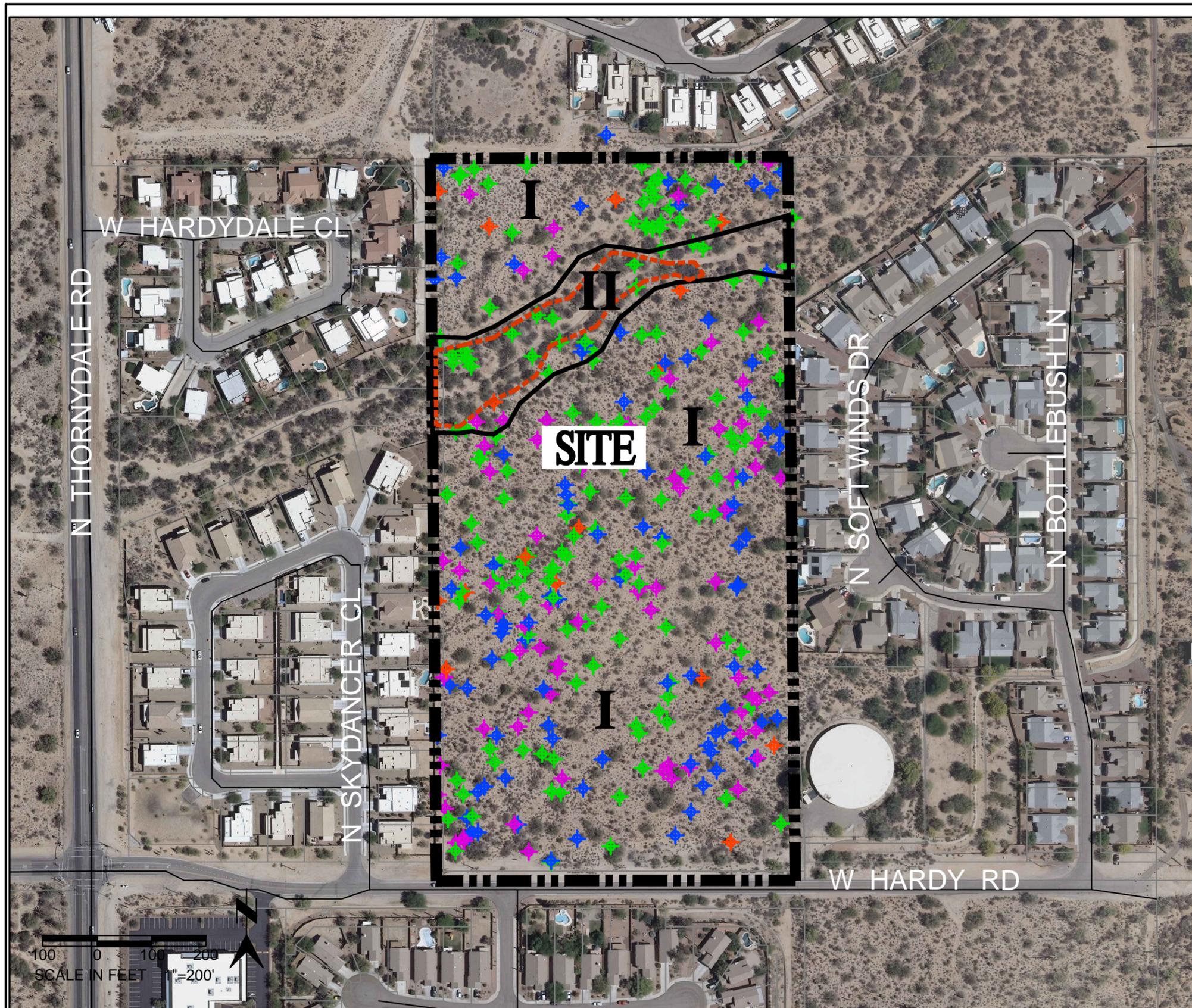
Entire Rezoning Site falls within
 MUMA and SSMA CLS Designation

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Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-D.1,2
 PIMA COUNTY CONSERVATION
 LANDS SYSTEM
 PAGE 19



LEGEND

-  Rezoning Site
-  Upland Vegetation with Saguaro - Ironwood - Palo Verde Association
-  Riparian Vegetation
-  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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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.2f. 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, and eastward in the direction of the distant Santa Catalina Mountains. All three of these mountain ranges are a significant distance away.

Exhibits Follow



LEGEND



Rezoning Site

Key to Photo Locations & Orientation

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



Radial Lines indicate Direction and Extent of Photo View; see subsequent exhibits for pictorial survey.

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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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Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-E.2b
 EXISTING VIEWSHEDS
 PAGE 23



PHOTO LOCATION 3: View from north midpoint of the project, looking south toward Hardy Road.



PHOTO LOCATION 4: View from south midpoint of the project, looking north, away from Hardy Road.

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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.

Blank white space for contact information.

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Hardy Estates
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EXHIBIT I-E.2d
 EXISTING VIEWSHEDS
 PAGE 25



CONTINUED BELOW LEFT

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

CONTINUED ABOVE RIGHT



PHOTO LOCATION 7 (continued)

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

Existing/adjacent
Hardydale II Subdivision

Existing/adjacent
Hardydale Subdivision

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F. TRANSPORTATION

The subject property is located on the north side of Hardy Road, approximately ¼ mile east of Thornydale Road (which is a signalized intersection at Hardy Road). Hardy Road is a paved, public roadway; Thornydale Road is a designated “major street” (medium volume arterial) and “scenic route” on the *Pima County Major Streets & Scenic Routes Plan (MSSRP)* per its May 19, 2015 update. The existing Hardy Road pavement physically dead-ends approximately 1500’ east of the rezoning site. Please refer to Exhibit I-F.1a-e (Transportation-Access) for a graphic depiction of the above particulars.

1. Existing & Proposed Off-Site Streets

a. Existing Rights-of-Way

Only forty-five feet (45’) of right-of-way is presently in place for Hardy Road along the rezoning site’s frontage; this right-of-way constitutes the south half of the ultimate 90’ street right-of-way and was dedicated in conjunction with the Sunnyvale subdivision to the south of the rezoning site. The south forty-five feet (45’) of the subject rezoning property is presently subject to a roadway and utilities easement (granted to Pima County) to accommodate the existing Hardy Road pavement. This same forty-five feet (45’) will be formally dedicated, in fee, to Pima County in conjunction with the proposed project, thereby obviating the current roadway and utilities easement.

b. Compliance with Pima County Width Standards

With the forty-five foot (45’) right-of-way dedication in conjunction with the proposed project (just mentioned above), the Hardy Road right-of-way will be ninety feet (90’), which is in compliance with MS&R requirements.

c. Right-of-Way Uniformity/Continuity

The present and proposed Hardy Road right-of-way will be both uniform and continuous in its ninety foot (90’) width. It must be noted, however, that the current Hardy Road pavement terminates approximately 1500’ east of the rezoning site and the dedicated right-of-way terminates another 300’ further east, effectively dead-ending Hardy Road. Our discussions with Pima County indicate that it has no intention of extending Hardy Road any further east of this point, as the existing Maya Estates subdivision has already been built out at this location and blocks any prospect of extension.

d. Rights-of-Way for Proposed Off-Site Roadways

No new off-site roadways are proposed with this project. PCDOT may stipulate minor improvements to the existing Hardy Road cross-section in the vicinity of the project.

e. Travel Lanes, Capacity, etc.

Thornydale Road is a three-lane roadway with a continuous center turn lane. It has no curbs, bike lanes, or sidewalks on either side of the road .

Hardy Road is a two-lane roadway with no left-turn pockets or transitions to serve the existing subdivisions that border it. It has no curbs, bike lanes, or sidewalks on either side of the road along the project frontage.

Thornydale Road has a posted speed limit of 35 MPH. Hardy Road has a posted speed limit of 25 MPH. The capacity of the two streets is estimated at 16,500 VPD and 10,000 VPD, respectively. The pavement condition of Thornydale Road is marginal, thereby potentially reducing this capacity estimate.

f. Average Daily Trips (ADT)

The proposed project will generate more than 500 ADT, but less than 2,500 ADT. As such, the appropriate ADT volumes are provided in Table 1 for those streets within two (2) miles of the subject property. The ADT figures presented therein are the most recent available from the Pima County Department of Transportation (Traffic Engineering Division) website (see Bibliography for citations and website addresses).

Table to Follow

TABLE 1: ADT VOLUMES FOR MAJOR STREETS WITHIN TWO (2) MILES	
Street Name	Average Daily Trip (ADT) Volume
Thornydale Road	23,093 (south of Cortaro Farms Road) 19,959 (Cortaro Farms to Overton Road) 18,193 (Overton to Linda Vista) 7,985 (Linda Vista to Lambert Lane) 7,495 (north of Lambert Lane)
Hardy Road	No Counts Available for the Segment east of Thornydale Road
Linda Vista Boulevard	10,675 (west of Thornydale Road) No data available for east of Thornydale (street dead ends ½ mile east of Thornydale)
Lambert Lane	934 (west of Thornydale Road) 5,610 (east of Thornydale Road)
W. Overton Road	6,701 (Thornydale Road to Shannon Road) 8,653 (Shannon Road to N. La Cholla Blvd.)
Cortaro Farms Road	18,749 (west of Thornydale Road) 13,181 (Thornydale to Shannon Road)
Magee Road	5,488 (west of Thornydale Road) 6,257 (Thornydale Road to Shannon) 16,444 (Shannon Road to N. La Cholla Blvd.)
Camino de Oeste	4,441 (Cortaro Farms Rd. to Linda Vista Blvd.) 1,069 (north of Linda Vista)
N. Shannon Road	10,220 (Magee Road to W. Overton Road) 7,896 (north of Overton Road)
La Cholla Boulevard	11,905 (south of Overton Road) 14,240 (north of Overton Road)

g. Existing Bicycle & Pedestrian Ways

There are no existing bicycle or pedestrian ways in place along either Thornydale Road or Hardy Road.

h. Planned Roadway Improvement Schedules

Thornydale Road (together with appropriate transitions to the east and west of Hardy Road) is an approved road improvement project. Construction of these improvements is scheduled to begin in 2018. Under this approved project, Thornydale Road will be fully reconstructed into a four-lane divided urban arterial, complete with curbs, sidewalks, landscaped medians, and dual bike lanes.

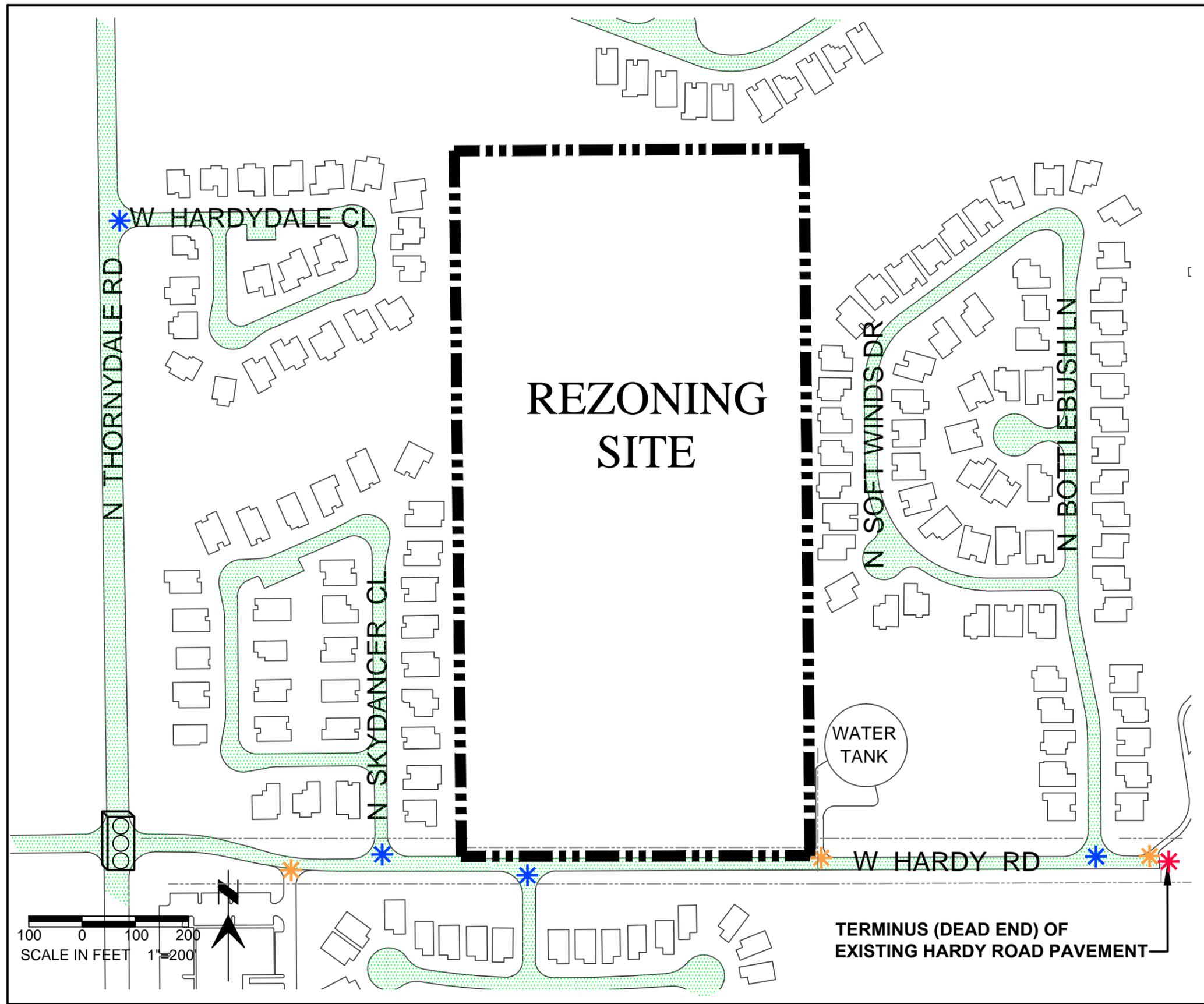
2. Distances from Site to Existing Nearby Driveways & Intersections

Nearby private driveways and street intersections in the vicinity of the subject property have been illustrated on Exhibit I-F.2 (Adjacent Driveways & Street Intersections).

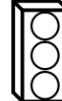
3. Existing & Planned Transit Routes

There is one (1) current transit route on Thornydale Road, this being Sun Shuttle Route No. 412, which connects Tangerine Road, on its north end, with downtown Tucson. This Sun Shuttle route makes designated stops available on Thornydale Road at Lambert Lane, Linda Vista Boulevard, and Cortaro Farms Road respectively. Please refer to Exhibit I-F.3: Public Transit.

Exhibits to Follow



LEGEND

-  Rezoning Site
-  Public Street R.O.W. Line
-  Existing Curb or Edge of Pavement
-  Existing Public Street Paving Improvements
-  Existing Private Driveway Location
-  Existing Public Street Intersection
-  Terminus of Hardy Road pavement
-  Signalized Intersection

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 LOCAL ADVICE & COUNSEL



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Hardy Estates
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 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-F.1a-e
 TRANSPORTATION - ACCESS
 PAGE 32



LEGEND



Rezoning Site



Existing Private Driveway Intersection



Existing Public Street Intersection



Signalized Intersection

325'

Existing Dimension between Driveways or Streets, Typ.

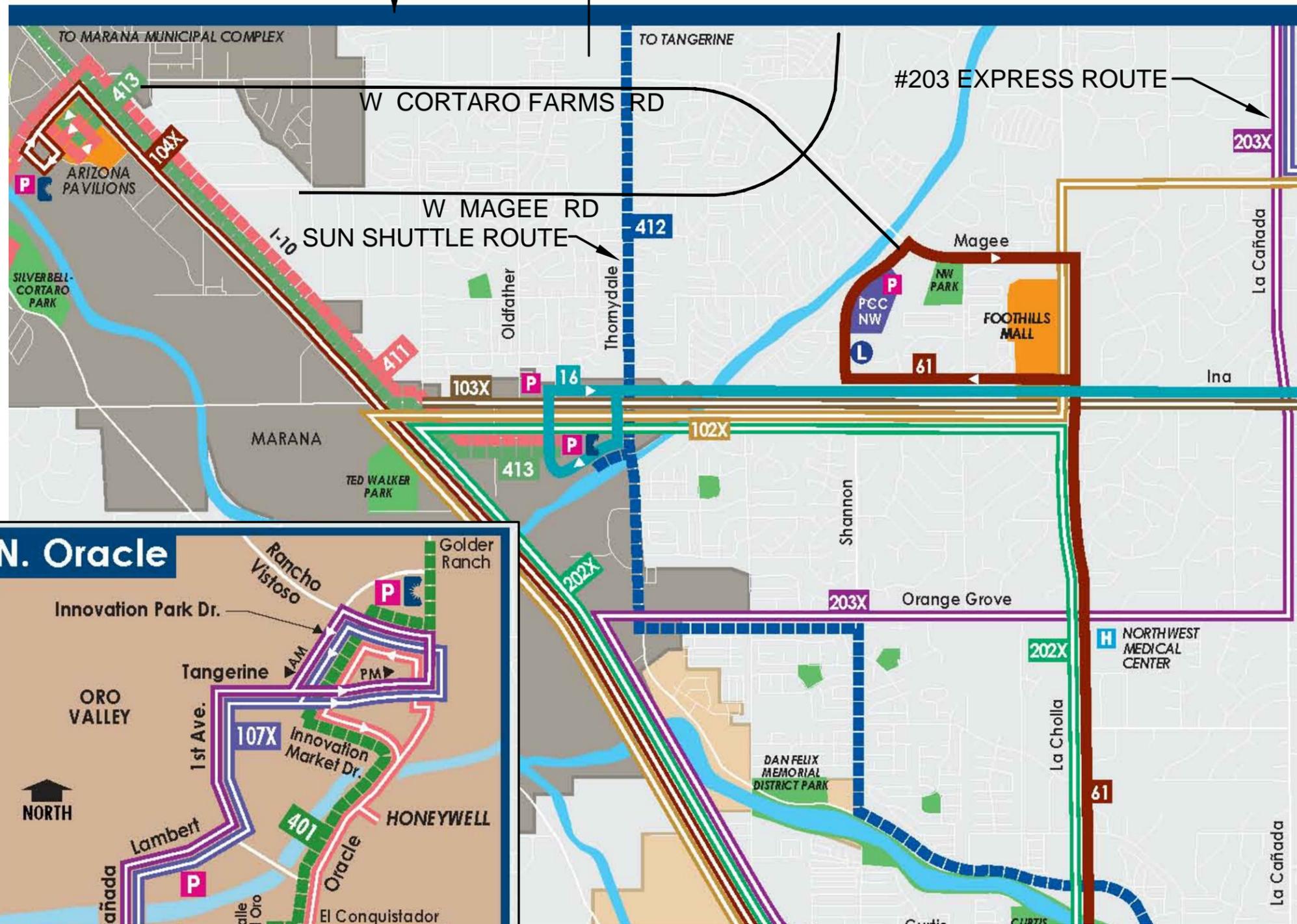


Terminus (Dead End) of Existing Hardy Road Pavement

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North Extent of Sun Tran Map

Subject Site approximately 1 Mile North



LEGEND

- 34 Sun Tran Route Indicator, Typ.
- P Park & Ride Lot
- #203 Express Route
- Sun Shuttle Route #412 (See Note Below)

NOTE:

Available Sun Tran mapping does not capture the Subject Site; mapping terminates north of Cortaro Farms Road as shown hereon. Route # 412 continues northward to Tangerine Road, with stops available at the intersections of Thornydale Road with Lambert Lane, Linda Vista Boulevard and Cortaro Farms Road.

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Hardy Estates
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EXHIBIT I-F.3
 PUBLIC TRANSIT

G. SEWERS

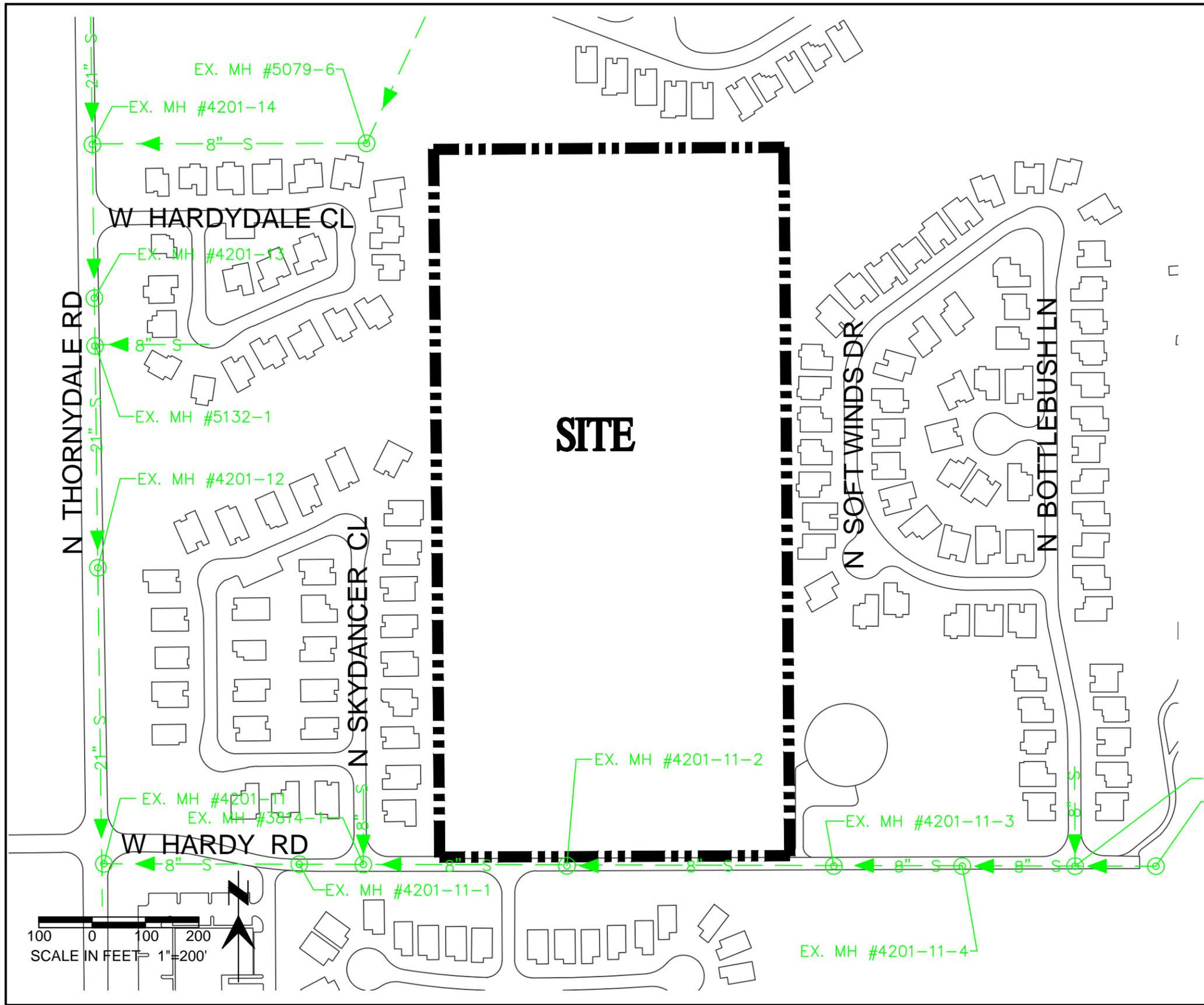
1. Size & Location of Existing Sewers

The rezoning site is served by an existing 8" public sewer located beneath the existing Hardy Road pavement. This Hardy Road line will ultimately be within public right-of-way due to the fact that a formal 45' right-of-way dedication will be required from the developer to establish the full/ultimate MS&R right-of-way width of 90' for Hardy Road. Please refer to Exhibit I-G.1,2 (Sewer) for the location of these existing sewers and their associated manhole numbers. A formal Capacity Response letter has been obtained from the Pima County Regional Water Reclamation District (PCRWRD) and is presented in Section II.J (p. 72) of this Site Analysis.

2. Any Constraints to Gravity Service

It does not appear that there are any constraints to providing gravity sewer service for the project nor in connecting its new sewers to the aforementioned public lines. Given the topography of the site, it is anticipated that most, if not all, of the proposed project will drain into the existing sewer along the property's south boundary.

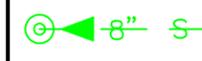
Exhibit to Follow



LEGEND



Rezoning Site



Existing Sewer, Flow Direction, Manhole Number & Line Size

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 LOCAL ADVICE & COUNSEL

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EXHIBIT I-G.1,2
 SEWERS
 PAGE 36

H. RECREATION & TRAILS

1. Public Parks, Recreation Areas & Trails within One (1) Mile

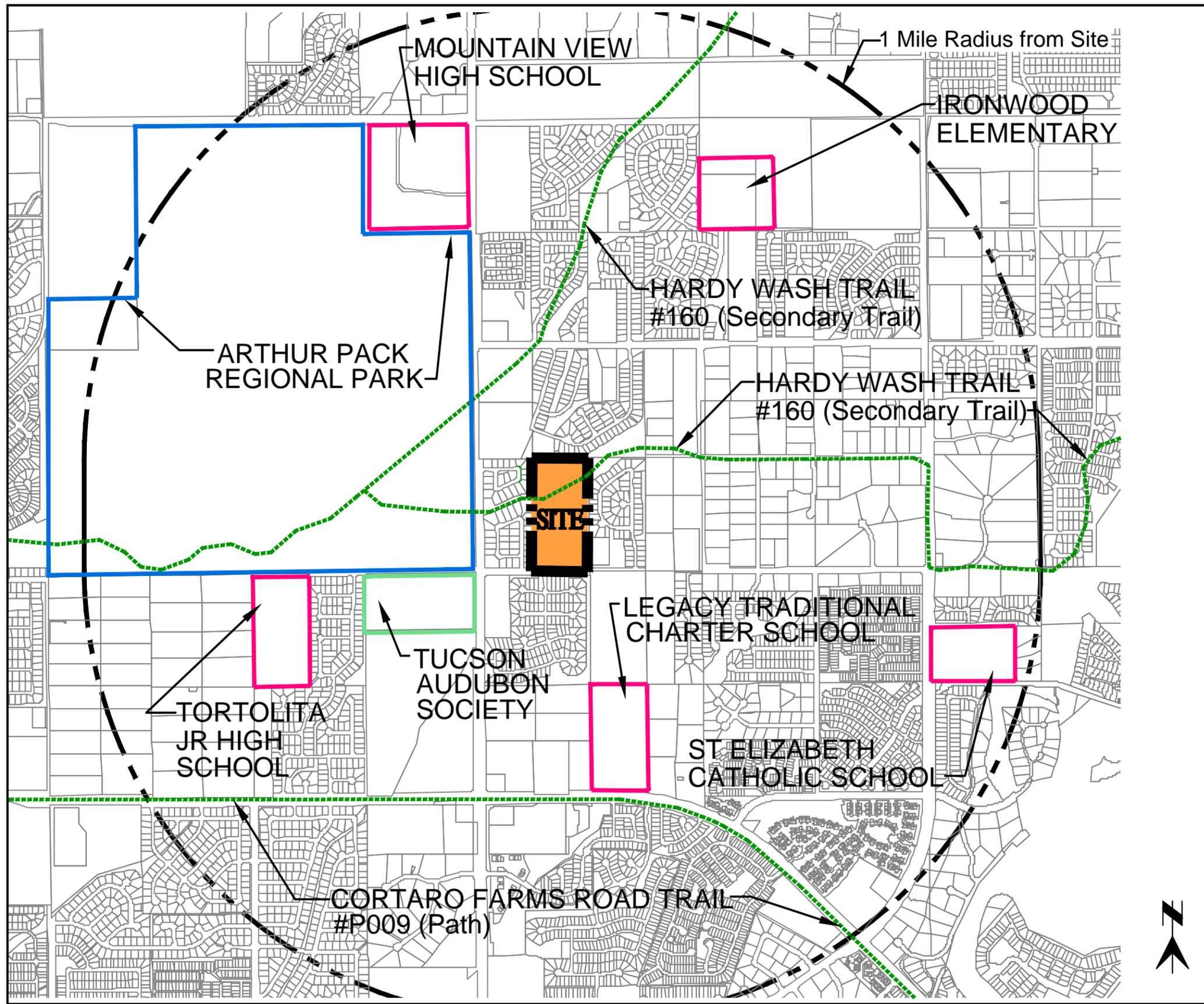
See Exhibit I-H.1 for mapping of the various trails and park facilities located on and in the vicinity of the rezoning site.

Most notably, Arthur Pack Regional Park is located approximately ¼ mile west of the subject property, on the west side of Thornydale Road. This regional park is a Pima County facility managed and maintained by the Department of Natural Resources, Parks & Recreation (DNRPR). It contains natural desert elements together with fully-developed athletic fields, a golf course, improved trails, and various activity facilities.

2. Pima Regional Trails System Master Plan (PRTSMP)

The conceptual alignment for the Hardy Wash Trail #160 (a secondary trail) is depicted on the 2010 Pima Regional Trails System Masterplan and traverses the northern portion of the subject property. This Hardy Wash Trail alignment also traverses several existing residential subdivisions lying to the east and west of the subject property. It has been physically implemented in only a few areas, the most notable of which lies within Arthur Pack Regional Park to the west of the rezoning site. No physical trail improvements currently exist on the subject property, nor on the existing residential subdivisions located to the immediate east and west.

Exhibit to Follow



LEGEND



Rezoning Site



Designated Pima County Trail from Pima County Regional Trail System Master Plan



Public Park



Public/Private School



Tucson Audubon Society

NOTE:

There are no designated trail heads within the area illustrated on this exhibit.

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EXHIBIT I-H.1
 RECREATION AND TRAILS
 PAGE 38

I. CULTURAL RESOURCES, ARCHAEOLOGICAL & HISTORIC SITES

1. Records Check and Letter Report

A cultural resources records review was completed for subject property by David Stephen of Professional Archaeological Services of Tucson, LLC (PAST) in April, 2016. The search reviewed the existing records in the AZSITE database, as well as the National Register of Historic Properties (NRHP). These sources indicate that no archaeological sites had been previously documented on the subject property. The PAST report is included here as Exhibit I-I.1.

a. Prior Field Surveys

Per the above, the only prior archaeological survey that included the property was the Northern Tucson Basin Survey (NTBS) conducted by the Arizona State Museum (ASM) and the University of Arizona (UA) in the early/mid 1980's.

b. Previously Recorded Archaeological or Historic Resources

No archaeological or historic sites of significance were found in the aforementioned records review.

c. Probability of Buried Resources

There is a low probability of buried resources based upon the aforementioned records review.

d. Recommendation as to Future Surveys

Due to the fact that the prior NTBS survey methodology would not be considered adequate by current State Historic Preservation Office (SHPO) standards, the PAST suggests that a new survey, meeting currently accepted survey standards and protocols, be completed for the property. It is the developer's intent to complete this survey at the time of subdivision platting.

2. On-Site Archaeological or Historic Resources

Not applicable per the above findings.

Exhibit to Follow



4/11/2016

Mr. Jim Portner
Projects International, Inc.
10836 E. Armada Lane
Tucson, AZ 85749

RE: Records Research For The Hardy Estates Project Pima County, Arizona
PAST No. 162054

Dear Mr. Portner

At the request of Projects International, Inc. personnel from P.A.S.T. undertook a cultural resources records review of the Hardy Estates property in unincorporated Pima County, Arizona. P.A.S.T. consulted the AZSITE database for previously conducted surveys that encompassed, intersected or are located adjacent to the subject parcel as well as for previously recorded archaeological sites. Information in the National Park Service National Register Information Systems Database was also reviewed for National Register of Historic Properties listed properties or districts.

The intent of the records review is to compile relevant information about known cultural resources located on the subject property as well as the likelihood of buried archaeological resources not visible from the surface being present that would be impacted by development of the property. Having such information would enable an informed recommendation to be made as to whether an archaeological survey of the properties is warranted. Pima County requires this information as a component of their site analysis report.

Based on assessor information, the 20-acre Hardy Estates property is a privately owned parcel in Section 20, Township 12S, Range 13E, Gila and Salt River Baseline and Meridian, Pima County, Arizona. It can be found on the Jaynes, AZ 7.5-minute U.S. Geological Survey topographic quadrangle (Figure 1) and is shown as parcel 22502029C in the on-line Pima County Geographic Information System. Figure 1 is a rendition of a portion of the U.S.G.S. Jaynes 7.5-minute topographic map that shows the parcel boundaries and archaeological sites (if any) within the project area. Projects with boundaries extending across multiple U.S.G.S. maps are so noted in the lower left of Figure 1. The boundary shown on the map is reasonably accurate given the limitations of a 1:24,000 scale map. It is based on data and maps reviewed by P.A.S.T. but it is not intended to represent the precise legal extent of the parcel. Unless otherwise noted, land ownership coincides with the parcel boundary shown in Figure 1.

Records Review.

The records reviewed revealed that the subject parcel had either not undergone a complete, intensive archaeological survey or sufficient time had passed since an earlier study suggesting heretofore undiscovered cultural resources may have been

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Exhibit I-I.1 (Page 1 of 3)
SWCA Records Review Summary Letter of Findings

Section I - Site Inventory

subsequently exposed that would not have been documented by the initial field work. Based on 2004 SHPO policy (Guidance Point #5), surveys conducted over 10 years ago may need to be updated or resurveyed due to changes in regulations or reporting requirements. However, the final decision in this matter rests with the responsible agency or municipality. Information obtained from the records review is summarized in the table below.

The records search showed no recorded cultural resources on the parcel. Previously recorded cultural resources within a 100 meter perimeter around the project boundary are noted since such resources may account for the presence of isolated archaeological materials found on the parcel. Because Arizona Geological Survey maps show the parcel located upon middle to late Pleistocene alluvium the likelihood of finding important buried archaeological resources not visible on the surface is low

AREA	Year(s)	Number
Previous surveys that covered intersected subject property:	1981	174.ASM
Recorded archaeological sites on the property in AZSITE:	NONE	
Recorded archaeological sites within 100 meters:	1	

The archaeological survey of the property shown in the above table was associated the Northern Tucson Basin Survey (NTBS) undertaken in the early to middle 1980s. Conducted by the Arizona State Museum (ASM) and the University of Arizona it employed field methods that would not be considered adequate by the SHPO and other agencies.

SUMMARY

Based on information in the Arizona State Museum site files office, an intensive archaeological survey and the associated report will be necessary to document the presence or absence of cultural resources for this parcel. It is important that both the field work and report conform to current regulatory standards. Although it would appear that further archaeological studies will be required for this property, this should be verified with the agency or municipality that has oversight for this property.

Ground disturbing activities on the property should not commence without authorization by the agency archaeologist(s). There remains the possibility that ground disturbing activities could reveal the presence of heretofore undiscovered cultural resources on the property. If such materials are discovered construction activities should stop. Consultation should be initiated with the cognizant agency archaeologist, and if applicable under ARS §41-841 et seq. the Arizona State Museum, to assess the potential significance of any materials unearthed. Under State law (ARS 41-§865 & §41-844) if human skeletal remains or funerary objects are discovered on either public or private lands the Arizona State Museum should be contacted immediately.

Please contact me if you have questions or need further information.

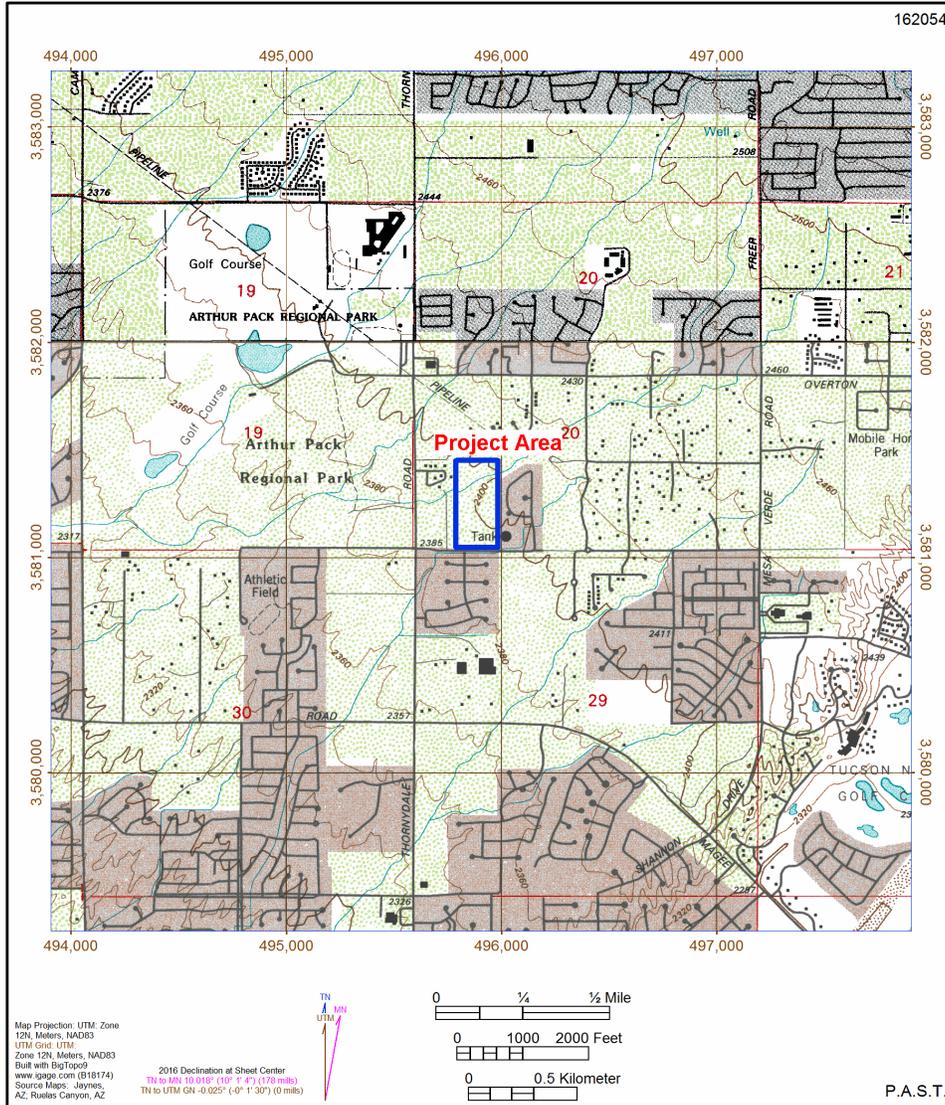
Sincerely,

David Stephen, Ph.D.
Senior Archaeologist

P. A. S. T.
Professional Archaeological Services & Technologies
5036 Golder Ranch Drive, Tucson, AZ 85739 520.825.3536

Exhibit I-I.1 (Page 2 of 3)
SWCA Records Review Summary Letter of Findings

Fig. 1 Jaynes U.S.G.S. 7.5' MAP (T12S R13E)



NOTE: Due to the sensitivity of site locations, only sites within the project area are depicted on the map
 Site locations as well as their geometric representation and extent are approximate. + = isolate

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Exhibit I-I.1 (Page 3 of 3)
SWCA Records Review Summary Letter of Findings

J. AIR QUALITY

1. Proposed Industrial Facilities

Not applicable; there are no Industrial facilities planned or proposed for this development.

K. COMPOSITE MAP

1. Description of Major Characteristics

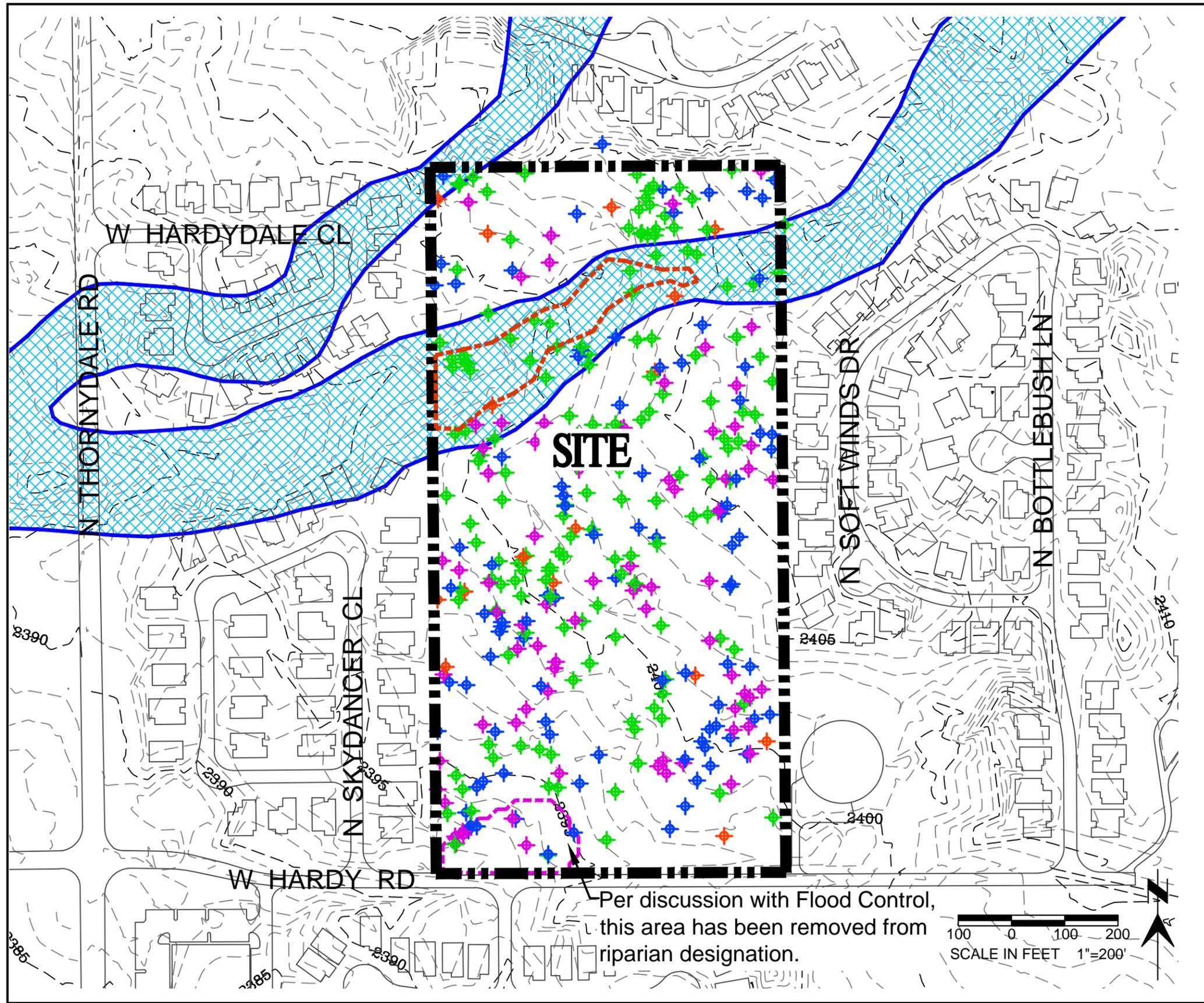
The site is generally unremarkable in terms of landform or significant features, except for the fact that it possesses a rich stand of natural desert vegetation and designated riparian habitat. The specific characteristics cited in the Site Analysis Guidelines are respectively addressed on Exhibit I-K.1-3 (Composite Map) as follows:

1. **Topography.** There are no restricted peaks and ridges, rock outcrops, talus slopes, or slopes of 15% or greater. As such, none of these topographic features are depicted on the Composite Map exhibit. The Exhibit will contain only the 1' contour interval mapping of the site.
2. **Hydrology.** The Composite Map exhibit will contain the following identified items from the checklist: (a) the 100-year regulatory floodplains traversing the site in the existing condition.

The following items from the checklist do not exist on the property and so will not be depicted on the Composite Map: (b) sheet flow areas; (c) federally mapped floodplains and floodways; (d) regulated riparian habitat areas; and (e) lakes, ponds, springs, wetlands, etc.

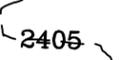
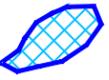
3. **Biological Resources.** The Composite Map exhibit contain only the following three (3) identified items from the checklist: (a) all saguaros, mapped and categorized based their height; (b) ironwood trees; and (e) areas of significant or important vegetation.

The following items from the checklist do not exist on the property and so will not be depicted on the Composite Map: (c) pima pineapple cactus; and (d) needle-spined pineapple cactus.



Per discussion with Flood Control, this area has been removed from riparian designation.

LEGEND

-  Rezoning Site
-  Existing Condition Topographic Contour (1' Interval)
-  Erosion Hazard Setback Limit (EHSL)
-  Approximate 100-Year Floodplain Limit
-  Mapped Riparian Habitat -- Important Riparian Areas with Xeroriparian "C"
-  Saguaro ≤ 6' in height
-  Saguaro >6' - 18' in height
-  Saguaro >18' in height
-  Ironwood Tree
-  Vegetation of Special Note for Scenic Value or Buffering

Jim Portner, Agent for Owner
PROJECTS INTERNATIONAL, INC.
 10836 E. ARMADA LANE
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PROJECTS INTERNATIONAL, Inc.
 STRATEGIC GUIDANCE
 ENTITLEMENT PROCESSES
 LOCAL ADVICE & COUNSEL



GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT I-K.1-3
 COMPOSITE MAP
 PAGE 44

SECTION II:
Land Use Proposal

A. PROJECT OVERVIEW

The proposed rezoning can rightly be viewed as an infill development that will fit well within its surrounding established residential context and will make efficient use of the existing public and utility infrastructure that is already in-place.

1. Requested Zoning Designation

Because the Project is not proposed to include multiple zoning districts, the Site Analysis requirements of Section II-A.1. do not apply. The requested zoning designation for the entire rezoning site is CR-5.

2. Characteristics of Proposed Development

The site will be developed as a single-family residential subdivision, the intent of which is to be generally consistent in density and character with the existing subdivisions already in place to the east, south, and southeast. There is, however, one notable distinction between the present proposal and these past subdivisions. The latter were subdivided and constructed in the 1980's and 1990's, when far less restrictive regulations were in place to protect natural drainage features and wildlife habitat areas. As a result, many of these prior subdivisions were almost entirely mass graded and their natural drainages often narrowed, channelized and/or realigned. The residential subdivision proposed under this rezoning will essentially preserve the on-site natural drainageway (Hardy Wash) in its natural state, as well as fully honor the Conservation Lands System (CLS) thresholds for the site through a combination of on-site and off-site set-asides.

Beyond this basic premise, the following particulars apply:

a. Project Design & Response to Site Constraints

The site's major constraints are natural and environmental ones, most notably pertaining to habitat resources and the regulatory floodplain of the Hardy Wash that traverses the property.

The entire site is designated as *Multiple Use Management Area (MUMA)* under the Maeveen Marie Behan Conservation Lands System (CLS), with portions of it classified as *CLS Important Riparian Area (IRA)*. The entire property is further subject to the CLS Special-Species Management overlay, thereby requiring a 4:1 preservation ratio for every acre of property that is developed.

Beyond these habitat considerations, the site contains numerous saguaros and ironwood trees, thereby necessitating special care in applying and executing the Native Plant Preservation Ordinance (NPPO).

The Preliminary Development Plan (PDP) presented below in Section II.B responds to these natural constraints by employing significant set-asides for both the CLS and regulatory-floodplain constraints identified above. The residential lots are located solely in that portion of the property that lies

south of the Hardy Wash floodplain and its associated habitat corridor, thereby preserving the northern 7.2 acres of land in its natural state and as an on-site CLS set-aside.

- b. Conformance with Comprehensive Plan (Pima Prospers), etc.

This Project, as proposed, will comply with Pima Prospers (the Pima County Comprehensive Plan) and all applicable Rezoning Policies.

This Project complies with its Designated Land Use Intensity Category.

The Property is designated as Medium-Low Intensity Urban (MLIU) per Pima Prospers, and is further subject to the rezoning policies of adopted comprehensive plan amendment Resolution No. 2015-28. The complete rezoning policies attendant to this Resolution have been provided in Section I.A.2.c (on p. 2) of this Site Analysis. The Project will provide a single-family, detached residential subdivision of the same basic character and intensity of those already adjacent to it and within the larger Thornydale Road corridor. The proposed CR-5 zoning request for the residential subdivision is permitted under the MLIU category and, further, is consistent with the established zoning construct surrounding the property.

In terms of density, Pima Prospers stipulates a residential density range of 2.5 to 5.0 RAC (residential units per acre) for properties designated MLIU. The *Preliminary Development Plan (PDP)* for this rezoning proposes a subdivision containing fifty-five (55) lots on approximately thirteen (13) developed acres. This calculates to a net-effective density of 4.2 RAC. If we apply the full twenty-acre gross area of the subject property, the gross density calculates to 2.75 RAC. If we exclude the approximately 0.7 acres that will be dedicated to Pima County for Hardy Road right-of-way, the gross density adjusts to slightly more than 2.8 RAC. All of these calculations are compliant with the MLIU density prescriptions.

This Project complies with the County's Pima Prospers Use of Land (Chapter 3) and Physical Infrastructure Connectivity (Chapter 4) policies. The pertinent policies are as follows: Land Use Element (Section 3.1), Environmental Element (Section 3.4), Housing & Community Design Element (Section 3.5), and Transportation Element (Section 4.1).

Land Use Element (Section 3.1)

The proposed project works substantially toward the established Goal 1 objective (p.3.2) of integrating land use with physical infrastructure and resource conservation to insure long-range viability of the region. The requested rezoning integrates with the existing, established, or already-planned transportation, wastewater, potable water, and recreational infrastructure resources adjacent to the property and within the larger Thornydale Road corridor. It represents a quintessential infill development that, by definition, works off of this existing infrastructure

rather than requiring the further expansion of it. The continued residential densification of the Thornydale Road corridor through infill projects such as this one takes advantage of these available efficiencies and enhances the opportunity for expanded multi-modal transportation and transit options.

Environmental Element (Section 3.4)

The proposed project is in full compliance with the Conservation Lands System (CLS), its stated Goal 1 (p. 3.23) objective of conserving and protecting natural resources, together with its enumerated Policies (pp. 3.23 thru 3.31). The subject property was evaluated during the comprehensive plan amendment phase and put forth a site-specific framework plan that illustrated a seven-acre (7.0 AC) on-site CLS set-aside, while also providing for off-site CLS mitigation so as to insure full compliance with the CLS and its Special Species Management overlay. This rezoning is the next step in effectuating the approved comprehensive plan amendment and its attendant framework plan.

Housing and Community Design Element (Section 3.5)

The proposed project furthers the Goal 8 (p. 3.45) objective of providing new development that is generally compatible and scale-appropriate, as well as the Goal 10 (p. 3.46) objective of ensuring development that reflects the character and sense of place of its given area. This infill project has, from the onset, pursued a very simple goal: provide a single-family residential use that, as best as possible, general fits within and respects the type, character, and density of the existing residential development that already surrounds it. While the actual residential component of the proposed project will satisfy this basic objective, the overall development will represent a significant enhancement over the established surrounding residential context. While the existing adjacent subdivisions were often entirely mass-graded and employed significantly narrowed or channelized drainages, today's more restrictive preservation and regulatory policies yield a subdivision with natural/preserved washes and open space elements, thereby creating a more respectful and sensitive integration of the new project within its established suburbanized context.

Transportation Element (Section 4.1)

The proposed project furthers the Goal 1 (p. 3.45) objective of promoting a comprehensive and multi-modal transportation system. The Thornydale Road corridor is one of the most significant north-south transportation arteries within the overall County transportation system. Multi-modal objectives are met by fostering the growth, intensification, and residential densification of such corridors. At present, the Thornydale corridor is

served by only a single public transit route, this being a Sun *Shuttle* service, not a full-size Sun Tran bus. Continued growth and development of infill parcels, such as the subject property, will contribute toward the goal of achieving truly multi-modal, transit-rich corridors throughout the region.

This Project complies with the County's applicable Rezoning Policies. As mentioned above in Section I.A.2.c (p. 2) and in Section II.A.2.b (p. 46) of this Site Analysis, the subject property is designated as Medium-Low Intensity Urban (MLIU) and is subject to the rezoning policies of Resolution No. 2015-28. Five (5) rezoning policies were stipulated by this Resolution (see p. 2). The proposed residential use for the project, its design and its open space/habitat set-asides (most notably those associated with the Hardy Wash regulatory floodplain) are in accordance with the prescribed policies.

c. Neighbor Issues & Response

The property owner (Whisper Canyon Holdings, LLC) heard and incorporated neighboring property owner concerns during the aforementioned comprehensive plan amendment process for this property (Case No. Co7-14-02), the application of which was ultimately approved by the Board of Supervisors in May, 2015. The conditions of approval attached to that amendment (which were enumerated in Section I.A of this Site Analysis as part of Resolution No. 2015-28)) have been reflected in this rezoning proposal and attendant PDP through the protection and set-aside of the Hardy Wash and its attendant regulatory floodplain and riparian habitat resources.

The rezoning applicant is committed to working further with neighborhood representatives and leaders so as to fully inform them of the proposed rezoning application and the specifics of the residential subdivision planned for the property. These discussions and interactions will be on-going through the rezoning process and we will insure that Pima County staff is kept abreast of their progress.

d. Impact on Existing Land Uses in the Surrounding ¼ Mile Area

The proposed Preliminary Development Plan (PDP) depicts a residential subdivision that is generally similar in type and character to the existing neighborhoods that are already in place to the east, south, and southeast. As alluded to above, however, the degree of on-site habitat protection and the preservation of existing natural washes inherent in the proposed PDP exceeds that which characterizes the prior adjacent subdivisions.

e. Contribution to Smart Growth Principles

The proposed rezoning is consistent with, or furthers, several of the Smart Growth Principles as identified by the Smart Growth Network (SGN). These are individually discussed below:

Mix of Land Uses

Given the emerging urbanization trend in the area and taking into account the property's immediate context, the site is best developed as a residential subdivision. The riparian and drainage constraints impacting the property have carefully been incorporated into the subdivision design to insure that it will coexist well with its existing residential neighbors to the north, west, and east as well as with the established charter school to the south.

Take Advantage of Compact Building Designs

The project will promote a higher population density and intensity within the Thornydale Road corridor and will locate the proposed residential lots in a concentrated spatial arrangements that afford opportunities for efficient on-site infrastructure while, at the same time, creating a significant open space corridor and CLS set-aside of the Hardy Wash riparian corridor.

Multi-Modal Transportation Opportunities

Higher density development always contributes to larger regional opportunities for multi-modal transportation. The Thornydale Road corridor functions as an important north-south transportation artery and is suitable for future bicycle routes and public transit. Higher density development is essential in creating the demand needed to support and further such multimodal opportunities.

Rational Infrastructure Expansion and Improvements

The proposed rezoning and residential subdivision adheres closely to this principle. Intelligent and efficient growth demands the intelligent and efficient use of established public infrastructure. The proposed rezoning site represents an important infill opportunity that will utilize existing public utility and planned transportation improvements, while contributing its fair share of the costs that will be needed to expand same within the proposed development.

Conservation of Natural Resources

The rezoning site falls within the *Multiple Use Management Area (MUMA)* classification of the Conservation Lands System (CLS), with portions of the

property classified as *Important Riparian Area (IRA)*. In addition, the Special-Species Management aspect of the CLS also applies, thereby increasing the CLS's established conservation and mitigation guidelines.

The proposed PDP ensures the preservation of the site's primary natural resource, i.e. the Hardy Wash regulatory floodplain and riparian habitat corridor. Approximately seven acres (7 AC) of the site is dedicated as a natural area set-aside in order to protect this resource in its entirety. The CLS topic is discussed further below in Section 3.b (Open Space Element, Environmental Element) and Section 3.f (Compatibility with Conservation Lands System).

3. Applicability and/or Conformance with the Pima County Zoning Code

This Project does not require compliance with the Buffer Overlay Zone, Gateway Overlay Zone, Hillside Development Zone, Cluster Development Option, Historic Zone, or Airport Environs Zone. The Project will be in compliance with the Native Plant Preservation Ordinance (Chapter 18.72).

a. Buffer Overlay Zone

Not applicable.

b. Gateway Overlay Zone

Not applicable.

c. Hillside Development Overlay Zone

Not applicable.

d. Cluster Development Option

Not applicable.

e. Native Plant Preservation

The project will comply with Pima County Zoning Code Section 18.72 (Native Plant Preservation).

f. Historic Zone

Not applicable.

g. Airport Environs Zone

Not applicable.

B. PRELIMINARY DEVELOPMENT PLAN (PDP)

1. PDP Map and Overlay

A Preliminary Development Plan (PDP), in accordance with Section II-B.1a-p of the Site Analysis Checklist, is provided as Exhibit II-B.1a-p. This PDP illustrates a proposed residential subdivision that effectively confines the developed portion of the property to that which lies south of the existing Hardy Wash floodplain and riparian-corridor constraints.

In terms of timing and phasing, it is most desirable that the project be developed concurrently with the planned comprehensive street improvements to Thornydale Road, which we are told will commence in Year 2018.

2. Support Data

The following support data is provided here and is also reflected in notes on the PDP as appropriate:

a. Gross Floor Area of Structures.

Not applicable; this is residential subdivision project. The formerly-envisioned commercial component has been eliminated from the project.

b. Building Heights

The subdivision will contain both one-story and two-story residences in response to market demand. The maximum building height would not exceed that allowed under the requested CR-5 zoning, i.e. thirty-four feet (34').

c. Dwelling Units

The PDP illustrates fifty-five (55) individual residential lots. The typical lot width is fifty feet (50'), with lot depths ranging from one hundred ten feet (110') to one hundred thirty-five feet (135'). These dimensions yield lots which range in area from 6,000 SF to 6,750 SF. These lot sizes are subject to minor modifications at the time of final subdivision platting, based upon prevailing market conditions in force at the time

d. Maximum Residential Densities

The maximum residential density allowed by Pima Prospers for the Medium-Low Intensity Urban (MLIU) designation is 5 RAC (residential units per acre). The effective density of the proposed PDP (55 lots on 13 developed acres) is 4.2 RAC. The gross residential density, taking into account the overall acreage of the subject property after the anticipated right-of-way dedication for Hardy Road, is 2.8 RAC.

e. Total Number of Parking Spaces

Parking for this project will be in accordance with Zoning Code Section 18.75, to be verified at the time of subdivision platting.

f. Type of Landscaping

Landscaping within the developed subdivision will be a mixture of native preserved desert and xero-riparian landscape species. The proposed landscape program for the site is described more fully in Sections II.E. (Biological Resources) and II.F (Landscape & Buffer Plan).

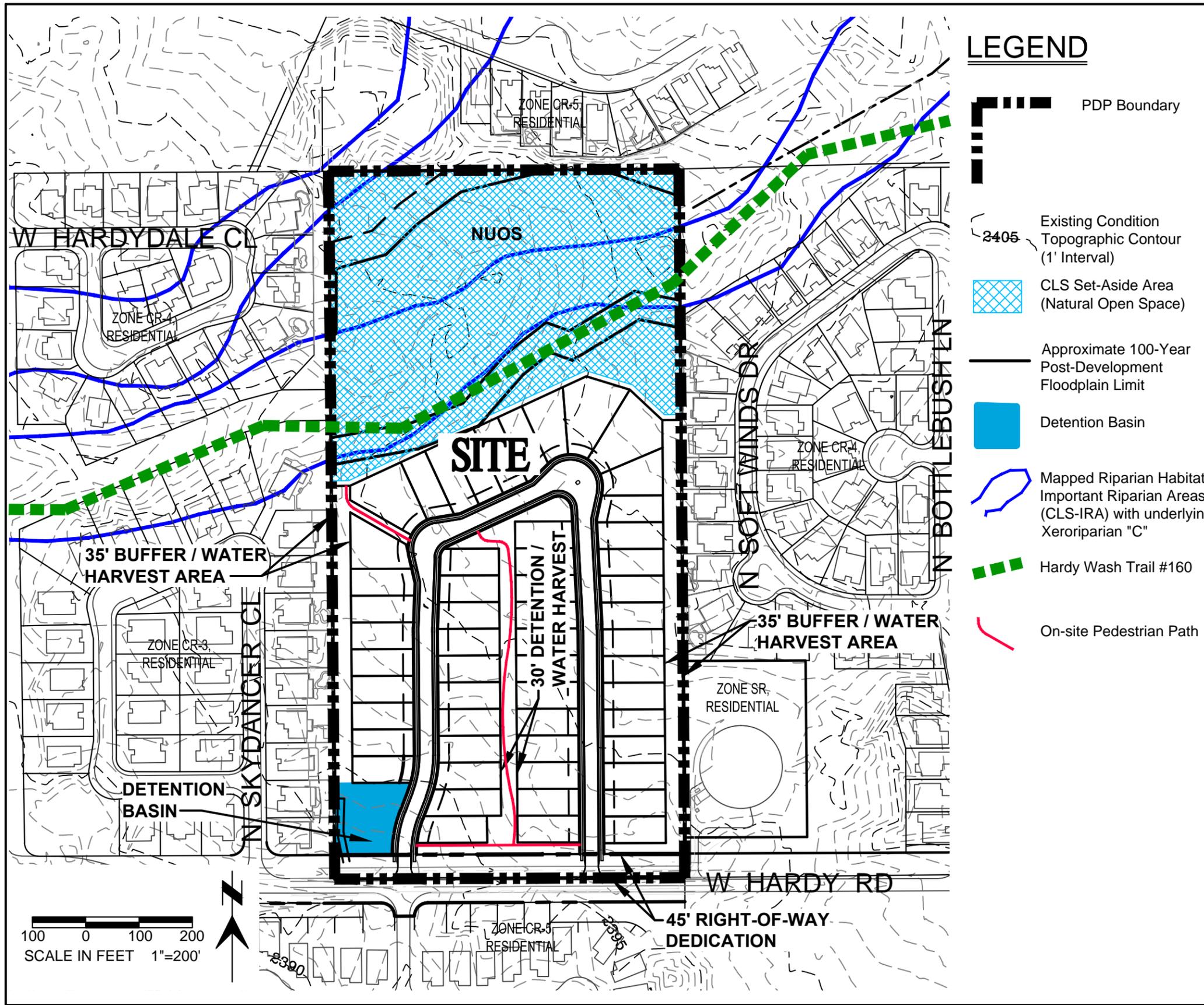
g. Size & Description of Recreation Areas, Natural/Functional Open Space

The project's most significant open space element is the substantial natural area set-aside for the Hardy Wash floodplain and riparian habitat corridor. These areas are illustrated on the PDP and described more fully in Sections II.E. (Biological Resources) and II.F (Landscape & Buffer Plan).

The designated Hardy Wash Trail No. 160 traverses this corridor. In accordance with Pima Prospers Section 4.8 (Goal 1, Policy 3.e) and Section 4.10 (Goal 1, Policy 2.e), the Preliminary Development Plan (PDP) includes on-site pedestrian paths (in addition to the sidewalks provided on both sides of the subdivision streets), that will ensure connectivity from the residential lots to the Hardy Wash corridor and designated trail alignment (also see Section M.3; p. 80).

h. Other Supplemental Information – Safe Streets

In keeping with the objectives of providing safe streets to schools, all new streets within the proposed subdivision will provide concrete sidewalks such that there is a continuous pedestrian system throughout the neighborhood and connecting directly to Hardy Road.



PROJECT AREA
 Gross Area: 20.00 AC (Approximate)
 Net Area (Post R.O.W. Dedication): 19.30 AC (Approximate)

PROJECT PARTICULARS
 Existing Zoning: SR
 Proposed Zoning: CR-5
 Comprehensive Plan: MLIU

PROPOSED USE(S)
 Single-Family Residential Subdivision (55 Lots)
 Typical Lot Size: 50'x120' (6,000 SF)

BUILDING HEIGHT
 Maximum 34' Permitted; Project will contain both 1-Story and 2-Story Residences.

ON-SITE STREETS
 Proposed Right-of-Way Width: 45'
 Travel Lanes: Two (2) 12' Lanes; 2' Wedge Curbs
 Total Pavement Width: 28' (Including Wedge Curbs)
 Sidewalks: 4' Sidewalks Both Sides

PARKING
 Parking will be in accordance with Section 18.75

BUFFER YARDS
 Bufferyard "A" is required along Hardy Road frontage. Bufferyard "C" is required along the east, west and north boundaries.

CONSERVATION LANDS SYSTEM (CLS)
 Natural Open Space per this PDP: 7.0 AC

Jim Portner, Agent for Owner
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 520 850-0917

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

GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT II-B.1a-p
 PRELIMINARY DEVELOPMENT
 PLAN
 PAGE 53

C. TOPOGRAPHY & GRADING

Please refer to Exhibit II.C.1-5 (Topography and Grading) for an illustration of the various grading and design features of the proposed development. In addition, the following required information is also provided:

1. Development Features on Slopes of 15% or Greater

There are no slopes greater than 15% located anywhere on the proposed development; no special measures are therefore necessary.

2. Natural Areas Used for HDZ Allowances

There are no areas being set aside as natural open space for average cross slope, HDZ calculation, or any other purposes on subject property.

3. Mapped Areas & Associated Site Percentages

The site is characterized by the following topography/grading facts:

a. Natural Open Space

More than thirty-five percent (35%) of the site will be natural open space.

b. Revegetated Areas

No revegetation areas are proposed for this project, other than the landscaping of the new residential lots and streetscapes throughout the subdivision.

c. Graded/Disturbed

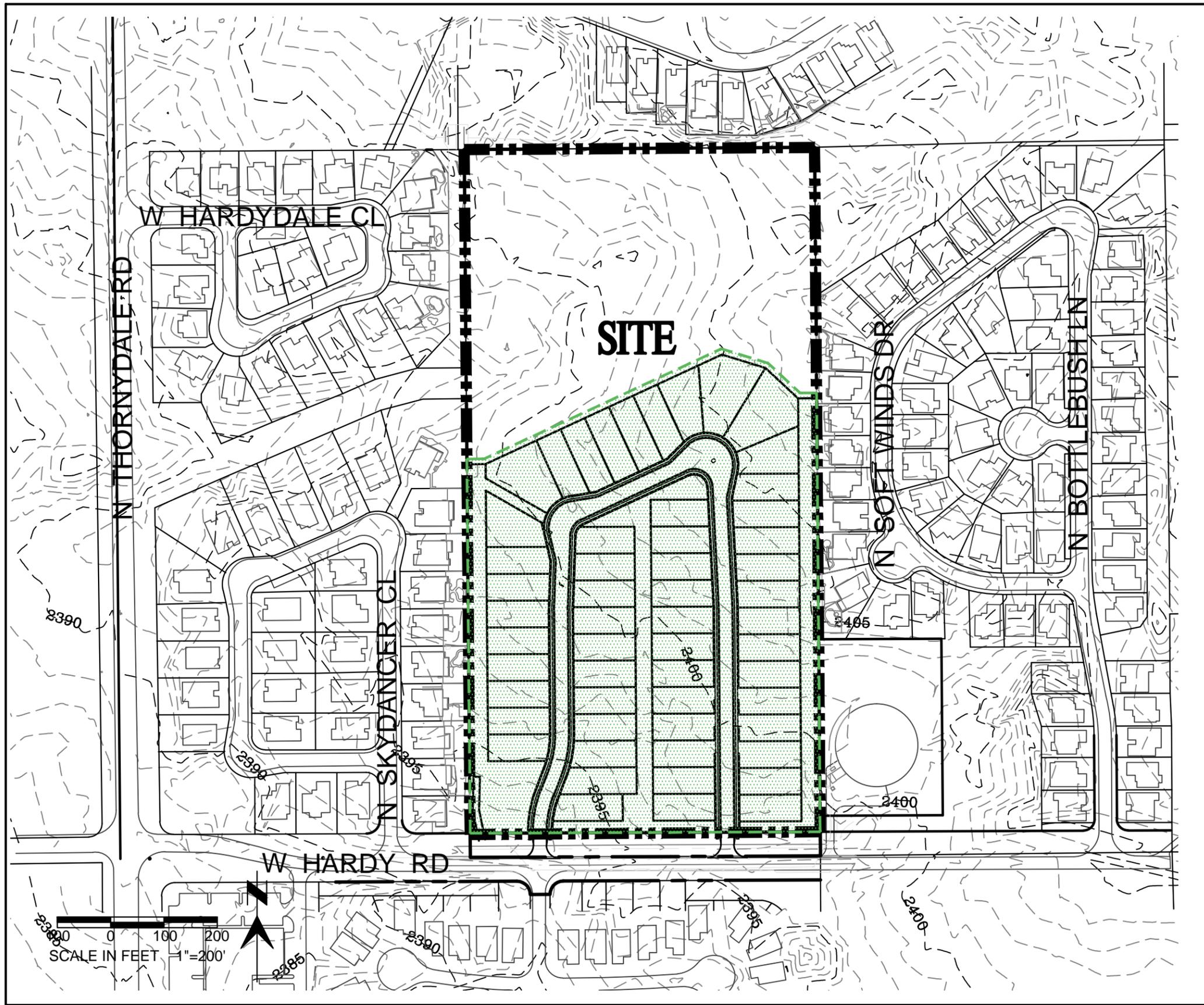
Owing to the significant amount of on-site set-aside areas devoted to riparian, habitat, and natural-drainage preservation, more than one-third of the site will be preserved, while less than two-thirds of it will be graded to accommodate the proposed subdivision lots and attendant streets.

4. Maximum Grade Change; Areas By More than 5' of Cut or Fill

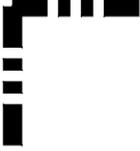
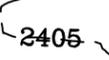
No areas of the site will be cut or filled more than 5' from existing grade.

5. Engineering & Design Features for Cluster Projects

Not applicable; this is not a Cluster Project.



LEGEND

-  PDP Boundary
-  Existing Condition Topographic Contour (1' Interval)
-  Approximate Limit of Grading

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



GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT II-C.1-5
 TOPOGRAPHY AND GRADING
 PAGE 55

D. HYDROLOGY

The proposed subdivision will be a combination of natural area and developed area. The developed area will be mass-graded, as described in Section II.C.3.c and as illustrated on Exhibit II-C.1-5. Please refer to Exhibit II-D (Proposed Hydrology) in conjunction with the following:

1. PDP Design Response to Hydrologic Constraints

A combination of natural open space and setbacks will be used to address surface drainage for this subdivision development. Hardy Wash will remain in its natural condition, including its erosion hazard setback limit (EHS) areas. As such, no encroachment into the Hardy Wash erosion hazard setback is currently proposed. If minor re-configurations of the layout occur at the time of tentative/final subdivision platting which require minor encroachment into the EHS areas, then bank protection/fortification will be required and provisions for same will be detailed on the platting documents.

Onsite detention volume will comply with critical-basin requirements. A single, primary detention basin is proposed at the southwest corner of the property, together with front-yard water harvesting and first flush areas as required by the latest Pima County Flood Control ordinance will be a part of this development.

2. Explanation of Encroachments (Floodplains, EHS's, etc.)

The land use plan for this property provides natural open space along Hardy Wash to the erosion hazard setback line. No encroachment into the floodplain is proposed, and therefore no change to the existing floodplain limits will occur.

3. Post-Development Discharges and Nature of Flows

Post-Development discharges flowing onto the property will not change as a result of this subdivision development. Post-Development discharges exiting the property will be detained and will meet adopted Pima County FCD Critical Basin criteria.

Post-development onsite storm water runoff from the site's developed areas will be conveyed to the primary detention basin and front-yard water-harvesting, and to on-site first-flush areas, including the landscape borders/setbacks along the west and east property boundaries. Post-development discharges of onsite storm-water runoff will be reduced to comply with critical-basin requirements. On site detention basins will discharge to the Hardy Road right-of-way (CP-ON-1 on Exhibit II-D), as they do now.

4. Engineering & Design Features to Mitigate Drainage Impacts

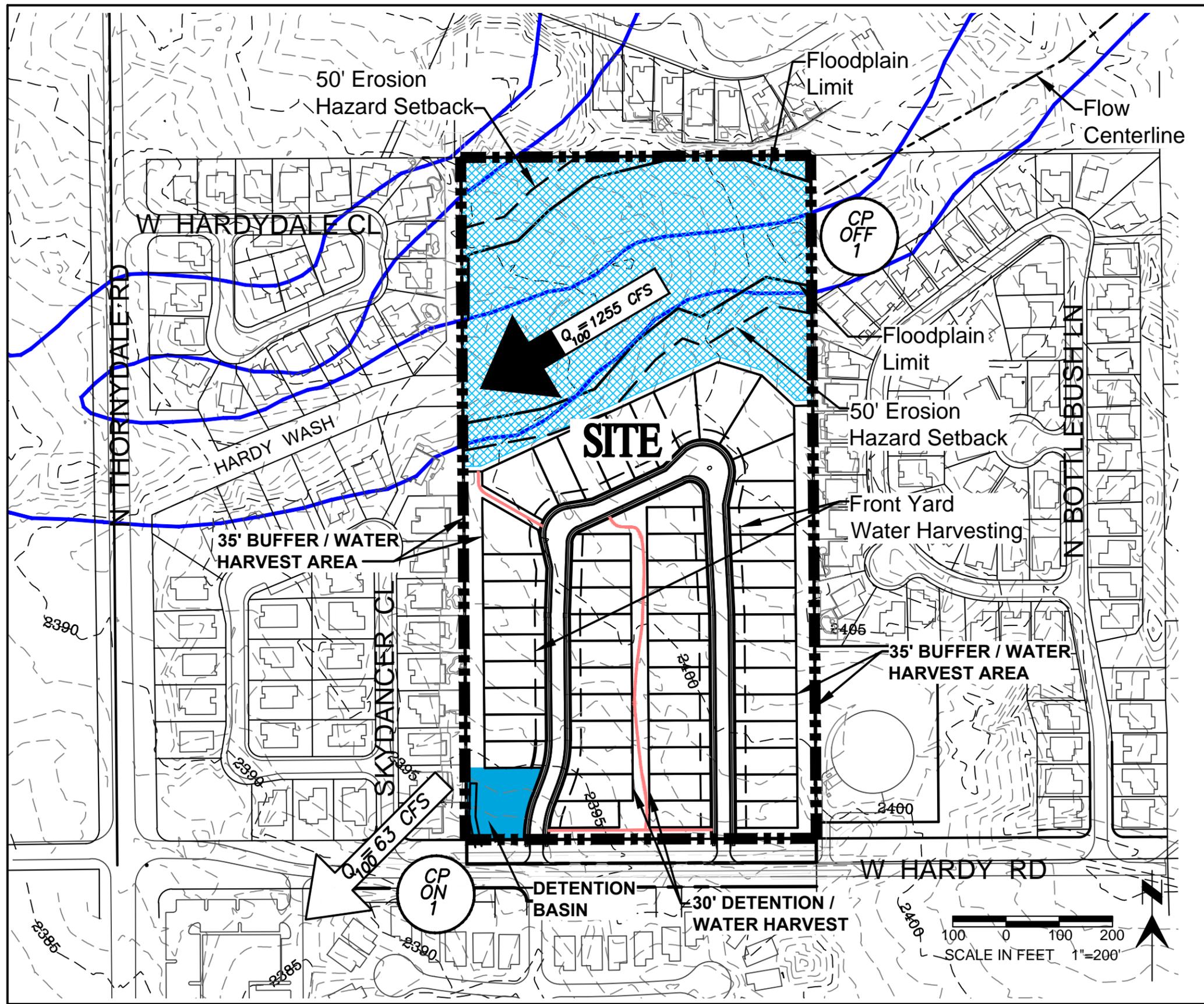
The post development onsite drainage plan will comply with first-flush retention requirements. This will be accomplished through the use of small water harvesting basins throughout the landscaped areas and perimeter buffers, the front yards, as well as within the designated primary detention basin.

All building pads will be designed to be a minimum of one foot (1') above adjacent 100 year flood elevations as determined by detailed engineering calculations to be conducted in conjunction with the final drainage report.

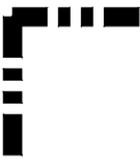
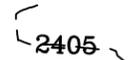
5. Conformance with Applicable Basin Management Policies

On-site generated stormwater will be conveyed to the on-site primary detention facility via the interior street network and by storm drains (if necessary), scuppers, curb openings, etc. These features will be designed and detailed during the subdivision platting process. Unless exceptions are agreed upon during subdivision platting, on-site stormwater conveyance will adhere to all current Pima County Regional Flood Control District development standards and applicable basin management plans.

Exhibit to Follow



LEGEND

-  PDP Boundary
-  Existing Condition Topographic Contour (1' Interval)
-  Erosion Hazard Setback Limit
-  Approximate 100-Year Post-Development Floodplain Limit
-  Detention Basin
-  Mapped Riparian Habitat -- Xeroriparian "C"
-  CLS Set-Aside Area

Jim Portner, Agent for Owner
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 10836 E. ARMADA LANE
 TUCSON, ARIZONA 85749
 520 850-0917



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



GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT II-D
 PROPOSED HYDROLOGY
 PAGE 58

E. BIOLOGICAL RESOURCES

1. Description & Mapping of Expected Impacts

a. Conservation Lands System (CLS) Compliance

The entire site (twenty acres; 20.0 AC) falls within the CLS *Multiple Use Management Area (MUMA)* category, including approximately 2.6 acres of underlying *Important Riparian Area (IRA)* habitat. The entire site is also subject to the CLS *Special Species Management Area (SSMA)* thresholds.

The proposed Preliminary Development Plan (PDP) preserves approximately 7.0 acres of MUMA/SSMA, including all (approximately 2.6 acres) of the IRS with underlying Xeroriparian Class “C” habitat. This site will comply with the CLS through a program of on-site and off-site mitigation. Final figures and calculations for the above on-site set-asides, together with the specific off-site mitigation lands, will be detailed and finalized at the time of future subdivision planning.

b. Native Plant Preservation Ordinance (NPPPO) Compliance

The project will demonstrate compliance with the Native Plant Preservation Ordinance (NPPPO) at the time of future subdivision platting. Compliance will be achieved through the use of both on-site and off-site natural open space areas. Final NPPPO inventories and mitigation calculations will be provided at the time of future platting.

c. Saguaros

A total of two hundred ten (210) saguaros were found on the property, of which fifty-six (56) are located within the proposed preservation areas. Of these preserved specimens, nineteen (19) are 6’ tall or less ($\leq 6'$), twenty-eight (28) are more than 6’ up to eighteen feet (18’) tall, and nine (9) are greater than 18’ tall ($>18'$). See Exhibit II-E.1.b.

d. Ironwood Trees

There are a total of one hundred ninety-four (194) Ironwood Trees on the property, some of which are not viable. Approximately sixty-eight (68) Ironwoods fall within the proposed on-site preservation areas. See Exhibit II-E.1.b.

e. Pima Pineapple Cactus

No (0) Pima Pineapple Cactus have been located on the property. The site is not a Priority Conservation Area (PCA) for this species.

f. Needle-Spined Pineapple Cactus

No (0) Needle Spined Pineapple Cactus have been located on the property. The site is not a Priority Conservation Area (PCA) for this species.

g. Other Areas of Significant or Particularly Important Vegetation

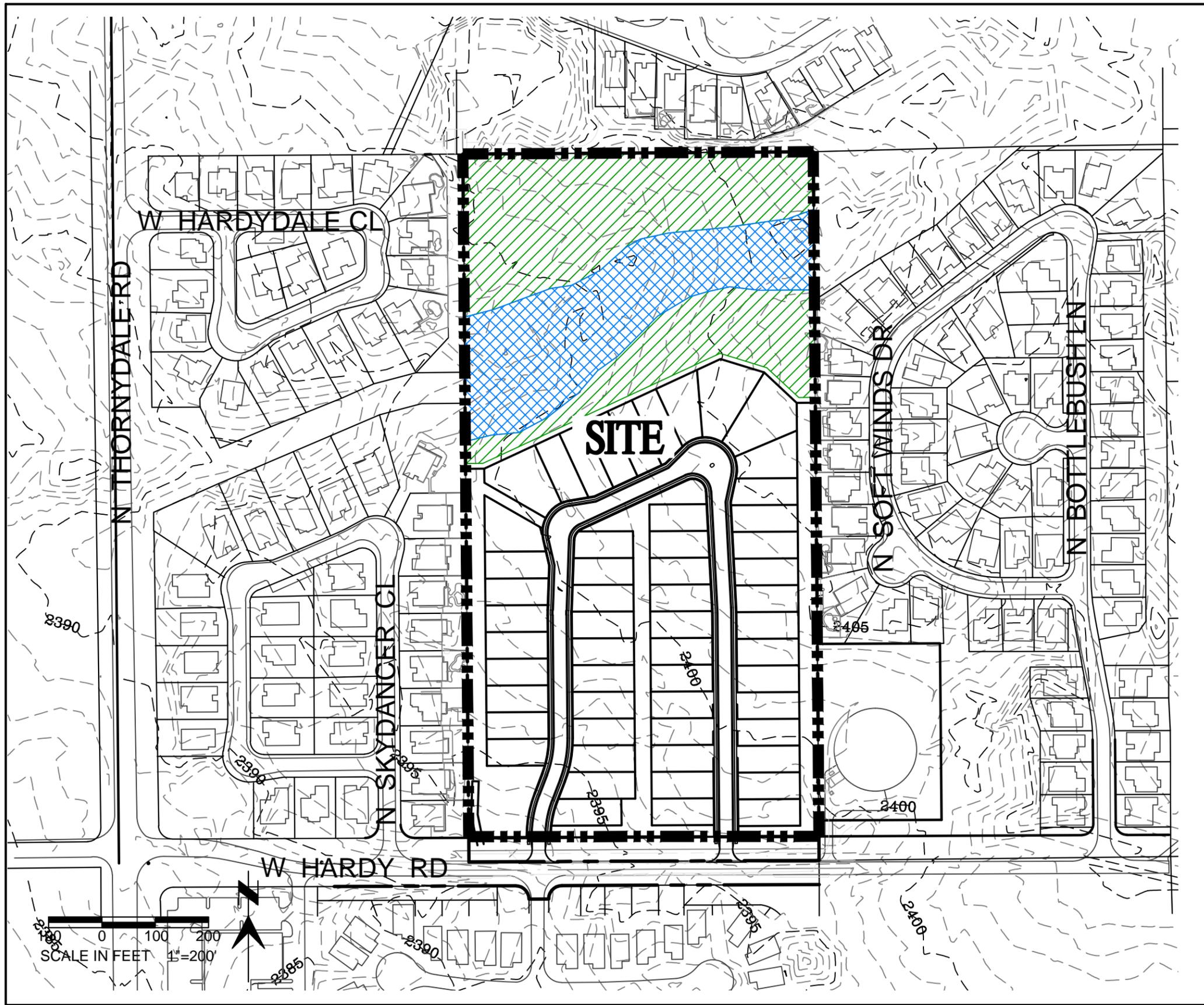
The areas of significant or important vegetation on the site coincide with the Hardy Wash riparian habitat corridor and have been reflected on Exhibit II-E.1b

2. Affect on CLS or Critical Landscape Linkages

As mentioned earlier, there are no Critical Landscape Linkages in the vicinity of the rezoning site.

The project will fully comply with the applicable CLS preservation thresholds through a combination of on-site and off-site mitigation. Final figures and calculations for the satisfaction of these thresholds will be provided at the time of future subdivision platting.

Exhibits to Follow

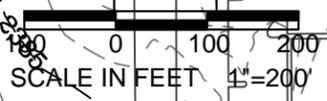


LEGEND

-  PDP Boundary
-  Preserved Multiple Use Management Area and Special Species Management Area with Important Riparian Area with Underlying Xeroriparian "C" Area
Approx. 2.6 AC
-  Preserved Multiple Use Management Area and Special Species Management Area
Approx. 4.4 AC

Total On-Site Preservation:
Approximately 7.0 AC

Jim Portner, Agent for Owner
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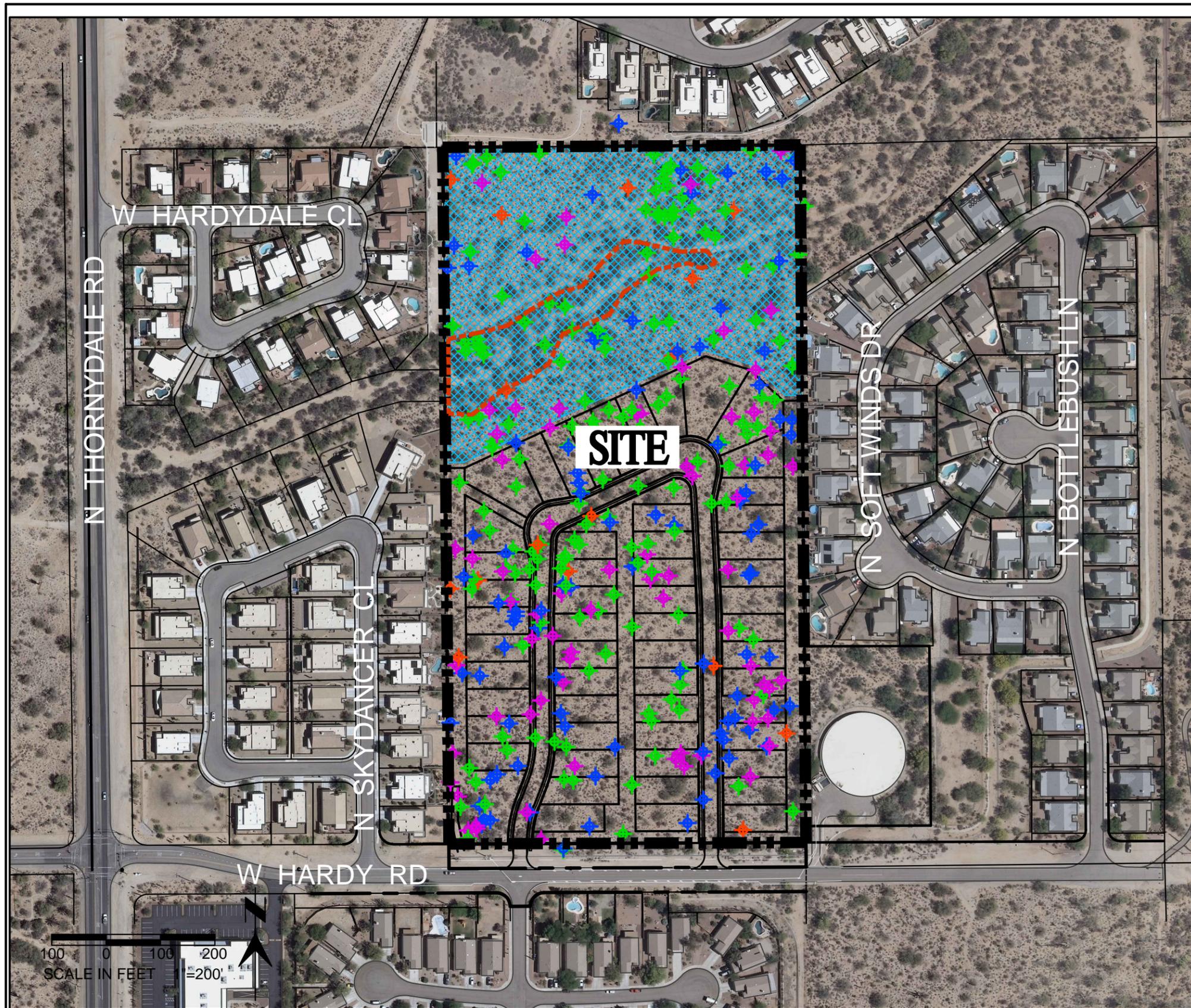
PROJECTS INTERNATIONAL, Inc.
 STRATEGIC GUIDANCE
 ENTITLEMENT PROCESSES
 LOCAL ADVICE & COUNSEL



GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT II-E.1a
 PIMA COUNTY CONSERVATION
 LANDS SYSTEM
 PAGE 61



LEGEND

-  PDP Boundary
-  Areas Being Preserved (Natural Open Space)
-  Saguaro ≤ 6' in height
-  Saguaro > 6' - 18' in height
-  Saguaro > 18' in height
-  Ironwood Tree
-  Vegetation of Special Note for Scenic Value or Buffering

Jim Portner, Agent for Owner
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 520 850-0917

F. LANDSCAPE & BUFFER PLAN

1. Bufferyards in Accordance with Chapter 18.73

Exhibit II F.1-3 depicts the location of required landscape bufferyards in compliance with Chapter 18.73 (Landscape and Screening) of the Pima County Zoning Code. The final determination of each particular bufferyard option (with the attendant width and plant-density requirements) will be made at the time of future subdivision platting. All bufferyard plants, densities and screening elements will be in accordance with Chapter 18.73 for the particular bufferyard type and width option ultimately selected.

The thirty-five foot (35') wide buffers shown along the east and west boundary of the project exceed the widths prescribed by the required Bufferyard "C". This will provide additional screening from existing developed properties. It is anticipated that these 35-foot areas will be a combination of both natural/preserved desert, together with graded/landscaped areas that are augmented with transplanted specimens salvaged from the property.

2. Conflicts with Bufferyards Due to Easements, Rights-of-Way, etc.

There are no conflicts with required bufferyards due to easements or rights-of-way.

3. Use & Viability of Transplanted/Salvaged Vegetation in Bufferyards

Salvaged vegetation from on-site will be incorporated, as feasible, into bufferyards, within the proposed natural/preserved, or within residential lots or streetscapes in the subdivision.

Exhibits to Follow



LEGEND

-  Bufferyard 'A'
-  Bufferyard 'C'
-  Additional Set Aside (Natural Open Space)
-  Additional Set Aside (Functional / Landscaped)

Jim Portner, Agent for Owner
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PROJECTS INTERNATIONAL, Inc.
 STRATEGIC GUIDANCE
 ENTITLEMENT PROCESSES
 LOCAL ADVICE & COUNSEL

GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT II-F.1-3
 LANDSCAPE & BUFFERYARD
 PLAN
 PAGE 64

G. VIEWSHEDS

1. Off-Site Views Onto & Across Site

In reading the following discussion of anticipated view impacts, it is helpful to refer back to Exhibit I-E.2a (from the Site Inventory Section of this Site Analysis) to see the locations of the respective view locations discussed herein.

Views from the North

- Foreground views will not be impacted due to the preservation of the Hardy Wash corridor.
- Mid-ground views will not be impacted due to the preservation of the Hardy Wash corridor.
- Background/long-range views are already marginal due to the existing vegetation to be preserved.

Views from the East

- Foreground views will not be largely impacted due to the presence of a 35' buffer of preserved and transplanted vegetation along the eastern boundary of the site.
- Mid-ground views will be marginally impacted by the removal vegetation for construction beyond the 35' buffer. This impact will also be mitigated by transplanting salvaged vegetation into the 35' buffer.

Views from the South

- Foreground and mid-ground views will be impacted by the removal of vegetation for construction. A new Bufferyard "A", together with enhanced vegetation in the new detention basin on the southwest corner of the property, will help mitigate this impact.

Views from the West

- Foreground views will not be largely impacted due to the presence of a 35' buffer of preserved and transplanted vegetation along the western boundary of the site.
- Mid-ground views will be marginally impacted by the removal of vegetation for construction beyond the 35' buffer. This impact will also be mitigated by transplanting salvaged vegetation into the 35' buffer.
- Background/long-range views are already marginal due to existing vegetation.

2. Proposed Mitigation Measures for View Impacts

Again, it is helpful to refer back to Exhibit I-E.2c (from the Site Inventory Section of this Site Analysis) for the appropriate view locations. Also, see Exhibit II-G.1 (Viewshed Mitigation) provided below.

a. Affected Views as Identified in Above Section II-G.1

Views from the North

- Not affected.

Views from the East

- Views mitigated by the preservation of a 35' buffer along the east property line and the introduction of transplanted and nursery trees within a Bufferyard "C".

Views from the South

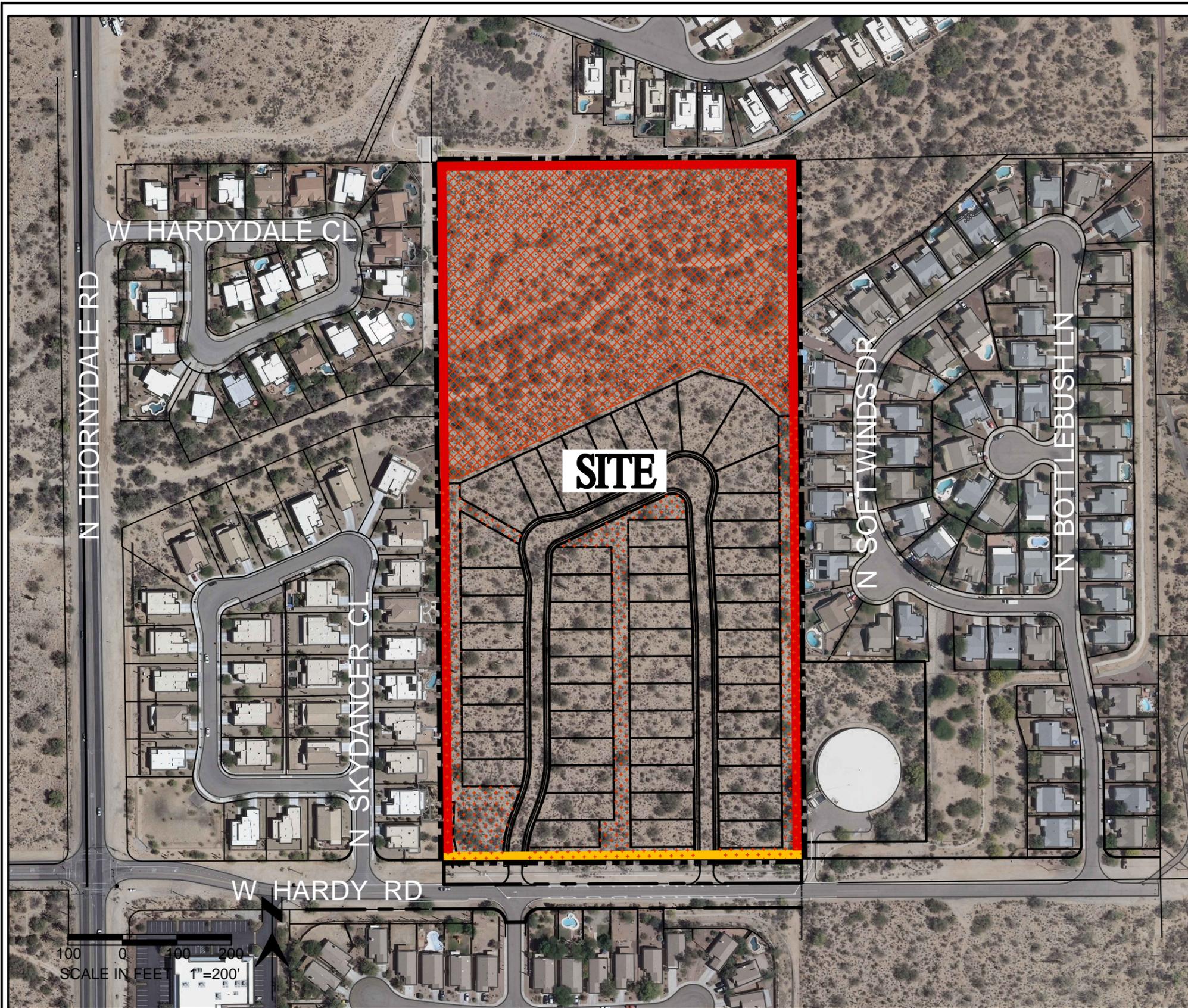
- Views will be mitigated by the installation of a Bufferyard "A" and landscaping within the detention basin.

Views from the West

- Views mitigated by the preservation of a 35' buffer along the west property line and the introduction of transplanted and nursery trees within a Bufferyard "C".

b. Cluster Development Visibility

Not applicable; this project is not being developed as a residential cluster project.



LEGEND

-  Bufferyard 'A'
Provides screening as required by code
-  Bufferyard 'C'
Provides screening as required by code
-  Additional Set Aside
(Natural Open Space)
-  Additional Set Aside
(Functional / Landscaped)

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H. TRANSPORTATION

1. Configuration of Proposed Ingress/Egress and Its Rationale

Two vehicular ingress/egress points are proposed for the subdivision by the Preliminary Development Plan (PDP), one of which aligns directly with the entry for the Sunnyvale subdivision to the immediate south, and the second of which is located further east in accordance with establish PCDOT separation criteria from other, existing public street intersections. Final design of these street intersections will be confirmed at the time of future subdivision platting in coordination with PCDOT.

2. Associated Off-Site Roadway Improvements and Completion Schedule

Thornydale Road (together with appropriate transitions to the east and west on Hardy Road) is an approved road improvement project, the construction timetable for which has been set by Pima County DOT to commence in Year 2018. Under this approved project, Thornydale Road will be fully reconstructed into a four-lane divided urban arterial, complete with curbs, sidewalks, landscaped medians, and dual bike lanes.

3. Change in ADT and Level of Service (LOS) for Public Streets

The trip-generation calculations for this Site Analysis were made using the accepted Institute of Transportation Engineers (ITE) trip generation rates for single family detached residences:

- Single Family Detached Housing (Code 210): 10 Trips per Unit

Based upon the above, and in consideration of the Preliminary Development Plan (PDP) indicating a 55-lot subdivision, trip generation for the project is as follows:

55 residences @ 10 trips/residence =	550 Trips
--------------------------------------	-----------

TOTAL TRIPS GENERATED BY PROJECT:	550 Trips
--	------------------

Based upon the project layout and its two access points on Hardy Road, together with Hardy Road's dead-end just east of the subject property, it is obvious that one hundred percent (100%) of these trips will be loaded onto Hardy Road and, subsequently, onto Thornydale Road.

With the expected small increases in ADT from this project as described above, it is anticipated that there will not be significant impacts upon the intersection Level of Service (LOS) at the Hardy/Thornydale Road intersection.

4. Mitigation of Impacts on Local Streets

All of the project's generated trips will be directed onto collector or major streets. There will be no impacts upon nearby local streets.

5. Proposed Bicycle & Pedestrian Pathways

There are no existing sidewalks or bicycle lanes on Hardy Road or nearby Thornydale Road. Sidewalks and bike lanes are included in the full arterial cross-section proposed for Thornydale Road as part of the aforementioned improvement project. New on-site subdivision streets within the proposed project will have concrete sidewalks on both sides.

6. Proposed On-Site Rights-of-Way

A forty-five foot (45') street right-of-way is proposed for the onsite subdivision streets; this cross-section will contain 24' of pavement, 2' wedge curbs, and 4' sidewalks on each side of the street.

7. Conformance with Pima County Concurrency Requirements

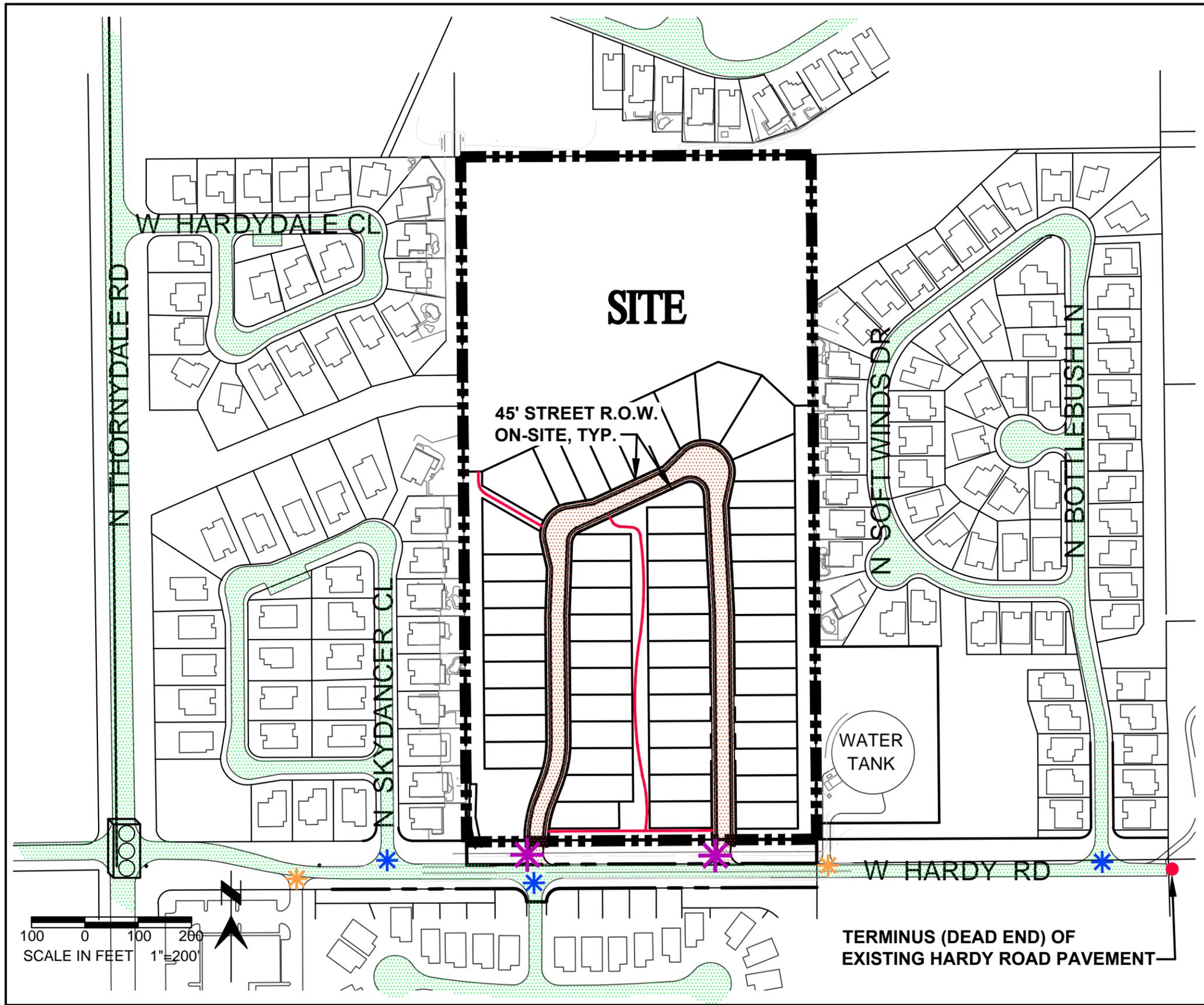
Given the relatively small amount of new vehicle trips (550) generated by this project, it is anticipated that the adjacent and nearby public streets will absorb the anticipated traffic increase resulting from the subject project with little significant impact. Pima County Department of Transportation considers this project as a secondary concurrency concern due to the fact that Thornydale Road is already over capacity, but completion of the aforementioned planned four-lane improvements will increase its capacity to 34,000 ADT and allow it to absorb the relatively low increase in traffic resulting from this subdivision.

8. Applicability & Timing of Traffic Impact Study (TIS)

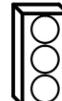
Due to small amount of trips being generated by this project, it does not meet the PDCOT threshold for a TIS.

9. Alternative Modes & Reduction in Auto Dependency

Due to a general lack of demand, the Thornydale Road corridor is currently served only by a single Sun Tran Route (No. 412), this being a Sun *Shuttle* service and not a full-size Sun Tran bus. This Shuttle has a designated stop at Hardy Road. Continued urbanization, densification, and residential development within the corridor, like that proposed with this rezoning, will have a positive effect toward generating the kind of sustainable ridership demand that will foster and support expanded transit services.



LEGEND

-  PDP Boundary
-  Public Street R.O.W. Line
-  Existing Curb or Edge of Pavement
-  Existing Public Street Paving Improvements
-  Existing Private Driveway Location
-  Existing Public Street Intersection
-  Signalized Intersection
-  New Entry Point for Proposed Subdivision (New Terminus of Hardy Road Pavement)
-  New 24' Wide Pavement with Wedge Curbs and Sidewalks Both Sides
-  On-site Pedestrian Path

Jim Portner, Agent for Owner
 PROJECTS INTERNATIONAL, INC.
 10836 E. ARMADA LANE
 TUCSON, ARIZONA 85749
 520 850-0917

I. ON-SITE WASTEWATER TREATMENT & DISPOSAL

1. Soil Evaluations

Not applicable; no on-site wastewater treatment is proposed with this project.

2. Rationale for Non-Connection to Public System

Not applicable; no on-site wastewater treatment is proposed with this project.

3. Reserve Disposal Areas

Not applicable; no on-site wastewater treatment is proposed with this project.

J. SEWERS

1. Capacity Response Letter

Capacity Response Letter No. 2016-89 (Type I), from the Pima County Regional Wastewater Reclamation Department (PCRWRD) is attached as Exhibit II-I.1

2. Method of Sewer Service and Point of Connection to Public System

The development will most likely connect to the existing 8" public sewer located parallel to the site's entire south boundary. See Exhibit II-I.2

3. Sewers Located in Non-Paved Areas

All proposed onsite sewers will be public and all will be located beneath pavement or beneath surfaces stabilized per RWRD standards. In the case of any drainage crossings (none anticipated at this time), the public gravity sewer will be either protected from, or located below, calculated scour areas as required by both Pima County Building Codes and ADEQ.

4. Constraints to Providing Gravity Service

There are no constraints to providing gravity service on this project.



REGIONAL WASTEWATER RECLAMATION DEPARTMENT
201 NORTH STONE AVENUE
TUCSON, ARIZONA 85701-1207

JACKSON JENKINS
DIRECTOR

PH: (520) 724-6500
FAX: (520) 724-9635

April 12, 2016

Derek Roberts, PE
Alliance Engineering, PC
1440 W Canyon Shadows Lane
Oro Valley, AZ 85737

Sewerage Capacity Investigation No. 2016-89 Type I

RE: **Hardy Estates, 55 Lots on Parcel 22502029C**
Estimated Flow 11,880 gpd (ADWF).
P16WC00091

Greetings:

The above referenced project is tributary to the Tres Rios Water Reclamation Facility via the Cañada Del Oro Interceptor.

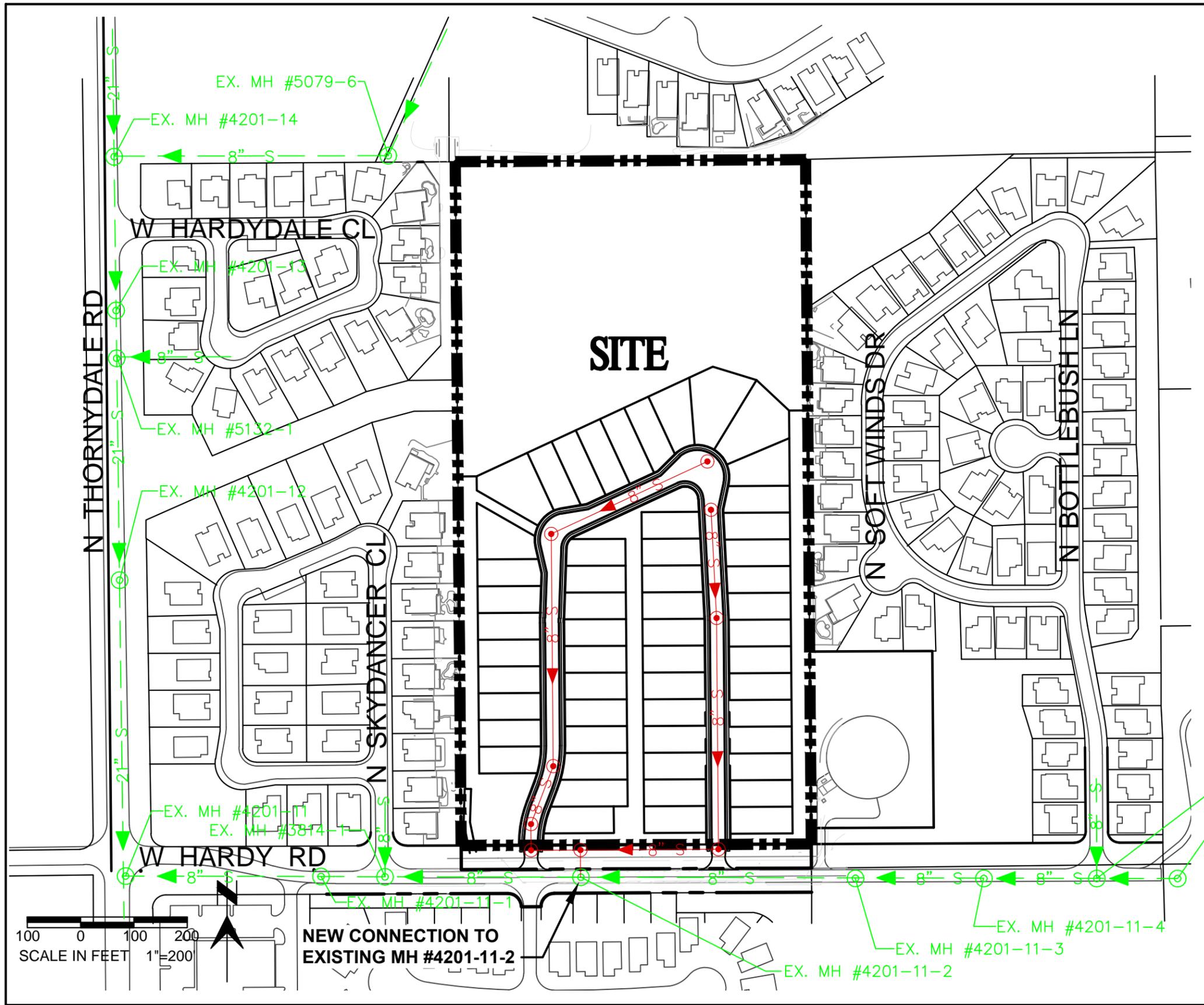
Capacity is currently available for this project in the public sewer G-84-024, downstream from manhole 4201-11-2.

This letter is not a reservation or commitment of treatment or conveyance capacity for this project. It is not an approval of point and method of connection. It is an analysis of the system as of this date and valid for one year. Allocation of capacity is made by the Type III Capacity Response.

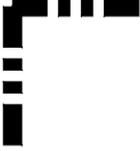
If further information is needed, please feel free to contact us at (520) 724-6642.

Reviewed by: Kurt Stemm, CEA Sr.

Exhibit II-I.1
Type I Capacity Response Letter



LEGEND

-  PDP Boundary
-  Existing Sewer, Flow Direction, Manhole & Size
-  New 8" Sewer & Manhole
(Conceptual Depiction; to be finalized at time of Subdivision Platting in Coordination with PC RWRD)

Jim Portner, Agent for Owner
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 520 850-0917

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

GRS
 LANDSCAPE ARCHITECTS, LLC

Hardy Estates
 NORTH SIDE HARDY RD, EAST OF THORNYDALE RD
 (Ownership Entity: Whisper Canyon Holdings, LLC)
 REZONING: SR to CR-5

EXHIBIT II-J.2
 SEWERS
 PAGE 73

K. WATER

The following information is provided in accordance with Attachment A of the Site Analysis checklist:

1. Water Context Map

Please refer to Exhibit II-K.1a. The property lies wholly within the obligated service area of the Metropolitan Domestic Water Improvement District.

2. The Subject Property's Existing and Historic Water Use

The site is currently vacant with no structures. As such, there is no existing water use on this property and there has, historically, been none.

3. The Subject Property's Proposed Water Use

Proposed land use:

- A single family detached residential subdivision (55 lots)

Potable water will be used to provide for domestic and fire flow service. The project will incorporate passive rainwater harvesting techniques. However, it is probable that potable water will be used to initially establish landscaping. The project does not propose the use of any outdoor swimming pools or water features.

4. Description of Water Supply Options & Proposed Method of Delivery

A. The rezoning site is within the established Metropolitan Water District Service Area:

(1) Metropolitan Water District has legal and physical access to a potable water supply. The subject property, as stated above, is within their current defined obligated service area and will be served by same. The District's *Annual Water Level Monitoring Report* has been provided in Appendix B and includes pertinent data on well locations and water levels in the vicinity of the project.

(2) Metropolitan Water's will-serve letter (Exhibit II-K.4a) states that this municipal provider will provide potable water service on demand from the developer.

(3) Water service for the project will be provided off of the existing 8" water main beneath Hardy Road along the site's entire southern boundary, together with a loop to the existing stub between Lots 18 & 19 of the adjacent Saguaro Vista subdivision.

B. Not applicable; service will be provided by Metropolitan Water District, a municipal water provider.

5. Water Demand Projections

A. The proposed subdivision is intended to be developed in a single phase. Based on typical usage for the single family residences, the base annual water demand for the overall project is calculated as 29.02 AC-FT

This demand calculation is based on the ADWR, Tucson AMA Assured Water Supply Calculator Table, which is provided in Appendix B.

B. With respect to Pima County's adopted *Table B – Water Conservation Measures*, the developer is willing at this time to commit to achieving six (6.0) outdoor points and nine (9.0) indoor points, for a total of 15.0 points. The developer is also committed to working further with Metropolitan Water, throughout the rezoning, subdivision platting, and permitting processes, in order to further define the specialized conservation measures employed.

See Appendix B for the particulars of *Table B – Water Conservation Measures* and for a copy of our *Project Demand Table*.

6. Proximity to Renewable and Potable Water Supplies

This project will be served by Metropolitan Water, which has established and fully committed renewable and potable water supplies and facilities sufficient to meet its Service Area obligations.

7-11. Groundwater-Dependent Ecosystems, Etc.

Items 7 thru 11 are not required for the following reasons: 1) water service for this project will be provided by a municipal water provider (Metropolitan Water); 2) no new wells will be drilled on the property or within ¼ mile of it; and 3) there will be no increase in pumping of existing wells within ¼ mile to serve this development.

12. Drawdown Analysis

As this project will be served by Metropolitan Water and the estimated baseline water demand is less than 50 acre-ft/year, a detailed drawdown analysis will not be required with this Site Analysis.



March 28, 2016

Jim Portner
Projects International Inc.
10836 E. Armada Lane
Tucson, AZ 85749-9460

**Re: ±20 Acres East of Thornydale Road on the North Side of Hardy Road
(APN 225-02-029C)
CAP16-04**

Dear Mr. Portner,

The Metropolitan Domestic Water Improvement District (MDWID) is certified to provide water to the above referenced development and is designated as having a 100-year assured water supply.

Any onsite or offsite requirements deemed necessary to provide the domestic and fire flow water supply will be determined at the time of improvement plan submittal or whenever application for water service is received, and will be the financial responsibility of the owner or those developing the property. Pipe sizing and system augmentation, if necessary, will be based on calculated demand for both domestic and fire flows as needed to adequately supply this area.

Apart from connection to existing 8-inch water facilities in Hardy Road, it is anticipated the MDWID will also require connection northeast to the existing 6-inch water stub of the Saguaro Vista, Lots 1-66 subdivision (Bk. 45, Pg 72). This connection would need to extend either through a common area between lots in Hardy Estates, or via a dedicated public water easement on an individual lot (not shared between lots), accessible outside any patio wall (15 feet minimum).

If an improvement plan has not been submitted within 2 years after the date of this letter, a reevaluation and reissuance of this will-serve letter will be necessary.

Please let me know if you have any questions or concerns at 575-8100.

Sincerely,

A handwritten signature in blue ink, appearing to read "Timothy Dinkel", is written over a blue circular stamp or seal.

Timothy Dinkel
Development Supervisor

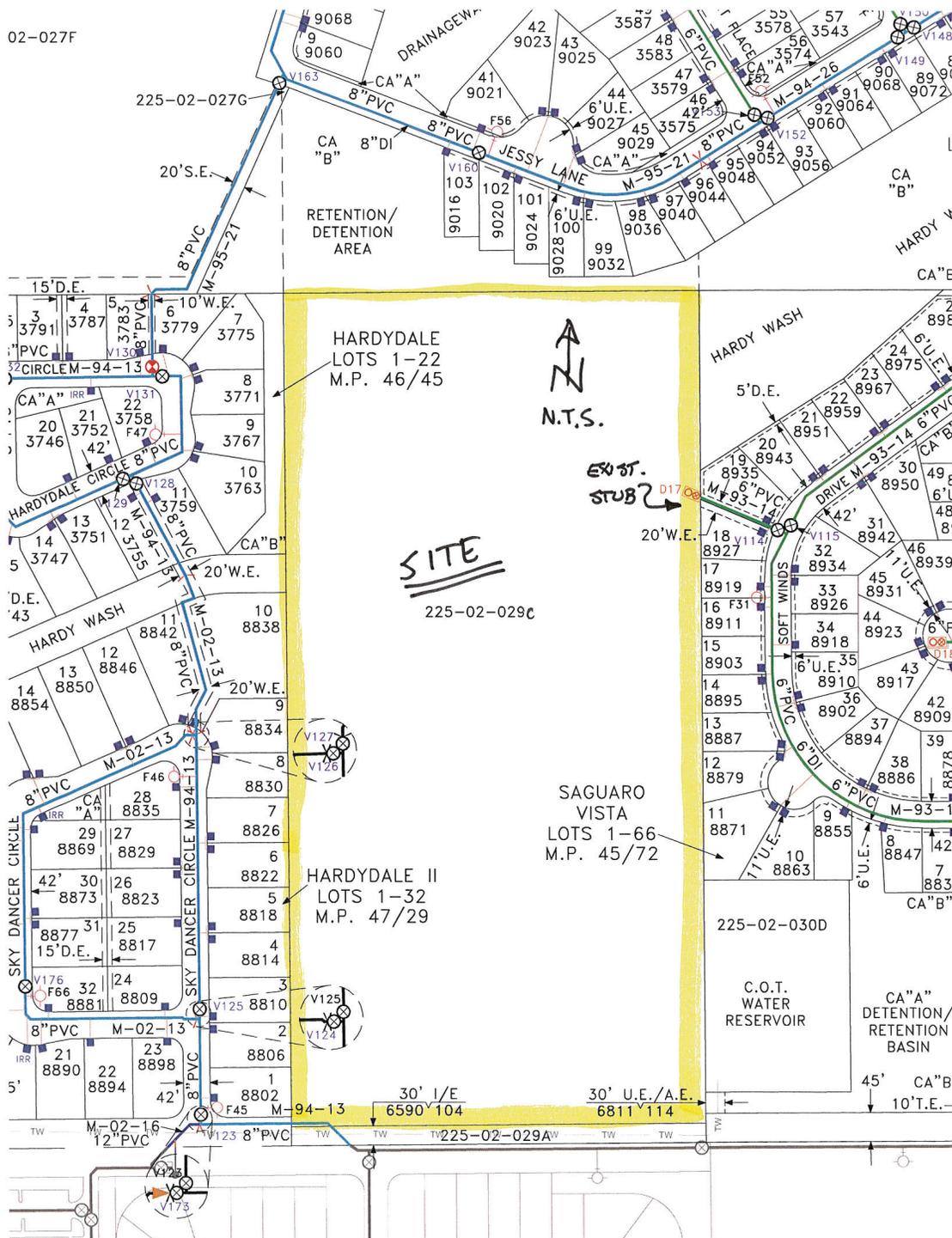
Enclosure

c: Project File / Charlie A. Maish, District Engineer
Signature File

Metropolitan Domestic Water Improvement District
P.O. Box 36870 Tucson, Arizona 85740 (520) 575-8100 (520) 575-8454 FAX www.metrowater.com

Exhibit II-K.1a (Page 1 of 2)
**Metropolitan Domestic Water Improvement District Will-Serve Letter &
District Context Map**

Section II - Land Use Proposal



L. SCHOOLS

1. Access to Internal or Abutting Schools.

No public schools are located within or adjacent to the subject property.

2. Capacity Analysis by Marana Unified School District.

The Marana Unified School District No. 6 has been consulted with respect to this rezoning request, as well as the other three rezoning applications on which Red Point Development is simultaneously proceeding. MUSD has considered the impacts and anticipated number of students that will be generated by these projects and has concluded that it has sufficient capacity to accommodate the anticipated growth in student population. See Exhibit II-L.1 (MUSD Capacity Letter).

3. Communication with MUSD Regarding Mitigation of Impacts.

As stated above, MUSD has indicated it possesses the capacity to absorb the anticipated number of students being generated. The District has instituted a voluntary contribution program for new residential development. The developer will participate in this voluntary program.

Exhibit to Follow

Section II - Land Use Proposal

GOVERNING BOARD

Dan Post, President
John Lewandowski, Vice President
Tom Carlson, Member
Suzanne Hopkins, Member
Maribel Lopez, Member



ADMINISTRATION

Doug Wilson, Ed.D., Superintendent
Carolyn Dumler, Ed.D., Assistant Superintendent
Kristin Reidy, Assistant Superintendent
Dan Contorno, Chief Financial Officer

March 30, 2016

Mr. Jim Portner
PROJECTS INTERNATIONAL, INC.
10836 E. Armada Lane
Tucson, AZ 85749

RE: REZONING OF HARDY ROAD PROPERTY WITHIN THE MARANA UNIFIED SCHOOL DISTRICT NO. 6

Dear Mr. Portner,

Thank you for informing us of the 20-acre property on which KB Home is proceeding with a rezoning application to Pima County.

We recall that this same site was the subject of Comprehensive Plan amendment application in 2014. At that time, we indicated that MUSD had no opposition to the request and that the District had sufficient capacity to accommodate the proposed development. We now understand that, as part of preparing your rezoning materials, you have further developed the concept design for the property.

Based on the conceptual design which you provided to us, we understand that the project will create fifty-five (55) new single-family residential lots. The subdivision will not be age-restricted and will likely include both first-time and move-up home products affordable to young families.

After considering the above details and the anticipated students that will result from this development, please be advised that the Marana Unified School District has the capacity to accommodate its future students at the District schools serving the area. We are pleased at the potential growth in our student population and wish you the best of luck with your project.

Thank you for developing homes and businesses in our community. Marana Unified School District knows that one of the keys to the continued success of our wonderful community is the quality of our children's education. This belief is held so strongly that we have multiple developers providing the school district with rooftop development funds as they increase the number of properties being built in our community. The district uses these funds to ensure as we grow they are able to provide the necessary infrastructure to support the presentation of an inspiring education. Your voluntary participation in this process is an invaluable investment in our community. Please contact the Marana Schools finance office at 520-682-4756 to learn more about participation.

Please contact Dan Contorno at 520-682-4756, or myself at 520-616-4521 if you have any further questions.

Sincerely,

Russell Federico, M.Ed.
Executive Director of Operations
Marana Unified School District

Cc:
Dan Contorno, CFO

Inspiring students to learn today and lead tomorrow.

11279 W. Grier Road • Marana, Arizona 85653 • (520) 682-3243 • www.maranausd.org

Exhibit II-L.1
Marana Unified School District No. 6 Capacity Letter

M. RECREATION & TRAILS

1. On-Site Recreation Elements

Due to the moderate number of residential lots (55) proposed in this subdivision, together with the nearby proximity of Arthur Pack Regional Park, the developer does not envision providing a private recreation facility within the proposed project. At the time of future subdivision platting, the developer will work with the Department of Natural Resources, Parks & Recreation (DNRPR) to evaluate the project vis-à-vis Section 18.69.060 and to determine whether the development of the designated Hardy Wash Trail No. 160 alignment through the site (a secondary trail) is deemed appropriate at this time by DNRPR, or whether a recreation in-lieu fee is preferred. No physical improvements for the Hardy Wash Trail presently exist anywhere in the project vicinity.

Any impacts of recreational or designated-trail facilities on Conservation Lands System (CLS) natural areas will affect CLS compliance and will be compensated during finalization of the required off-site CLS mitigation at the time of subdivision platting.

2. Ownership & Maintenance of Recreation Elements & Natural Areas

Any minor recreation improvements provided on-site (including passive nature trails), together with the significant planned natural-area set-asides on the project, would be located within designated common areas and be owned and maintained by the subdivision's homeowners association (HOA).

3. Proposed Public Trails In or Adjacent to the Development

As alluded to above, the designated alignment for Hardy Wash Trail No. 160 (a secondary trail) traverses the proposed rezoning site. No physical improvements for this designated trail presently exist anywhere in the vicinity of the subject property. Discussions with DNRPR will occur to determine whether physical improvements are warranted at this time, or whether a recreation in-lieu fee may be preferred.

In either event, and in accordance with Pima Prosper Section 4.8 (Goal 1, Policy 3.e) and Section 4.10 (Goal 1, Policy 2.e), the Preliminary Development Plan (PDP) includes on-site pedestrian paths (in addition to the sidewalks provided on both sides of the subdivision streets) to ensure connectivity from the residential lots to the Hardy Wash corridor and designated trail alignment.

N. CULTURAL RESOURCES: ARCHAEOLOGICAL/HISTORIC SITES

1. Mitigation Measures for Already Identified/Known Resources

As indicated in Section I-I (Inventory) of this Site Analysis, a records search was conducted for the site in April, 2016 by Professional Archaeological Services of Tucson, LLC (PAST). No cultural resource sites have been documented on the property. Given the dated nature of past surveys on the property, PAST has suggested that an updated survey, using current procedures and protocols acceptable by the Arizona State Office of Historic Preservation (SHPO) be completed prior to ultimate development. This updated survey will be done at the time of future subdivision platting so as to eliminate any question as to the validity of the non-findings of past surveys.

2. Measures Employed if Archaeological Survey is Recommended

The survey standards and protocols used will be those acceptable to SHPO at the time of the survey's completion.

3. Submittal Timing, etc. of Mitigation Plan

Not applicable. The PAST suggestion of a future survey does not stem from any findings or data that anticipates the presence of cultural resources on the subject property. An updated survey is recommended only to meet current survey methods and protocols.

a. Outline of Resource Assessment Program

Not applicable for the same reasons stated directly above.

b. Effective Preservation Plan or Data Recovery

Not applicable for the same reasons stated directly above.

c. Schedule of Mitigation Plan Implementation

Not applicable for the same reasons stated directly above.

O. ENVIRONMENTAL QUALITY

1. Dust Control During Construction

During construction, a Stormwater Pollution Prevention Plan (SWPPP), along with a Notice of Intent (NOI), will be prepared in accordance with Arizona Department of Environmental Quality (ADEQ) regulatory permit requirements. The SWPPP and NOI will discuss, among other items, the proposed dust-control and erosion-control measures that must be undertaken and suitably performed by the project's contractor as stipulations of the grading permit.

2. Department of Environmental Quality (DEQ) Issues

- a. Applicable Air Quality Standards if Class I, II or III Facility

The site will not be developed as a Class I, II or III Facility. The project is a single-family residential subdivision.

- b. Particulars under CB-2 Commercial Development

Not applicable; this project will be developed under the CR-5 (Residential) Zoning District. As such, please note the following:

1. Maximum Quantities of Hazardous Materials

There will be no hazardous materials generated by the project.

2. Maximum Quantities of Hazardous Wastes

There will be no hazardous waste generated by the project or regulated under Arizona Administrative Code Title 18.

3. Reporting Requirements Per EPCRA

Given the above, the Community Right-To-Know Act (EPCRA) does not apply to this project.

P. AGREEMENTS

1. Specific Agreements with Neighboring Property Owners

No specific or formal agreements are in place with the neighboring property owners at the time of this Site Analysis submittal. No separate agreements or memorialized understandings resulted from the neighborhood interactions that occurred during the previously approved Comprehensive Plan Amendment application (Co7-14-02) governing the property. Discussions with occur with the affected neighbors as a normal matter of course during this rezoning. In the event these future neighborhood interactions result in new issues or agreements, Pima County will be duly appraised as to their nature and content.

Bibliography

Pima County Department of Transportation, Traffic Engineering Division website for current traffic counts; <http://dot.pima.gov/trafeng/trafcnt/adt.htm>.

Pima County Major Streets & Scenic Routes Plan. *Pima County Ordinance No. 1995-42, as amended. Case No. Co14-79.* Web address: <http://gis.pima.gov/maps/majscenic/mssr.pdf>

Institute of Transportation Engineers (ITE). 2008. *Trip Generation, 8th Edition: An ITE Informational Report.*

The Smart Growth Network website, *Smart Growth Principles*, <http://www.smargrowth.org/engine/index.php/principles>

APPENDICES

Appendix A:
Arizona Game & Fish Department
Report

Arizona Environmental Online Review Tool Report



Arizona Game and Fish Department Mission

To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:

KB Hardy Rezone

Project Description:

New Residential Project with Associated Infrastructure

Project Type:

Development Outside Municipalities (Rural Development), Residential subdivision and associated infrastructure, New construction

Contact Person:

Linda Weaver

Organization:

GRS Landscape Architects, LLC

On Behalf Of:

OTHER

Project ID:

HGIS-02945

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

Locations Accuracy Disclaimer:

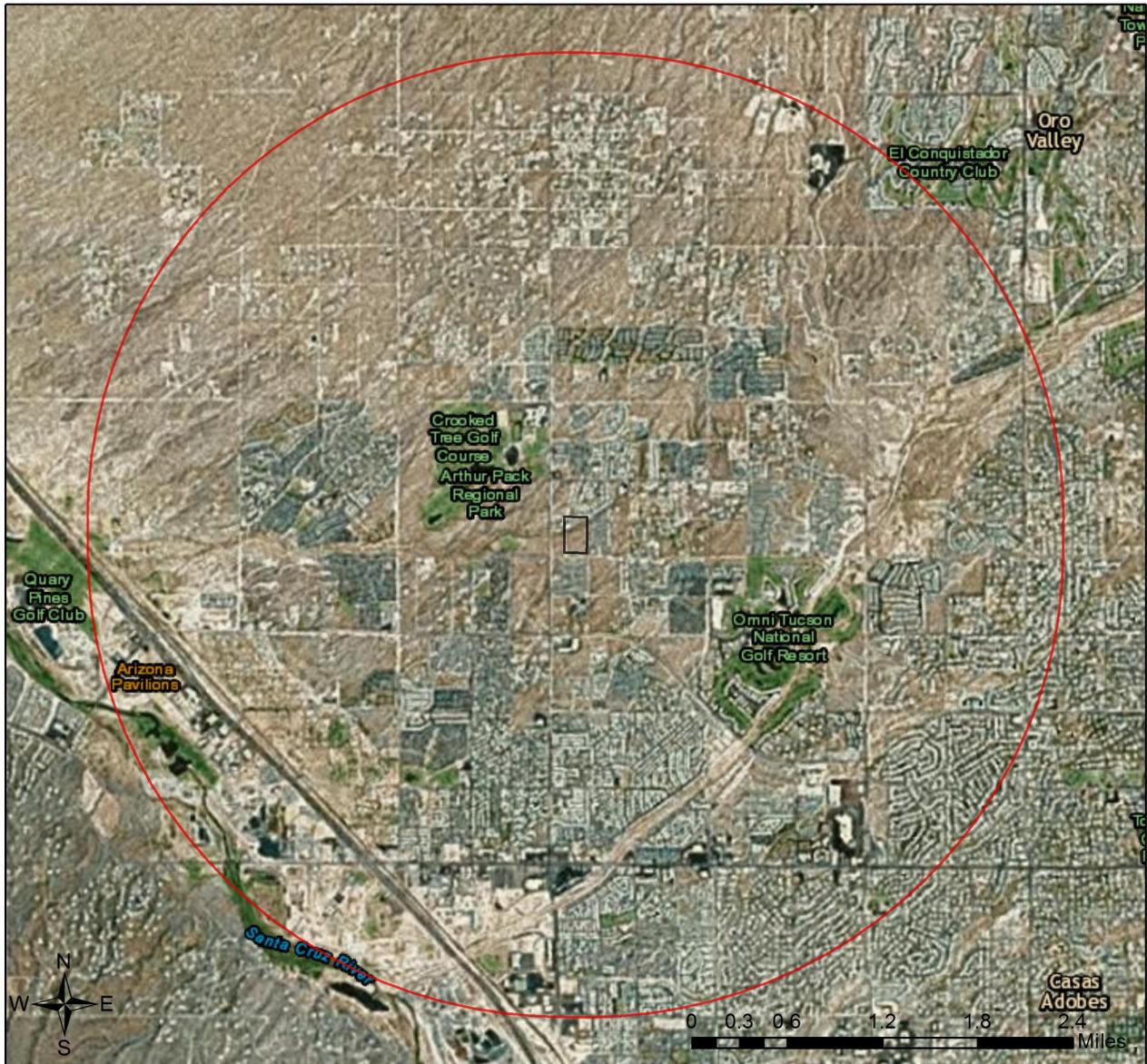
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
Project Evaluation Program, Habitat Branch
Arizona Game and Fish Department
5000 West Carefree Highway
Phoenix, Arizona 85086-5000
Phone Number: (623) 236-7600
Fax Number: (623) 236-7366
Or
PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

KB Hardy Rezone

Aerial Image Basemap With Locator Map



-  Project Boundary
-  Buffered Project Boundary

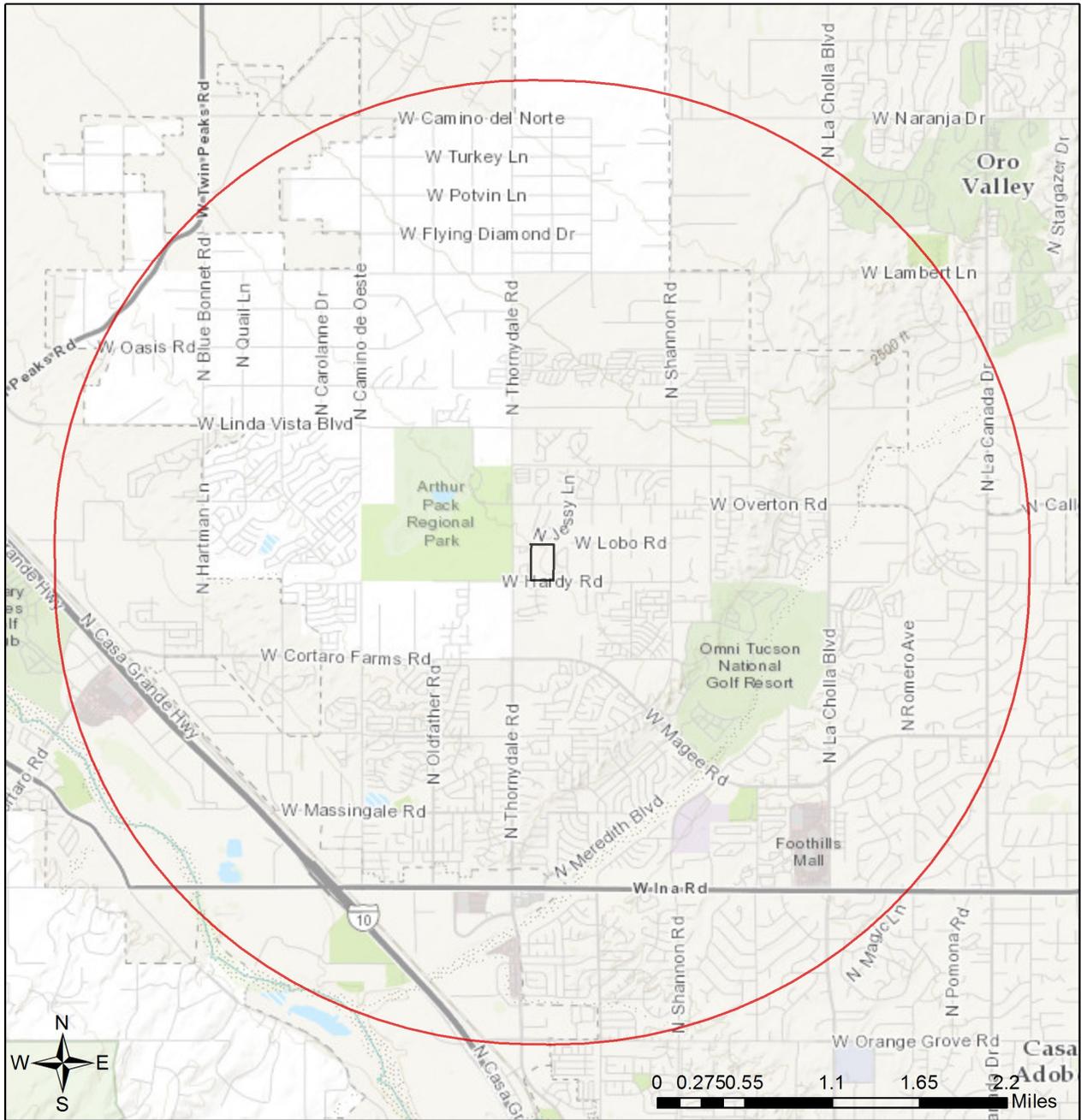
Project Size (acres): 21.25
Lat/Long (DD): 32.3681 / -111.0437
County(s): Pima
AGFD Region(s): Tucson
Township/Range(s): T12S, R13E
USGS Quad(s): JAYNES

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong),



KB Hardy Rezone

Web Map As Submitted By User



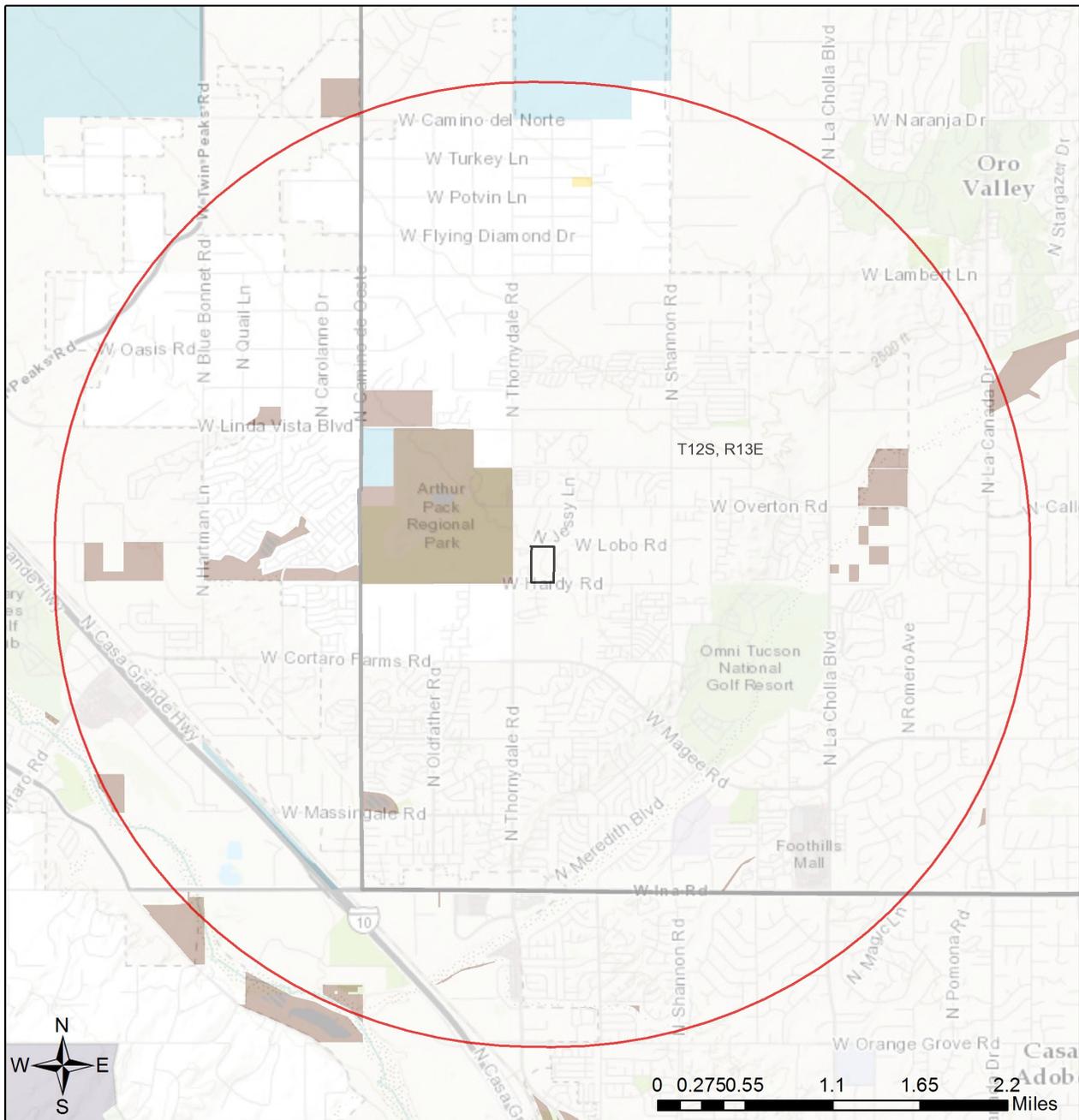
-  Project Boundary
-  Buffered Project Boundary

Project Size (acres): 21.25
Lat/Long (DD): 32.3681 / -111.0437
County(s): Pima
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Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

KB Hardy Rezone

Topo Basemap With Township/Ranges and Land Ownership



- | | |
|---------------------------|--------------------------|
| Project Boundary | Mixed/Other |
| Buffered Project Boundary | National Park/Mon. |
| Township/Ranges | Private |
| AZ Game and Fish Dept. | State and Regional Parks |
| BLM | State Trust |
| BOR | US Forest Service |
| Indian Res. | Wildlife Area/Refuge |
| Military | |

Project Size (acres): 21.25
 Lat/Long (DD): 32.3681 / -111.0437
 County(s): Pima
 AGFD Region(s): Tucson
 Township/Range(s): T12S, R13E
 USGS Quad(s): JAYNES

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Special Status Species and Special Areas Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Bat Colony						
Dendrocygna bicolor	Fulvous Whistling-Duck	SC				
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	SC	S	S		1B
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Myotis velifer	Cave Myotis	SC		S		1B

Note: Status code definitions can be found at http://www.azgfd.gov/w_c/edits/hdms_status_definitions.shtml.

**Species of Greatest Conservation Need
 Predicted within Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisi	Harris' Antelope Squirrel					1B
Anaxyrus retiformis	Sonoran Green Toad			S		1B
Anthus spragueii	Sprague's Pipit	C*				1A
Anurostomus ridgwayi	Buff-collared Nightjar		S			1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Aspidoscelis stictogramma	Giant Spotted Whiptail	SC	S			1B
Athene cucularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Chilomeniscus stramineus	Variable Sandsnake					1B
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Crotalus tigris	Tiger Rattlesnake					1B
Cynanthus latirostris	Broad-billed Hummingbird		S			1B
Cyprinodon macularius	Desert Pupfish	LE				1A
Dipodomys spectabilis	Banner-tailed Kangaroo Rat			S		1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	SC	S	S		1B
Gopherus morafkai	Sonoran Desert Tortoise	C*	S			1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B

**Species of Greatest Conservation Need
 Predicted within Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Kinosternon sonoriense sonoriense</i>	Desert Mud Turtle			S		1B
<i>Lasiurus blossevillii</i>	Western Red Bat		S			1B
<i>Lasiurus xanthinus</i>	Western Yellow Bat		S			1B
<i>Leopardus pardalis</i>	Ocelot	LE				1A
<i>Leptonycteris curasoae yerbabuenae</i>	Lesser Long-nosed Bat	LE				1A
<i>Lepus alleni</i>	Antelope Jackrabbit					1B
<i>Lithobates yavapaiensis</i>	Lowland Leopard Frog	SC	S	S		1A
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC		S		1B
<i>Melanerpes uropygialis</i>	Gila Woodpecker					1B
<i>Meleagris gallopavo mexicana</i>	Gould's Turkey		S			1B
<i>Melospiza lincolni</i>	Lincoln's Sparrow					1B
<i>Melospiza aberti</i>	Abert's Towhee		S			1B
<i>Micruroides euryxanthus</i>	Sonoran Coralsnake					1B
<i>Myotis occultus</i>	Arizona Myotis	SC		S		1B
<i>Myotis velifer</i>	Cave Myotis	SC		S		1B
<i>Myotis yumanensis</i>	Yuma Myotis	SC				1B
<i>Nyctinomops femorosaccus</i>	Pocketed Free-tailed Bat					1B
<i>Panthera onca</i>	Jaguar	LE				1A
<i>Passerculus sandwichensis</i>	Savannah Sparrow					1B
<i>Peucaea botterii arizonae</i>	Arizona Botteri's Sparrow			S		1B
<i>Peucaea carpalis</i>	Rufous-winged Sparrow					1B
<i>Phrynosoma solare</i>	Regal Horned Lizard					1B
<i>Phyllorhynchus browni</i>	Saddled Leaf-nosed Snake					1B
<i>Poeciliopsis occidentalis occidentalis</i>	Gila Topminnow	LE				1A
<i>Progne subis hesperia</i>	Desert Purple Martin			S		1B
<i>Setophaga petechia</i>	Yellow Warbler					1B
<i>Tadarida brasiliensis</i>	Brazilian Free-tailed Bat					1B
<i>Troglodytes pacificus</i>	Pacific Wren					1B
<i>Vireo bellii arizonae</i>	Arizona Bell's Vireo					1B
<i>Vulpes macrotis</i>	Kit Fox					1B

Species of Economic and Recreation Importance Predicted within Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Callipepla gambelii</i>	Gambel's Quail					
<i>Odocoileus hemionus</i>	Mule Deer					
<i>Pecari tajacu</i>	Javelina					
<i>Puma concolor</i>	Mountain Lion					

Species of Economic and Recreation Importance Predicted within Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Development Outside Municipalities (Rural Development), Residential subdivision and associated infrastructure, New construction

Project Type Recommendations:

Fence recommendations will be dependant upon the goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located on the home page of this application at <http://www.azgfd.gov/hgis/guidelines.aspx>.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, cantered, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, <https://agriculture.az.gov/>. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, <http://www.usda.gov/wps/portal/usdahome>. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information http://www.azgfd.gov/h_f/hunting_rules.shtml

The construction or maintenance of water developments should include: incorporation of aspects of the natural environment and the visual resources, maintaining the water for a variety of species, water surface area (e.g., bats require a greater area due to in-flight drinking), accessibility, year-round availability, minimizing potential for water quality problems, frequency of flushing, shading of natural features, regular clean-up of debris, escape ramps, minimizing obstacles, and minimizing accumulation of silt and mud.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (<http://azstateparks.com/SHPO/index.html>).

Trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herpetofauna (snakes, lizards, tortoise) from entering ditches.

Communities can actively support the sustainability and mobility of wildlife by incorporating wildlife planning into their regional/comprehensive plans, their regional transportation plans, and their open space/conservation land system programs. An effective approach to wildlife planning begins with the identification of the wildlife resources in need of protection, an assessment of important habitat blocks and connective corridors, and the incorporation of these critical wildlife components into the community plans and programs. Community planners should identify open spaces and habitat blocks that can be maintained in their area, and the necessary connections between those blocks to be preserved or protected. Community planners should also work with State and local transportation planning entities, and planners from other communities, to foster coordination and cooperation in developing compatible development plans to ensure wildlife habitat connectivity. The Department's guidelines for incorporating wildlife considerations into community planning and developments can be found on the home page of this application at <http://www.azgfd.gov/hgis/guidelines.aspx>.

Design culverts to minimize impacts to channel geometry, or design channel geometry (low flow, overbank, floodplains) and substrates to carry expected discharge using local drainages of appropriate size as templates. Reduce/minimize barriers to allow movement of amphibians or fish (e.g., eliminate falls). Also for terrestrial wildlife, washes and stream corridors often provide important corridors for movement. Overall culvert width, height, and length should be optimized for movement of the greatest number and diversity of species expected to utilize the passage. Culvert designs should consider moisture, light, and noise, while providing clear views at both ends to maximize utilization. For many species, fencing is an important design feature that can be utilized with culverts to funnel wildlife into these areas and minimize the potential for roadway collisions. Guidelines for culvert designs to facilitate wildlife passage can be found on the home page of this application at <http://www.azgfd.gov/hgis/guidelines.aspx>.

Based on the project type entered, coordination with Arizona Department of Environmental Quality may be required (<http://www.azdeq.gov/>).

Based on the project type entered, coordination with Arizona Department of Water Resources may be required (<http://www.azwater.gov/azdwr/default.aspx>).

Based on the project type entered, coordination with U.S. Army Corps of Engineers may be required (<http://www.usace.army.mil/>)

Based on the project type entered, coordination with County Flood Control district(s) may be required.

Development plans should provide for open natural space for wildlife movement, while also minimizing the potential for wildlife-human interactions through design features. Please contact Project Evaluation Program for more information on living with urban wildlife.

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly. PEP@azgfd.gov

Project Location and/or Species Recommendations:

HDMS records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at <http://www.fws.gov/southwest/es/arizona/> or:

Phoenix Main Office

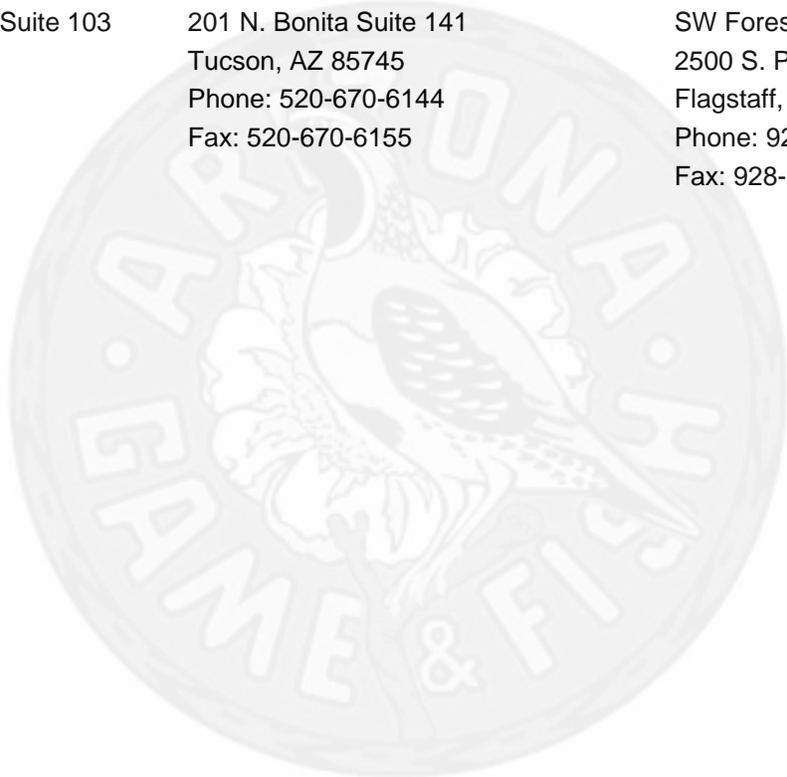
2321 W. Royal Palm Rd, Suite 103
Phoenix, AZ 85021
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office

201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office

SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121



Appendix B:

Project Demand Calculator Arizona Department of Water Resources (ADWR)

Table B – Water Conservation Measures (Pima County Form)

Annual Water Level Monitoring Report Metropolitan Domestic Water Improvement District

April 12, 2016

PROJECT DEMAND CALCULATOR

Name of Proposed Project:

Hardy Estates Rezoning

INSTRUCTIONS: This spreadsheet is designed to help you calculate the water demand for your proposed development for purposes of applying for a Certificate of Assured Water Supply, Water Adequacy Report or Analysis of Assured (or Adequate) Water Supply. Please enter information into the blue boxes as applicable. If you need help with this form, please contact the Office of Assured and Adequate Water Supply at (602) 771-8599.

NOTE: This sheet, when completed, does not constitute approval of the demand estimate for your proposed development. It is intended for general estimation purposes only. The final, official demand estimates will be determined by the Department upon review of your complete application.

Enter the AMA the subdivision is located in*: **TUC** * Enter PHX for Phoenix, TUC for Tucson, PIN for Pinal, PRE for Prescott or SCR for Santa Cruz.
If you are not sure if you are located inside or outside of an AMA, contact the Office of Assured and Adequate Water Supply at (602) 771-8599.

Enter the COUNTY the subdivision is located in: **PIMA** * Enter either APACHE, COCHISE, COCONINO, GILA, GRAHAM, GREENLEE, LA PAZ, MARICOPA, MOHAVE, NAVAJO, PIMA, PINAL, SANTA CRUZ, YAVAPAI, or YUMA.

Residential Usage*

Category	PPHU	GPCD or per house/day	Demand/HU/YR (af/yr)	No. HU (Lots)	Residential Demand/Yr (af/yr)
Single Family (int)	3.60	57.00	0.23	55.00	12.64
Multi-Family (int)		57.00	0.00		0.00
Single Family Landscape (ext)	1.00	118.00	0.13	55.00	7.27
Multi-Family Landscape (ext)	0.00	21.00	0.00	0.00	0.00
Single family Demand/HU/YR			0.36		
Multifamily Demand/HU/YR			0.00		

	Square Feet	Acres	Demand Factor (af/yr)	No. HU (Lots)	Large Lot Adjustment Demand/Yr (af/yr)
Average Lot Size (sq. ft)**	6300.00	0.14			
TMP Model Lot Size (sq. ft)	7,500 - 10,000	0.17 - 0.23			
Large Lot Adjustment	0.00	0.00			
1/2 low water use	0.00	0.00	1.50	0.00	0.00
1/2 turf	0.00	0.00	4.60	0.00	0.00

**NOTE: If the subdivision contains several groupings of lot sizes, the large lot adjustment needs to be calculated for each grouping of large lot sizes. If CC&Rs with landscaping restrictions for the residential lots will be adopted, a modified large lot adjustment can be calculated based on the specific landscaping restrictions. Contact the Office of Assured and Adequate Water Supply for assistance in calculating the large lot adjustment for subdivisions with several groupings of large lot sizes or if CC&Rs limiting landscaping within the residential lots will be adopted.

Total Residential Demand **19.91**

Non-Residential Usage***

For each category please enter either square feet or acres of land for that type of non-residential use within your subdivision.

Category	Square Feet	Acres	Demand Factor (af/ac)	Non-Residential Demand (af/yr)
Common Area1		2.05	1.50 low water use	3.08
Common Area2		0.00	4.60 turf	0.00
Right of Way		0.00	1.50 low water use	0.00
Golf Course		0.00	AMA Turf Program - contact AMA	0.00
Commercial use		0.00	2.25 all acres	0.00
Public Pool (length x width = square feet)		0.00	Based on closest AMA pool	0.00
Parks1		0.00	1.50 low water use	0.00
Parks2		0.00	4.60 turf	0.00
Retention/Detention Basins		2.25	1.50 low water use	3.38
Retention/Detention Basins		0.00	4.60 turf	0.00
School Landscape1		0.00	1.50 low water use	0.00
School Landscape2		0.00	4.60 turf	0.00
Elementary school interior use	Number of students		25 GPCD interior demand	0.00
Middle/High School interior use			43 GPCD interior demand	0.00

***NOTE: If your application is for a change of ownership from a previously issued Certificate of Assured Water Supply, and is for only a portion of the original Certificate, contact the Office of Assured and Adequate Water Supply to pro-rate non-residential area acreage.

Total Non-Residential Demand **6.45**

Distribution Losses

	Residential	Non-Residential	Total	Loss Factor %	Distribution Losses (af/yr)
Demand af/yr	19.91	6.45	26.36	10.00	2.64

Construction

	No. of Lots	Demand (gals/lot)	100 yr demand (af)	Construction Demand (af/yr)
	55.00	10000.00	2.26	0.02

Total Demand Per Year

Residential Usage af/yr	Non-Residential Usage	Lost & Unaccounted for	Construction	Total Non-Res	Total Demand Per Year (af/yr)
19.91	6.45	2.64	0.02	9.11	29.02

Residential Usage GPCD

90

Total Demand GPCD

131

Annual Build Out Demand

29.02

Table B - Water Conservation Measures
Indoor and Outdoor Options
(15-point Minimum; Must include at least one Outdoor Conservation Measure)

Indoor Options	Possible Points	Points Achieved
I-1	1	
I-2	1	
I-3	2	
I-4	2	
I-5	3	
I-6	3	3
I-7	3	3
I-8	3	3
I-9	3	
I-10	2	
I-11	2	
I-12	0.5	
I-13	3	
I-14	1	
Outdoor Options		
O-1	6	
O-2	4	
O-3	2	2
O-4	2	
O-5	2	
O-6	2	
O-7	1	1
O-8	2	
O-9	2	
O-10	3	
O-11	3	
O-12	4	
O-13	1	1
O-14	1	1
O-15	0.5	
	0.5	
	0.5	
	0.5	0.5
	0.5	0.5

TOTAL POINTS: 15.0

**Metropolitan Domestic Water Improvement District
Board of Directors Meeting**

March 9, 2015

Annual Water Level Monitoring Report

Synopsis

The Board of Directors is requested to review with staff the water level information obtained from the recently completed annual water level monitoring effort. This report gives an important review of the aquifers and wells that provide water to District customers.

Background

The District began the annual groundwater level monitoring program in 1993. The initial purpose was to track the annual declines in the Metro Main service area at its 36 wells to help with the design of pump replacements. The monitoring program now includes 57 wells, both active and inactive, within five of the District's service areas to meet operational and regulatory requirements.

After Metro Main received its 100-Year Designation of Assured Water Supply (DAWS) from the Arizona Department of Water Resources (ADWR) in 1996, ADWR required Metro to measure and report annual groundwater levels from within the service area. Metro also uses the water level change information to determine if its CAP recovery wells in Metro Main are in compliance with ADWR's decline limit of 4 feet per year averaged over a five year period for each of our four wellfield areas. Annual water level measurements at Metro Hub wells were added to the monitoring program in 1999 when Metro Hub was purchased. Metro West was added in 2006 when it received its DAWS. Water levels for Metro Southwest Diablo Village were added in 2011, and Metro Southwest E&T were added in 2012. Water levels for Metro Southwest-Lazy B are not taken due to the small size of the well that does not allow access for water measurements.

Water Sustainability staff manually measures each of the 57 wells that are part of the annual monitoring program. To improve efficiencies and gather additional data throughout the year, water level monitoring systems (water level transducer and continuous data logger) have been installed at eight locations in Metro Main and one in Metro Hub. Figure 1 depicts the locations of the eight automated monitoring locations in Metro Main, and Figure 2 shows the same for Metro Hub.

Groundwater Levels

Metro Main

Depth to water in the south half of Metro Main in the Western CDO Wash and Rillito Creek Wellfields ranged from 163 feet to 332 feet below land surface (Table 1). Groundwater level changes varied at the wells from a 9 foot rise to a decline of 6.6 feet since last year. The variation in water level change is a function of the amount of pumpage at Metro Main wells and the amount of recharge over the past year. The average well field change was a 1.0 foot decline. The water level hydrographs for the La Colina and Las Palmas East Wells show water levels continue to decline (Figure 3).

Depth to water in the north half of the service area in the Catalina Foothills and Eastern CDO Wash Wellfields varied from 274 feet to 448 feet (Table 1). The northern portion also experienced a wide range of water level changes from a rise of 2.4 feet to a decline of 10.5 feet. The average change was a decrease of 2.8 feet. Water levels at Tucson National North Well have remained fairly stable, but show the influence of nearby Metro wells when they are operating (Figure 4). However, water levels to the north at Stiller Well continue to have a steady decline as shown in Figure 5.

The 5-year change table shows that Metro's four wellfield areas met ADWR's less than 4 foot decline criteria for recovery well use (Table 2).

For the entire service area, groundwater levels over the last ten years have declined on the average 2.0 feet per year (Table 3). Well productivity has continued to decline as the water table drops. This information highlights the importance of the District pursuing its CAP Water Recharge, Recovery & Delivery System by utilizing a renewable supply and reducing groundwater pumping and the associated costs with a depleting groundwater supply.

Metro Hub

Depth to water at the five active and three inactive Hub wells ranged from 49 feet to 94 feet below land surface (Table 4). The average groundwater level change at the six Hub wells was an increase of 0.7 feet within the service area since last year. Groundwater level changes ranged from a decline of 4.9 feet to a rise of 8.3 feet.

Table 5 shows that Metro Hub had an average rise of 0.9 foot per year over five years. For the entire service area, groundwater levels over the last ten years have risen on the average 0.4 feet per year (Table 6). The aquifer appears sensitive to natural recharge and pumpage as demonstrated by annual rises and declines.

Metro West

Depth to water at the two Metro West wells varied from 208 feet to 214 feet below land surface. The groundwater level changes at the two wells varied from an increase of 0.6 feet to an increase

of 1.3 feet since last year. The average was a one foot rise. Metro West had an average decline of 0.2 foot per year over five years. A ten year change calculation is not possible for comparison because annual measurements only began in 2006. Water Sustainability staff schedules the annual measurement at these two wells with the required monthly water level monitoring at the Avra Valley Recharge Project, since the two facilities are in proximity.

Metro Southwest

Depth to water at the two Diablo wells varied from 463 feet to 504 feet below land surface. The average water level change from the last year was a rise of 6.3 feet. These increases are assumed to reflect the rising water levels from the nearby City of Tucson's Southern Avra Valley Recharge and Recovery Project. A transducer and an automated recorder are waiting to be installed in this service area because of its remoteness.

Depth to groundwater beneath the E&T service area is comparable to that in the Hub service area. Water levels varied from 68 to 75 feet below land surface. The average water level change from the last year was a rise of 1.8 feet.

Avra Valley Recharge Project

Depth to water is measured monthly at the Avra Valley Recharge Project monitor well (AVMW-01) (Figure 6). The winter measurement was 190 feet below land surface. The change from last year was an increase of 0.8 feet. Water levels at this site constantly fluctuate and are influenced by monthly recharge volumes at the site, the adjacent Lower Santa Cruz Recharge Project owned by the Central Arizona Water Conservation District, and nearby irrigation well pumpage. Since the operation of the Avra Valley Recharge Project began in 1997, groundwater levels have increased 5 feet per year.

Future Monitoring Efforts

Since groundwater is currently the only source of drinking water that the District serves its customers, it is imperative that we continue to monitor the state of the aquifer. Staff will continue to manually measure groundwater levels annually at each well. Additional measurements are collected via transducers that log continual water-level measurements at select wells throughout the year, which provides further information about the aquifer. Transducers measure pressure of water within a well and the data loggers convert pressure to groundwater levels in feet below land surface. The data loggers continually record the water level measurements so that Water Sustainability staff only needs to visit those well sites three times a year to download the data and monitor the charge of the data logger battery rather than doing monthly manual measurements.

The Water Sustainability staff would like to expand the use of transducers. A transducer is awaiting installation at Metro Southwest Diablo Village. Likewise, in the Hub service area, the transducer from the HEX-2 test well will be redeployed to inactive Hub Well No. 1 this fiscal year now that Hub Well No. 1A is active. Staff is proposing a transducer installation in Metro

E&T for next fiscal year. To save money, several existing transducers are being repurposed. The new active wells of Old Magee Trail, Riverside Crossing, and Hub No. 1A have been outfitted with pressure transducers to display continuously both static and pumping water levels.

The inactive Rasmussen well is situated in Metro Main's Western CDO Wash Wellfield. The Rasmussen well is in a strategic location to monitor groundwater levels in this very productive wellfield. Unfortunately, a stuck and collapsed section of column pipe within the well prevents water level measurements. Water Sustainability staff will propose for the next fiscal year to have a driller open the blockage in the Rasmussen well to resume water level measurements and install a pressure transducer and data logger. In a subsequent fiscal year, the self-powered transducer that was in the once-inactive Riverside Crossing Well will be redeployed at the inactive Estes Well to monitor the Rillito Creek Wellfield.

Summary

The Board of Directors is requested to discuss with staff this water level monitoring update. Long-term water level trends continue to show the importance of the District working with the other Northwest Water Providers and Tucson Water to treat and directly deliver its CAP allocation. No motion is required for this agenda item.

Respectfully submitted,

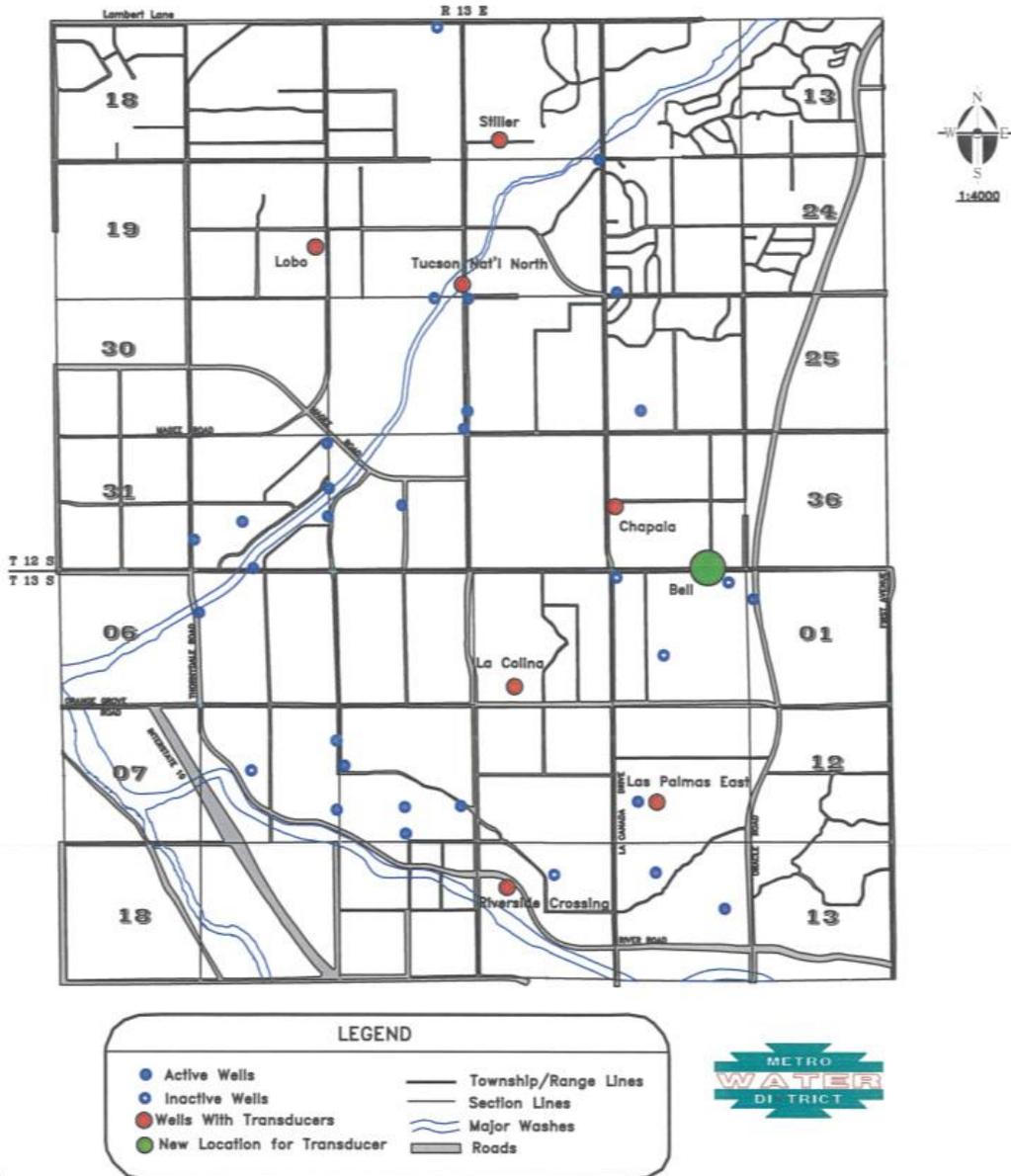
Warren Tenney
Assistant General Manager

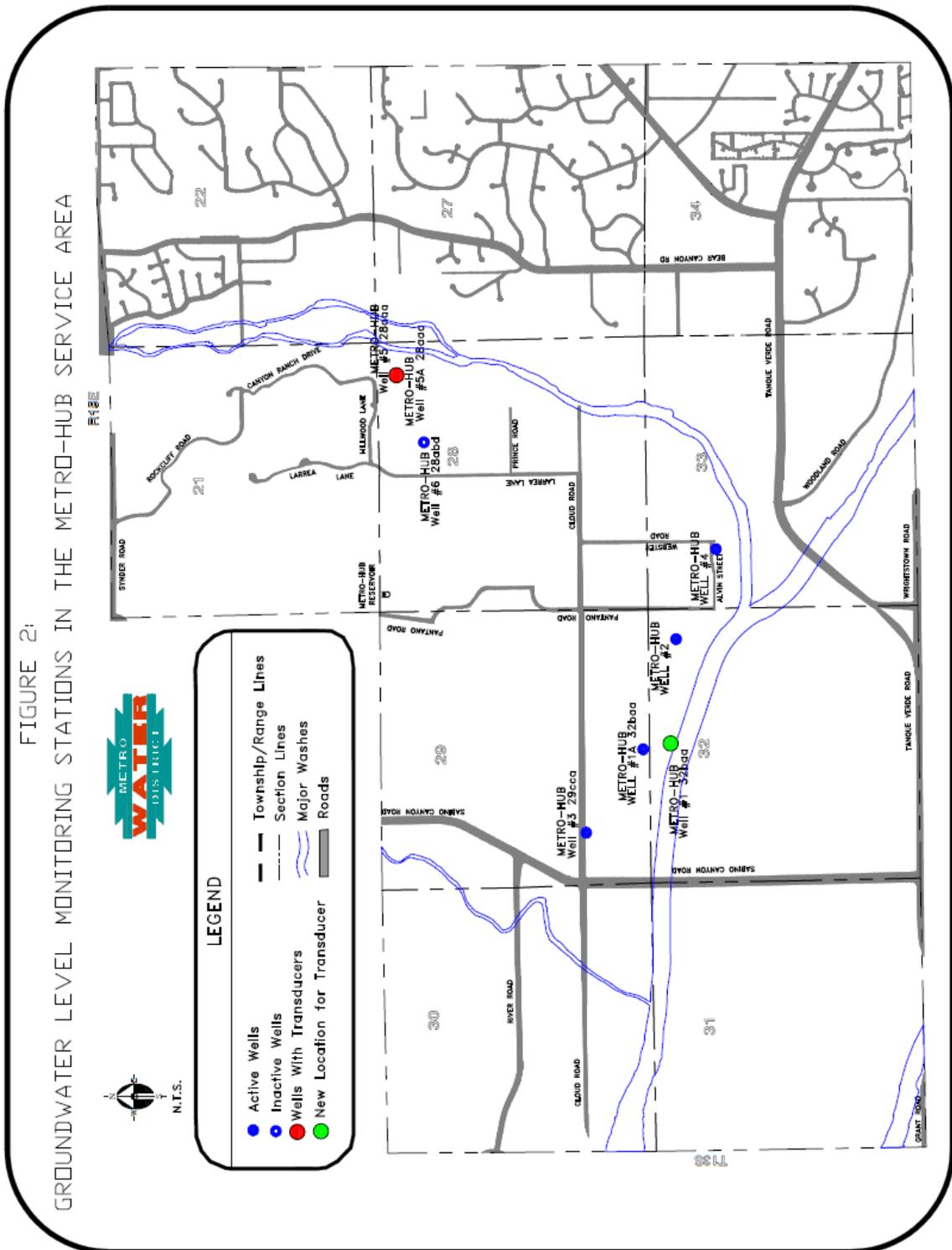
I concur with staff's recommendation.

Respectfully submitted,

Joseph Olsen, P.E.
General Manager

Figure 1
Continuous Groundwater
Monitoring Stations
Metro Main





**Figure 3: Average Water Level Hydrographs
Metro-Main Service Area**

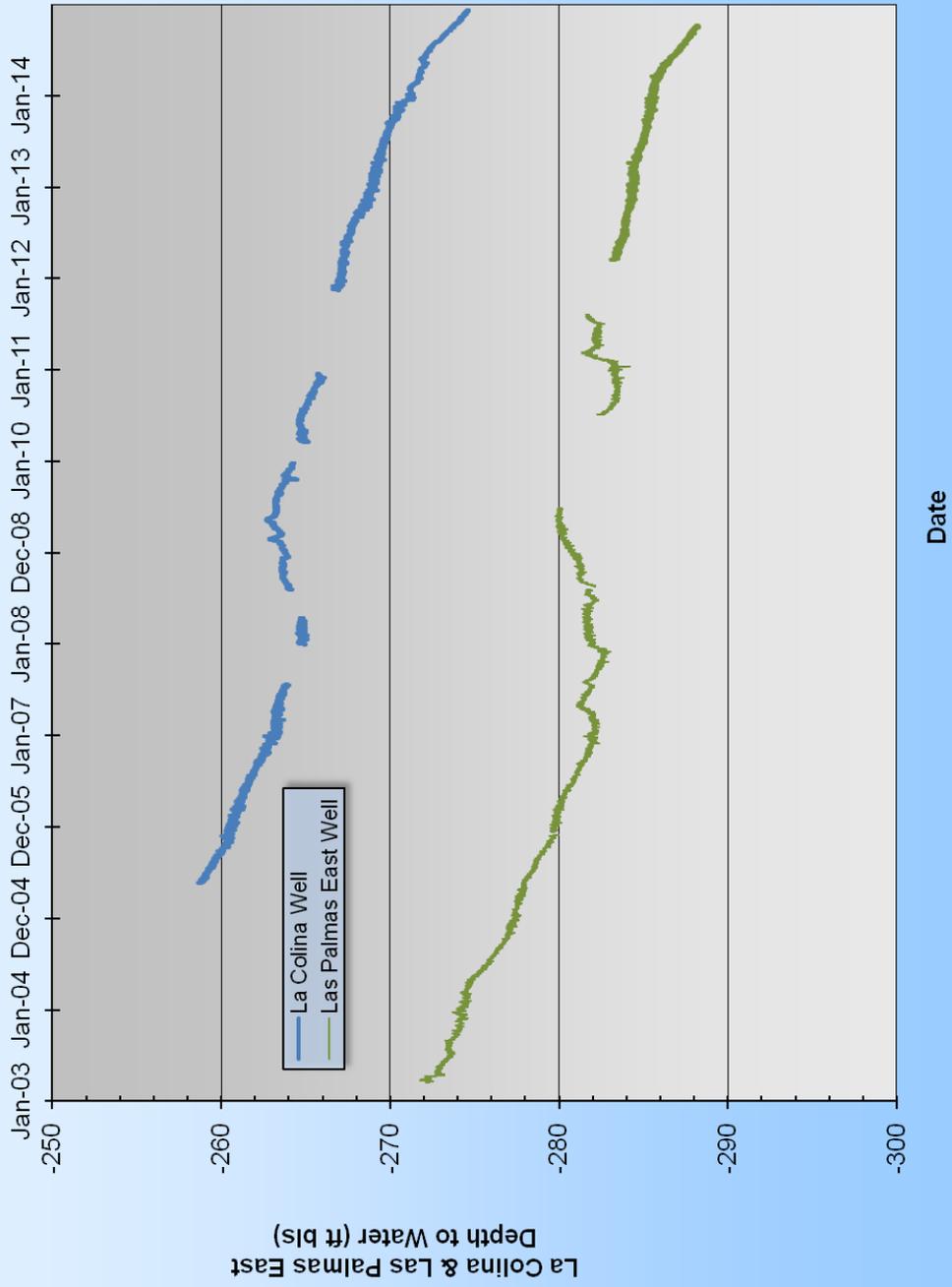
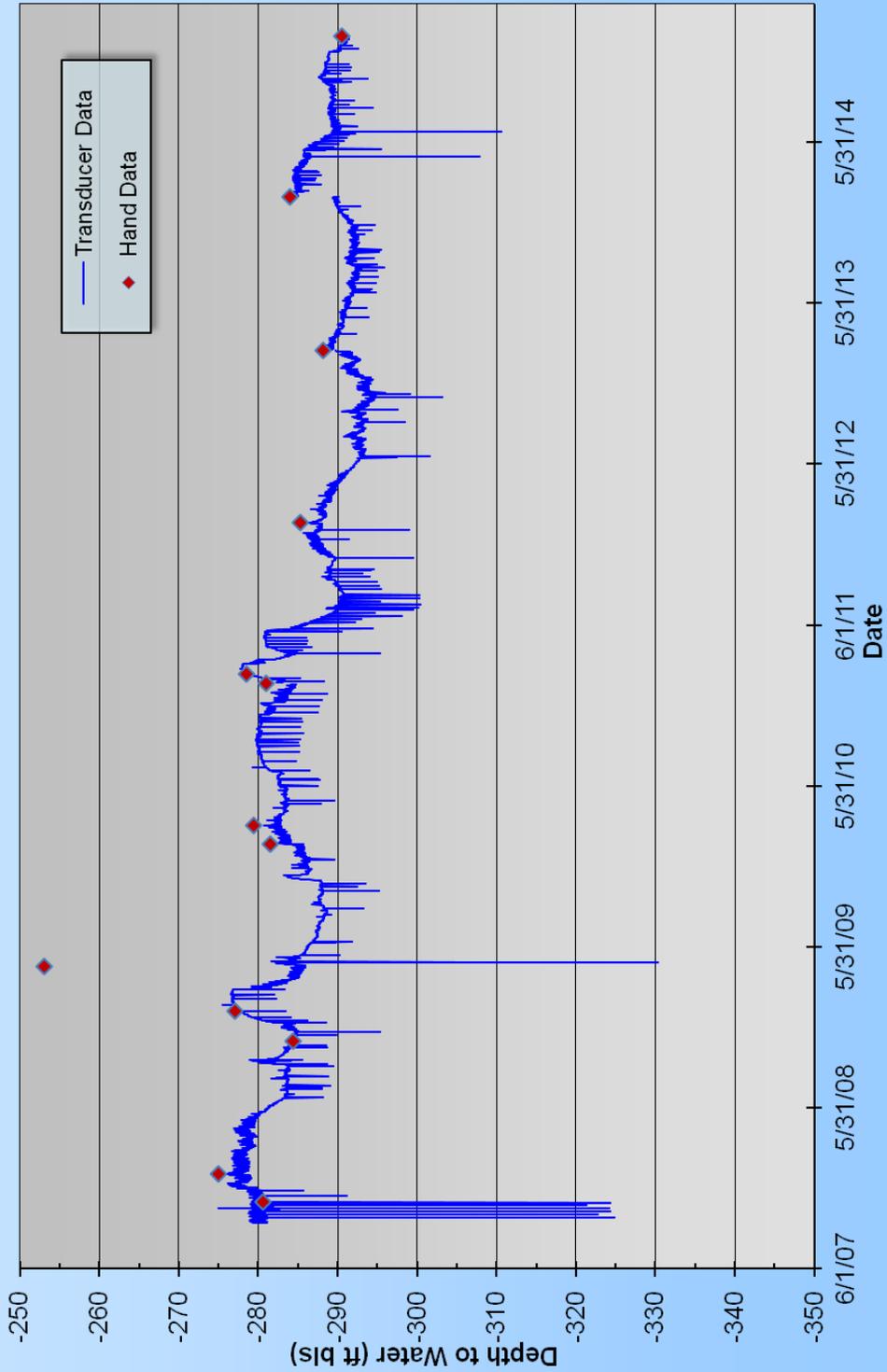


Figure 4:
Tucson National North Average Water Level Hydrograph
12-13-21 DDD



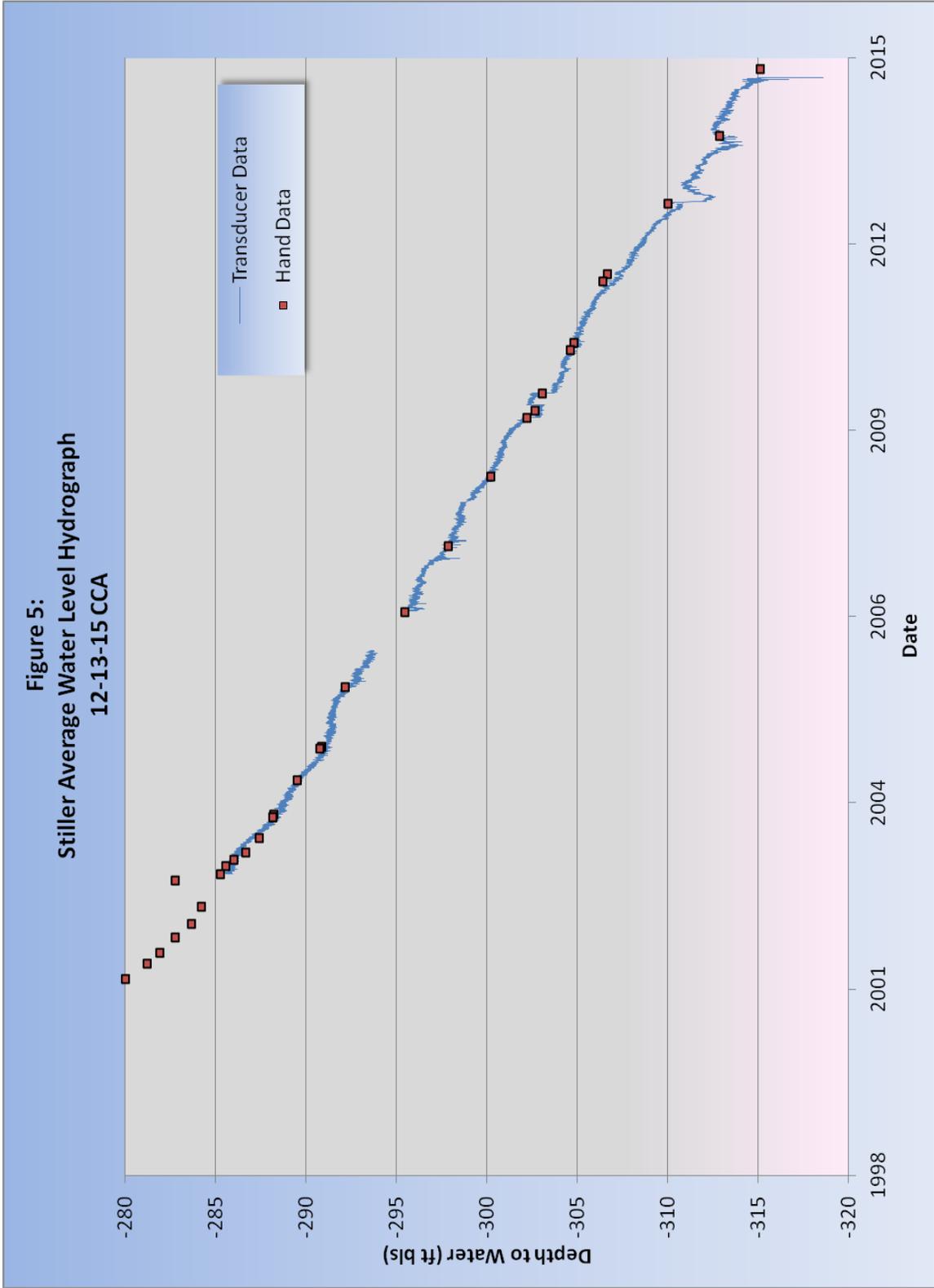


Figure 6: Avra Valley Recharge Project
Depth to Water at AVMW-1

