

Hidden Waters Parkway North Feasibility Study: Interstate 10 to State Route 74 Final Report



Prepared For:



Prepared By:



January 2012



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Abbreviations

American Association of State Highway and Transportation Officials	AASHTO
Arizona Department of Environmental Quality	ADEQ
Arizona Department of Transportation	ADOT
Arizona Department of Water Resources	ADWR
Arizona Game and Fish Department	AGFD
Arizona Public Service	APS
Arizona State Land Department	ASLD
Arizona State Museum	ASM
Bureau of Land Management	BLM
Bureau of Reclamation	BOR
Capital Improvement Program	CIP
Central Arizona Project	CAP
Community Retail Commercial Development Master Plan	CRC
Dwelling Units	DMP
Environmental Protection Agency	DU
Federal Highway Administration	EPA
Federal Implementation Plan	FHWA
Flood Control District of Maricopa County	FIP
Geographic Information System	FCDMC
Maricopa Association of Governments	GIS
Maricopa County Department of Transportation	MAG
Master Planned Community	MCDOT
Municipal Planning Area	MPC
National Environmental Protection Agency	MPA
National Register of Historic Places	NEPA
Planned Area Development	NRHP
Salt River Project	PAD
State Implementation Plan	SRP
State Route	SIP
State Transportation Improvement Program	SR
Technical Advisory Committee	STIP
Toyota Arizona Proving Ground	TAC
Traffic Interchange	TAPG
Transportation Improvement Program	TI
US Fish and Wildlife Service	TIP
Visual Resource Management	USFWS
Western Area Power Authority	VRM
	WAPA

Executive Summary

The Interstate 10/Hassayampa Valley Roadway Framework Study (Hassayampa Framework Study) is a transportation planning document completed by the Maricopa Association of Governments (MAG) in 2008 that identified a comprehensive roadway network to meet future traffic demands in northwest Maricopa County. The roadway network recommended by the Hassayampa Framework Study is comprised of freeways, parkways and major arterial roads. The Hidden Waters Parkway was identified as a major link in this recommended transportation framework.

Study Area and Purpose

The purpose of the Hidden Waters Parkway study is to document conditions along the parkway corridor, identify potential fatal flaws and develop an alignment alternative that meets the future traffic needs identified in the Hassayampa Framework Study. The recommended alternative will establish a roadway footprint that may be used as a guide for local agencies and development within the corridor.

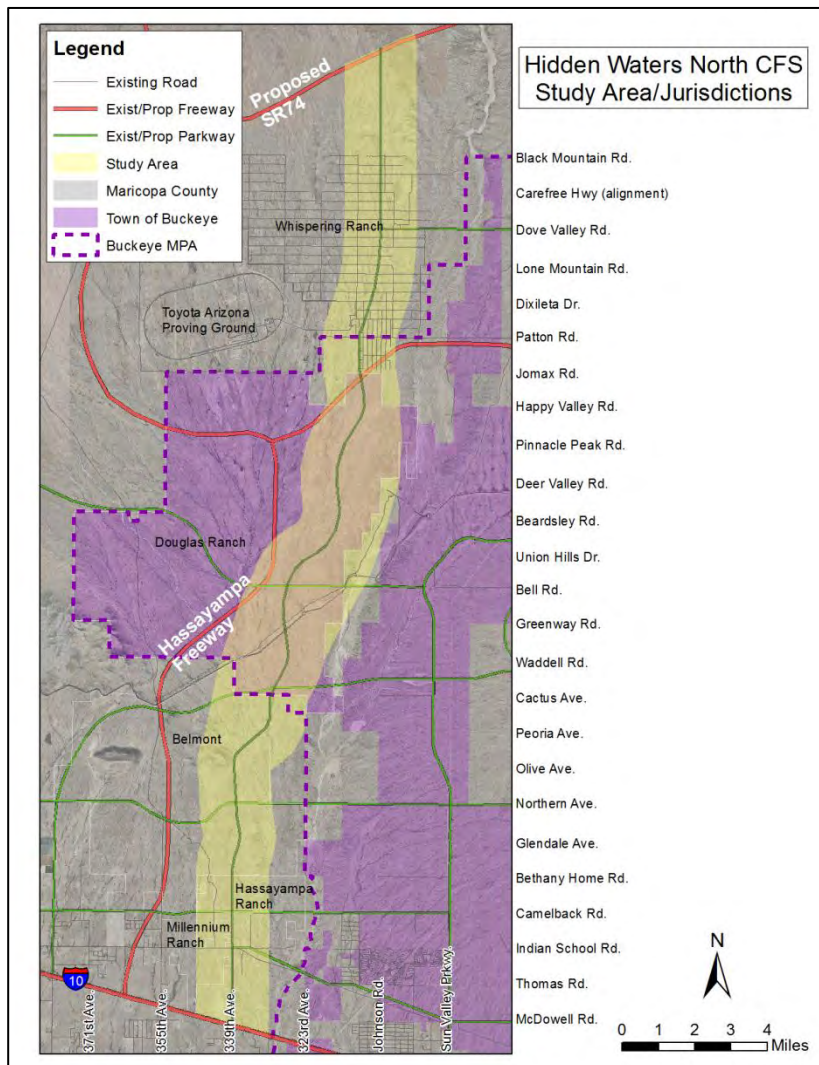


Exhibit 1 Study Area

The Hidden Waters Parkway North (Hidden Waters Parkway) Feasibility Study Area is located west of the Phoenix metropolitan area in Maricopa County, Arizona (Exhibit 1). The Maricopa County Department of Transportation (MCDOT) commissioned the Hidden Waters Parkway North Parkway Feasibility Study in response to anticipated growth and the future need for a high-capacity roadway within the Hassayampa River Valley west of the White Tank Mountains.

The study area includes the northern section of the Hidden Waters Parkway, as shown on the Hassayampa Framework Study, from Interstate 10 (I-10) north to the future alignment of State Route 74 (SR74). The study area is approximately 28 miles long and 2 to 3 miles wide.

Existing Corridor Features

The Hidden Waters Parkway Corridor falls under the jurisdiction of both Maricopa County and the Town of Buckeye. Maricopa County currently has jurisdictional control over all of the improved roadways within the study area. The majority of land along the corridor is privately owned, but land owners in the area also include The Arizona State Land Department (ASLD), the Bureau of Land Management (BLM), and the Bureau of Reclamation (BOR). The vast majority of the existing study area consists of vacant/undeveloped land. The most common zoning categories are RU-43 and RU-190 (Rural Residential) and planned communities.

The existing roadway network in the study area is very limited. Currently, just five sections of existing roadway, ranging from 0.5 to 2 miles in length, are paved. With this limited roadway network, the amount of existing dedicated right-of-way present within the corridor is also limited. Existing physical features include the Central Arizona Project (CAP) Canal, the Toyota Arizona Proving Ground (TAPG) located near northern end of the study area, and 139 well sites identified by the Arizona Department of Water Resources (ADWR).

A total of eight utility providers currently have facilities within the study area. Among the facilities are water, gas, irrigation, telephone, fiber optic lines, and aerial and buried electric. The primary electric utilities of interest within the study area are overhead high-voltage transmission lines, owned by Western Area Power Authority (WAPA) and Arizona Public Service (APS), which cross the study corridor at various locations.

Candidate Alignments

A wide variety of conceptual alignments were initially developed as part of the study. The design team examined each of these alignments and selected three candidate alignment alternatives for further analysis. The candidate alignments are as follows:

Alternative 1

Alternative 1 was developed as part of the Hassayampa Framework Study. It begins at the 339th Avenue/ I-10 Traffic Interchange (TI) and extends north, generally following the pre-determined alignments of 339th, 331st, and 302nd Avenues. Within the proposed Douglas Ranch Development, This alternative generally follows arterial roadway alignments identified in the Development Master Plan (DMP) circulation element. Between Dove Valley Road and the northern boundary of the study area Alternative 1 generally follows the 302nd Avenue alignment.

Alternative 2

Alternative 2 was developed in response to existing/approved land plans and the stakeholder feedback received during the planning phase of this study. It was created to minimize impact to the proposed developments within the study area. As such, this alignment reflects the proposed circulation elements of the Millennium Ranch, Hassayampa Ranch, Belmont and Douglas Ranch Development Master Plans (DMP's). Alternative 2 generally follows the alignment of 299th and 302nd Avenues through Whispering Ranch.

Alternative 3

Alternative 3 was developed in response to geomorphology, existing drainage patterns, utilities, etc. with the goal of minimizing the number of engineering constraints.

Subsequently, the alignment was located along natural ridgelines to minimized drainage and environmental impacts. Alignment 3 generally runs between 301st and 302nd Avenues through Whispering Ranch.

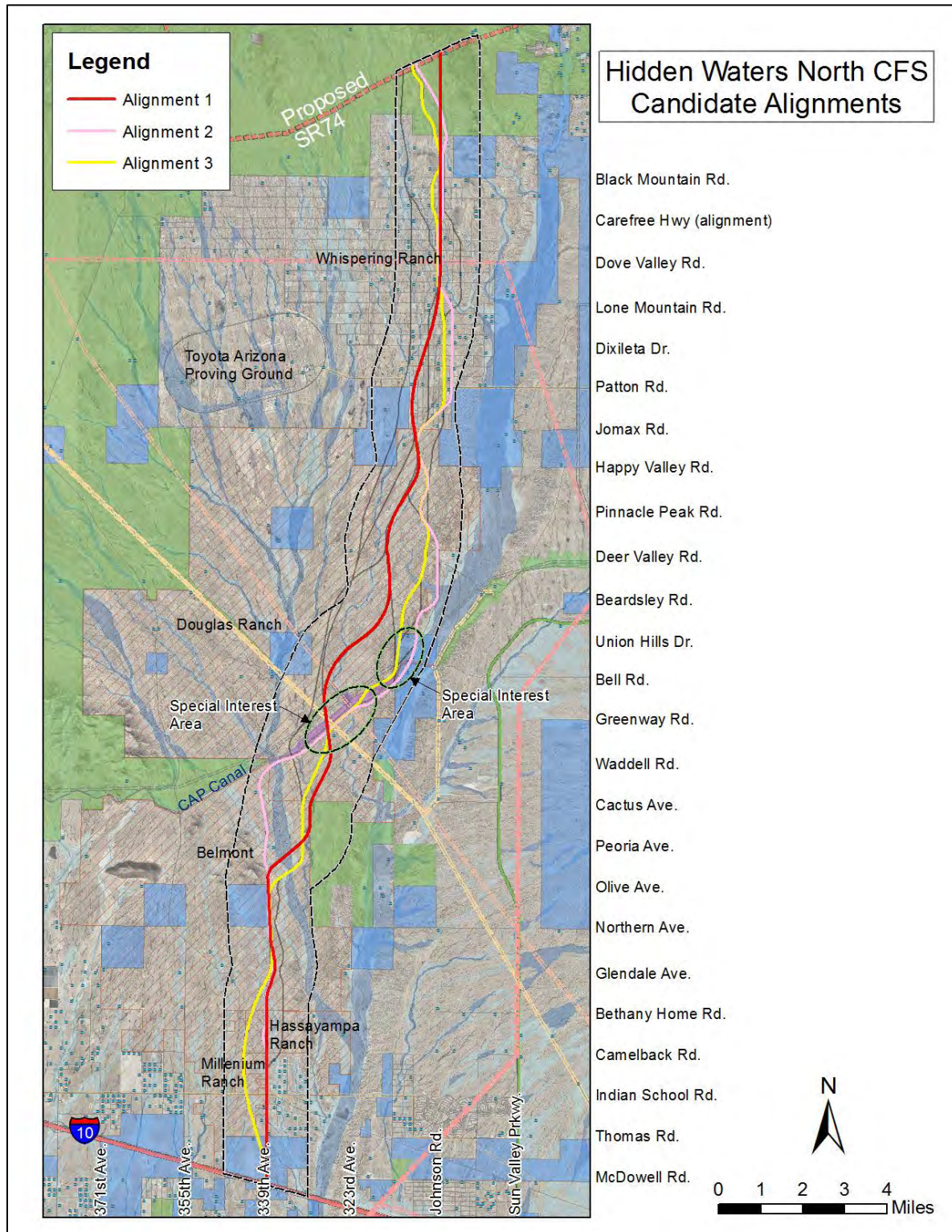


Exhibit 2 Candidate Alignments for the Hidden Waters Parkway

The three candidate alignments were evaluated using a set of criteria identified through

the agency and public scoping process. These criteria and the results of this initial screening of the candidate alternatives are summarized in Exhibit 3.

	Strong Disadvantage	Disadvantage	Neutral	Advantage	Strong Advantage
	●	◐	○	◑	●
<i>Evaluation Criteria</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>No Build</i>	
<i>Consistency with Proposed Development</i>	●	●	●	●	◐
<i>Environmental Impacts</i>	◐	◐	◐	◐	○
<i>Utility Impacts</i>	◐	○	○	○	○
<i>Drainage Impacts</i>	●	◐	◑	◑	◐
<i>Engineering Complexity</i>	◐	◑	◑	◑	○
<i>System Functionality</i>	●	○	○	●	●
<i>Buildings/Property Impacts</i>	◐	○	○	○	◑
<i>Stakeholder/Community Feedback</i>	●	●	●	●	◐
<i>Right-of-Way Requirements</i>	686 ac	717 ac	695 ac	N/A	N/A
<i>Cost (in millions)</i>	\$266.3	\$248.8	\$232.30	N/A	N/A
<i>Recommended for Further Evaluation</i>	No	Yes	No	No	No

Exhibit 3 Summary of Qualitative Evaluation

Preferred Alignment

Alternative 2 is recommended as the preferred alternative primarily because it received the greatest support from key stakeholders and the public, it is coincident with the approved development master plans, and no special engineering challenges were identified with this alignment.

Based on traffic projections from the Hassayampa Framework Study, the Arizona Parkway Intersection/Interchange - Operational Analysis and Design Concepts Study (MCDOT, 2009) makes the following recommendations for the size/number of lanes for the Hidden Waters Parkway through the study area:

- 8-lane Parkway: between I-10 and Northern Parkway
- 6-lane Parkway: between Northern Parkway and Dove Valley Parkway
- 4-lane Parkway: between Dove Valley Parkway and the future SR 74 Freeway

The recommended alternative is shown in Exhibit 4.

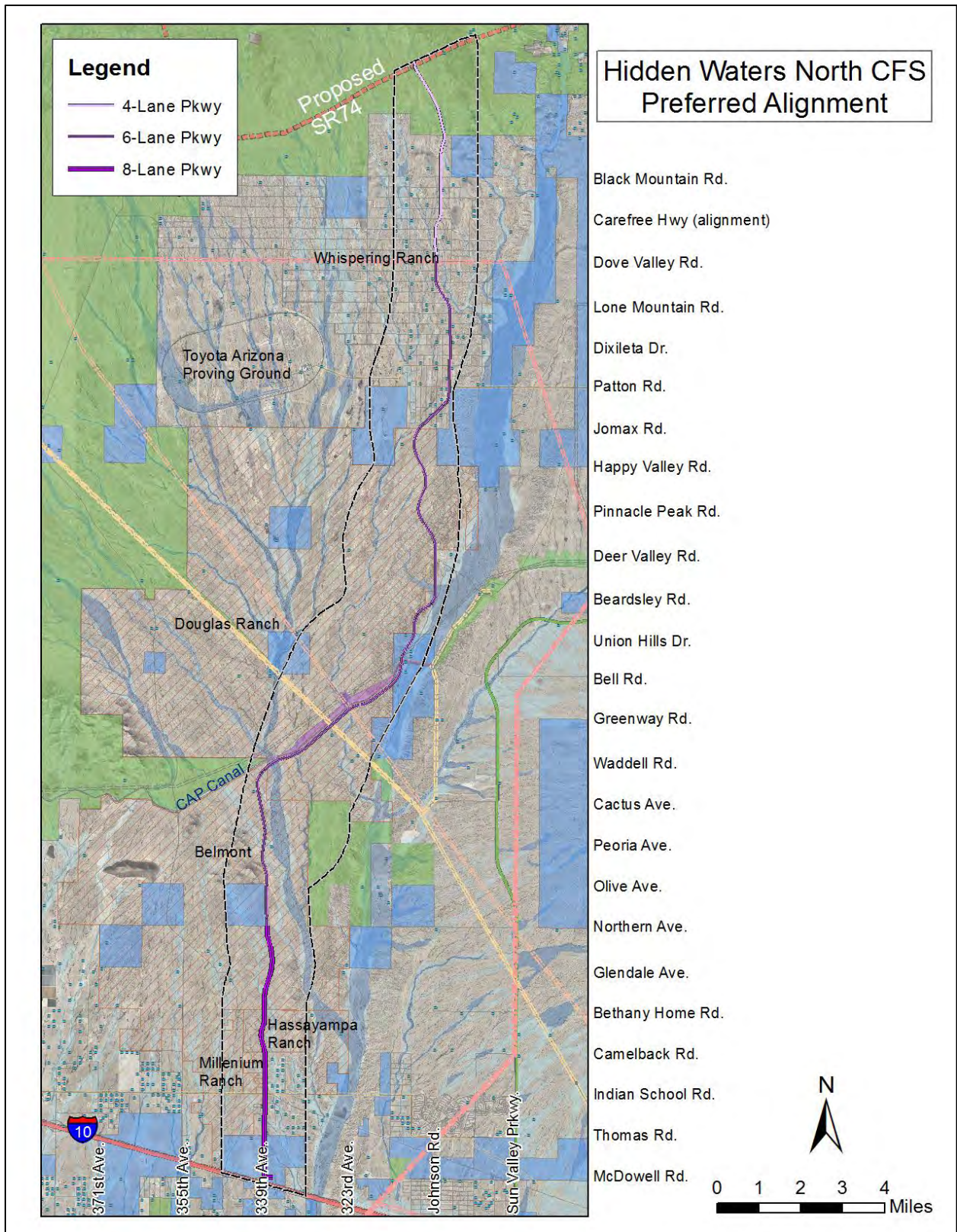


Exhibit 4 Preferred Alignment

Planning Level Cost Estimate

A planning level cost estimate was prepared for the preferred alternative and is summarized in Exhibit 4. The exhibit demonstrates how initial construction costs could be modified if one of the two phased implementation options identified in the Design Guideline Recommendations for the Arizona Parkway (MCDOT, 2008) are utilized. These phased options include:

- Option 1: Only construct the required number of lanes to meet the initial traffic demands (beginning from the outside curb). Purchase the full 200ft right-of-way for the parkway with the initial construction.
- Option 2: Construct half of the proposed parkway first and operate as a traditional arterial roadway allowing left-turns at intersections. This option would require the purchase of only 100ft of right-of-way for initial construction.

Cost Category	Factor	Preferred Alternative	Phased Option No. 1	Phased Option No. 2
Construction		\$88,700,000	\$77,900,000	\$56,700,000
Design (10% TO 15%)	12%	\$10,600,000	\$9,300,000	\$6,800,000
Construction Management	15%	\$13,300,000	\$11,700,000	\$8,500,000
Right-of-Way		\$104,000,000	\$104,000,000	\$104,000,000
Structures		\$21,500,000	\$21,500,000	\$10,800,000
Utility Relocation		\$100,000	\$100,000	\$100,000
Administration (8% TO 13%)	10%	\$8,900,000	\$7,800,000	\$5,700,000
Total		\$247,100,000	\$232,300,000	\$192,600,000

Exhibit 5 Planning Level Cost Estimate

1.0 Introduction

1.1 Background Information and Study Area

The Interstate-10/Hassayampa Valley Roadway Framework Study (Hassayampa Framework Study) is a transportation planning document completed by the Maricopa Association of Governments (MAG) in 2008 that identified a comprehensive roadway network to meet future traffic demands in northwest Maricopa County. The roadway network recommended by the Hassayampa Framework Study is comprised of freeways, parkways and major arterial roads. The Hidden Waters Parkway was identified as a major link in this recommended transportation framework.

The Hidden Waters Parkway North (Hidden Waters Parkway) Feasibility Study Area is located west of the Phoenix metropolitan area in Maricopa County, Arizona (Figure 1-1). The area west of the White Tank Mountains within the Hassayampa River Valley has been identified as an area where intense growth is anticipated to occur in the future. Maricopa County Department of Transportation (MCDOT) commissioned the Hidden Waters Parkway North Parkway Feasibility Study in response to this anticipated growth and the future need for a high-capacity roadway within this corridor.

The study area includes the northern section of the Hidden Waters Parkway, as shown on the Hassayampa Framework Study, from Interstate 10 (I-10) north to the future alignment of State Route 74 (SR 74). The study area is approximately 28 miles long and two miles wide, primarily centered about the Hassayampa Framework Study proposed alignment (baseline alignment) for the Hidden Waters Parkway, except in the area from Northern Avenue to Bell Road where the study area expands to two miles west of the baseline alignment and from the south end of Douglas Ranch to Patton Road where the study area expands to two miles east of the baseline alignment. This results in the study corridor being a total of three miles wide in these two areas (refer to Figure 1-1 for a graphic depiction of the study area).

1.2 Study Purpose and Need

The proposed Hidden Waters Parkway corridor passes adjacent to, or through, several entitled Master Plan Communities (MPC) including: Millennium Ranch, Hassayampa Ranch, Belmont, and Douglas Ranch. At build-out, it is estimated that these communities may contain over 187,000 dwelling units. The need for a parkway within the Hidden Waters corridor is based upon projected development and is linked directly to the development of the previously mentioned MPC's. It is important to identify a recommended alignment for the Hidden Waters Parkway during the planning stages of the proposed MPC's to ensure that adequate right-of-way will be preserved.

The purpose of the Hidden Waters Parkway study is to document conditions along the parkway corridor, identify potential fatal flaws and develop an alignment alternative that meets the future traffic needs identified in the Hassayampa Framework Study. The recommended alternative will establish a roadway footprint that may be used as a guide for local agencies and development within the corridor.

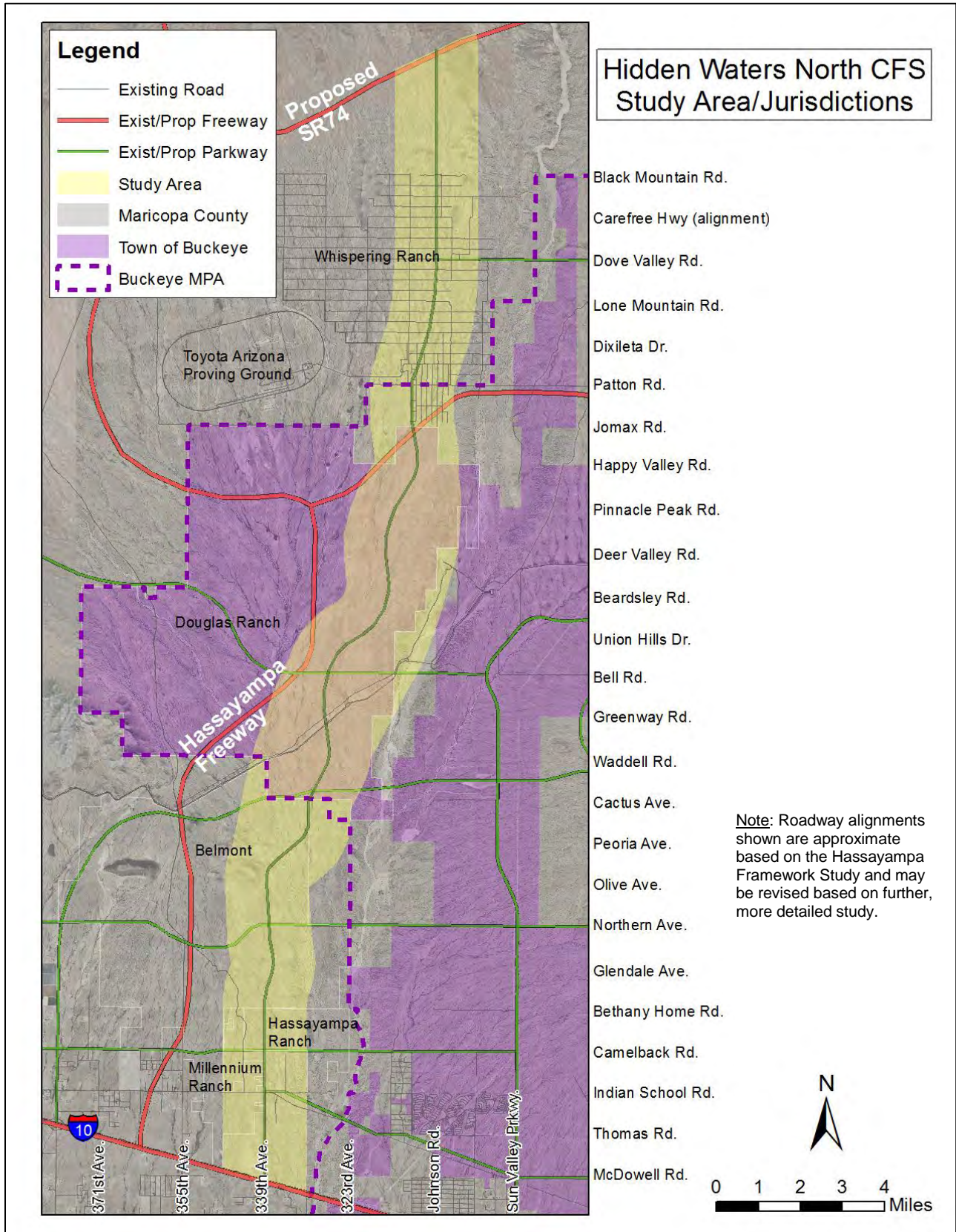


Figure 1-1 Hidden Waters Parkway study area

1.3 Relevant Plans, Reports, Guidelines, Studies, and Standards

Several relevant transportation studies and design guideline documents were referenced throughout the course of the corridor feasibility study including the following:

- Interstate 10-Hassayampa Valley Transportation Framework Study, MAG, September 2007
- 2007 Town of Buckeye General Plan, Town of Buckeye, adopted January 2008.
- Town of Buckeye Preliminary Transportation Master Plan, Town of Buckeye, in draft form.
- Town of Buckeye Development Code, effective January 2010
- Hassayampa Framework Study for the Wickenburg Area, MAG, in draft form.
- Interstate 8 and 10: Hidden Valley Transportation Framework Study, MAG, October 2009
- McDowell Parkway Corridor Feasibility Study: 339th Avenue to Dean Road, MCDOT, June 2010
- Hidden Waters Parkway South Corridor Feasibility Study (I-10 to Watermelon Road), MCDOT, June 2010.
- Northern Parkway/Tonopah Parkway Corridor Feasibility Study, MCDOT, June 2011
- Design Guideline Recommendations for the Arizona Parkway, MCDOT, August 2008
- Arizona Parkway Intersection/Interchange Operational Analysis and Design Concepts Study, MCDOT, August 2009.
- Freeway to Parkway Interchange Template, ADOT, October 2010.
- MCDOT Roadway Design Manual, Revised April 2004, MCDOT, April 2004.
- Wildlife Friendly Guidelines- Community and Project Planning, Arizona Game and Fish Department, February 2009
- Guidelines for Bridge Construction or Maintenance to Accommodate Fish & Wildlife Movement and Passage, Arizona Game and Fish Department – Habitat Branch, November 2008
- Guidelines for Culvert Construction or Maintenance to Accommodate Fish & Wildlife Movement and Passage, Arizona Game and Fish Department – Habitat Branch, November 2008

2.0 Existing and Future Corridor Features

2.1 Jurisdictions, Ownership, and Land Uses

2.1.1 Jurisdictional Control

Approximately two thirds of the Hidden Waters Parkway study area falls within the jurisdictional boundaries of Maricopa County (refer to Figure 1-1). The remaining third, which corresponds to the proposed Douglas Ranch development, is located within the Town of Buckeye. Each jurisdiction controls development through their adopted general/comprehensive plan and zoning ordinances. Portions of the study area are located within the Town of Buckeye Municipal Planning Area (MPA), but remain under Maricopa County jurisdiction until they are annexed into the Town. Currently, Maricopa County has jurisdictional control over all of the improved roadways within the study area.

2.1.2 Land Ownership

The study area is comprised mainly of privately owned land within the Town of Buckeye and unincorporated areas of Maricopa County. Less than a quarter of the study area contains land that is managed by the Bureau of Land Management (BLM), the Bureau of Reclamation (BOR), and the Arizona State Land Department (ASLD). Figure 2-1 illustrates the existing land ownership within the Hidden Waters Parkway study area.

Land Ownership	Acres	Percentage
Private	31,176	78%
Arizona State Trust Land	4,590	12%
Bureau of Land Management	3,515	9%
Bureau of Reclamation	489	1%
Total	39,770	100%

Private Lands

Private Lands include the CMP's of Belmont, Millennium Ranch, Hassayampa Ranch, and Douglas Ranch. Other private lands consist mainly of low density residential or agricultural lands.

Arizona State Land Department (ASLD)

Arizona State Trust Lands, managed by the ASLD, are scattered throughout the entire study area. The responsibility of the ASLD is to maximize revenue for the Trust beneficiaries through the sale and use of the lands.

Bureau of Land Management (BLM)

BLM manages land along the Hassayampa River adjacent to the proposed Belmont and Douglas Ranch developments. They also manage the land north of the existing Whispering Ranch community. A main objective of the BLM is to ensure the best balance of use and resource for America's "public" lands, which is implemented through an extensive and collaborative land use planning approach.

Bureau of Reclamation (BOR)

The Bureau of Reclamation owns a swath of land near the center of the study area that is coincident with the Central Arizona Project (CAP) Canal. A main objective of the BOR is to manage, develop and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

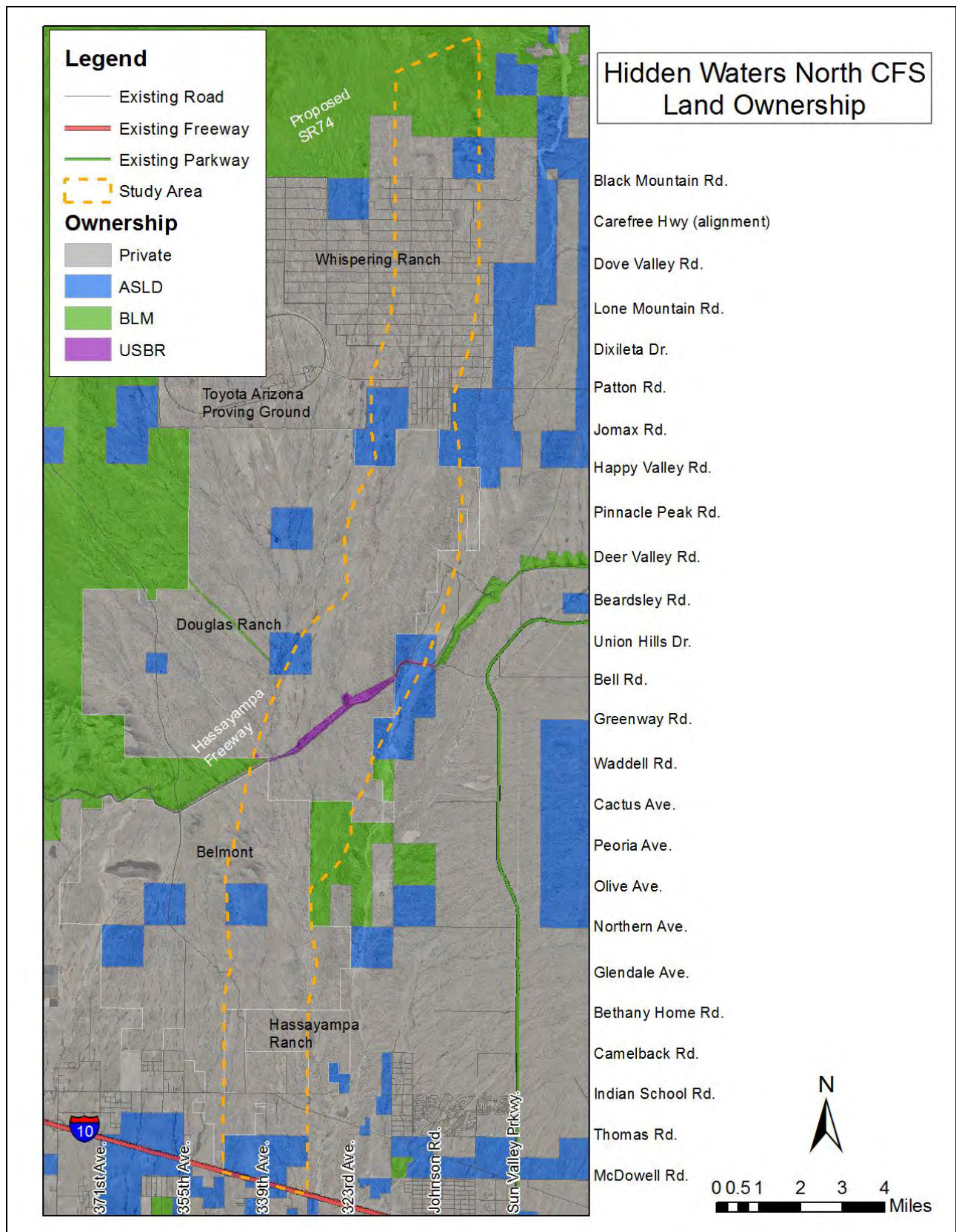


Figure 2-1 Land Ownership

2.1.3 Existing Land Use

Existing land uses presented in Figure 2-2 are based upon County Assessor's data (verified via aerial photograph). Table 2-1 summarizes the land uses within the study corridor by area. The "other" category includes land designated for transportation or regional drainage purposes.

Table 2-1 Existing Land Use

Land Use	Acres	Percentage
Vacant	37,230	94%
Residential	947	2%
Commercial	561	1%
Other	1,032	3%
Total	39,770	100%

Vacant

The vast majority of the study area remains as vacant/undeveloped Sonoran Desert land. Portions of this undeveloped land are used for cattle grazing. These grazing allotments occur within the study area from just south of the Central Arizona Project (CAP) Canal through the northern end of the study area.

Residential

Residential land uses within the Hidden Waters Parkway study area are best described as widely spaced rural development. A small cluster of residential parcels ranging in size from one to forty acres are located near the intersection of 339th Avenue and Indian School Road. These residential parcels generally contain existing homes and other improvements.

The second cluster of residential parcels is located near the northern end of the study area within the Whispering Ranch community. This community is characterized by large (mostly five-acre) residential parcels. Houses of varying size, including mobile and manufactured homes, are present on of these parcels. Some of the residential structures within this area have fallen into disrepair and may no longer be habitable.

Commercial

The Toyota Arizona Proving Ground (TAPG) is located within the Hidden Waters Parkway study area adjacent to the Whispering Ranch community. The TAPG is the principal North American test facility for Toyota. This 18-square mile state-of-the-art proving ground is used to conduct rigorous vehicle performance and durability tests under the harsh conditions found in the Arizona desert climate. Toyota representatives have indicated that confidentiality is critical to their testing operations and requested that their privacy requirements be considered when developing potential parkway alternatives. Toyota considers the proving ground to be an essential facility required to meet Toyota's current and long term North American vehicle development activities.

Flood Control District of Maricopa County (FCDMC) records indicate that Sun State Materials has an active 240 acre sand and gravel operation along the west edge of the Hassayampa River north of the CAP Canal. There is an additional 40 acre parcel approximately one quarter mile north of Indian School Road which appears to be the site of a neighborhood garage or shop.

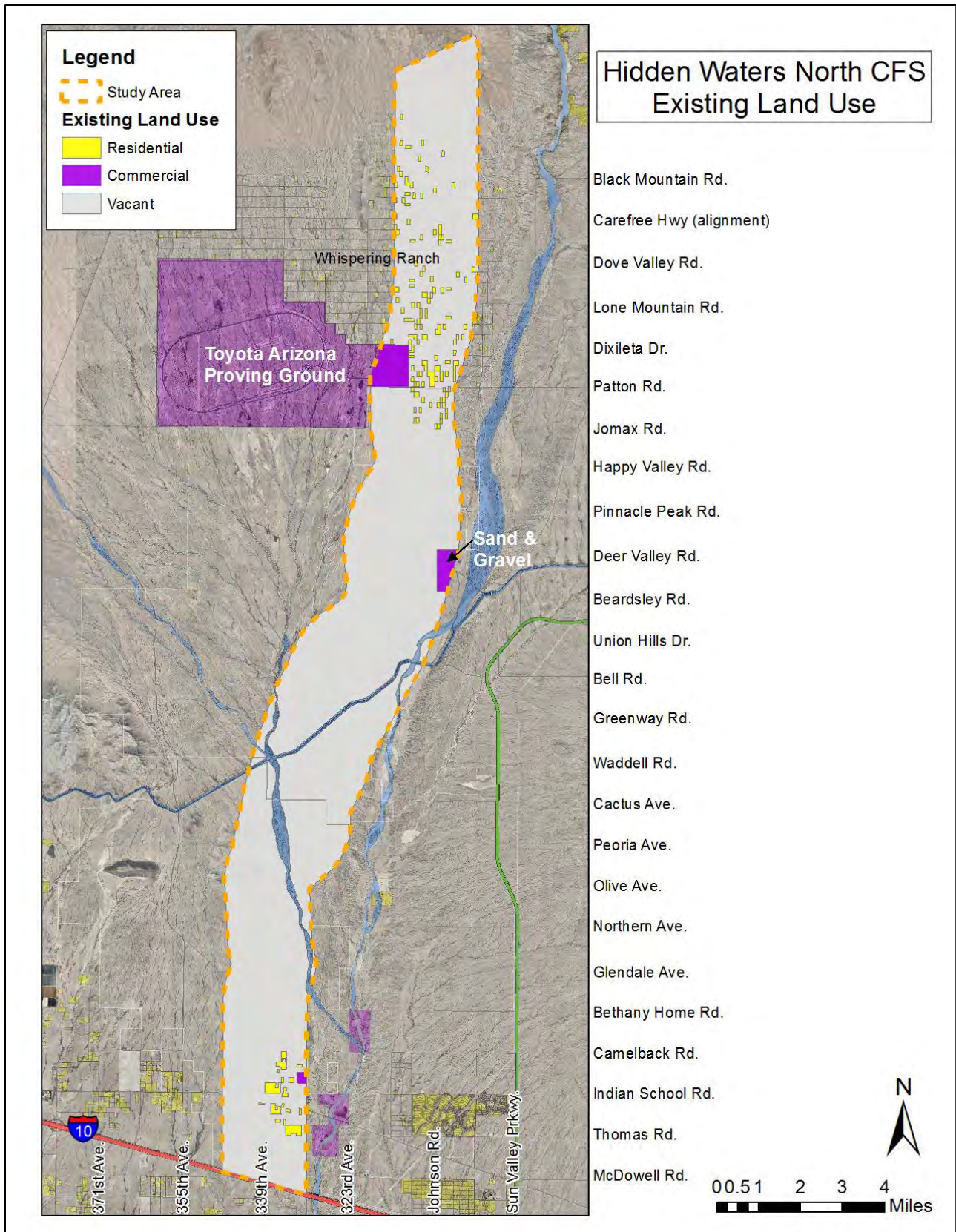


Figure 2-2 Existing Land Use

2.1.4 Existing Zoning

Figure 2-3 illustrates the existing zoning patterns within the Hidden Waters Parkway study area. Zoning data for the Town of Buckeye and unincorporated areas of Maricopa County were obtained from Town of Buckeye Planning & Zoning Department and Maricopa County Planning & Development Department (via the Maricopa County GIS portal), respectively.

Town of Buckeye Zoning

The Town of Buckeye annexed the proposed Douglas Ranch development in 2002. The land was zoned as a “Planned Community” within the Town of Buckeye. The “Planned Community” zoning district was designed to accommodate/incorporate a combination of land uses, wherein specific uses, public services, densities, and design criteria were identified and adopted. The latest version of the Town’s development code (effective January 2010) eliminates the “Planned Community” zoning district for future zoning cases. However, this zoning designation has been carried forward for previously approved land areas that were assigned that zoning classification. The newest version of the Town development code offers the Community Master Plan designation as an overlay district to accommodate this type of development.

Maricopa County Zoning

The vast majority of the existing zoning within unincorporated Maricopa County is zoned RU-43 and RU-190 (Rural Residential). The RU-43 and RU-190 zoning districts permit one dwelling unit per 43,000 and 190,000 square feet, respectively. The land area associated with Hassayampa Ranch is zoned in accordance with its approved Development Master Plan (DMP). The Hassayampa Ranch DMP adopted a Planned Area Development (PAD) overlay to permit and encourage a cohesive mixture and variety of residential and commercial zoning districts. The Hassayampa Ranch zoning districts are as follows:

- R1-6 (Single Family Residential- 6,000 square feet per dwelling unit);
- R-2 (Two-Family Residential- 4,000 square feet per dwelling unit);
- R-3 (Multiple-Family Residential- 3,000 square feet per dwelling unit);
- C-S (Planned Shopping Center);
- C-0 (Commercial Office); and
- C-1 (Neighborhood Commercial)

Although the Belmont and Millennium Ranch are currently zoned RU-43/RU-190, these developments will ultimately adopt zoning districts in accordance with their approved DMP’s. There are currently no zoning requests being processed in the Hidden Waters Parkway study area.



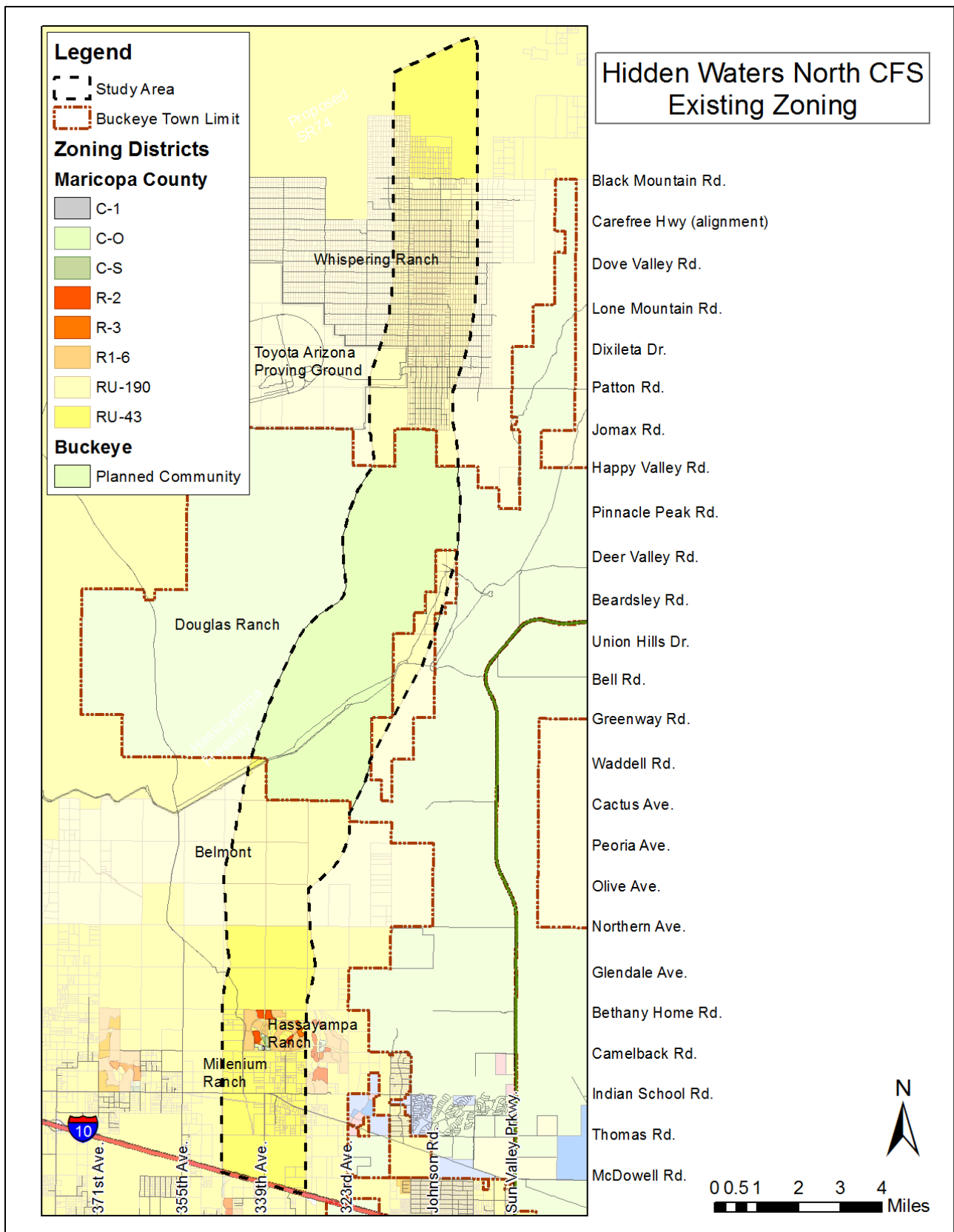


Figure 2-3 Existing Zoning

2.1.5 Future Land Use

The future land use patterns within the Hidden Waters Parkway study area are illustrated in Figure 2-4. Future Land Use data for the Town of Buckeye and unincorporated areas of Maricopa County were obtained from the Town of Buckeye General Plan (2007 update), Maricopa County Comprehensive Plan 2020 (rev. August 2002), and the Maricopa County Tonopah/Arlington Sub Area Plan 2020 (September 2000).

Town of Buckeye Future Land Use

The Town of Buckeye General Plan identifies future land uses in conjunction with the approved Douglas Ranch Community Master Plan (CMP). The future land uses associated with the Douglas Ranch CMP are anticipated to provide a variety of single and multi-family residential densities ranging from 3 to 15 Dwelling Units per acre (DU/ac), Community and Regional Commercial, Business Park/Employment, Mixed-Use containing a mix of office, retail, high and urban density residential, and open space and recreational uses. Unincorporated land areas located adjacent to the east of Douglas Ranch, but within the Town's Master Planned Area (MPA) are anticipated as Very Low Density Residential (up to 1 DU/ac). Land areas adjacent to the north of Douglas Ranch are planned for Regional Commercial and Medium Density Residential (3 to 6 DU/ac), respectively.

Maricopa County Future Land Use

The Maricopa County Land Use plan illustrates that a majority of the existing vacant, undeveloped land is anticipated to follow the approved DMP's for Hassayampa Ranch, Belmont, and Millennium Ranch. Similar to Douglas Ranch, these approved DMP's are anticipated to provide a wide range of housing densities, mixed-use commercial/employment/business land uses, open space and recreational uses, and multi-modal transportations systems. These master planned communities are further discussed in Section 2.6.

The northern portion of the study area is anticipated to continue as Rural Development with very low density, generally one dwelling unit per five acres, and is consistent with the existing Whispering Ranch development. Additional areas of Rural Development are located along the east side of the study area adjacent to Belmont, and in the southern portion of the corridor area. While these areas are identified as a Rural Development, it is possible that these areas could become part of a development plan as the county and surrounding master plan communities develop. The future land use at the intersection of 339th Avenue and Interstate 10 is delineated as Community Retail Commercial (CRC), which allows for the development of general neighborhood/community based commercial uses.

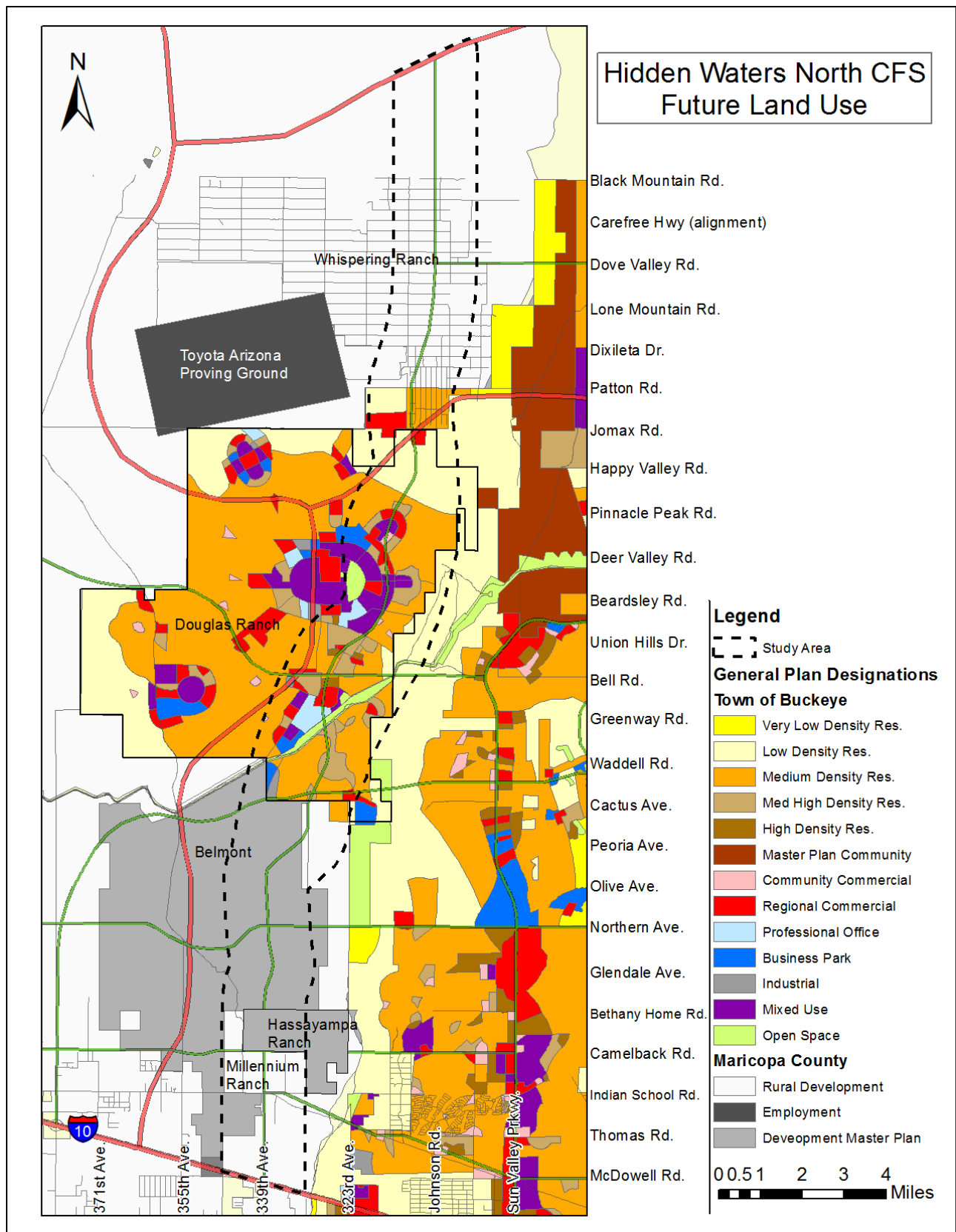


Figure 2-4 Future Land Use

2.1.6 Master Planned Communities

The Hidden Waters Parkway study area passes adjacent to, or through several approved MPC's, (Hassayampa Ranch, Millennium Ranch, Belmont, and Douglas Ranch) and the existing community of Whispering Ranch. Figure 2-5 identifies the existing and approved MPC's within the study area. At complete build out, it is anticipated that these communities will combine for over 187,000 dwelling units

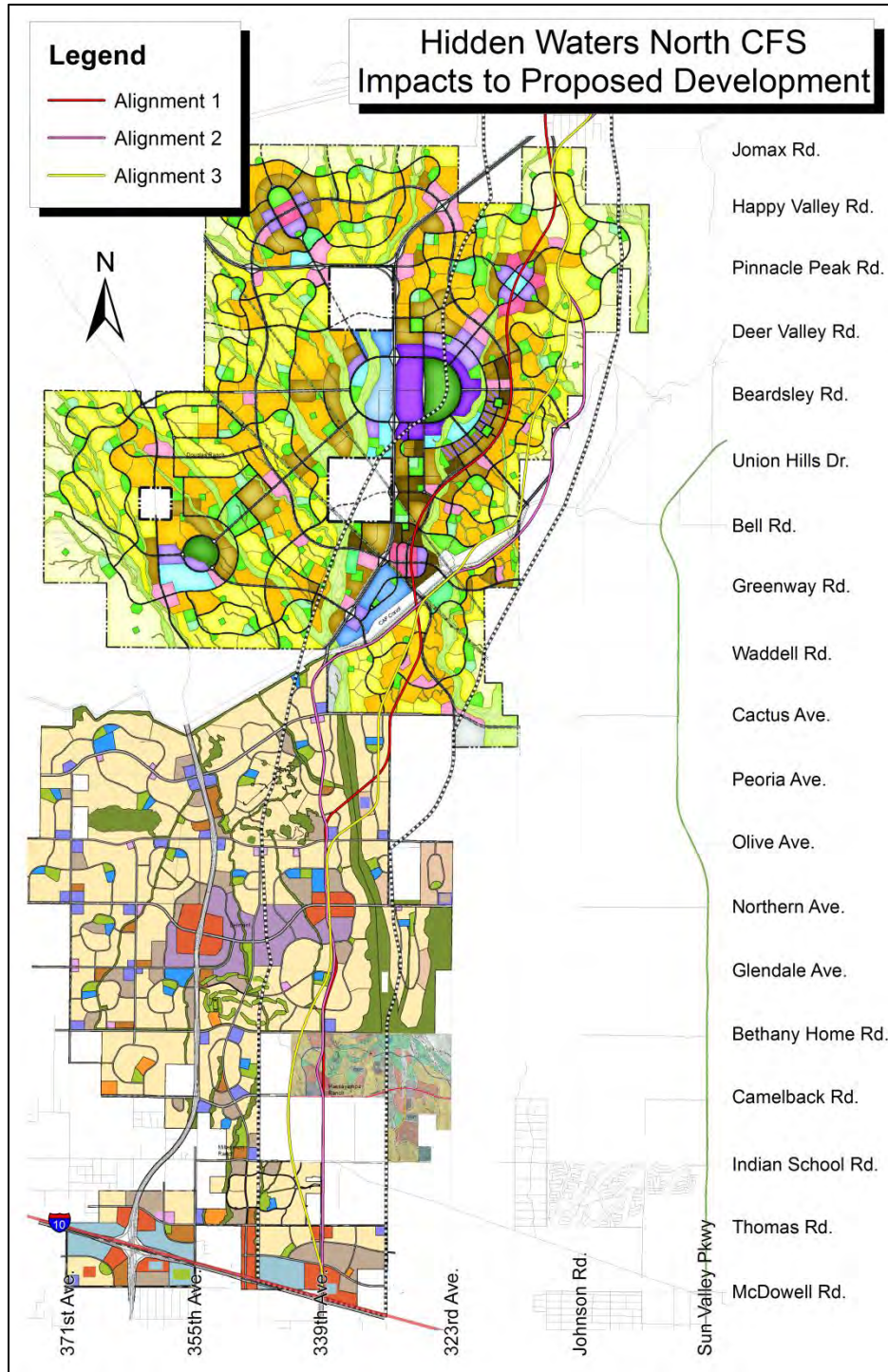


Figure 2-5 Planned Development

2.2 Existing Topography

The study area is located within the Basin and Range physiographic province of Central Arizona, which is characterized by numerous mountain ranges rising abruptly from broad valleys or basins.

Elevation ranges from approximately 1,065 to 2,300 feet above mean sea level within the study area. Land within the northern portion of the study area includes rolling hills to steep mountains, but the majority of the study area lies on the valley floor just west of the Hassayampa River. Land within the central and southern portion of the study area is generally flat, with small to large drainages flowing primarily south and east where they join the Hassayampa River. The topography surrounding the corridor generally slopes from northeast to southwest.

The average slopes within the northern, central, and southern portions of the study area are 1.0%, 0.7%, and 0.5%, respectively.

2.3 Existing/Proposed Utilities

Arizona Blue Stake was contacted to identify the utility stakeholders within the Hidden Waters Parkway study area. Table 2-2 contains a list of the utility owners and utility types identified by Blue Stake within the study area.

Table 2-2 Utility Stakeholders in the Hidden Waters Parkway Study Area

Utility Company	Type of Utility
AT&T	Fiber Optic, Telephone
Arizona Department of Transportation	Culverts, Electric, Fiber, Gas, Irrigation, Lighting, Propane, Sewer, Storm Drain, Telephone, Traffic Signals, Water
Arizona Public Service (APS)	Aerial and Buried Electric
Central Arizona Water Conservation District	Fiber Optic, Electric, Water
Qwest Local Networks	Fiber Optic, Telephone
Sprint Communications Company	Fiber Optic
Western Area Power Authority	Electric
Zona Communications	Fiber Optic, Telephone

The utility stakeholders identified by Blue Stake were contacted to determine what facilities are within in the Hidden Waters Parkway study area and to request mapping. Figure 2-6 illustrates the locations of the existing and proposed utilities within the study area. For a complete description of each of the existing utilities see Appendix A, Technical Memorandum #1.

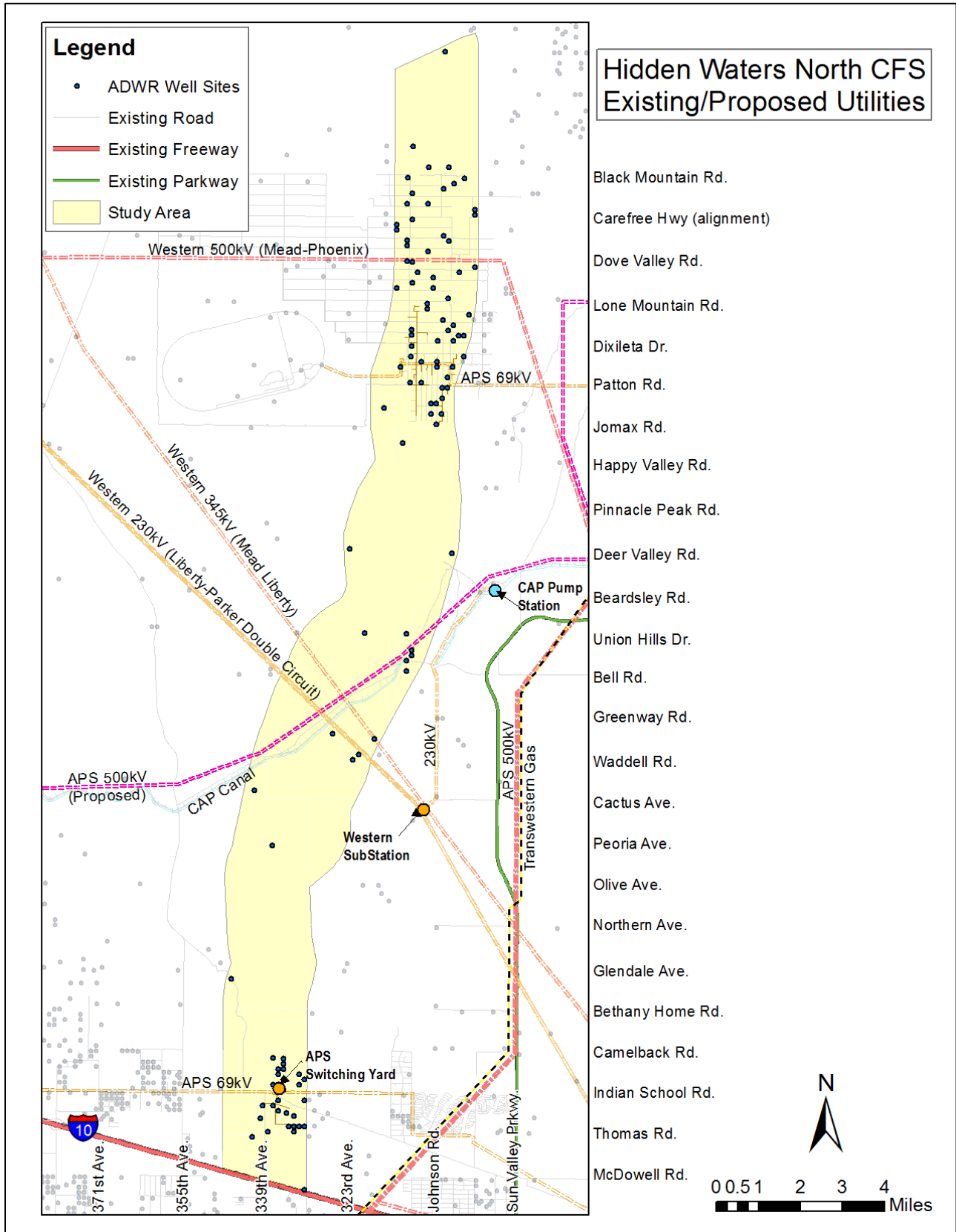


Figure 2-6 Existing/Proposed Utilities

2.4 Existing Roadway Features

There are currently five paved roadways within the Hidden Waters Parkway study area. The current functional classifications, pavement conditions, and existing traffic volumes on these roadways are summarized in Table 2-3.

Table 2-3 Existing Roadway Conditions

Road	Segment	Length (Miles)	Existing Facility	Width (Feet)	Surface Type	Pavement Condition	Year Built	ADT (2010)
339th Ave.	5962' North of I-10 to Indian School Road	1	2-lane minor arterial	30	Asphaltic Rubber	Very Good	1982	941
Indian School Road	347th Avenue to 331st Avenue	2	2-lane minor arterial	28	Not Reported	Not Reported	Not Reported	213
Patton Road	299th Avenue to 5280' East of 299th Avenue	1	2-lane major collector	28	Penetration Chip	Good	1989	500
299th Avenue	Patton Road to Peak View Road	0.5	2-lane local road	28	Asphaltic Concrete	Excellent	1991	466
Peak View Road	299th Avenue to 5280' West of 299th Avenue	1	2-lane local road	28	Asphaltic Concrete	Excellent	1991	411

*Data gathered from MCDOT's 2010 roadway summary reports.

2.4.1 Access Control

Access control may be described as the process of managing access points, and thus the number of conflict areas, along a roadway to increase the efficiency and safety of traffic flow.

Access control does not currently exist along the existing roadways within the Hidden Waters Parkway study area, with the exception of the right-of-way along Interstate 10 wherein the access is 100% controlled. This lack of access control has likely contributed to the large number of unpaved dirt driveways observed throughout the study area. There are three partially stop controlled intersections within the study area. These intersections are Indian School Road and 339th Avenue, Patton Road and 299th Avenue, and Peak View Road and 299th Avenue.

2.4.2 Right-of-Way

Right-of-way data was gathered by reviewing the Maricopa County Assessor's maps, GIS data, and final plats/surveys available on MCDOT's online county plat map index. Table 2-4 summarizes the existing right-of-way widths along major roadways within the corridor and in nearby areas. Other areas of dedicated right-of-way within the study corridor are located in the Whispering Ranch development. These areas are summarized in Table 2-5.

Table 2-4 Existing Right-of-Way along Proposed Corridor

Road	Segment		Right-of-Way			
			West/South of Centerline/ Sectionline	East/North of Centerline/ Sectionline	Total Width	
339th Avenue	Thomas Road	to	2640' north of Thomas Road	40'	40'	80'
	2640' north of Thomas Road	to	3545' north of Thomas Road	0'	40'	40'
	3545' north of Thomas Road	to	3865' north of Thomas Road	40'	40'	80'
	3865' north of Thomas Road	to	Indian School Road	0'	40'	40'
	Indian School Road	to	2640' north of Indian School Road	65'	0'	65'
	2640' north of Indian School Road	to	3960' north of Indian School Road	65'	32'	97'
	3960' north of Indian School Road	to	Camelback Road	65'	65'	130'
	Camelback Road	to	Bethany Home Road	0'	0'	0'
	Bethany Home Road	to	Northern Avenue	75'	75'	150'
	Northern Avenue	to	Olive Avenue	0'	75'	75'
	Olive Avenue	to	Peoria Avenue	75'	75'	150'
Indian School Road/ Tonopah-Salome Hwy.	339th Ave	to	5280' west of 339th Avenue	20'	20'	40'
	339th Ave	to	5280' east of 339th Avenue	55'	55'	110'

Table 2-5 Other Right-of-Way

Road	Segment		Right-of-Way			
			West/ South of Centerline/ Sectionline	East/ North of Centerline/ Sectionline	Total Width	
Peak View Road	299th Avenue	to	660' west of 299th Avenue	45'	45'	90'
	660' west of 299th Avenue	to	990' west of 299th Avenue	20'	45'	65'
	990' west of 299th Avenue	to	2310' west of 299th Avenue	45'	45'	90'
	2310' west of 299th Avenue	to	2640' west of 299th Avenue	20'	20'	40'
	2640' west of 299th Avenue	to	307th Avenue	45'	45'	90'
299th Avenue	Patton Road	to	Peak View Road	45'	45'	90'

2.5 Future Roadway Network

2.5.1 Forecast Travel Conditions

The MAG Hassayampa Framework Study is the basis for all of the forecast traffic volumes for this study. Table 2-6 summarizes the MAG forecasted average daily traffic volumes for the Hidden Waters Parkway study area in the year 2030 and at build-out.

Table 2-6 Summary of MAG Forecasted Traffic Volume

Hidden Waters Parkway North Segment		Average Daily Traffic	
From	To	2030	Build-out
I-10	Thomas Rd.	15,000	65,000
Thomas Rd.	Indian School Rd.	13,000	68,000
Indian School Rd.	Camelback Rd.	10,000	67,000
Camelback Rd.	Bethany Home Rd.	12,000	59,000
Bethany Home Rd.	Glendale Ave.	13,000	63,000
Glendale Ave.	Northern Ave.	10,000	34,000
Northern Ave.	Olive Ave.	10,000	34,000
Olive Ave.	Peoria Ave.	11,000	30,000
Peoria Ave.	Cactus Ave.	12,000	51,000
Cactus Ave.	Waddel Ave.	7,000	34,000
Waddel Ave.	Greenway Rd.	7,000	34,000
Greenway Rd.	Bell Rd.	11,000	47,000
Bell Rd.	Union Hills Dr.	4,000	49,000
Union Hills Dr.	Beardsley Rd.	4,000	41,000
Beardsley Rd.	Deer Valley Rd.	3,000	47,000
Deer Valley Rd.	Pinnacle Peak Rd.	3,000	47,000
Pinnacle Peak Rd.	Happy Valley Rd.	2,000	45,000
Happy Valley Rd.	Jomax Rd.	1,000	67,000
Jomax Rd.	Patton Rd.	1,000	45,000
Patton Rd.	Dixileta Dr.	1,000	45,000
Dixileta Dr.	Lone Mountain Rd.	< 1,000	43,000
Lone Mountain Rd.	Dove Valley Rd.	< 1,000	43,000
Dove Valley Rd.	Carefree Highway (alignment)	< 1,000	31,000
Carefree Highway (alignment)	Black Mountain Rd.	< 1,000	32,000

2.5.2 Future Functional Classification

The future functional classification for the Hidden Waters Parkway was established during the Hassayampa Framework Study as an Arizona Parkway. Arizona Parkways are described in the Hassayampa Framework Study as intermediate capacity roadways with four to eight lanes, partial access control (primarily right-in/right-out) and no direct-left turns permitted at each intersection. This roadway requires a 200 feet of right-of-way with a 74-foot wide median in urban settings.

2.5.3 Programmed Roadway Improvements

The most recently available Capital Improvement Programs (CIP) and/or Transportation Improvement Programs (TIP) for MCDOT, ADOT, MAG, and the Town of Buckeye were reviewed to determine the potential for future transportation or public improvement

projects within the study corridor. Based on this review, no significant publicly funded projects are planned within the next four or more years in the study corridor.

3.0 Environmental Overview Summary

Hidden Waters Technical Memoranda No. 2 (TM2) provides an overview of the environmental characteristics of the study area and is included in the appendices of this final report. This section summarizes the findings of TM2 including the cultural, natural, socioeconomic, and physical resources identified from existing data sources and a “windshield” survey of the study area.

3.1 Cultural Resources

The National Register of Historic Places (NRHP) documents the appearance and importance of properties significant in our prehistory and history. To be listed in the NRHP, a property must be demonstrably significant under at least one of four criteria and must possess sufficient integrity in terms of the NRHP’s seven aspects (location, design, setting, materials, workmanship, feeling and association). The criteria for NRHP eligibility are as follows: association with significant historic events that have contributed to broad patterns of history (Criterion A); association with the life of a person significant to the past (Criterion B); embodiment of an important design or method of construction, representative of the work of a master, embodiment of high artistic values, or representative of a distinguishable entity whose components may lack distinction (Criterion C); or potential to yield scientifically important information about prehistory or history (Criterion D).

Research indicates approximately 15 percent of the study area has been previously surveyed for cultural resources; however, 12 of the 22 surveys were conducted before 2000 and may not meet current Arizona State Museum (ASM), State Historic Preservation Office, and other professional standards for site recording and reporting; as such, it is likely that they may require new survey. The research also resulted in the identification of five cultural resources sites within the study area, including two historic roads, two historic prospects, and one prehistoric lithic scatter. A historic road has been recommended eligible for inclusion in the NRHP under Criterion A, and the lithic scatter, has been recommended NRHP eligible under Criterion D. The other three sites were previously recommended not eligible for listing in the NRHP.

3.2 Natural Resources

The majority of the study area is located within relatively undisturbed Sonoran Desertscrub vegetation. This vegetation supports numerous species of plants and wildlife that are likely to be impacted by project activities. The study area does not contain suitable habitat for any threatened or endangered species included on the US Fish and Wildlife Service (USFWS) list, and no proposed or designated critical habitat as listed under the Endangered Species Act occurs. The northern third of the study area contains suitable habitat for the Sonoran desert tortoise and the California leaf-nosed bat, which are sensitive species. Coordination with the USFWS, Arizona Game & Fish (AGFD) and BLM regarding listed and species of concern should occur as the project is further developed. Pre-construction surveys for Sonoran desert tortoise may be

necessary within the northern portion of the study area. Numerous species of wildlife use the Hassayampa River corridor for forage as well for movement. In addition, wildlife is drawn to the Hassayampa River due to the presence of food and water following precipitation. As the Hassayampa River, the White Tank-Vulture/Hieroglyphic Mountains wildlife linkage corridor, and CAP Canal are major wildlife movement areas, avoidance of these areas is recommended. New road construction in the study area is likely to result in habitat loss, increased habitat fragmentation, decreased connectivity for wildlife, and increased wildlife/vehicle collisions. Fragmentation and isolation of wildlife habitats and populations leads to:

- Decreased colonization and/or exchange between local wildlife populations
- Reduced population sizes
- Reduced genetic diversity
- Reduced species diversity and abundance
- Local extirpations

Roadways have the potential for direct mortality (i.e., roadkill) and habitat loss and to impede the movement of wildlife across the landscape, resulting in habitat fragmentation and the isolation of wildlife populations. Coordination with the AGFD to address potential impacts and explore the possibility of wildlife crossing structures or fencing options to maintain wildlife connectivity is recommended.

3.3 Land Use and Socioeconomics

Environmental justice populations (elderly and disabled) occur in greater number within the northern half of the study area than in Maricopa County and the town of Buckeye. Some general types of impacts such as acquisition of new right-of-way, increased noise levels, and community continuity are likely with the development of a new transportation corridor. It will be necessary for the future National Environmental Policy Act (NEPA) evaluation to address any potential disproportionate adverse effects on these populations as required by Title VI of the Civil Rights Act of 1964 and Executive Order 12898.

The study area includes numerous planned parks, trails and recreation areas. The proposed alignment is consistent with the roadway layout of the master planned communities and therefore avoids impacts to the planned parks and recreation areas. In addition, a cultural resource potentially eligible under Criterion A is present within the study area. Evaluation under Section 4(f) of the Department of Transportation Act of 1966 (23 USC § 138) will be required for parks, trails, recreational areas, and properties eligible or listed under Criteria A, B, or C. These cultural and recreational resources are potential Section 4(f) resources. Once a corridor is identified, if a constructive or actual use of these or other Section 4(f) resources is anticipated to occur, then a Section 4(f) evaluation will be necessary.

3.4 Visual Resources

Visual impacts, of the preferred alignment, to the BLM lands north of Black Mountain Road will need to be assessed at a later date. No VRM Class I areas occur within the project area. In Class II, III, and IV areas, the proposed Hidden Waters Parkway would be consistent with the management objectives with varying levels of mitigation or design



effort to minimize the visual impact of the road. In Class II areas, the design should consider siting and location and repeat the form and line of the existing characteristic landscape to minimize impact. Coordination with the BLM with regard to potential impacts and proposed mitigation measures would take place during future NEPA analysis to ensure that the BLM visual resource management objectives are adequately considered and addressed.

3.5 Water Resources

The Hassayampa River and a total of five named and 14 unnamed ephemeral washes occur within the study area, all of which may be considered waters of the United States. It is not anticipated that wetlands or other special aquatic sites would be impacted by the project. No unique or impaired waters designated by the EPA or the ADEQ are located within or in the vicinity (i.e., 1.0 mile) of the area of potential affect. A Section 404 Nationwide Permit No. 14 (Linear Transportation Projects) or a Section 404 Individual Permit will be required for the proposed improvements contingent on the extent of excavation and fill within waters of the US required for roadway and drainage improvements. Section 401 certification for the project will be issued by the ADEQ and will be either conditional or individual based on the type of Section 404 permit necessary.

3.6 Hazardous Materials

The recommended alignment avoids the recorded hazardous material sites identified within and adjacent to the study area. Additional investigation of hazardous materials is recommended for this study area and the surrounding area to identify the potential for impacts on soil and groundwater resulting from past and current land uses.

3.7 Noise

Noise receivers occur in the residential developments in the northern and southern end of the study area. Additional receivers will be introduced throughout the study area with the development of the planned master planned communities and regional park. An evaluation of future noise levels compared to the existing noise levels will be needed to determine any necessary noise mitigation measures in compliance with MCDOT Noise Abatement Policy requirements, as well as FHWA if federal funds are involved.

3.8 Air Quality

The study area is within the Maricopa nonattainment area for O₃. Transportation control measures in the State Implementation Plans (SIP) and Federal Implementation Plans (FIP) will apply. The project will need to be included in an approved State Transportation Improvement Plan (STIP) for at least one year, and no more than three years, before construction. That STIP will have to be approved by FHWA and EPA as conforming to the SIP and the FIP. Future transportation improvements will also follow to the extent possible recommendations given by the MAG Regional Transportation Plan, a plan to ensure that the additional roadway does not cause or contribute to new violations of the air quality standards and assists in the conformity of the existing air quality improvement plans.

4.0 Drainage Overview Summary

Hidden Waters Technical Memorandum #3 presents an overview of the drainage characteristics of the study area. Among the topics discussed in this memorandum are:

- Existing Hydrology Reports
- Past Drainage Problems
- Existing Drainage Facilities
- Existing Concentration Points
- Potential Drainage-Related Issue Segments

The intent of this section is to summarize key aspects of Technical Memorandum #3 in order to give an overview of its findings.

4.1 Existing Floodplains

The Flood Control District of Maricopa County (FCDMC) has previously completed several reports in the area, two of which cover the entire Hidden Waters Parkway study area. In these reports, 100-year floodplain delineations have been determined for the large and medium watercourses in the region. Figure 4-1 shows the delineated floodplains in the area.

There are numerous tributary washes that flow from the north to southeast into the Hassayampa River. Three of the larger contributing washes within the study area include Star Wash, Jackrabbit Wash, and Daggs Wash.

4.2 Existing Drainage Facilities

There are a few existing culverts along 339th Avenue and Indian School Road near the southern end of the study area. The majority of the Hidden Waters Parkway study area is undeveloped with no existing drainage improvements. Other roadway drainage crossings are at-grade “dip-crossings” that allow offsite runoff to pass over the top of the road surface.

The Central Arizona Project (CAP) Canal is a major drainage feature within the study area as it runs perpendicular to the existing washes and obstructs historic flow patterns. Hidden Waters Technical Memorandum #3 describes seven drainage facilities that cross the CAP Canal within the study area. Two of the major drainage structures across the CAP Canal include a 1450’ siphon beneath Jackrabbit Wash and a 43’ flume passing Daggs Wash over the canal. The other CAP cross-drainage structures include pipes, culverts and overchutes ranging in size between 30 and 66 inches.



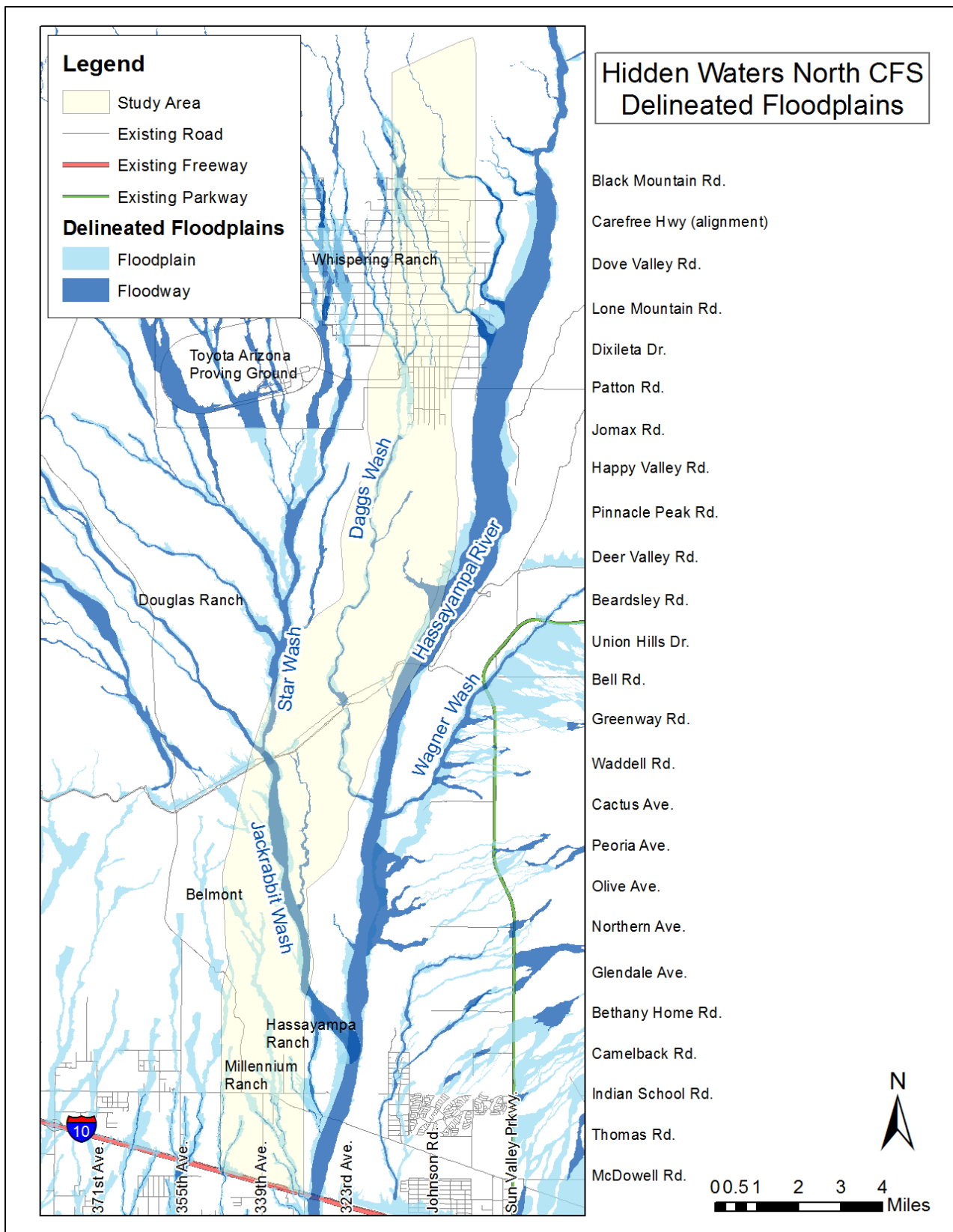


Figure 4-1 Delineated Floodplains



4.3 Hydrology Results

A total of 84 drainage crossing locations were identified across the center of the Hidden Waters Parkway study area. The largest of these crossings corresponds to Jackrabbit Wash which would require a bridge structure to traverse the 33,600 cfs flow during the 100-year storm event. Descriptions of the remaining cross-drainage structures within the study area may be found in the Hidden Waters Technical Memorandum #3. Figure 4-2 shows the locations of the identified drainage crossings.

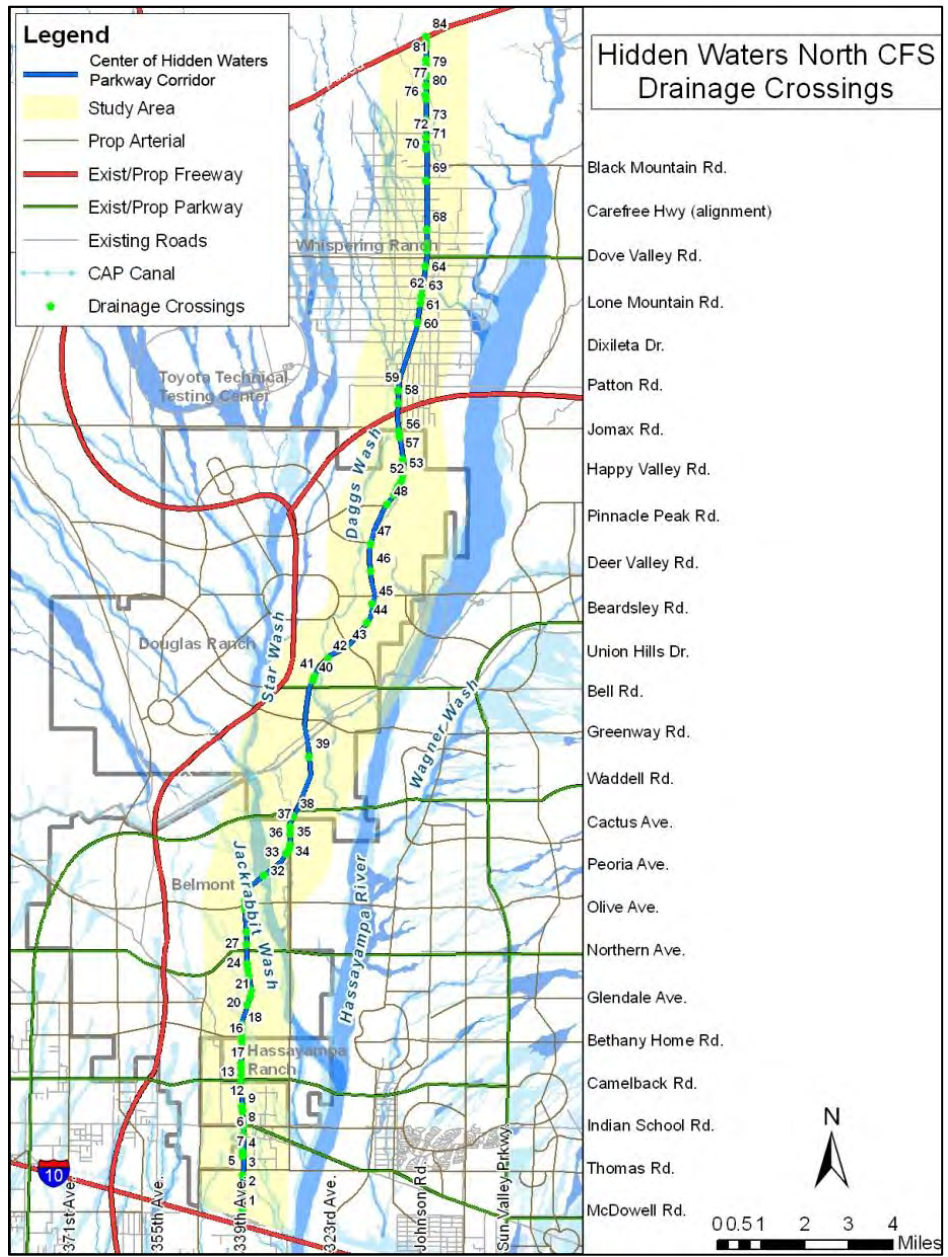


Figure 4-2 Proposed Drainage Crossings

All of the potential drainage constraints within the study area can be mitigated through additional engineering and construction efforts. Hidden Waters Technical Memorandum

#3 concluded that no fatal flaws, based upon drainage issues, occur within the study area.

5.0 Development and Evaluation of Candidate Alignments

5.1 Development of Candidate Alignments

Initially, conceptual alignments for the Hidden Waters Parkway were developed in response to the opportunities and constraints identified in Technical Memoranda 1, 2 and 3 which include:

- Existing/proposed residential communities
- Existing commercial and/or employment centers
- Current land ownership
- Environmental resources
- Existing/proposed utilities
- Existing drainage patterns

To determine which of these alignments would be carried forward for further analysis, members of the design team evaluated each conceptual alignment segment. These efforts refined the conceptual alignments down to three candidate alignment alternatives identified and discussed in the following sections. The three candidate alternatives, plus the no-build alternative, were carried forward into the next tier of development and analysis. The candidate alignment alternatives are depicted in Figure 5-2. Schematic drawings of the candidate alternatives are presented in section 5.1.6.

5.1.1 Alternative 1

The first alignment alternative carried forward for further analysis was developed during the Hassayampa Framework

Study. Alternative 1 begins at

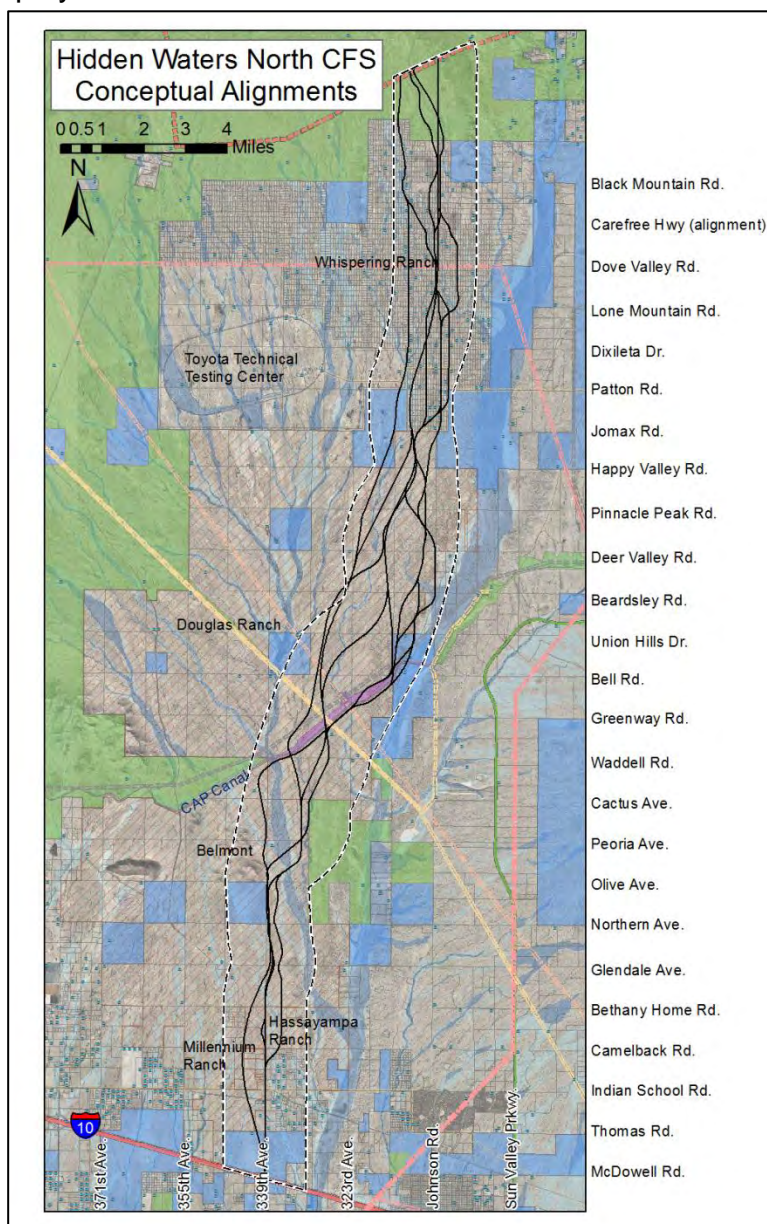


Figure 5-1 Hidden Waters Parkway Conceptual Alignments

the 339th Avenue/ I-10 Traffic Interchange (TI) and continues north for seven miles along the 339th Avenue alignment. North of Olive Avenue, Alternative 1 shifts east to the 331st Avenue alignment and follows a curvilinear path through the proposed Douglas Ranch development generally along different arterial roadway alignments than what was identified for the Hidden Watters Parkway in the Development Master Plan (DMP) circulation element. Alternative 1 follows the 302nd Avenue alignment between Dove Valley Road and the northern boundary of the study area.

5.1.2 Alternative 2

Alternative 2 was developed in response to existing/approved land plans and the stakeholder feedback received during the planning phase of this study. It incorporates the proposed circulation elements of the Hassayampa Ranch, Belmont, and Douglas Ranch MPC's.

Similar to Alternative 1, Alternative 2 begins at the 339th Avenue/ I-10 TI and continues north to Camelback Road. It follows the proposed parkway alignment of Hassayampa Ranch between Camelback and Bethany Home Road, which curves approximately 500 feet to the west 339th Avenue. Alternative 2 runs along the west side of Jackrabbit Wash, through the proposed Belmont MPC, then turns east along the south side of the Central Arizona Project (CAP) Canal. Alternative 2 crosses the CAP Canal at the Hassayampa River siphon and runs along the east side of the proposed Douglas Ranch development. The alternative then runs along 229th Avenue between Jomax Road and Lone Valley Road where it shifts west to the 302nd Avenue alignment until the Carefree Highway alignment. At this point Alternative 2 generally runs along the east side of an unnamed wash to the proposed alignment for SR 74.

5.1.3 Alternative 3

The third alignment alternative carried forward to the second tier of analysis begins at the 339th Avenue/ I-10 TI and then curves to the west along an existing ridgeline between McDowell Road and the Glendale Avenue alignment. This shift was added to minimize the number of wash crossings for the proposed parkway. Alternative 3 follows the same path as Alternative 1 between Glendale Avenue and Olive Avenue, then turns east to cross Jackrabbit Wash near its narrowest floodplain width. It then continues north along an existing ridgeline to the CAP Canal where it crosses the canal approximately one mile west of Alternative 2. At this point Alternative 3 continues north along the west side of an Arizona State Land Department (ASLD) parcel and an existing ridgeline until it rejoins Alternative 2 north of the Deer Valley Road alignment. This alternative passes through the community of Whispering Ranch along/between 301st Avenue and 302nd Avenue. Alternative 3 generally runs along the west side of an unnamed wash north of Black Mountain Road to the proposed alignment for SR 74.

5.1.4 No Build Alternative

The no-build alternative considers how the existing roadway network would function if this project were not constructed. This alternative provides a valuable baseline for comparison when evaluating other alignments.

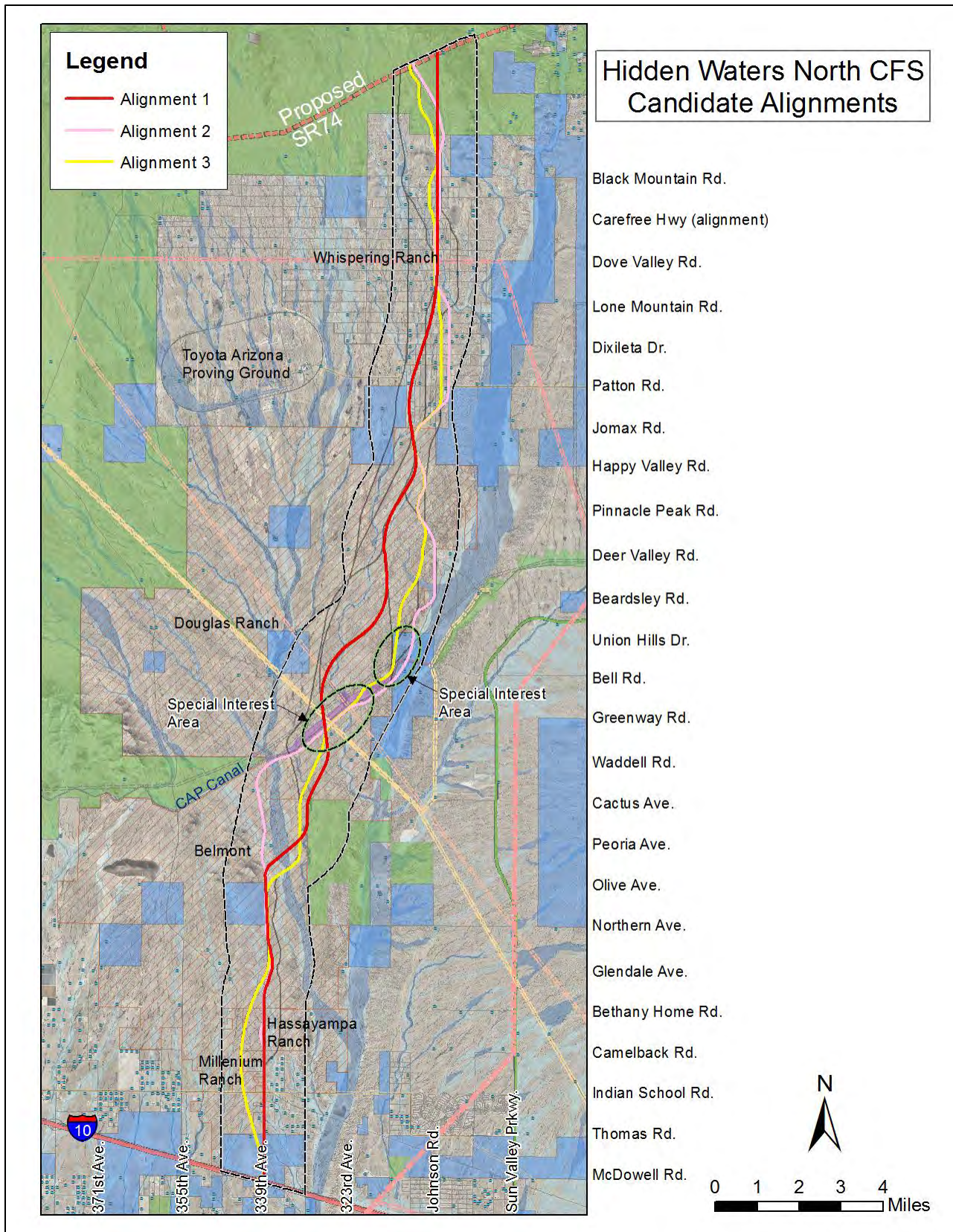


Figure 5-2 Candidate Alignments for the Hidden Waters Parkway

5.1.5 Schematic Drawings of the Candidate Alignments

Refer to Appendix D, Technical Memorandum #4 - Candidate Alignments and Evaluation, for the schematic drawings of the candidate alternatives.

5.1.6 Special Interest Areas

Two special interest areas were identified during this stage of the study. The first is located near the intersection of 323rd Avenue and Greenway Road. A second special interest area was added to evaluate the CAP crossing of candidate alternatives near the Hassayampa Wash/CAP siphon.

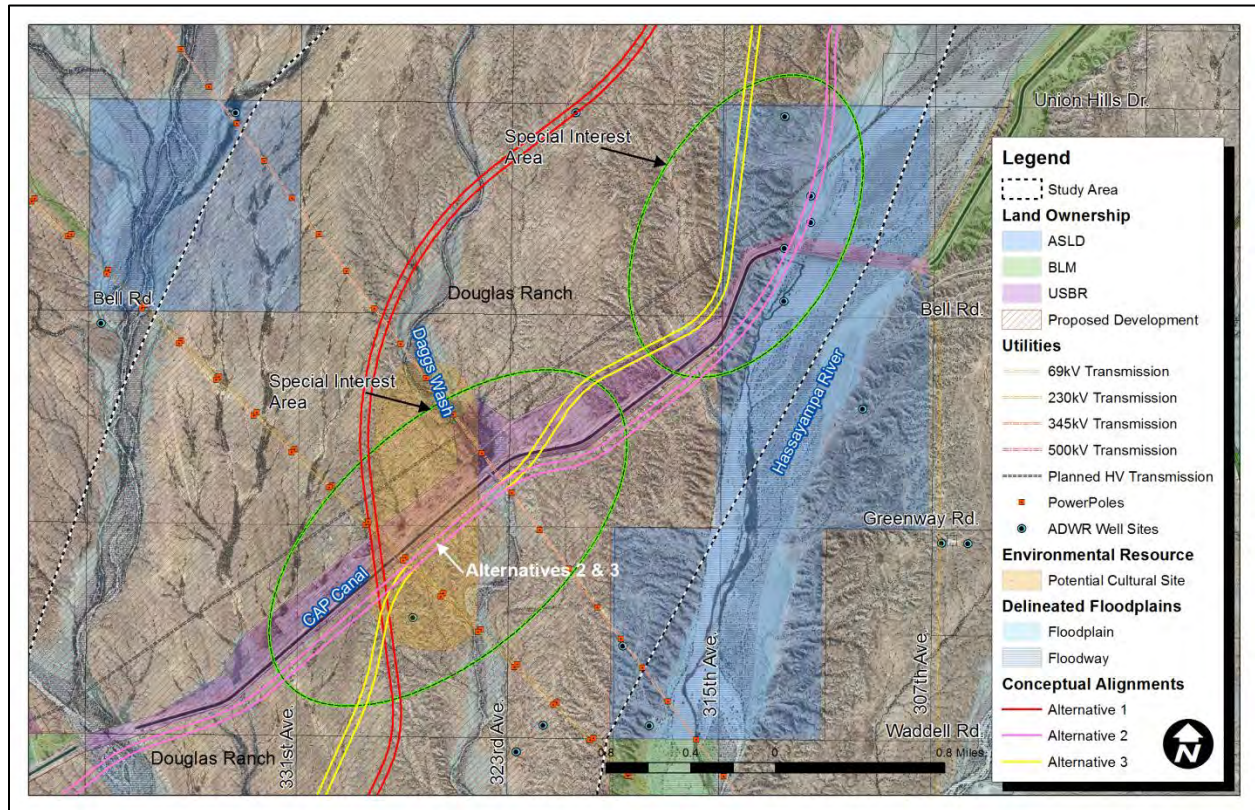


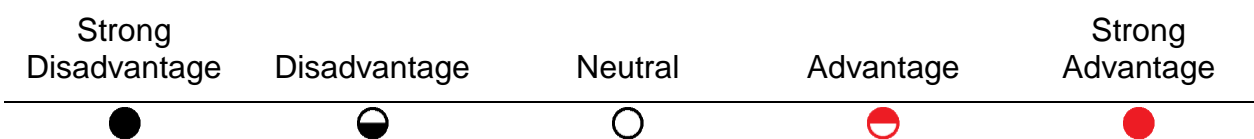
Figure 5-3 Special Interest Areas

5.2 Evaluation of the Candidate Alignments

The three candidate alignments were evaluated using a tiered format. The first tier of analysis evaluated the candidate Alignments for any fatal flaws, of which none were identified. The second tier of analysis qualitatively evaluated the candidate and no-build alternatives based upon a set of criteria identified through the agency and public scoping process. These criteria included the following:

- Consistency with proposed development
- Environmental impacts
- Utility impacts
- Drainage impacts
- Engineering complexity
- System functionality
- Right-of-way requirements
- Buildings/property impacts
- Planning level cost estimate
- Stakeholder and community feedback

Corridor alternatives were evaluated using one of five rankings based upon the perceived response to each evaluation criteria question.



All three candidate alternatives were qualitatively evaluated based upon the criteria described on the previous page. The results of this initial screening of the candidate alternatives are summarized in Table 5-1.

Table 5-1 Summary of Qualitative Evaluation

<i>Evaluation Criteria</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>	<i>No Build</i>
<i>Proposed Development</i>	●	●	●	◐
<i>Environmental Impacts</i>	◐	◐	◐	○
<i>Utility Impacts</i>	◐	○	○	○
<i>Drainage Impacts</i>	●	◐	◑	◐
<i>Engineering Complexity</i>	◐	◑	◑	○
<i>System Functionality</i>	●	○	●	●
<i>Buildings/Property Impacts</i>	◐	○	○	◑
<i>Stakeholder/Community Feedback</i>	●	●	●	◐
<i>Right-of-Way Requirements</i>	686 ac	717 ac	695 ac	N/A
<i>Cost (in millions)</i>	\$266.3	\$248.8	\$232.30	N/A
<i>Recommended for Further Evaluation</i>	No	Yes	No	No

Note: The costs reported in Table 5-1 assume a six-lane parkway through the entire study area.

5.3 Conclusions and Recommendations

Alternative 1 was not recommended for further consideration because it presented the greater impacts to proposed developments, existing utilities, drainage features, and existing buildings/properties. In addition this alternative is the most costly of the candidate alignments and was opposed by several key landowners/stakeholders.

Alternative 3 was rated favorably in several qualitative categories including drainage impacts, engineering complexity and system functionality and also has the lowest estimated cost to construct. However, this candidate alternative was not recommended because it was the least compatible with the approved development master plans within the study area and was opposed by several key landowners/stakeholders.

The No-build alternative was not recommended for further consideration because does not address future traffic demands or the regional connectivity needs of the study area.

Alternative 2 was recommended as the preferred alternative because it received the greatest support from key stakeholders and the public. In addition it is coincident with the approved development master plans and no special engineering challenges were identified with this alignment.

6.0 Detailed Preferred Alignment

The preferred alternative is centered along the section line coincident with 339th Avenue between the I-10 traffic interchange and Camelback Road. From there, it generally follows the proposed parkway alignments of the approved circulation elements for the planned communities of Hassayampa Ranch, Belmont, and Douglas Ranch.

It parallels the west side of Jackrabbit Wash, through the proposed Belmont MPC, and then turns to the east along the south side of the Central Arizona Project (CAP) Canal. The preferred alternative crosses the CAP Canal approximately 500 feet west of the Hassayampa River siphon, then runs along the east side of the proposed Douglas Ranch development to Jomax Road.

Between Jomax Road and Patton Road, the preferred alternative follows a northeasterly alignment. Then generally follows the 299th Avenue alignment between Patton Road and Lone Mountain Road. Between Lone Mountain Road and the future Carefree Highway, the alignment shifts west to 302nd Avenue. North of the future Carefree Highway, the preferred alternative alignment runs along the east side of an unnamed wash to the northern limits of the study area (i.e. potential location for the future SR 74 freeway).

6.1 Standard Cross-Section

The AZ parkway has phased options for 4-lane, 6-lane, and 8-lane roadway facilities (refer to Appendix E, Technical Memorandum #5). Figure 6-1 presents a typical section for 6-lane urban parkway. The standard minimum right-of-way width is 200 feet. The urban street section has raised curb and gutter per MAG Detail 220-1, Type A; single curb allowable along median. A 2% cross-slope is recommended for roadway drainage.

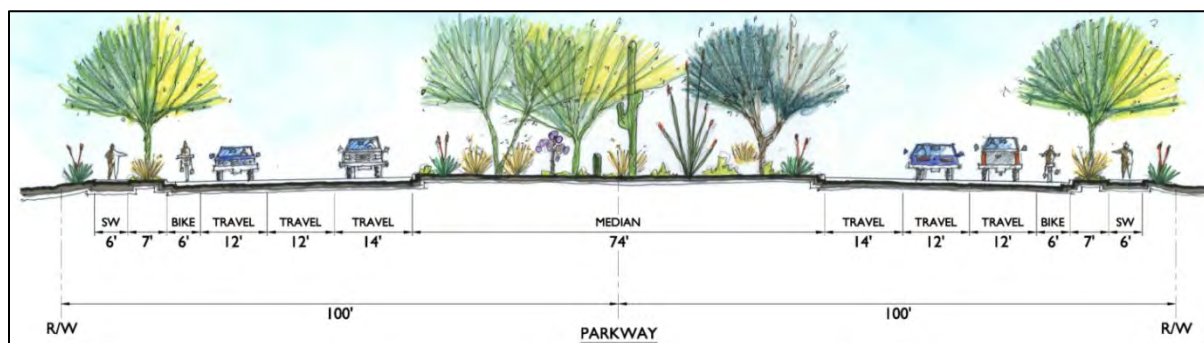


Figure 6-1 AZ Parkway: 6-lane Urban Typical Section

Based on traffic projections from the Hassayampa Framework Study, the Arizona Parkway Intersection/Interchange - Operational Analysis and Design Concepts Study (MCDOT, 2009) makes the following recommendations for the size/number of lanes for the Hidden Waters Parkway through the study area:

- 8-lane Parkway: between I-10 and Northern Parkway
- 6-lane Parkway: between Northern Parkway and Dove Valley Parkway
- 4-lane Parkway: between Dove Valley Parkway and the future SR 74 Freeway

6.2 Design Features of the Preferred Alignment

6.2.1 Design Vehicle

Design vehicle refers to the largest vehicle anticipated to frequently use a roadway. The choice of design vehicles influences the radii of intersection returns and curving roadways. The MCDOT Design Guideline Recommendations for the Arizona Parkway (p. 7) recommend a WB-50 design vehicle as defined by the AASHTO - Policy on Geometric Design of Highways.

6.2.2 Design Speeds

Many roadway geometric features (i.e. curve radii and superelevation rates) are dependent on the assumed velocity of traffic. The design speed is the maximum recommended speed that will ensure reasonable and safe vehicle operation. Table 6-1 summarizes the recommended design speeds for an AZ parkway in an urban setting for differing terrain.

Table 6-1 AZ Parkway: Urban Design Speeds

Terrain	Design Speed
Level	55 mph
Rolling	50 mph
Mountainous	45 mph

6.2.3 Vertical Geometry

The maximum vertical gradient for the Hidden Waters parkway per the MCDOT Roadway Design Manual and AASHTO is 5% for an urban roadway on level terrain (see MCDOT RDM Section 5.11). The “minimum” preferred longitudinal slope is +/- 0.25% (per MCDOT RDM Section 5.11).

Vertical curves are designed to ensure that adequate sight distance is provided and to increase the safety and comfort of driving. They should be provided on the Hidden Waters Parkway when the algebraic difference of longitudinal slopes is greater than 0.3% (per MCDOT RDM Section 5.11).

6.2.4 Horizontal Geometry

Flat horizontal curves are recommended wherever possible per the MCDOT Roadway Design Manual. Superelevation rates and curve radii should be designed together as a function of the maximum side friction factor and the assumed maximum superelevation rate per AASHTO design guidelines (2004 AASHTO Green Book, Pages 146-147). The minimum radius for a horizontal curve at a design speed of 55 mph without superelevation is 1833 feet. The maximum superelevation rate recommended for urban roadways is 4%. The minimum horizontal curve radius for the Hidden Waters Parkway with superelevation is 1190 feet.

The parkway design guideline recommendations state that the roadway width should be tapered through the use of reverse curves. The transition taper lengths will vary depending upon the design speed, curve radius and lane offset.

6.2.5 Intersections

The Hassayampa Framework Study recommends a network of freeways, parkways, and arterial roadways to accommodate the future traffic needs of the region. As a part of this integrated roadway network, the Hidden Waters Parkway is anticipated to have three parkway-to-freeway interchanges, six at-grade parkway-to-parkway intersections, and numerous parkway to arterial intersections.

The parkway-to-freeway interchanges located at I-10, the future Hassayampa Freeway, and the future SR 74 will be based upon ADOT's recently completed Freeway-to-Parkway Interchange Templates (October 2010). Additional traffic analysis will be required to select an appropriate interchange template at each of these locations prior to future design efforts.

The at-grade parkway-to-parkway interchanges will be based upon the Arizona Parkway indirect left-turn intersection design established in Design Guideline Recommendations for the Arizona Parkway. These intersections will be located along the Hidden Waters Parkway at intersections with the following parkways: (McDowell Parkway, Camelback Parkway, Northern Parkway, Wintersburg Parkway, Bell/Greenway Parkway, Deer Valley/Beardsley Parkway and Dove Valley Parkway).

Parkway to arterial intersections will be based upon the parkway/arterial intersection detail from the Design Guideline Recommendations for the Arizona Parkway. This and other select details from the Design Guideline Recommendations for the Arizona Parkway are included in Appendix E, Technical Memorandum #5.

6.2.6 Drainage Considerations

In Technical Memorandum #3, conceptual drainage facilities were estimated for the Hidden Waters Parkway baseline alignment. This analysis was revisited for the preferred alignment and refinements were made to number and size of proposed cross-drainage structures. The revised cross-drainage structure estimates are illustrated graphically in Figure 6-2.



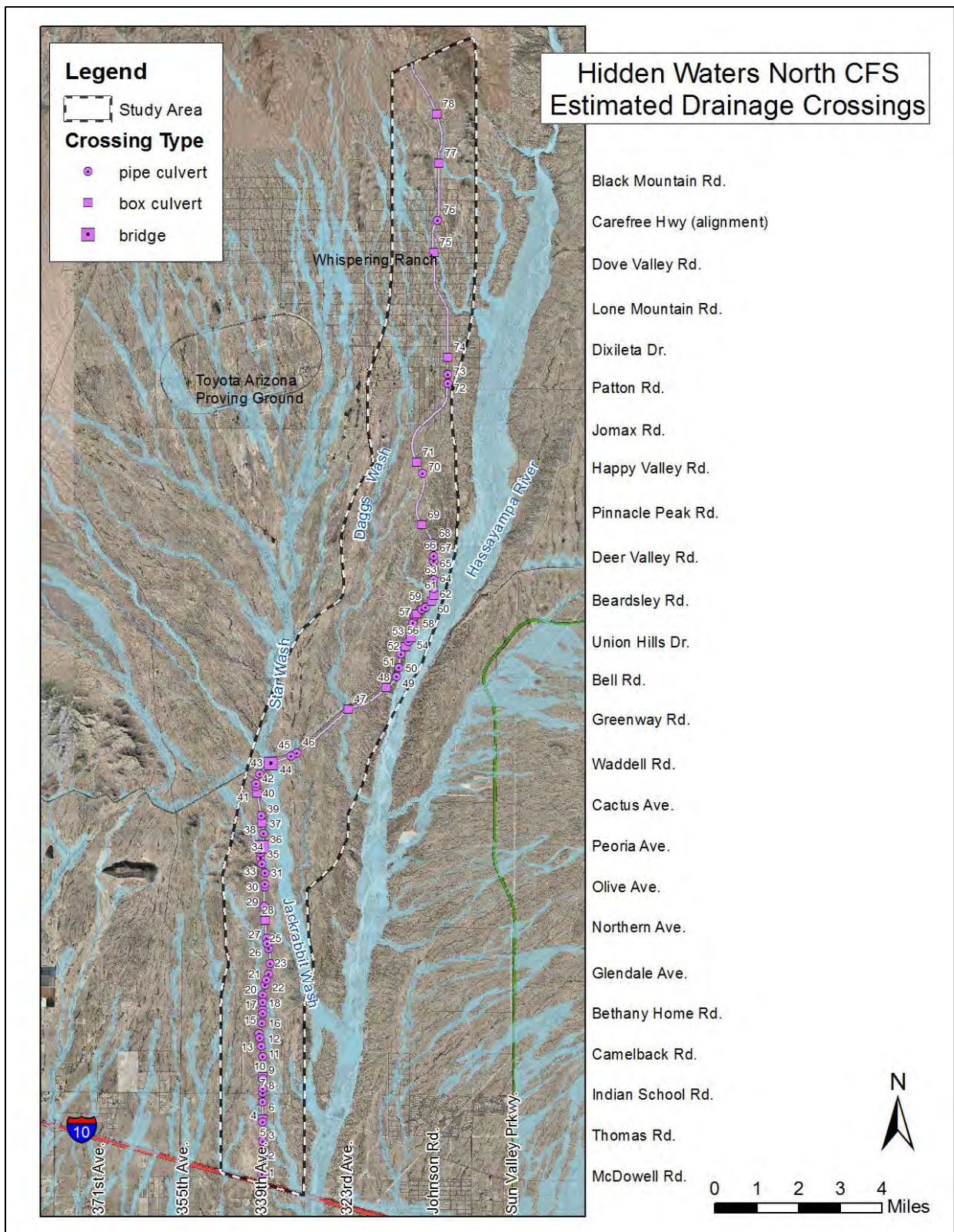


Figure 6-2 Estimated Cross-Drainage Features

The estimated roadway drainage crossing types and discharges for the 100-year and 50-year storm events are summarized in Table 6-2.

Table 6-2 Estimated Roadway Drainage Crossing Types and Discharges

Id	Station	Crossing Type	Area		Peak Discharge (cfs)		Source
			(sq. mi.)	(acres)	100-yr	50-yr	
1	14+00	Pipe	0.053	33.7	64	43	Luke Wash Watershed Zone AE FDS (FCD 2007C020)
2	33+83	Pipe	0.035	22.3	43	29	
3	55+45	Pipe	0.133	85.4	150	100	
4	80+02	Pipe	0.065	41.4	73	49	
5	84+24	Box	0.228	146.2	344	230	
6	105+72	Pipe	0.020	12.9	27	18	
7	115+68	Pipe	0.051	32.6	72	48	
8	122+10	Pipe	0.041	26.3	57	38	
9	134+32	Pipe	0.024	15.1	19	13	
10	137+37	Box	0.402	257.2	382	256	
11	162+76	Pipe	0.043	27.3	32	21	
12	174+95	Pipe	0.030	19.2	23	15	
13	186+16	Pipe	0.024	15.5	23	15	
14	192+07	Pipe	0.164	105.1	150	100	
15	205+17	Pipe	0.118	75.7	97	65	
16	218+06	Pipe	0.020	13.0	12	8	
17	222+84	Pipe	0.024	15.5	17	11	
18	232+22	Pipe	0.020	13.1	14	9	
19	236+56	Box	2.737	1751.8	1700	1139	Watershed 'PP' Luke Wash
20	241+94	Pipe	0.241	154.5	118	79	Luke Wash Watershed Zone AE FDS (FCD 2007C020)
21	254+44	Pipe	0.020	12.8	18	12	
22	261+55	Pipe	0.026	16.6	23	15	
23	269+37	Pipe	0.028	18.2	14	9	
24	282+59	Pipe	0.072	46.3	70	47	
25	301+59	Pipe	0.037	23.4	53	36	
26	308+36	Pipe	0.017	10.7	25	17	
27	314+51	Pipe	0.049	31.5	64	43	
28	337+56	Box	0.131	83.9	175	117	
29	360+80	Pipe	0.038	24.3	52	35	
30	379+85	Pipe	0.035	22.4	31	21	Watershed 'PP' Luke Wash FDS (FCD 99-03)
31	383+89	Pipe	0.041	26.1	36	24	
32	398+26	Pipe	0.052	33.4	60	40	
33	411+05	Pipe	0.037	23.8	43	29	
34	417+43	Pipe	0.110	70.5	128	85	
35	422+57	Pipe	0.036	23.3	42	28	
36	431+05	Bridge	41.404	26498.6	5500	3685	
37	447+81	Pipe	0.069	44.3	87	58	
38	461+32	Box	0.177	113.5	268	179	
39	470+74	Pipe	0.055	34.9	93	62	
40	499+72	Box	0.140	89.5	239	160	
41	509+15	Pipe	0.043	27.3	73	49	
42	517+46	Pipe	0.053	33.6	90	60	
43	529+45	Pipe	0.029	18.9	84	56	

Id	Station	Crossing Type	Area		Peak Discharge (cfs)		Source
			(sq. mi.)	(acres)	100-yr	50-yr	
44	548+00	Bridge	313.535	200662.	33600	22512	Jackrabbit Wash FDS
45	575+95	Pipe	2.458	1573.0	115	77	Watershed 'OO' Approx. FDS
46	584+90	Pipe	2.458	1573.0	130	87	
47	669+07	Box	25.224	16143.4	3277	2196	Daggs Wash FDS HEC-2
48	726+55	Box	0.906	580.0	210	141	Jackrabbit Wash FDS (FCD 90-05)
49	746+56	Pipe	0.092	59.2	65	44	
50	757+03	Pipe	0.057	36.4	32	21	
51	774+01	Pipe	0.035	22.2	20	13	
52	784+58	Box	0.372	238.3	472	316	
53	792+57	Pipe	0.043	27.7	55	37	Watershed 'OO' Approx. FDS (FCD 2000C019)
54	797+95	Box	0.182	116.5	231	155	
55	816+50	Pipe	0.045	28.5	57	38	
56	826+57	Pipe	0.034	21.9	43	29	
57	829+80	Box	0.554	354.5	703	471	
58	838+82	Pipe	0.021	13.6	27	18	
59	844+19	Pipe	0.103	65.7	131	88	
60	854+03	Box	1.180	754.9	1152	772	
61	863+38	Box	0.301	192.9	382	256	
62	871+84	Pipe	0.017	10.9	22	15	
63	881+98	Pipe	0.056	36.0	71	48	
64	895+72	Pipe	0.027	17.1	34	23	
65	905+77	Pipe	0.062	39.6	79	53	
66	915+50	Pipe	0.069	44.1	88	59	
67	924+20	Pipe	0.034	21.5	43	29	
68	928+82	Pipe	0.052	33.6	66	44	
69	956+65	Box	0.237	151.8	300	200	
70	1025+70	Pipe	0.089	57.1	114	76	
71	1040+74	Box	0.511	326.8	655	439	
72	1156+07	Pipe	0.028	17.8	52	35	Upper Daggs/Star Wash Zone AE FDS (FCD 2006C006)
73	1166+70	Pipe	0.071	45.6	131	88	
74	1188+12	Box	0.128	81.6	237	159	
75	1325+79	Box	3.042	1946.6	3900	2613	
76	1367+14	Pipe	0.024	15.4	42	28	
77	1439+29	Box	1.139	729.2	697	467	Watershed 'OO' Approx.
78	1502+98	Box	2.368	1515.6	2300	1541	



6.3 General Access Management Guidelines

The access management guidelines for the Hidden Waters Parkway were taken directly from Section 4 of the Design Guideline Recommendations for the Arizona Parkway. The following general recommendations were made:

- U-turn directional crossovers restricted to a maximum of eight per mile.
- Left-turns in any direction are prohibited at all intersections (full median break).
- Left-turns from a side-street or driveway onto the Parkway are prohibited.
- Left-turns from the Parkway to a side-street or driveway are discouraged due to conflicts between U-turns and right-turns. However, this can be accommodated by aligning the U-turn crossover with the side-street or driveway in order to facilitate left turns and U-turns.
- Intersections (full median breaks) preferably restricted to one-mile spacing and a minimum spacing of half-mile.
- No on-street parking
- Full median openings are only recommended at intersections with arterial or major collector streets.
- For a low-volume driveway, a 165' minimum spacing (from centerline to centerline) is recommended. For a high-volume driveway, a 330ft minimum spacing (from centerline to centerline) is recommended.

For additional detail, refer to the typical urban parkway access plan detail from the Design Guideline Recommendations for the Arizona Parkway included in Appendix E.

6.4 Special Interest Areas and the Preferred Alignment

Two special analysis areas were identified during the candidate selection process (refer to Figure 6-3). The first of these two areas is located adjacent to the CAP Canal between the Waddell Road and Greenway Road alignments. This special interest area was identified because the preferred alignment passes in close proximity to existing and proposed overhead transmission lines, major drainage crossings of the CAP Canal, a potential cultural resource site and a proposed wildlife linkage corridor. The second special interest area addresses the Hidden Waters Parkway CAP Canal crossing.

Special Interest Area No. 1: The following observations were made about the preferred alignment within special interest area No. 1:

- The preferred alignment provides a minimum 50ft buffer between the proposed curb and gutter and existing Western Area Power Authority (Western) transmission towers per Western's design criteria.
- The alignment will require a multiple cell box culvert immediately downstream of the Daggs Wash flume across the CAP Canal (Structure 47 at Sta. 668+75). The proposed box culvert should allow the preferred alignment to pass beneath Western's 345kV transmission line with adequate clearance.
- Technical Memorandum #2 of this study recommended that an additional Class III cultural resource survey be completed prior to design to better assess the presence of cultural resources that may be affected by the preferred alignment through this special interest area.



- The preferred alignment passes through special interest area number 1 roughly adjacent to the CAP Canal right-of-way. Arizona Game & Fish (AGFD) has expressed the concern that the proximity of the preferred alignment to the CAP Canal will negatively impact east-west wildlife movement through the study area. In order to mitigate the potential impacts to this wildlife linkage zone, AGFD has recommended that the preferred alignment be shifted to the southeast along the CAP Canal to create a buffer for wildlife movement in the future. This southeasterly shift was not incorporated into the detailed drawings of the preferred alignment. Although feasible, additional coordination between AGFD and the affected land owners/stakeholders will be required to revise the alignment.
- AGFD has requested that the future design of the Hidden Waters Parkway include elements to help promote/facilitate wildlife movement through the study area.

Special Interest Area No. 2 was identified to investigate how the preferred alignment crosses the CAP Canal. The preferred alignment was shifted west of the Hassayampa siphon based upon feedback received from CAP representatives during the evaluation of candidate alignments. A conceptual plan and profile drawing was generated to investigate the CAP crossing in greater detail (see Appendix E, Technical Memorandum #5).

A vertical alignment was selected to provide a minimum of 14.5 feet of clearance above the CAP Canal access roads, per CAP requirements. A 6.5 foot structure depth was assumed for the proposed bridge across the CAP Canal.

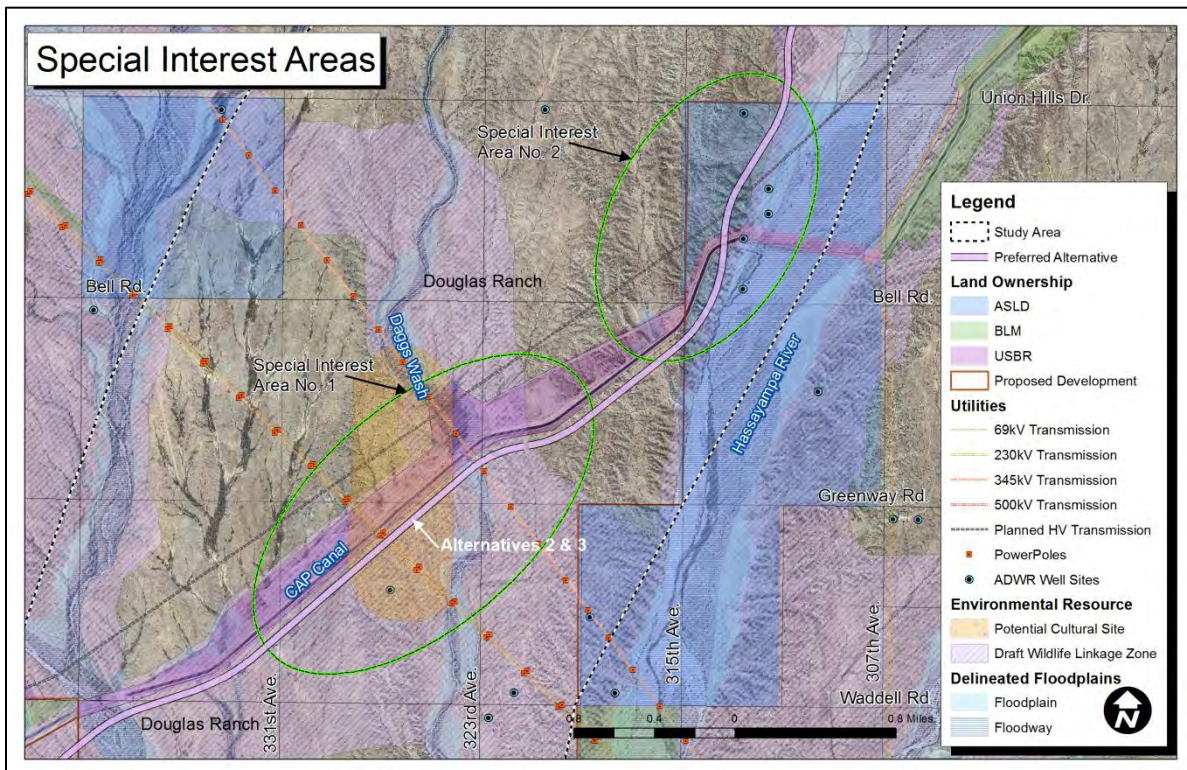


Figure 6-3 Special Interest Areas

6.5 Implementation Plan

The recent downturn in the economy has made the timing of the traffic volumes forecast in the MAG Hassayampa Framework Study less certain. Proposed master planned communities and development within the study area will drive the need for the Hidden Waters Parkway. Right-of-way dedication and initial parkway construction efforts will likely coincide with the development of these communities.

The existing and future freeways will likely serve as a catalyst to development within the study area. For this reason, it is believed that the southern portions of the Hidden Waters Parkway (adjacent to I-10) may be constructed first. As development progresses to the north, so will construction of the corresponding parkway segments. The northernmost portion of the parkway (north of Jomax Road) will likely not be needed until the future SR 74 freeway is built.

Ideally, the full-width parkway section will be built with the initial construction. However, the initial traffic volumes generated by these communities may not warrant the construction of the full six-lane facility. The Design Guideline Recommendations for the Arizona Parkway (MCDOT, 2008) provides phasing options to construct portions of the roadway as traffic volumes materialize.

The first option involves a full width phased implementation of the parkway. Under this scenario, the outside curb line would be constructed in its ultimate location in each direction with an extra-wide center median. Additional lanes, in each direction, can be added to the median as traffic volumes increase. Details illustrating the full-width phased implementation of the parkway are provided in Appendix E, Technical Memorandum #5.

A second, half-street phasing, implementation option may be considered for initial construction efforts. In this case, a half street of the proposed parkway could be constructed first and operated as a traditional arterial roadway allowing left-turns at intersections. The following general descriptions for a half street phased implementation were documented in the parkway design guidelines:

- Build outside curb and gutter in its ultimate location and construct three travel lanes and appropriate shoulders;
- Operate with one lane in each direction of travel and with a striped median lane (continuous two-way left-turn lane);
- Allow left-turns at intersections similar to a traditional street;
- Do not build crossovers until the development patterns (and accompanying access locations) on both sides of the roadway have been established in order to optimize the crossover locations.
- The minimum half-street width is approximately 44' which corresponds to one-half of the six-lane urban section and will accommodate three travel lanes in the interim condition.

6.6 Planning Level Cost Estimate

A planning level cost estimate for roadway construction and right-of-way acquisition was prepared for the preferred alternative. The cost estimate is based upon MCDOT's 2010 construction cost worksheet. The following assumptions were made:



- A signalized intersection was assumed at each one mile intersection.
- Signal conduit and pull boxes were provided at the half mile street intersections.
- Traffic signal interconnect facilities will be provided for the entire corridor length.
- Street lighting was not included in the cost estimate.

Table 6-3 summarizes the revised planning level cost estimate. Design, construction management, and administration costs were added as a percentage of the construction cost. Roadway construction costs and utility relocations both include a 20% contingency cost. Appendix E contains a list of the cost items, unit costs, and quantities that were used to prepare the estimate.

Table 6-3 Summary of Planning Level Cost Estimate

Cost Category	Factor	Preferred Alternative	Phased Option No. 1	Phased Option No. 2
Construction		\$88,700,000	\$77,900,000	\$56,700,000
Design (10% TO 15%)	12%	\$10,600,000	\$9,300,000	\$6,800,000
Construction Management	15%	\$13,300,000	\$11,700,000	\$8,500,000
Right-of-Way		\$104,000,000	\$104,000,000	\$104,000,000
Structures		\$21,500,000	\$21,500,000	\$10,800,000
Utility Relocation		\$100,000	\$100,000	\$100,000
Administration (8% TO 13%)	10%	\$8,900,000	\$7,800,000	\$5,700,000
Total		\$247,100,000	\$232,300,000	\$192,600,000

Note: The costs reported in Table 6-3 were modified based on recommendations from the Hassayampa Framework Study regarding number of lanes for the Hidden Waters Parkway.

The preferred alignment requires right-of-way from 113 parcels within the Whispering Ranch community. However, the impact to these properties will not affect the usable/buildable area of the lots. It is anticipated that only one parcel will have impacts significant enough to require full property purchase. At the time of this study there are two existing structures that will be impacted by the proposed alignment. These impacts will need to be reevaluated prior to final design.

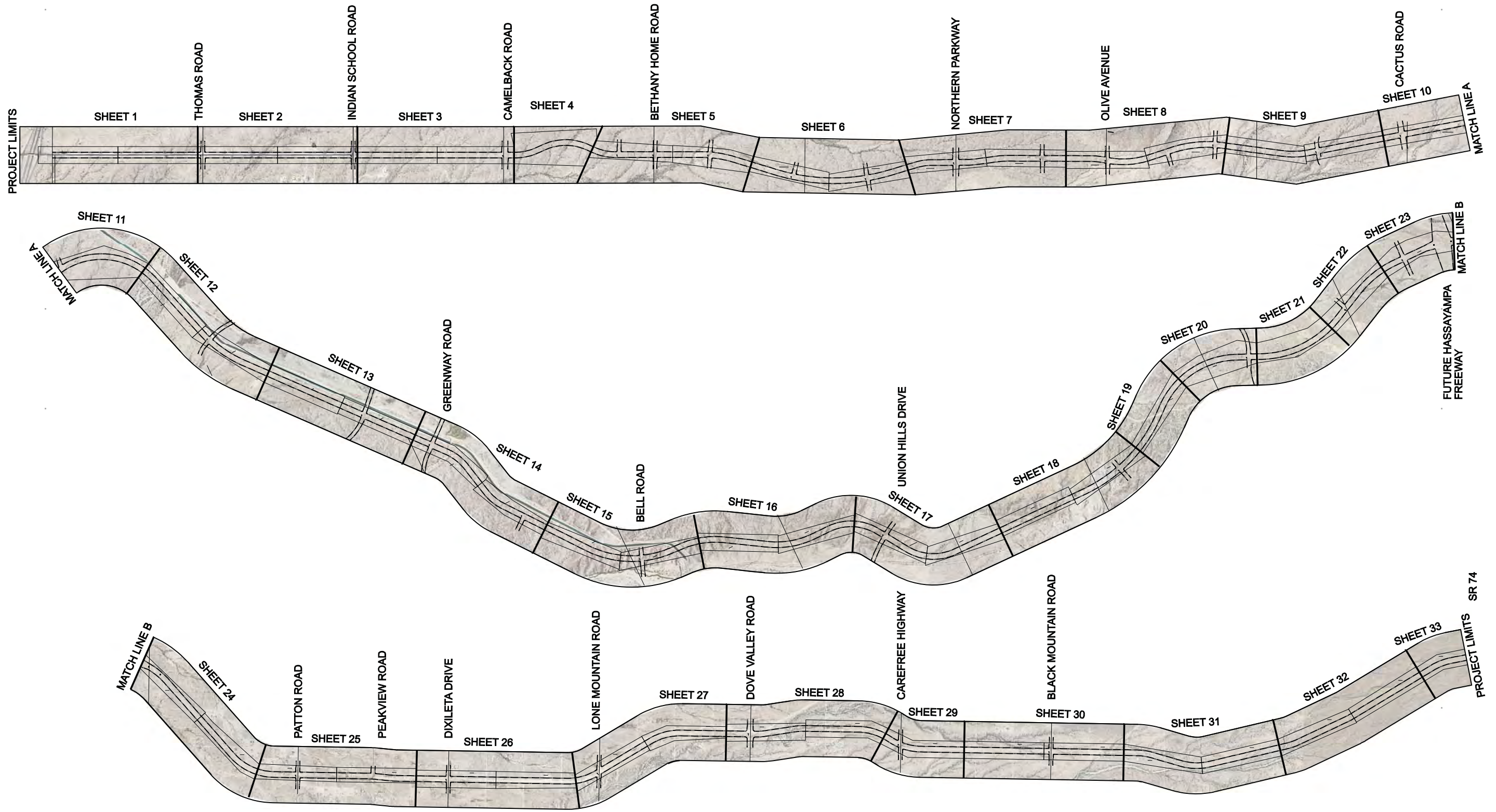
Table 6-3 also provides estimates of how the initial construction costs could be modified if either of the two phased implementation strategies discussed in the previous section were implemented (assuming that the full right-of-way would be purchased with both phased implementation options). The full-width phased implementation option provides marginal cost savings at best (approximately 5%). The half-street phased option reduces the initial overall cost by approximately 23%. If desirable, an interim roadway could be constructed for the entire route using a reduced right-of-way width potentially saving up to an additional 20% of the ultimate project cost.

6.7 Preferred Alignment Drawings

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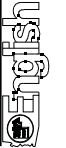


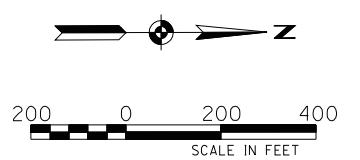
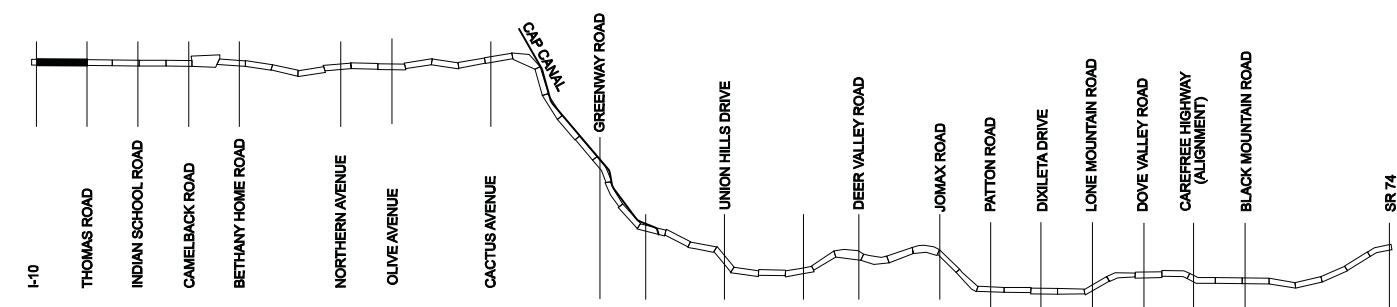
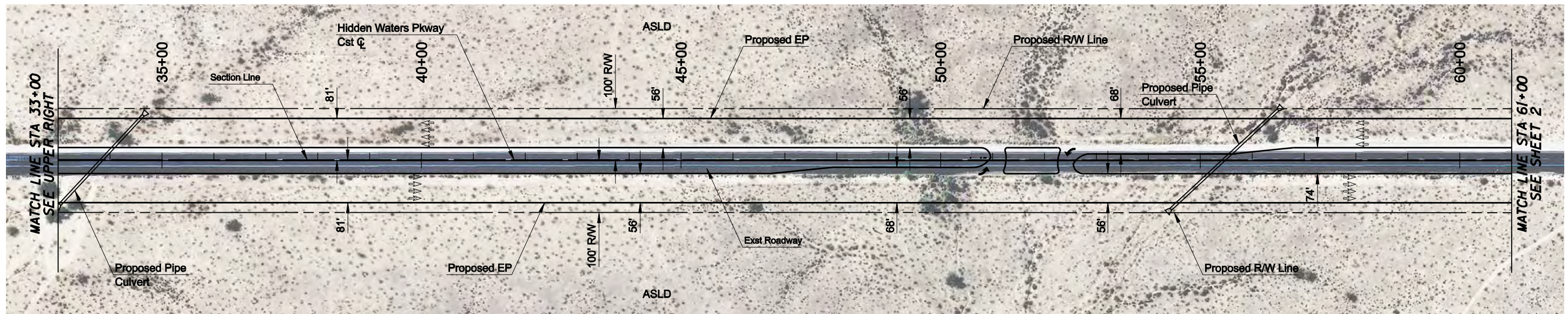
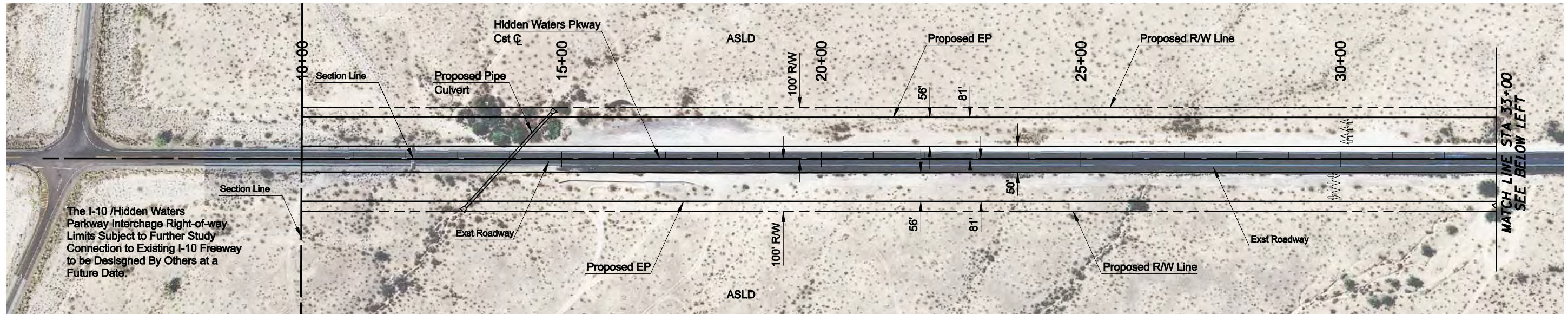
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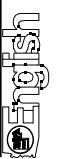


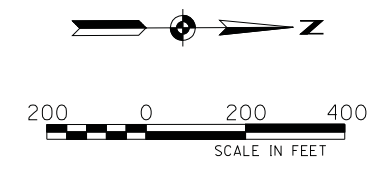
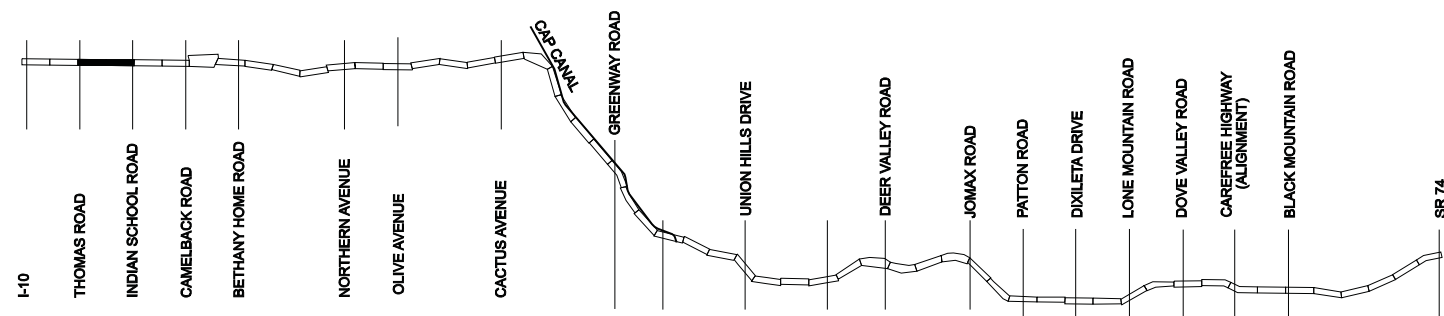
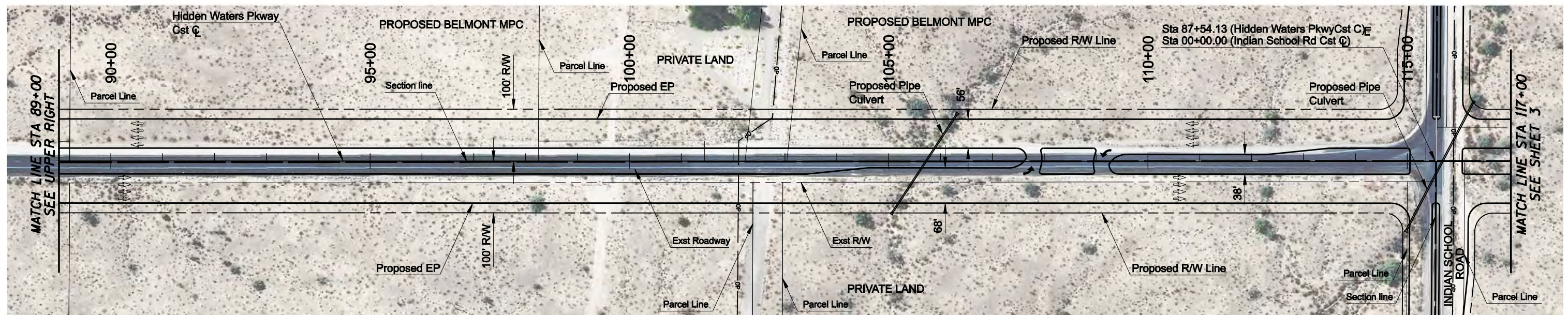
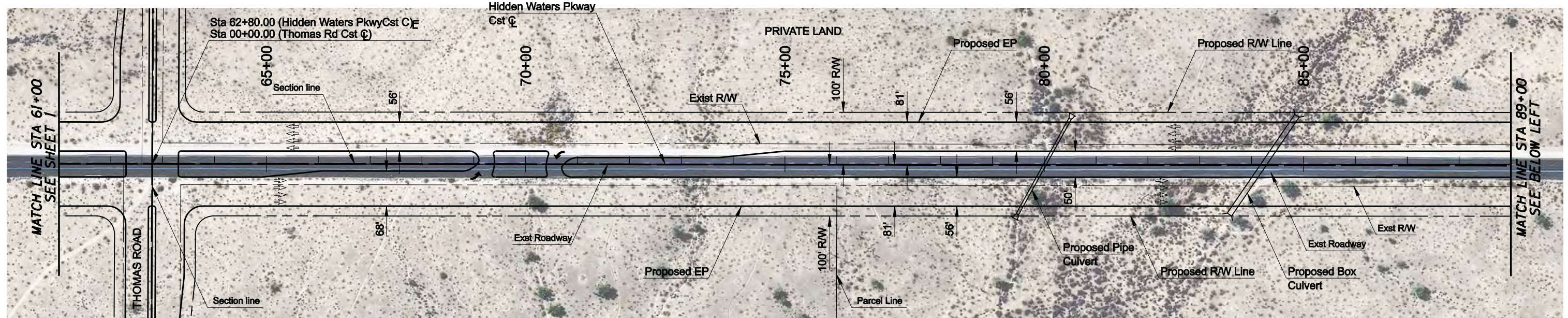
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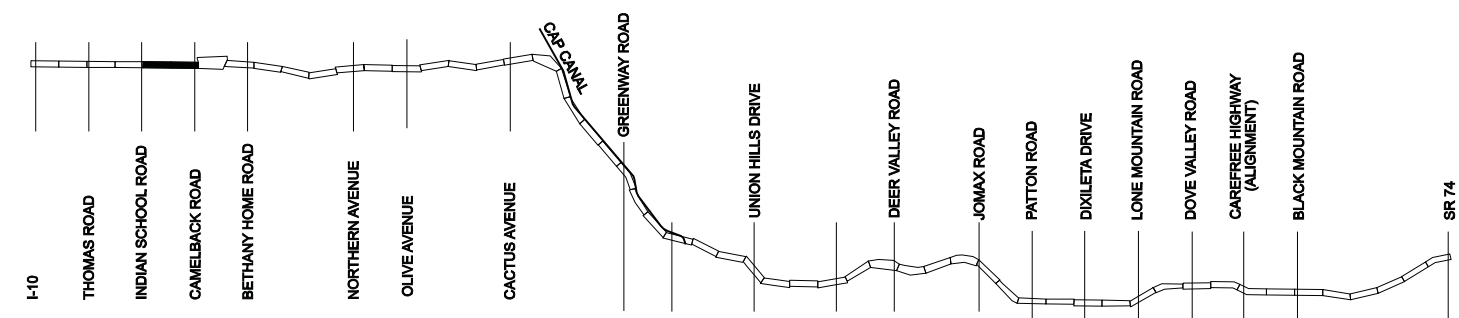
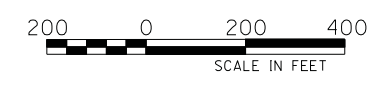
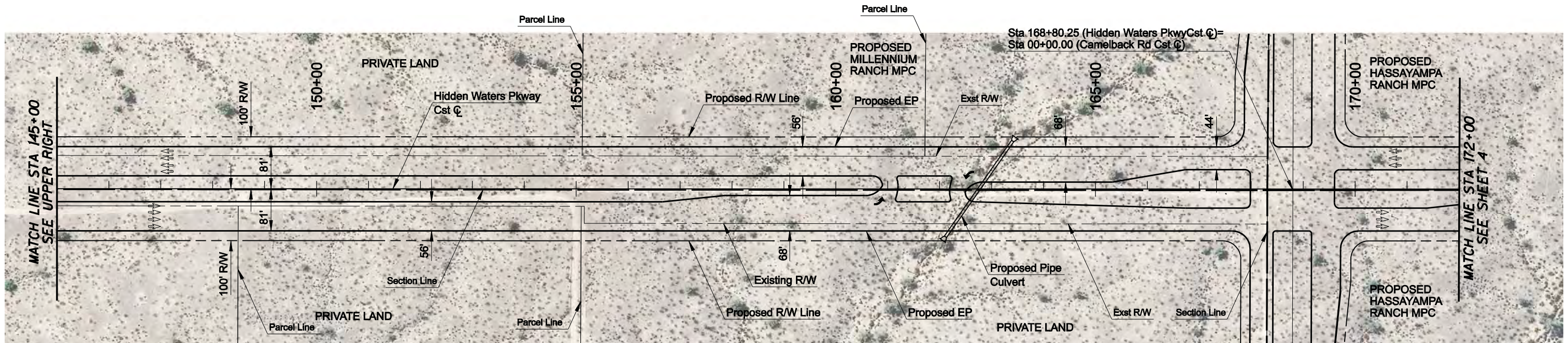
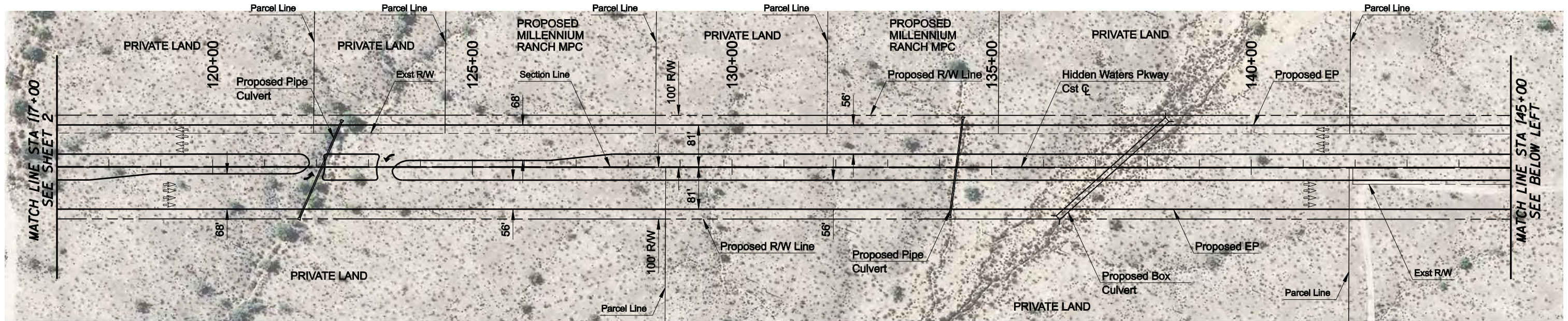


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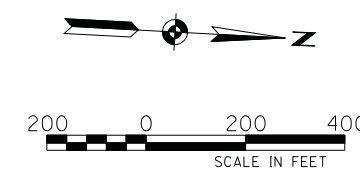
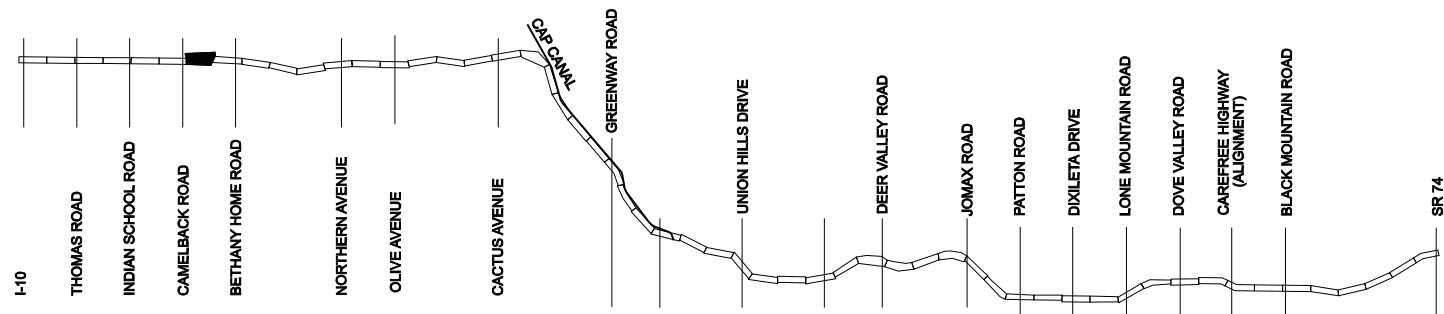
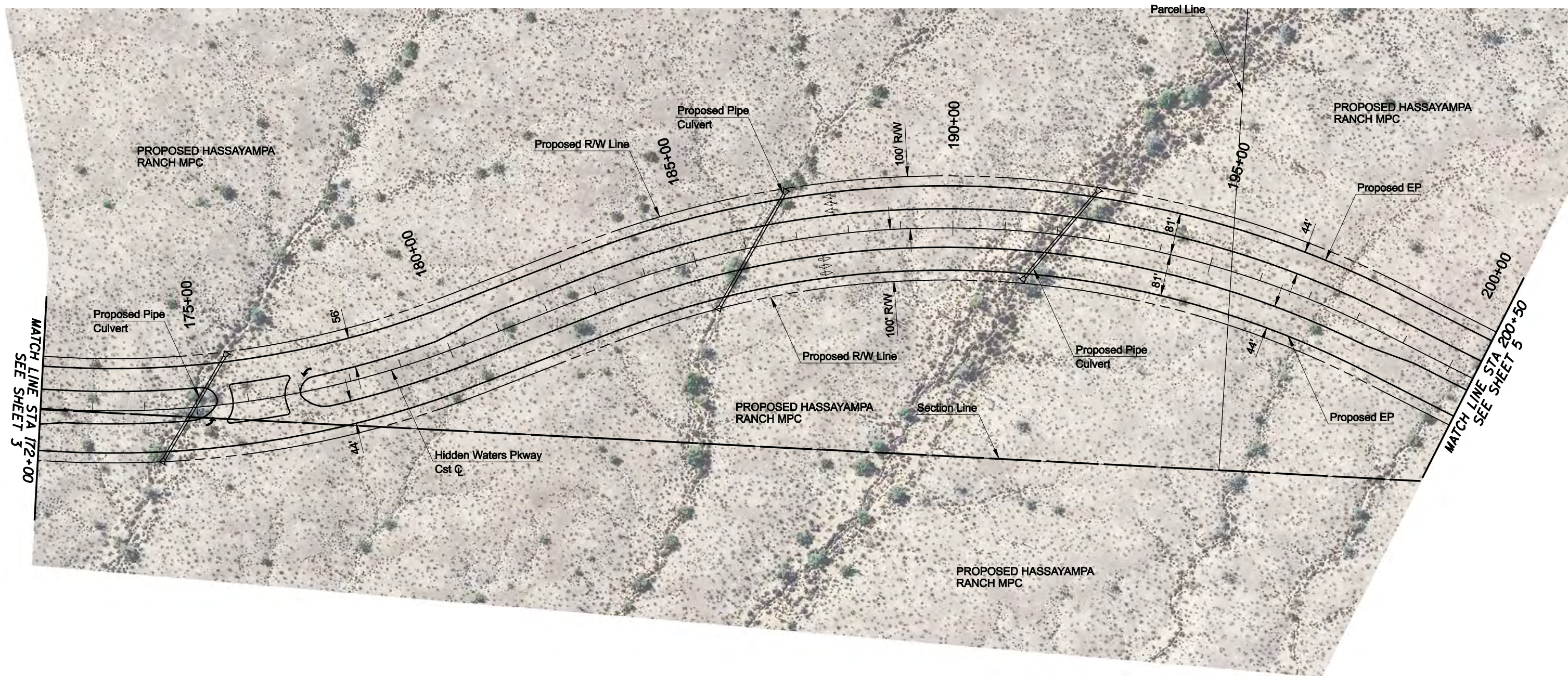
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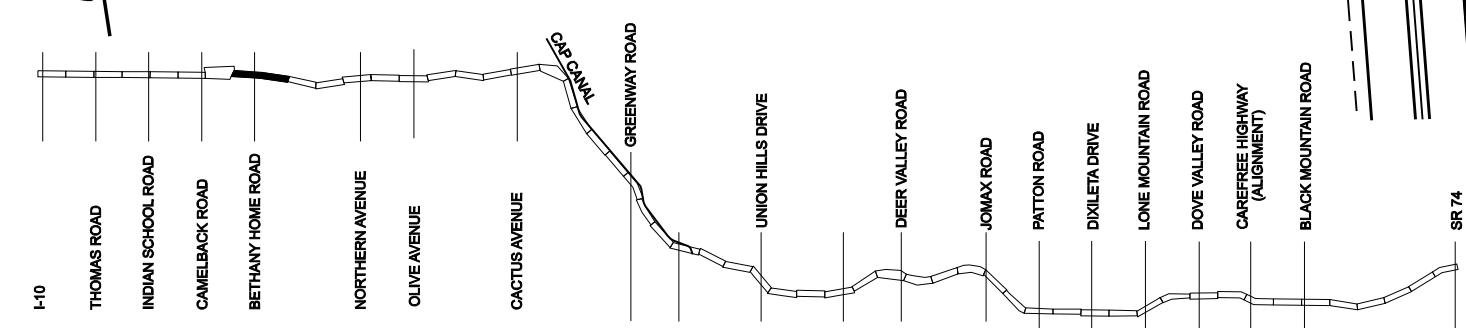
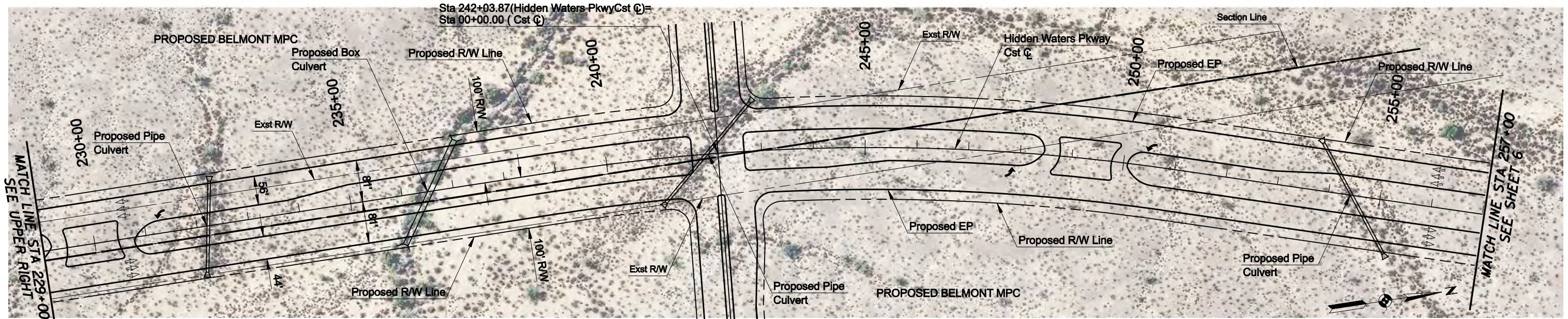
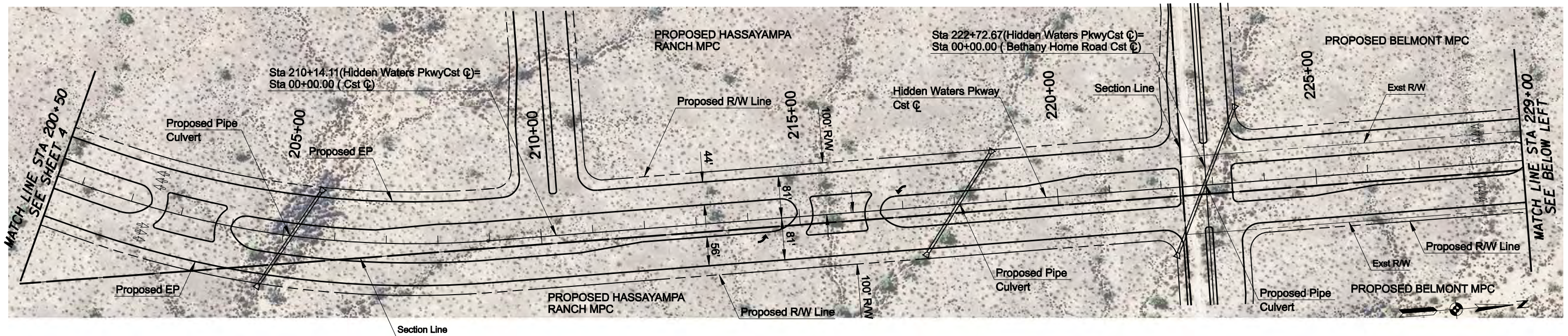
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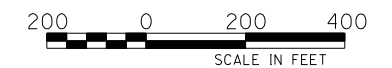
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NOTE: Cross Streets Indicated are Per Proposed Belmont MPC.

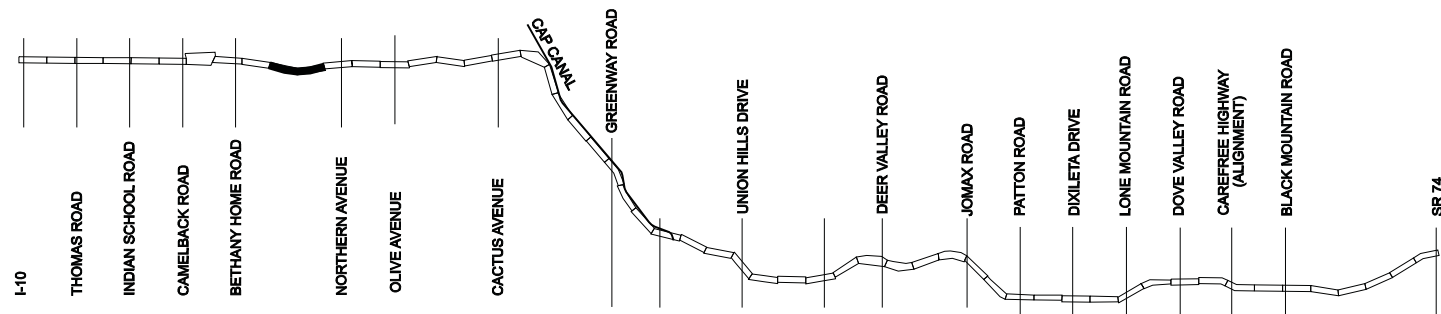
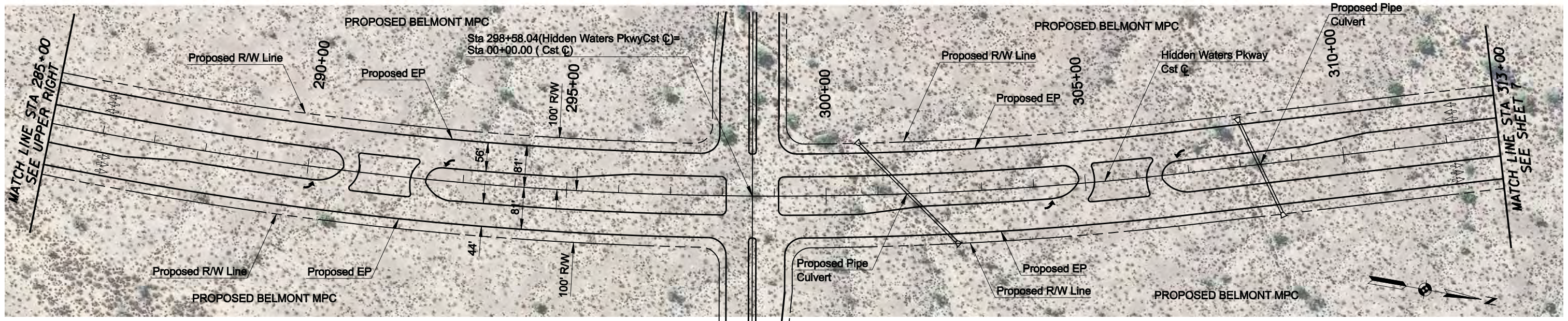
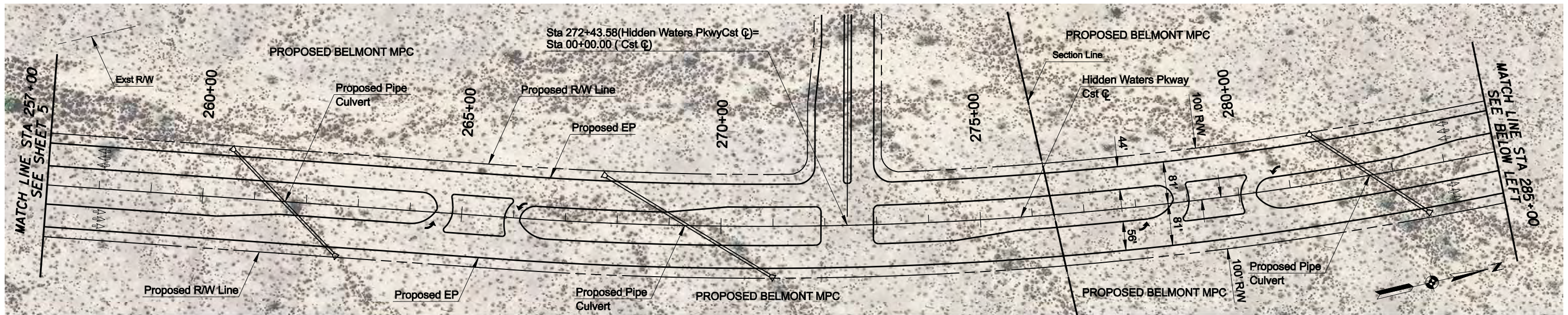


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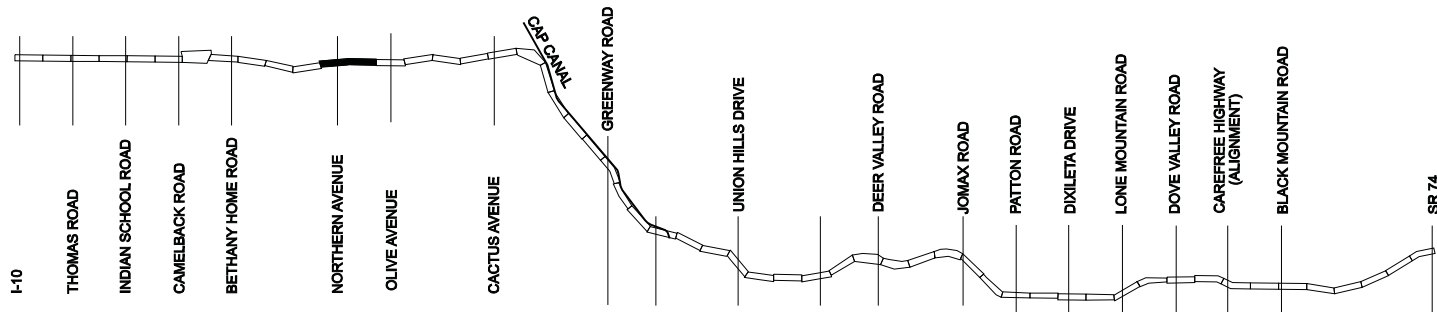
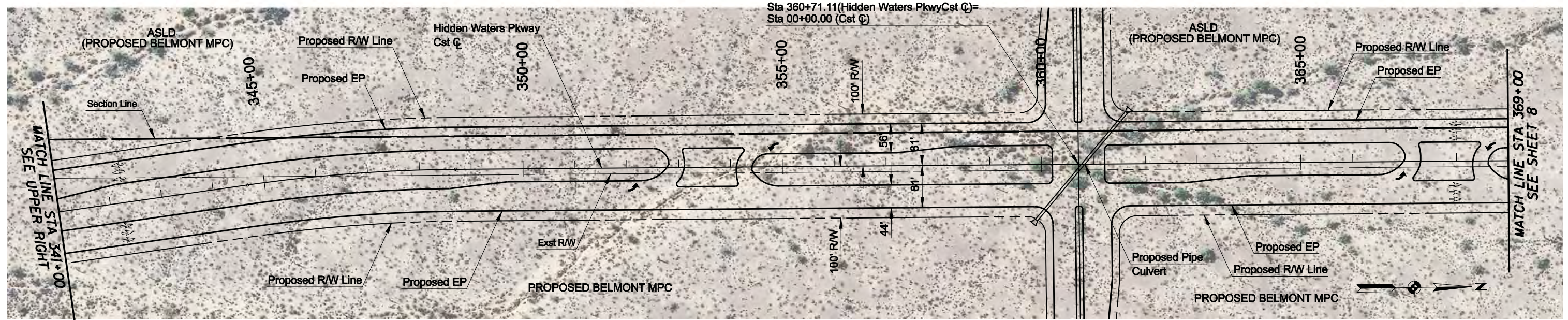
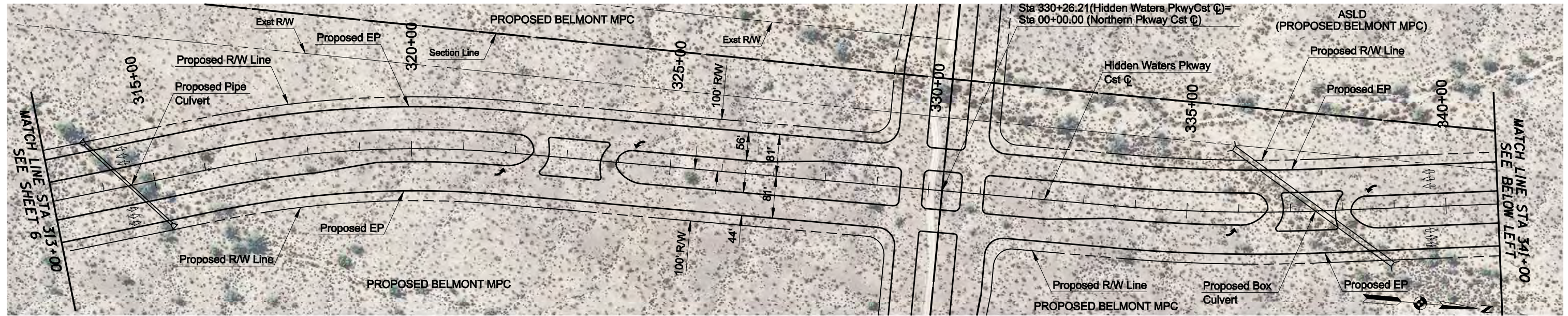
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

**HIDDEN WATERS PARKWAY
CORRIDOR FEASIBILITY STUDY**

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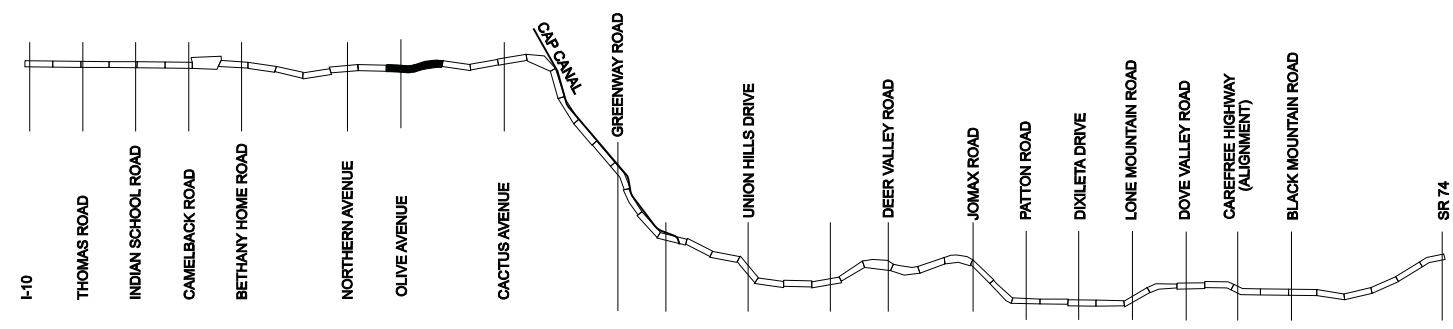
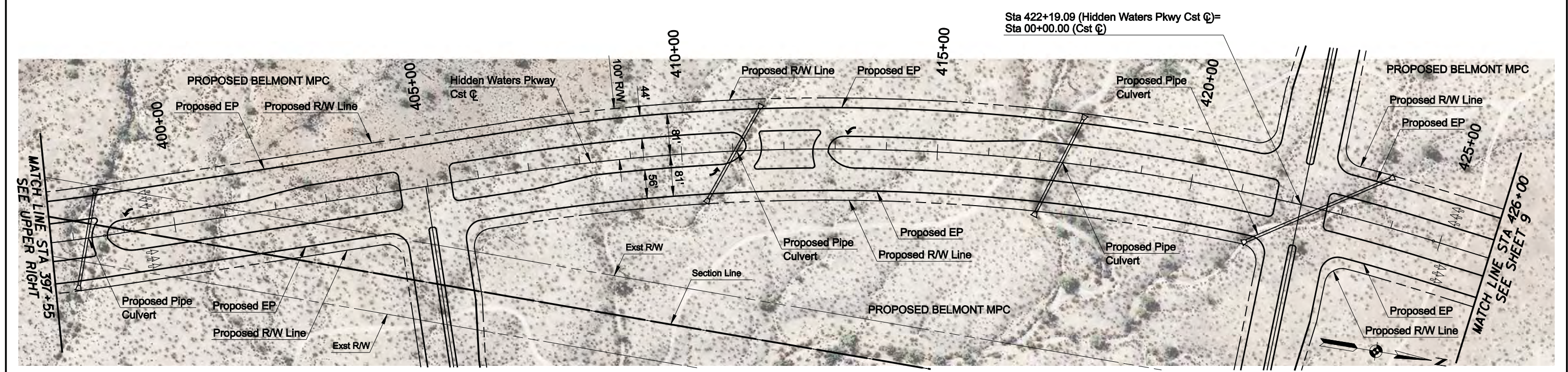
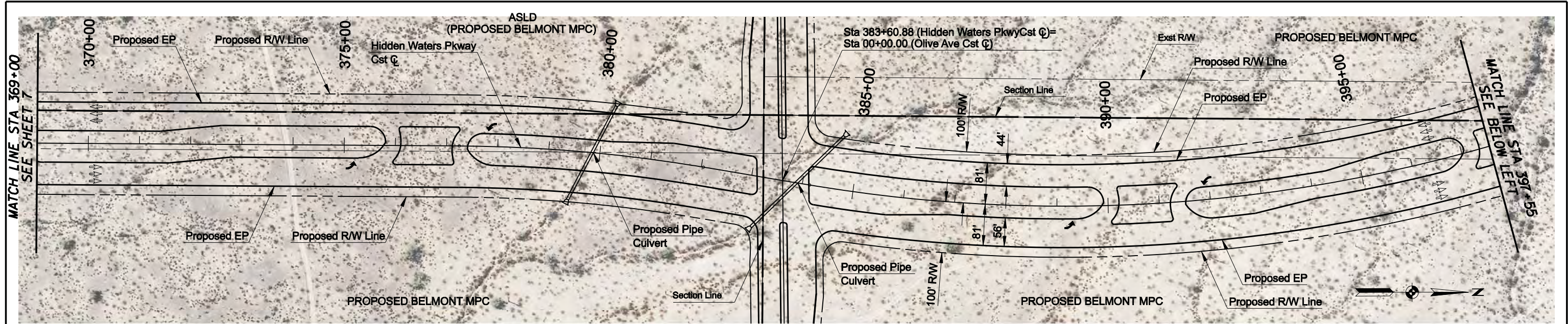
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

HIDDEN WATERS PARKWAY
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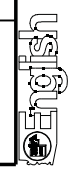


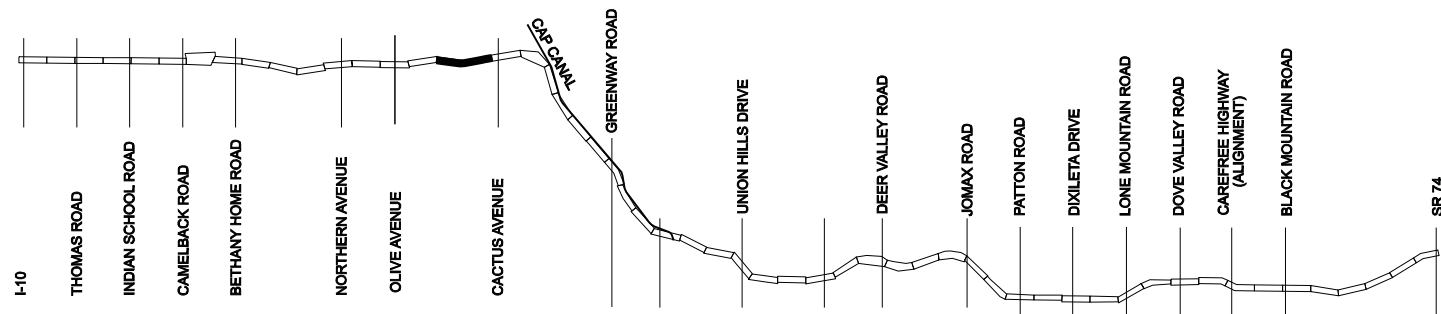
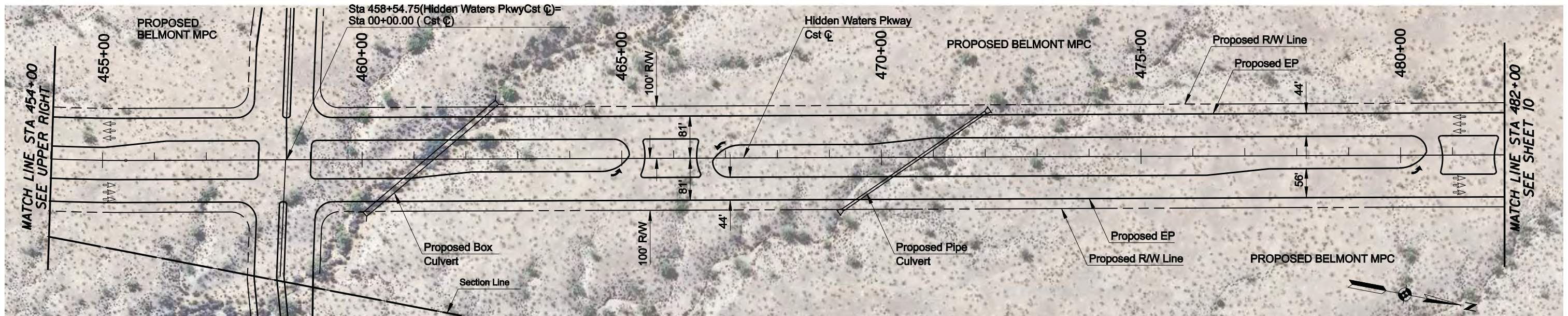
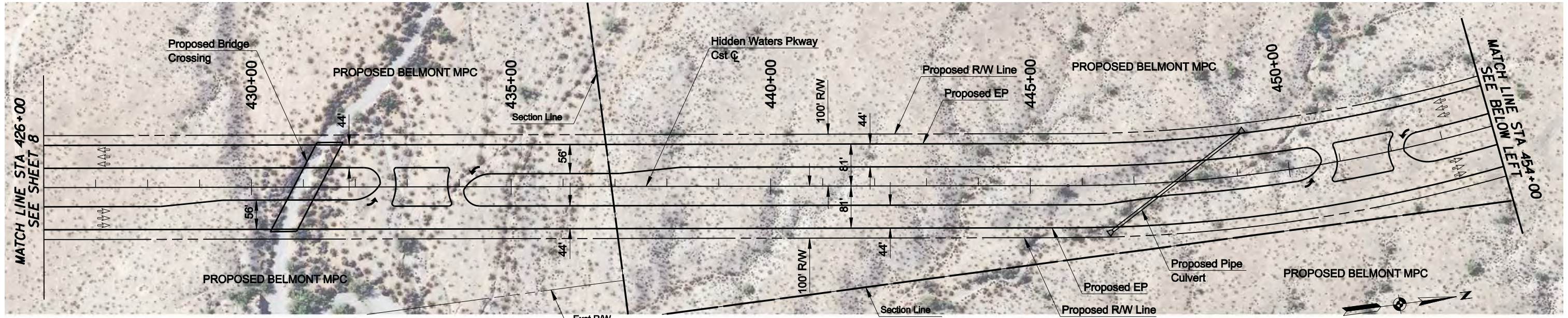
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

**HIDDEN WATERS PARKWAY
CORRIDOR FEASIBILITY STUDY**

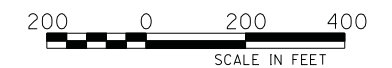
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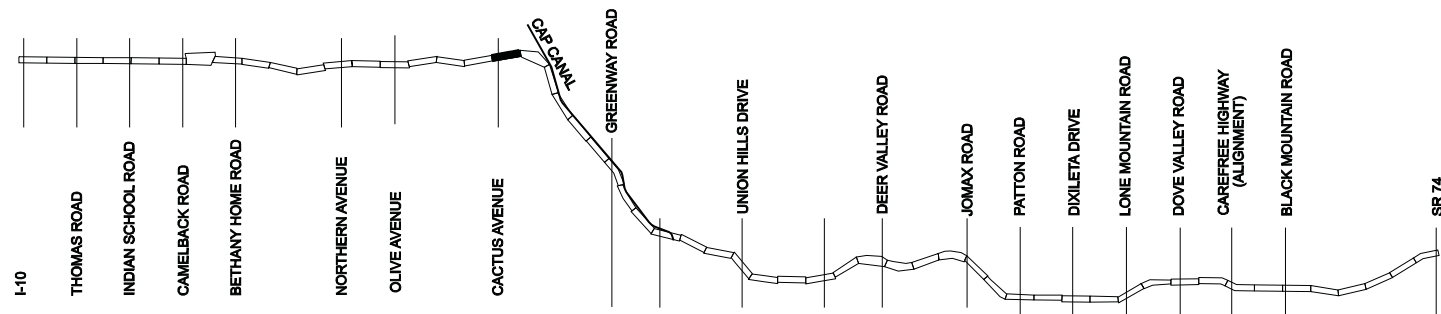
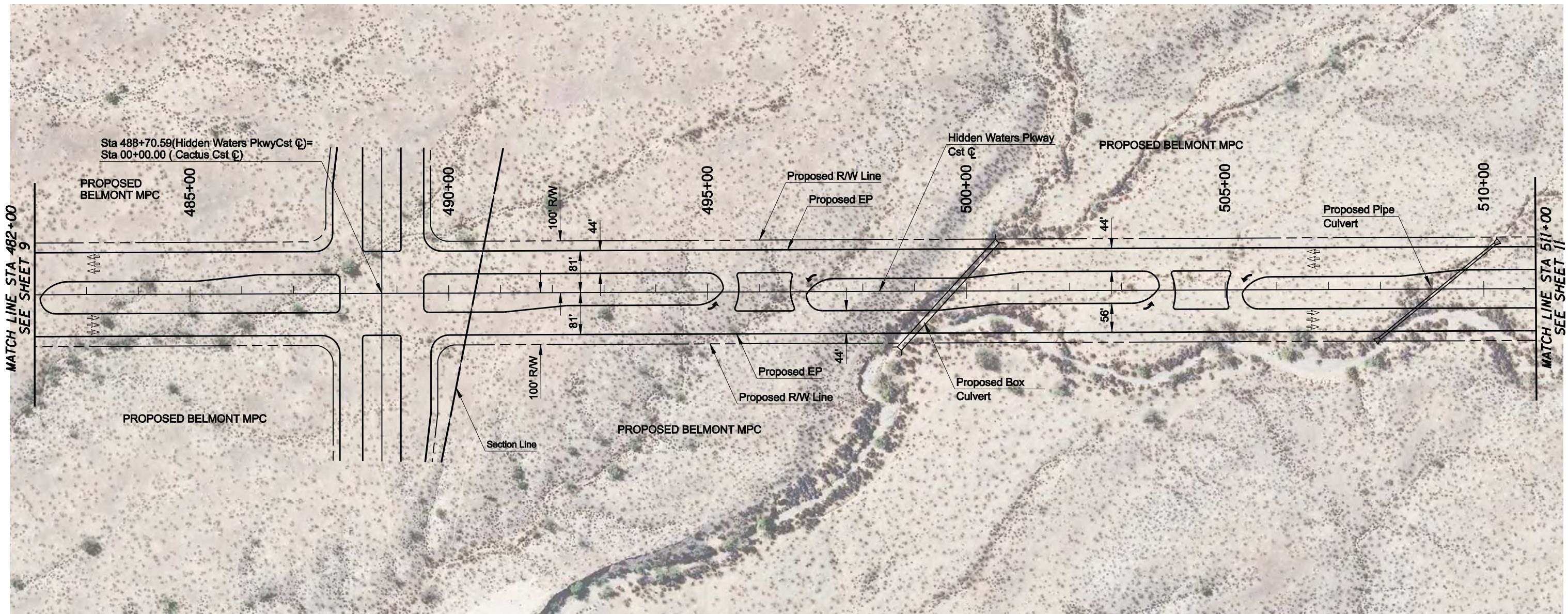


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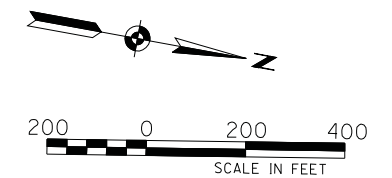
HIDDEN WATERS PARKWAY CORRIDOR FEASIBILITY STUDY

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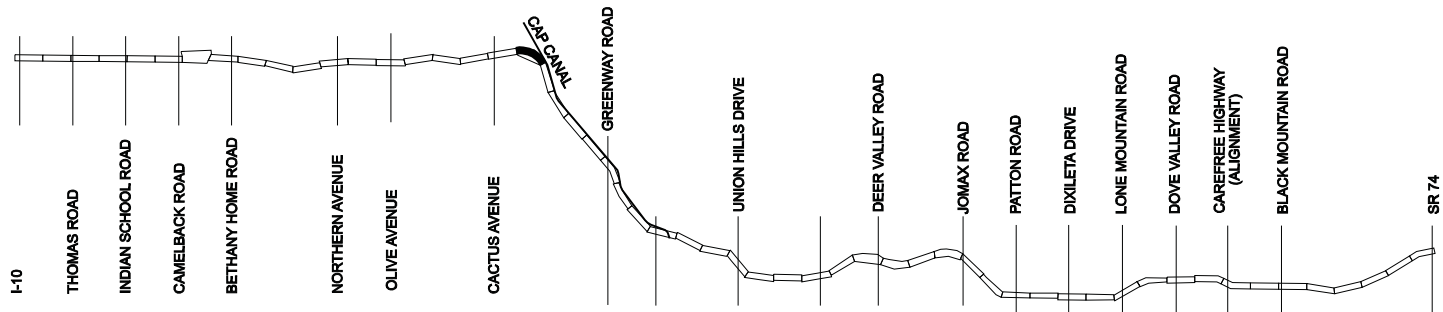


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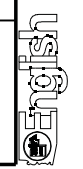
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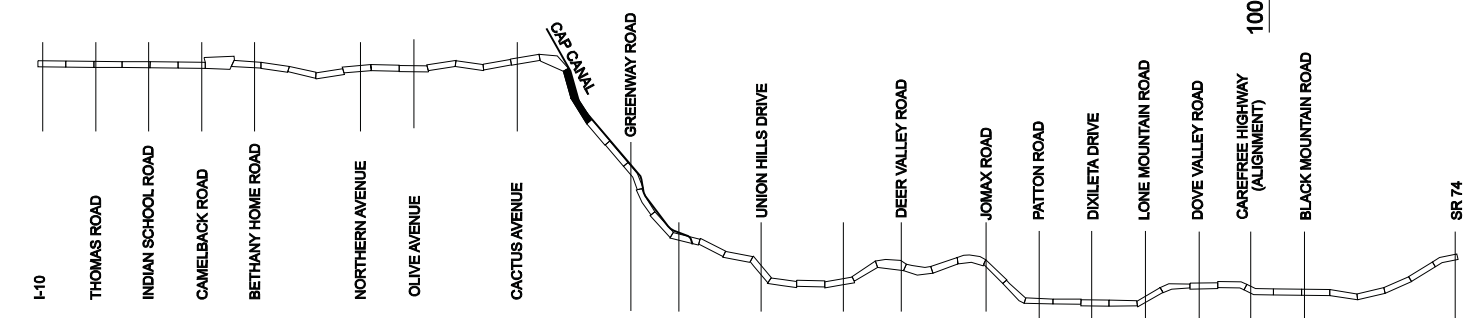
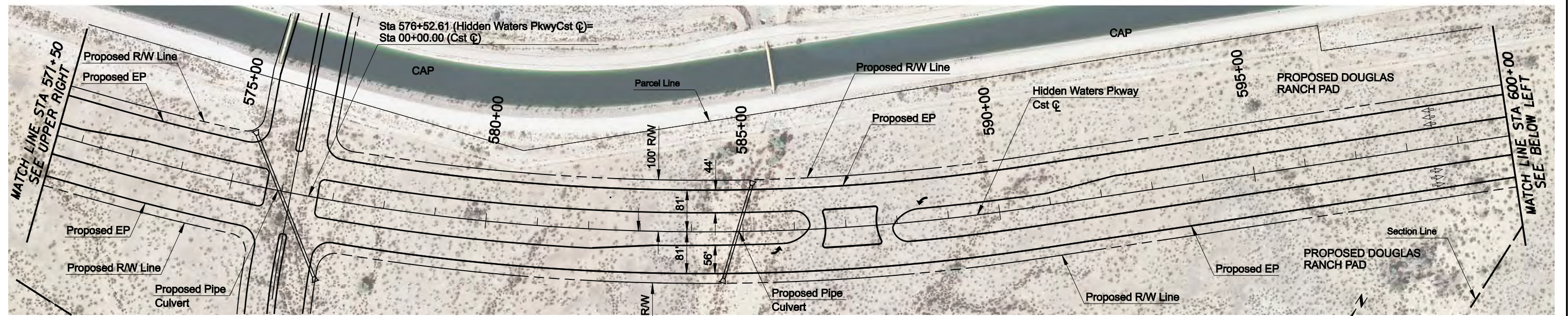
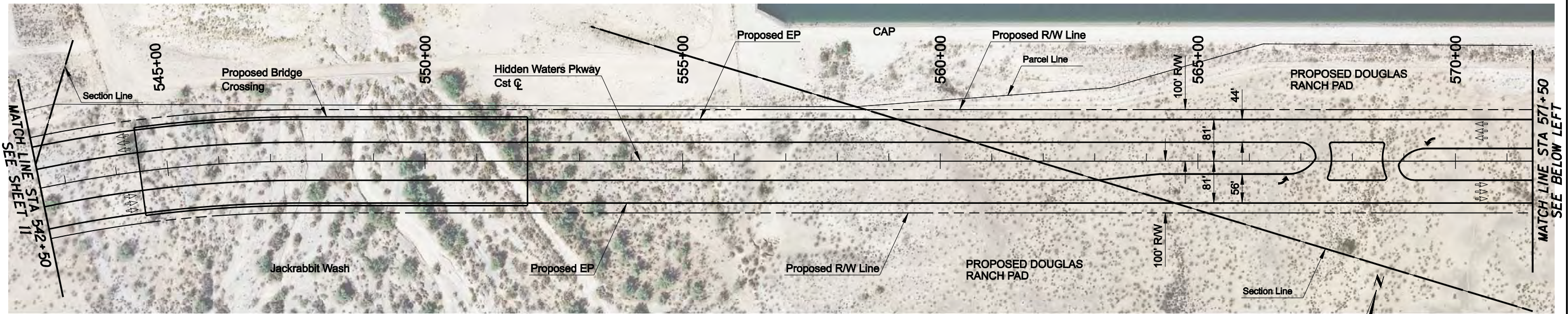
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DEPARTMENT OF TRANSPORTATION
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**HIDDEN WATERS PARKWAY
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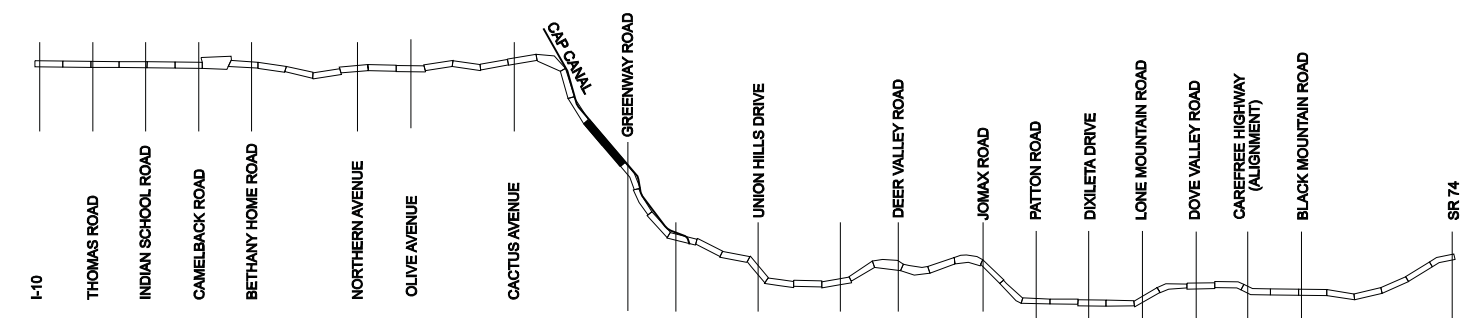
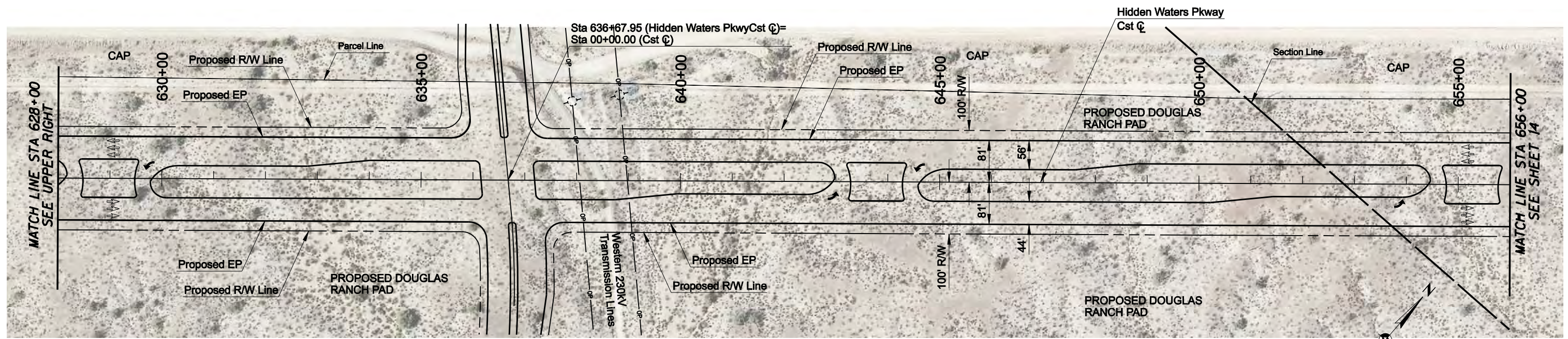
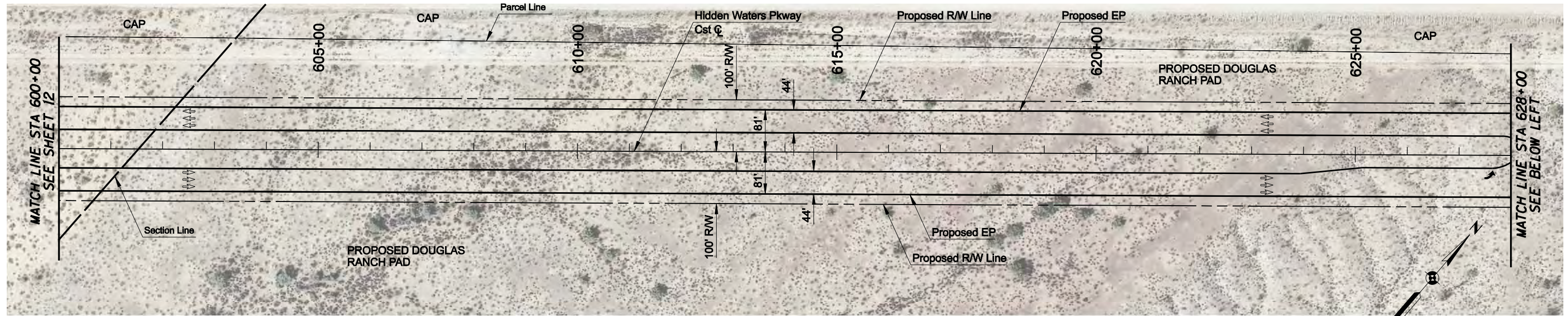
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
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**HIDDEN WATERS PARKWAY
CORRIDOR FEASIBILITY STUDY**

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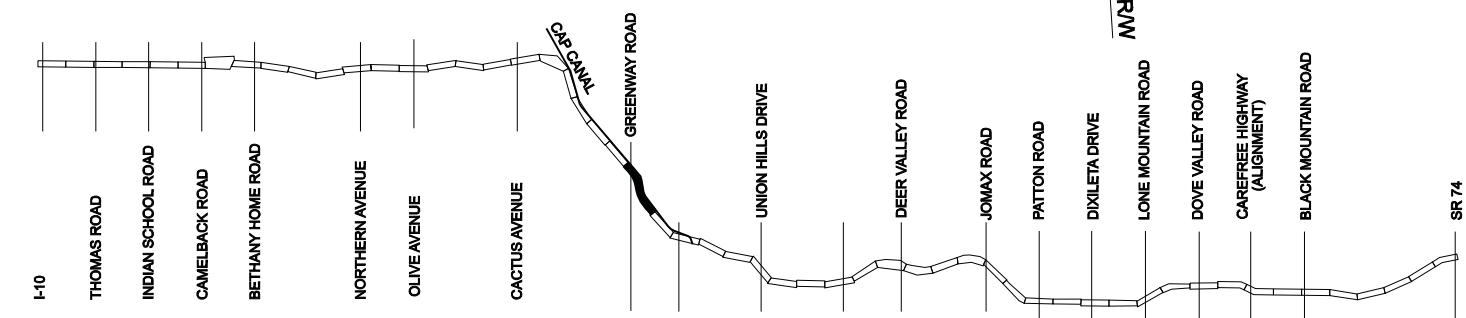
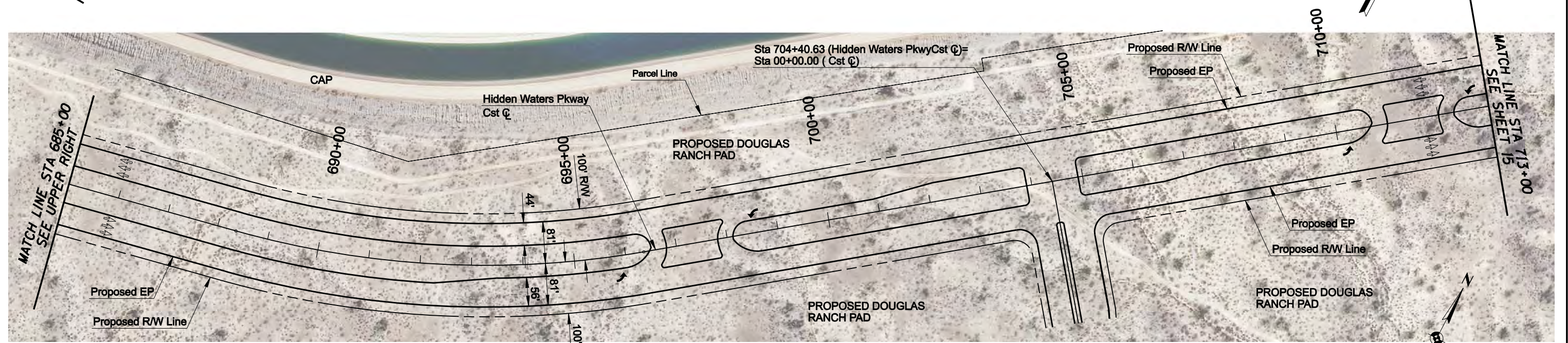
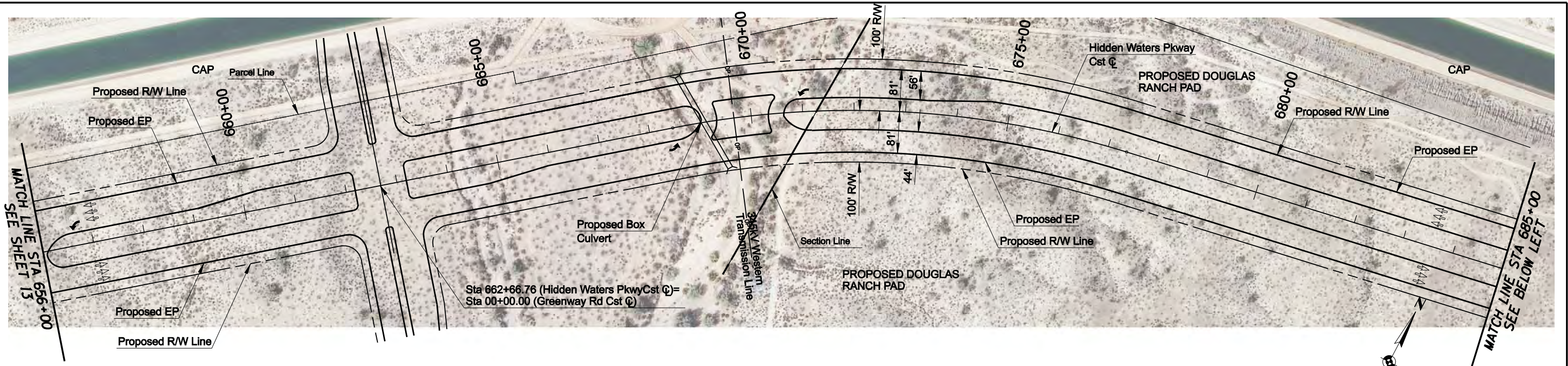
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
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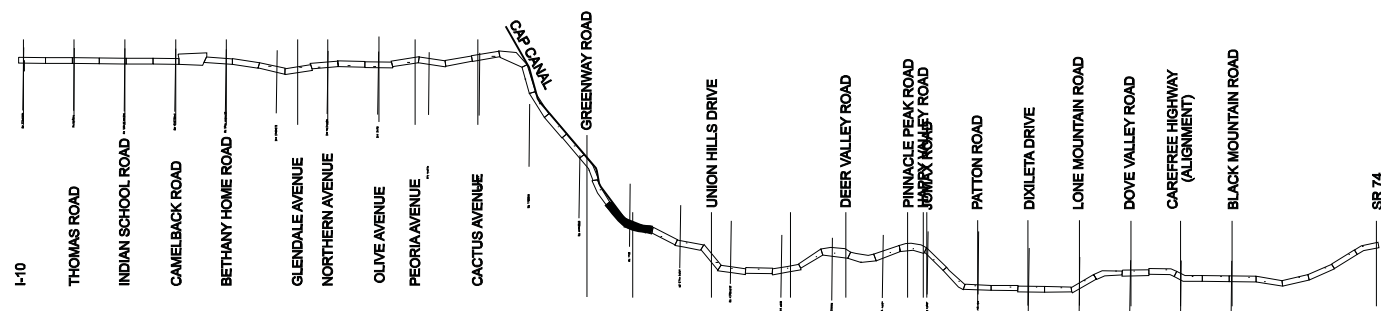
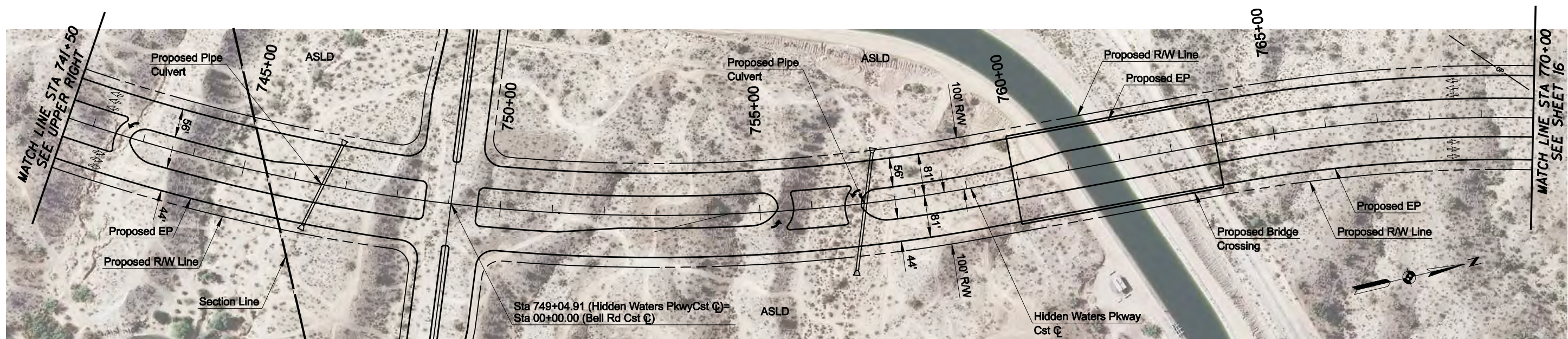
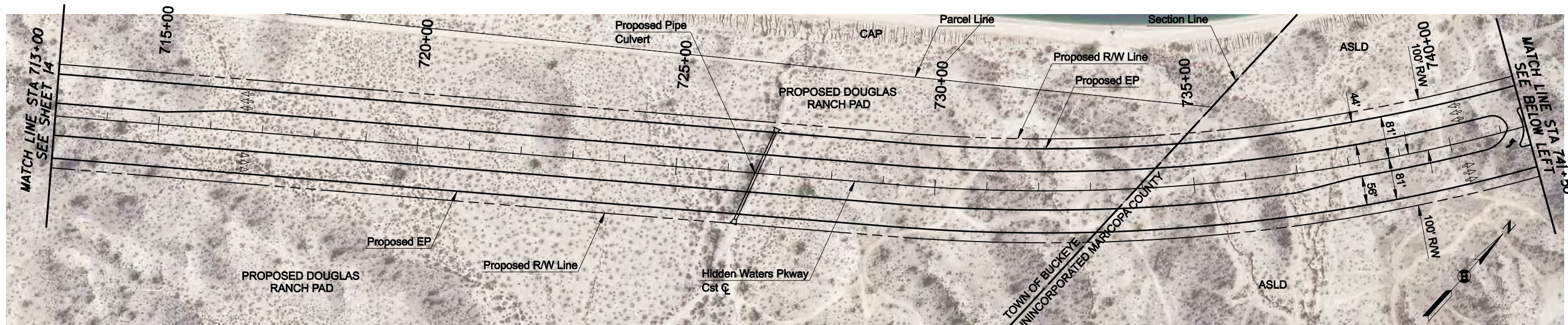


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ENGINEERING DIVISION

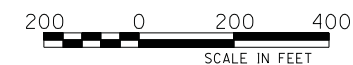
**HIDDEN WATERS PARKWAY
CORRIDOR FEASIBILITY STUDY**

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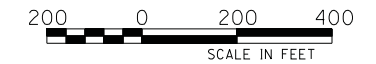
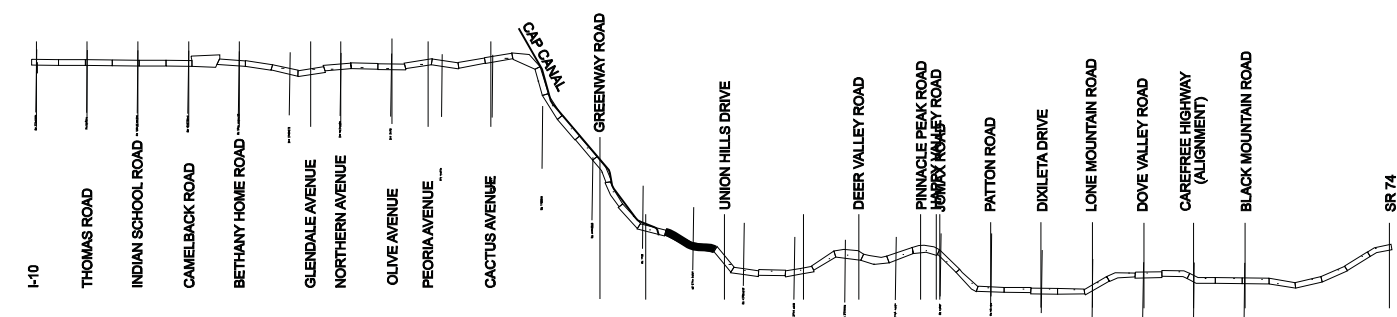
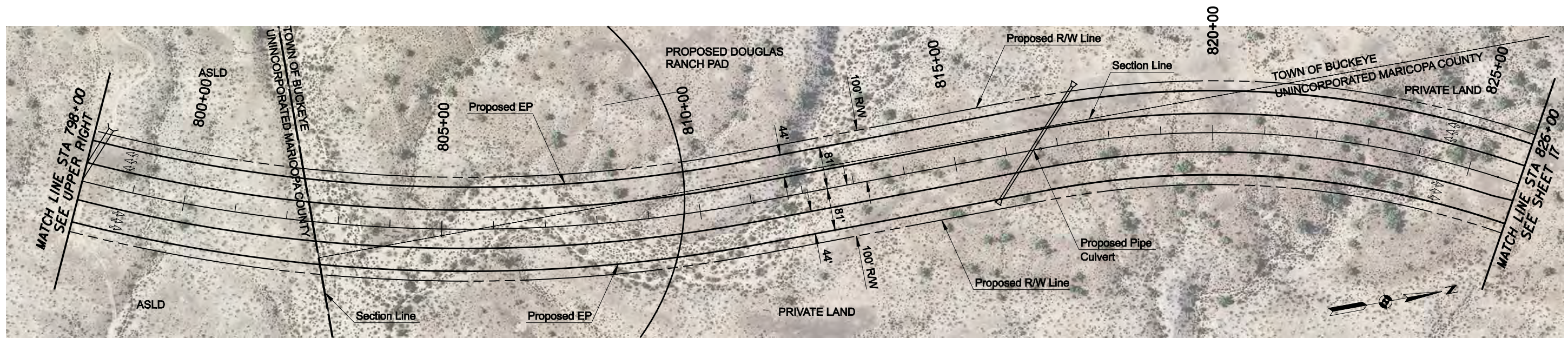
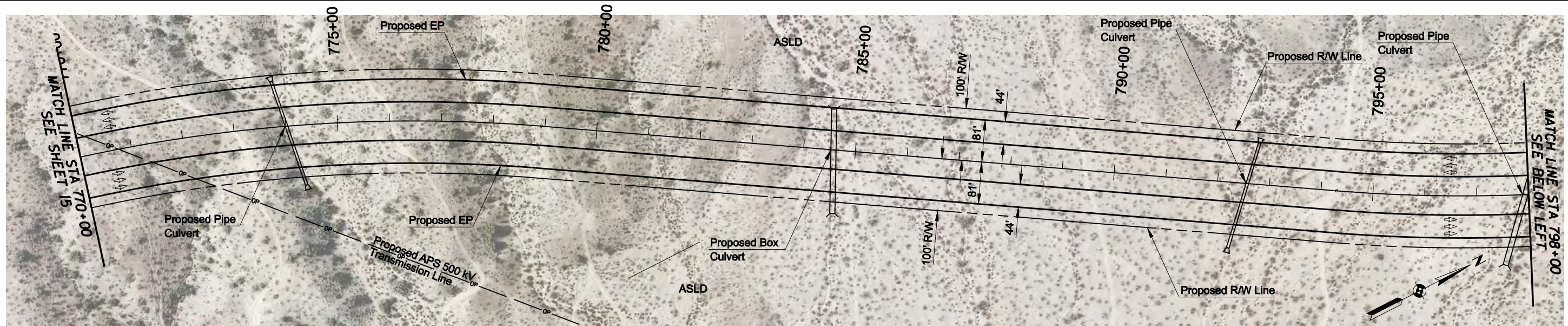


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ENGINEERING DIVISION

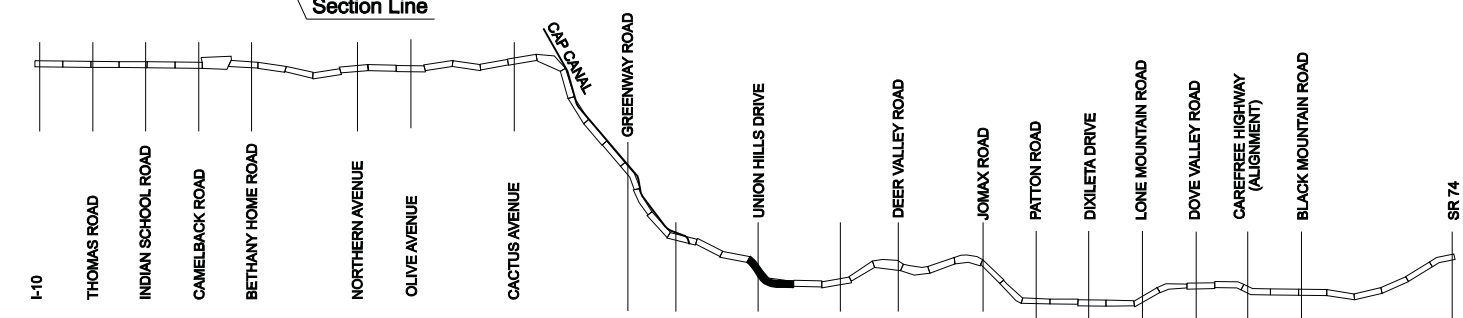
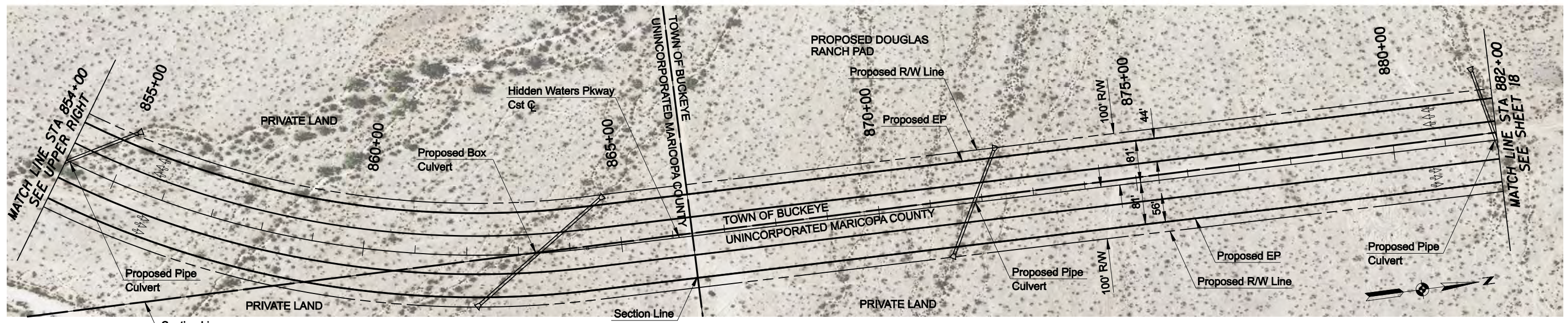
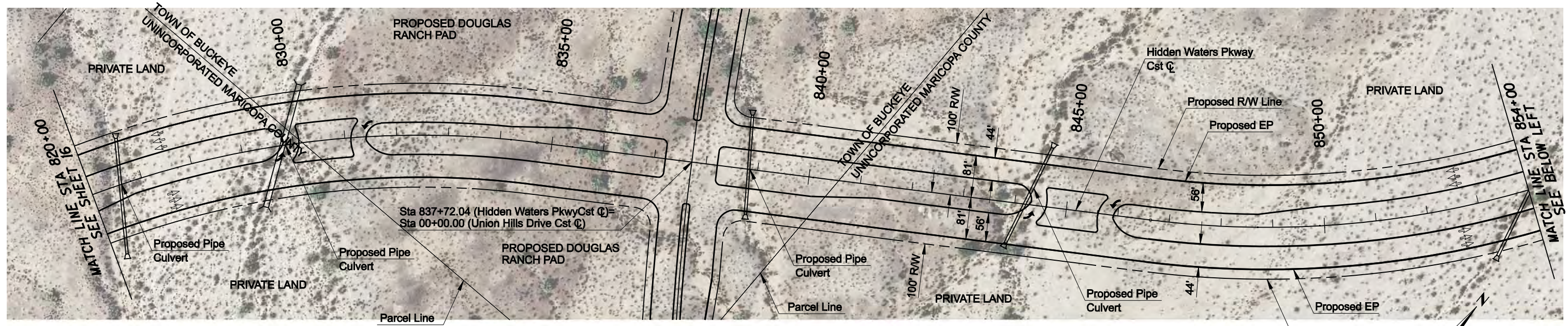
HIDDEN WATERS PARKWAY
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<p>MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION ENGINEERING DIVISION</p>	<p>HIDDEN WATERS PARKWAY CORRIDOR FEASIBILITY STUDY</p>	<p>PREFERRED ALIGNMENT Sheet 16 of 33</p>	<p>eps group, Inc. Engineers, Planners & Surveyors 2045 S. Vineyard Ave., Ste. 101, Mesa, Arizona 85210 Phone (480) 503-2250 Fax (480) 503-2258</p>
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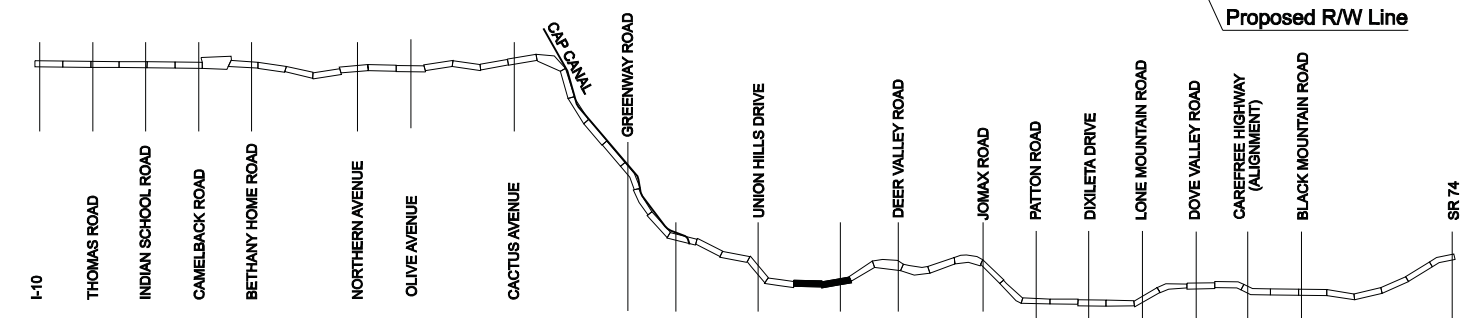
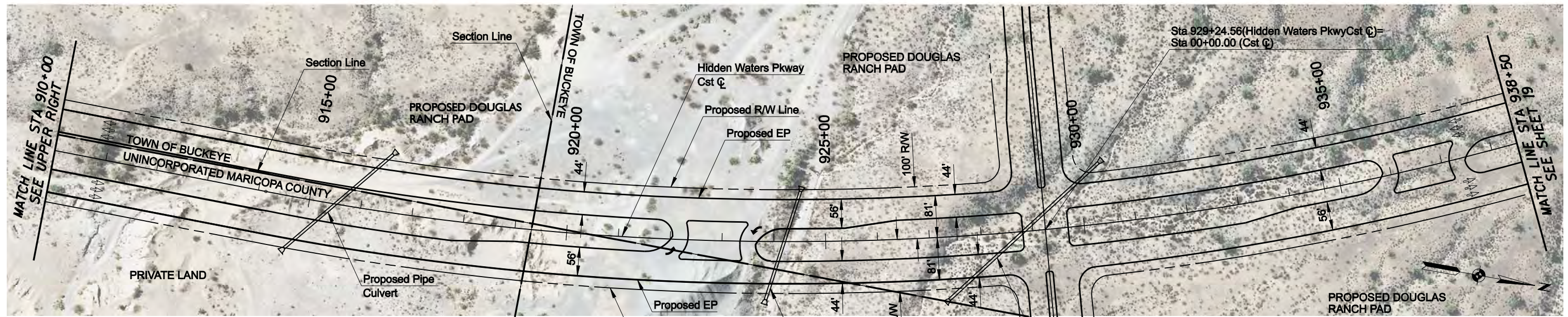
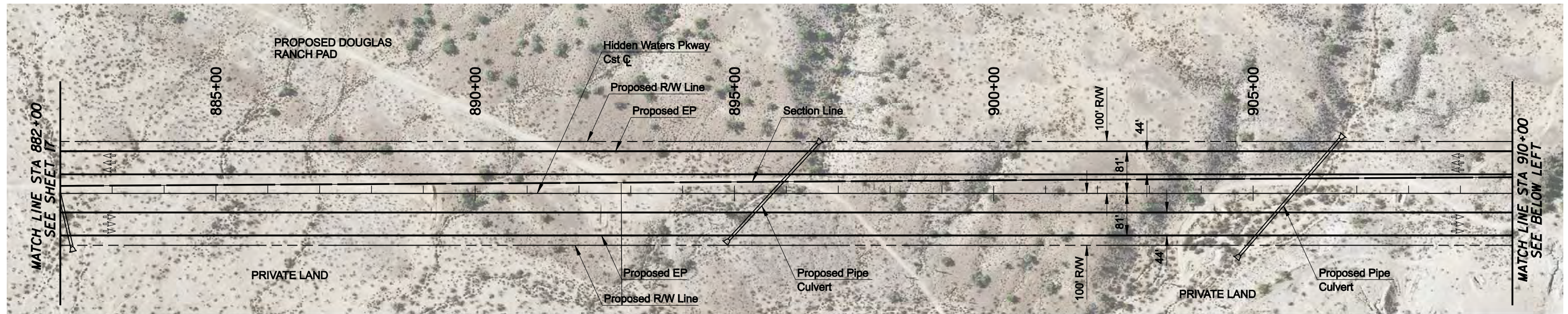
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

HIDDEN WATERS PARKWAY
CORRIDOR FEASIBILITY STUDY

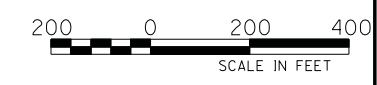
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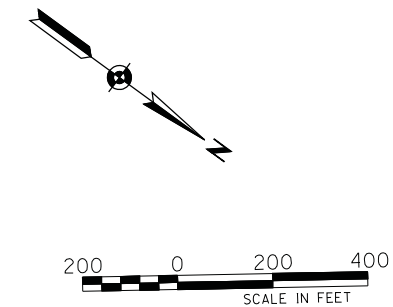
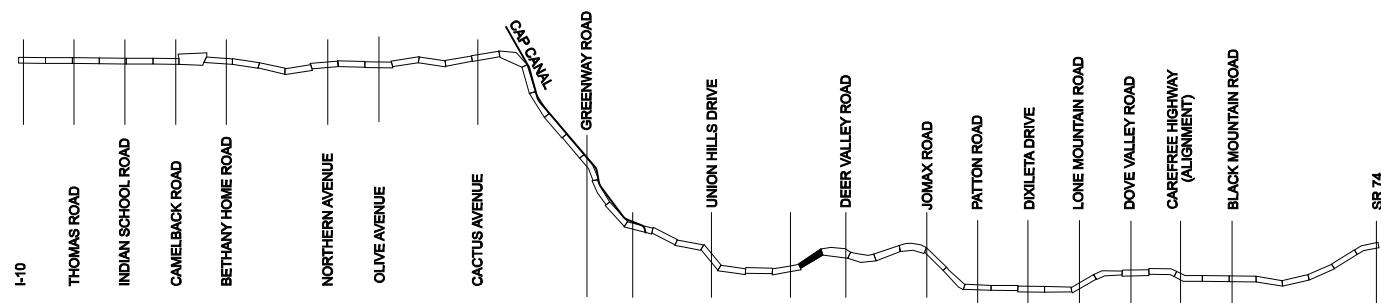
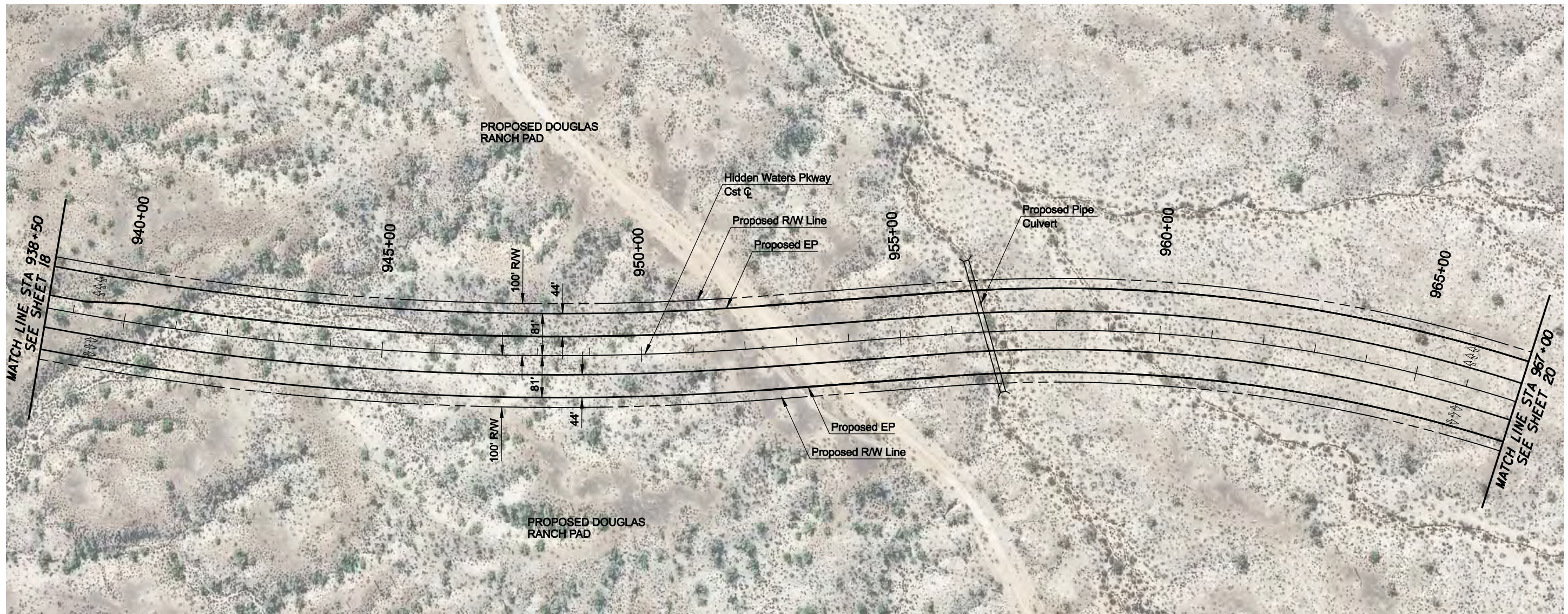
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
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**HIDDEN WATERS PARKWAY
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English

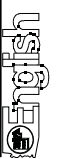


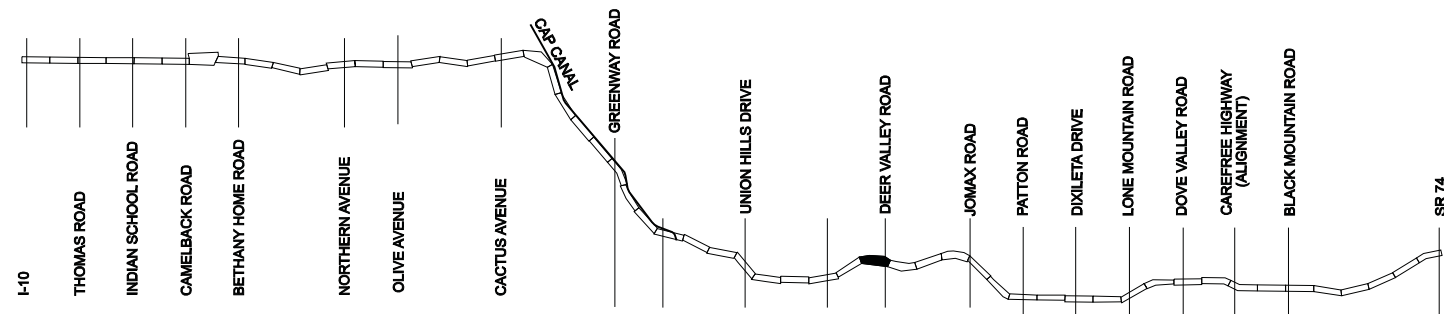
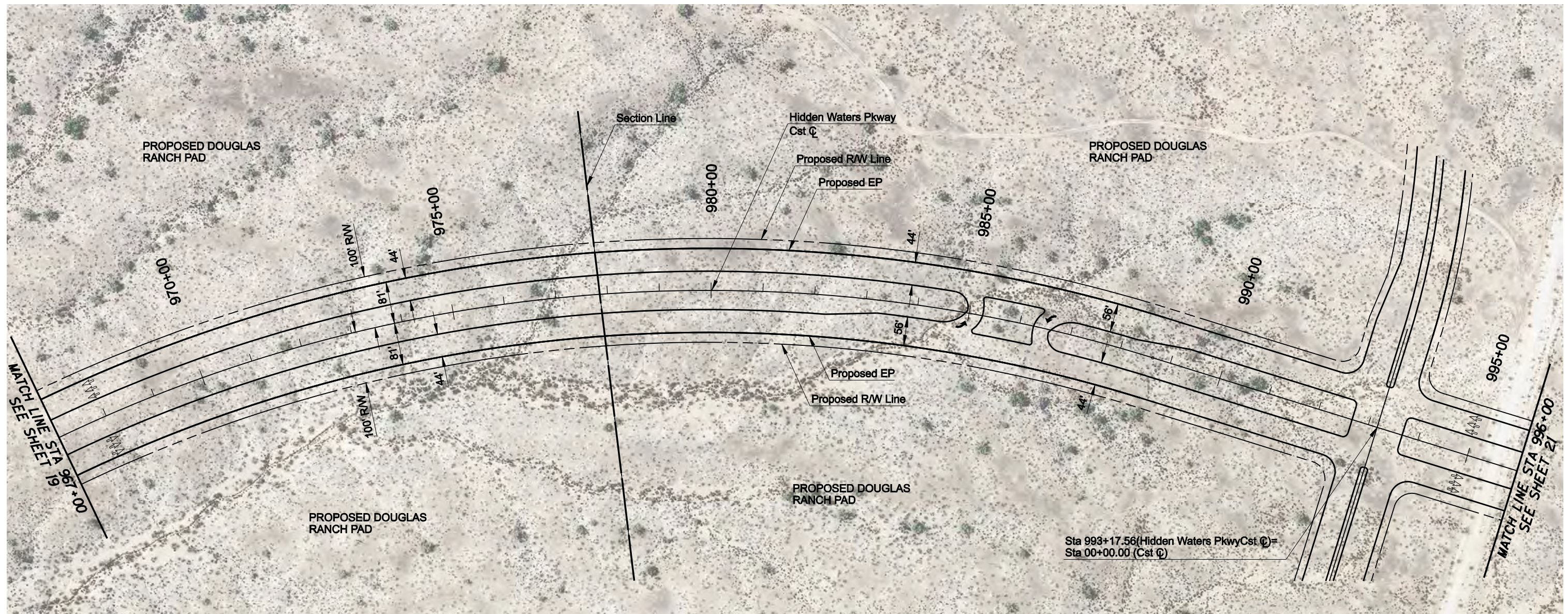
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
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**HIDDEN WATERS PARKWAY
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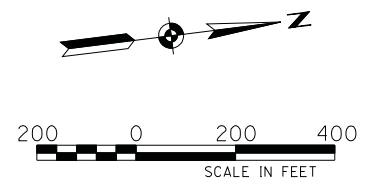
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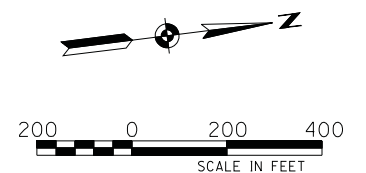
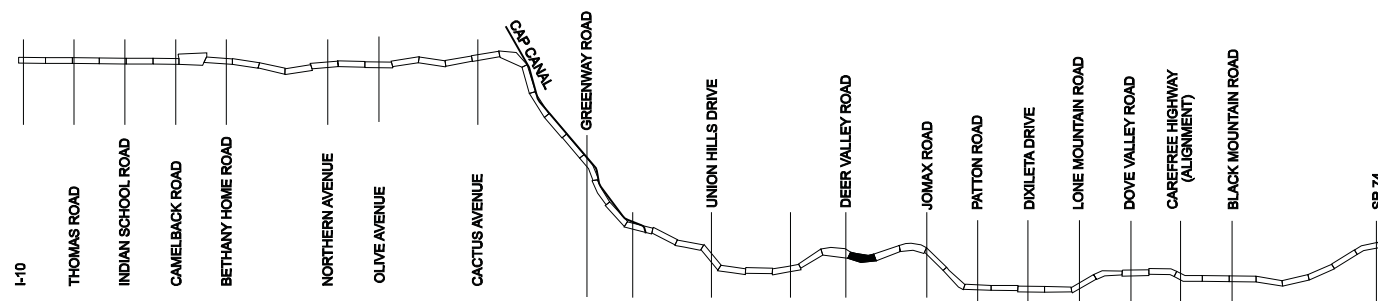
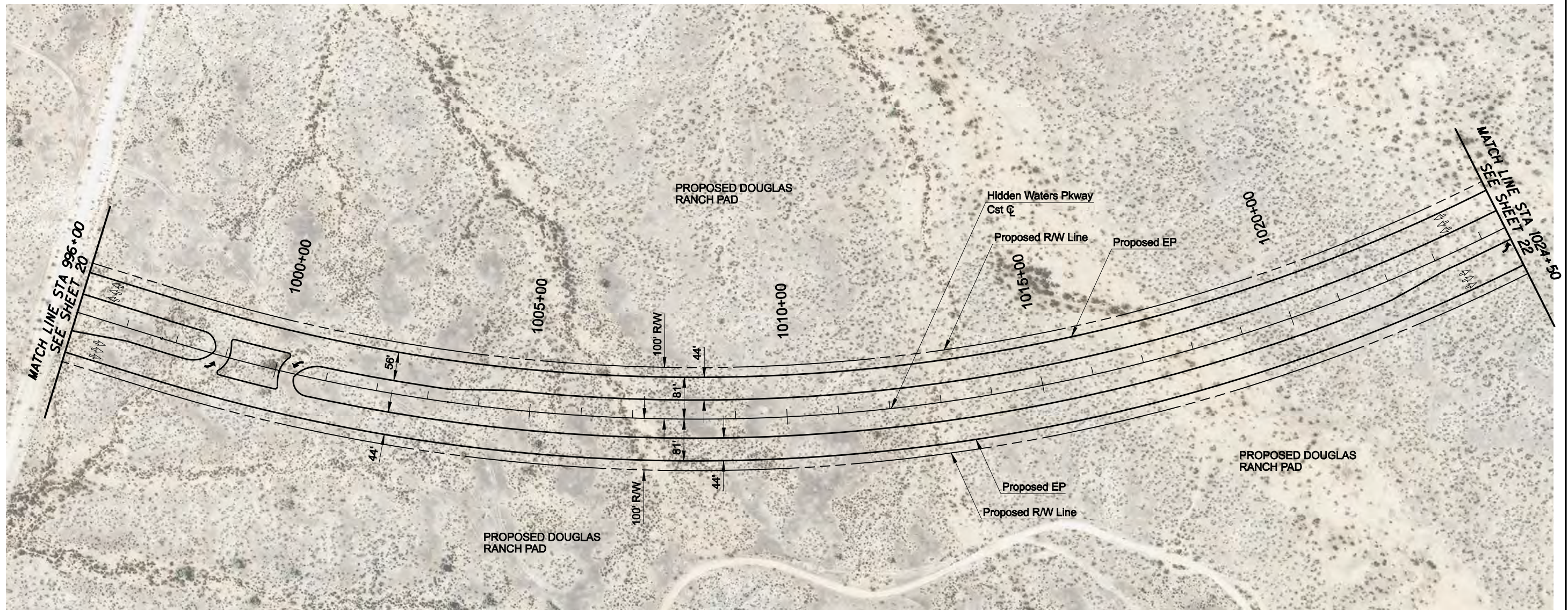


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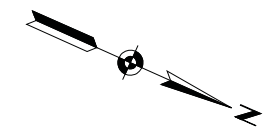
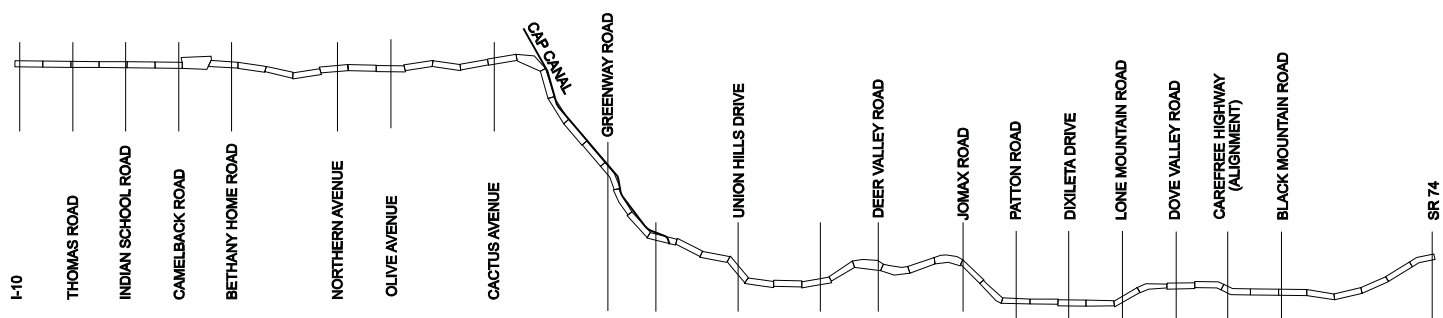
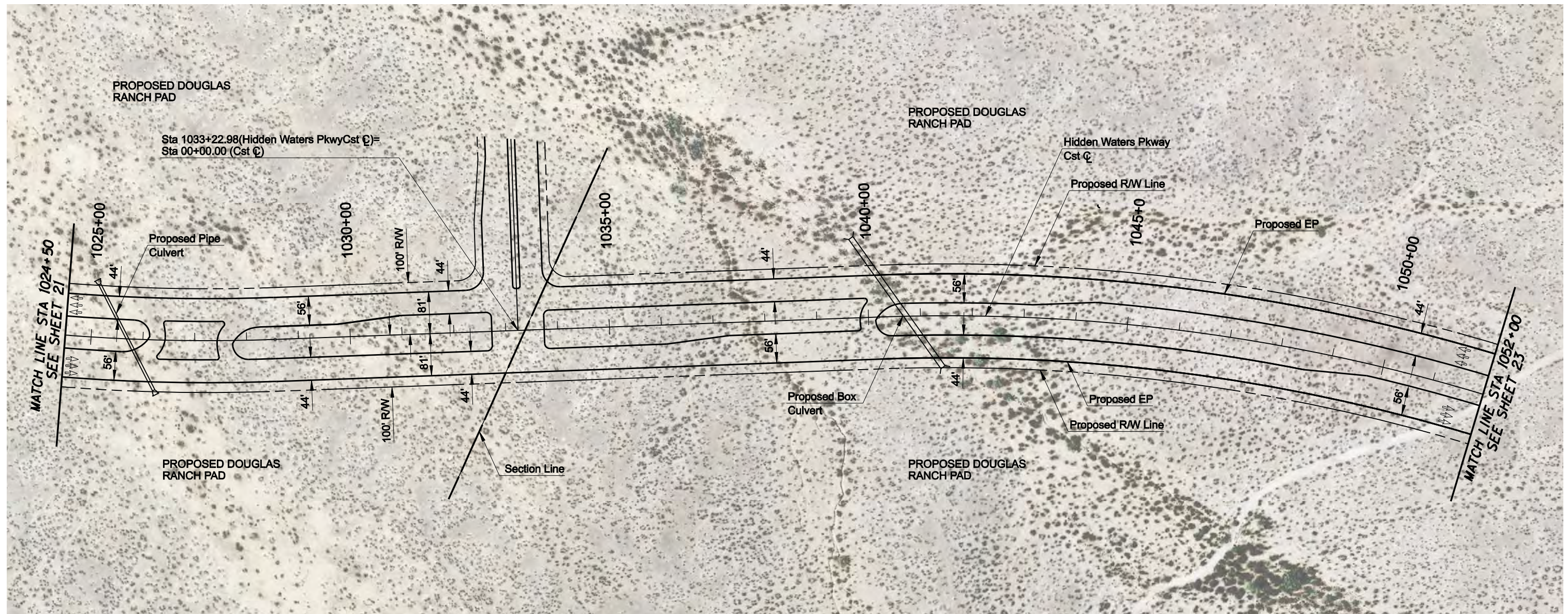
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
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**HIDDEN WATERS PARKWAY
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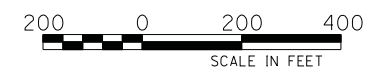
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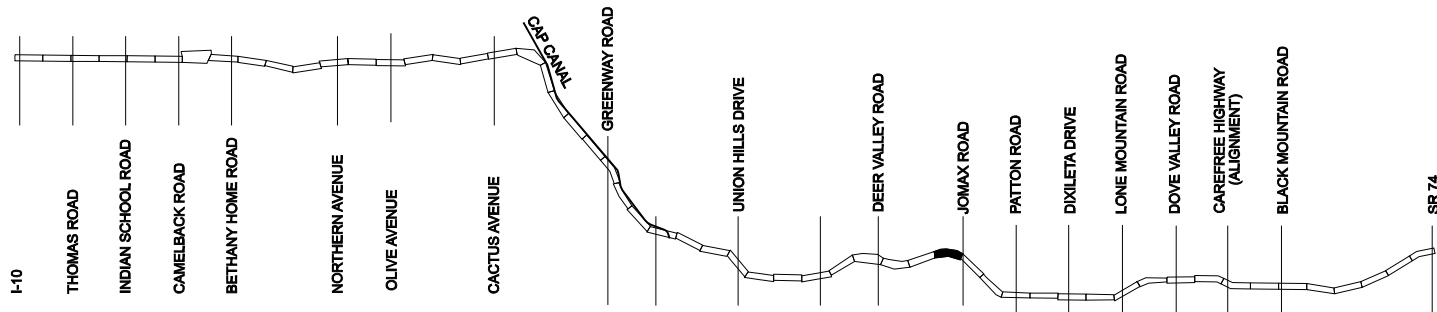
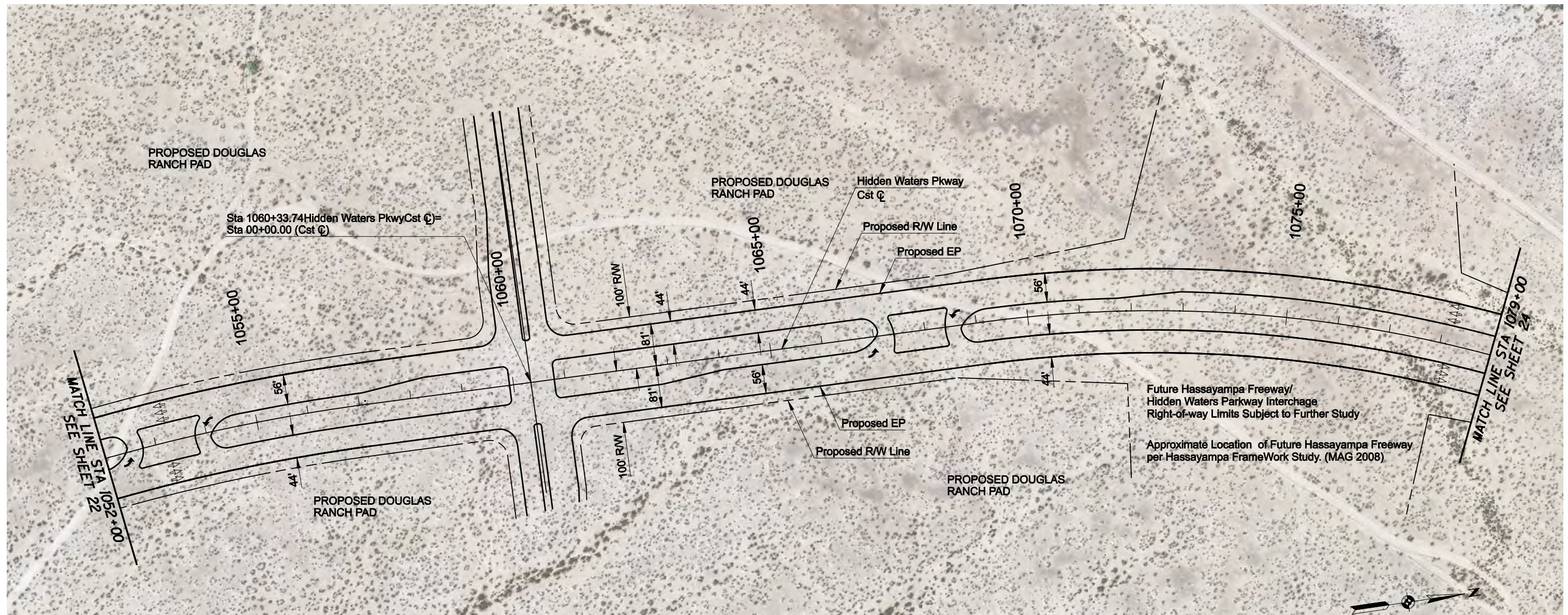
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**HIDDEN WATERS PARKWAY
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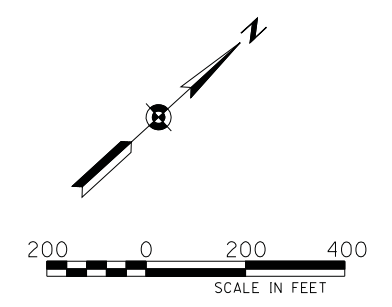
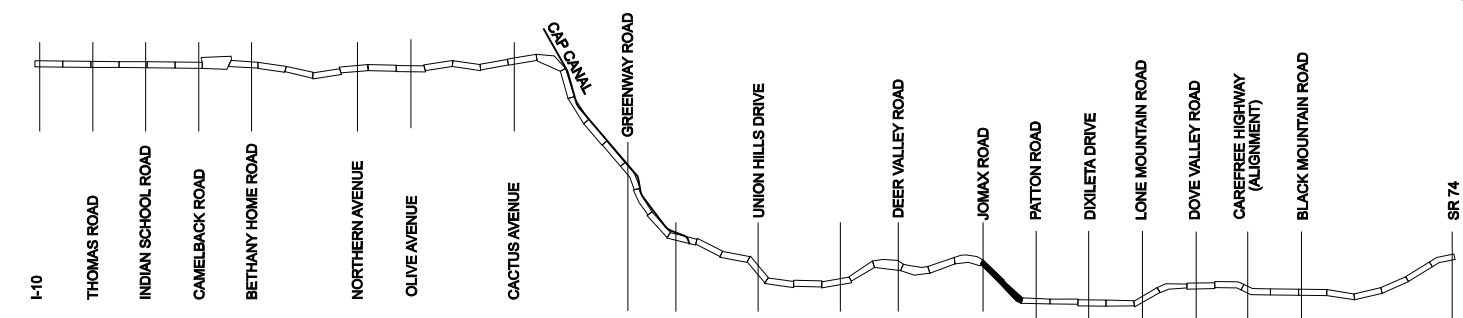
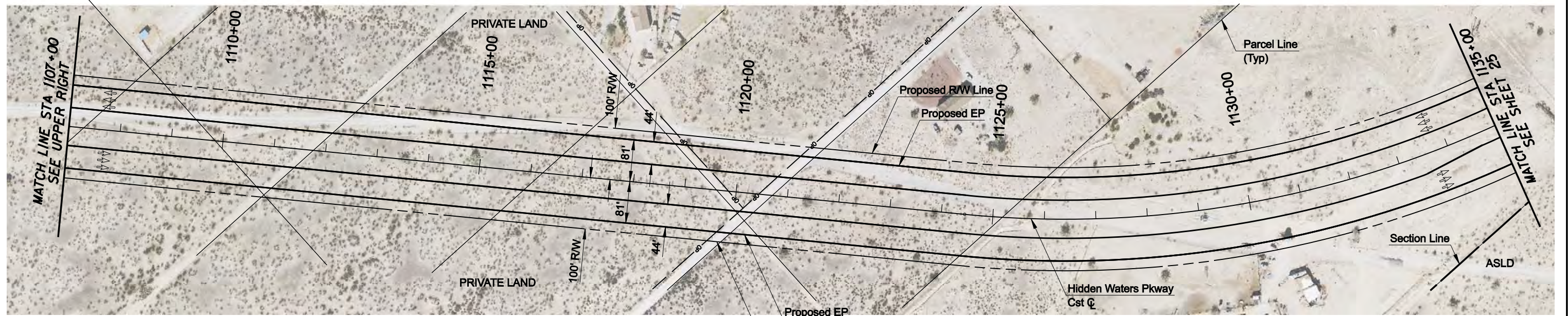
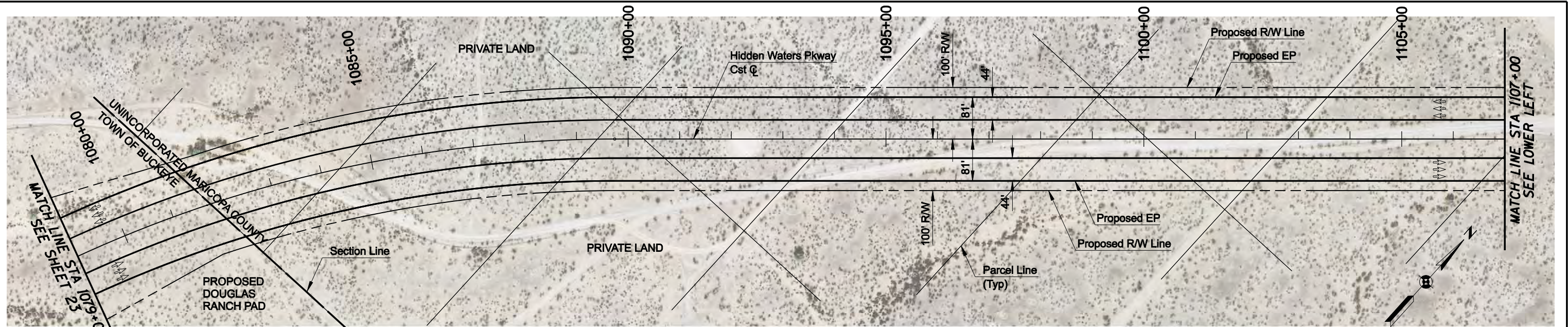


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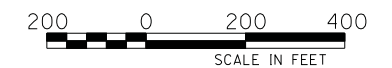
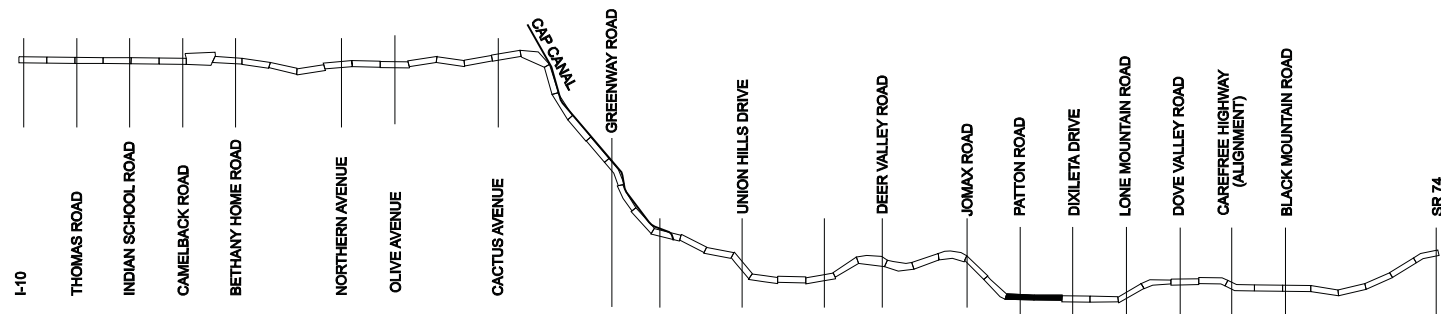
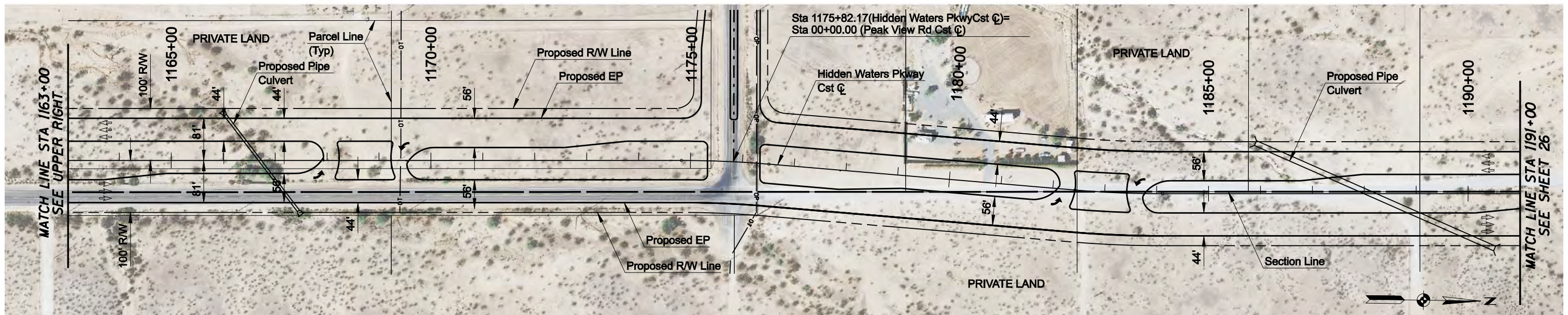
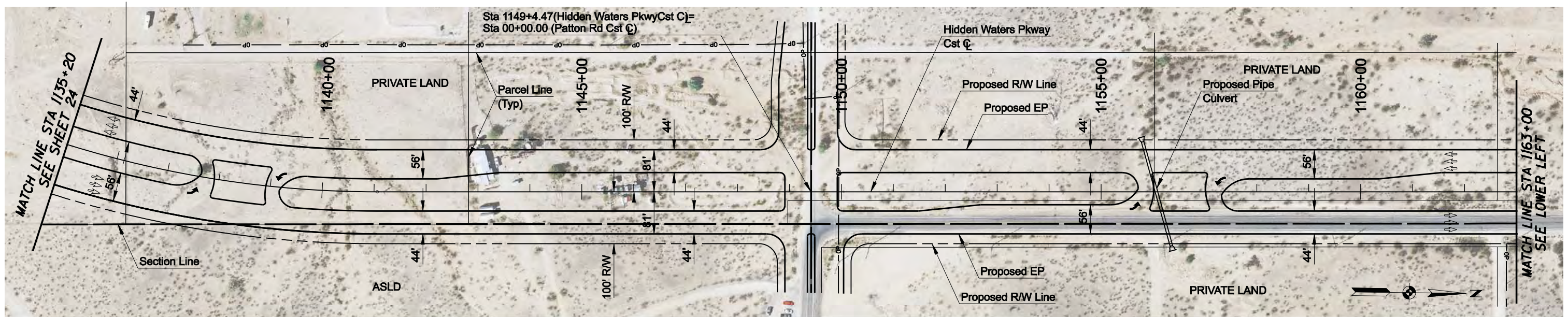
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**HIDDEN WATERS PARKWAY
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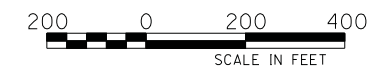
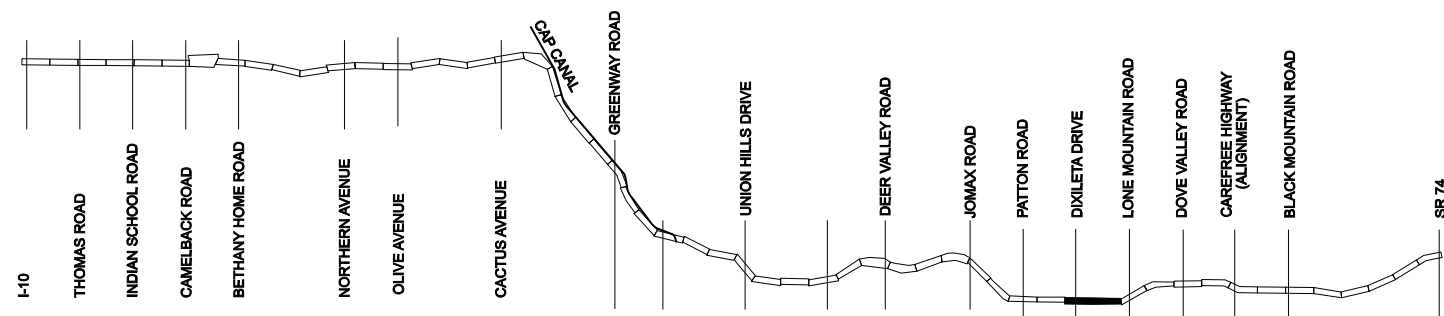
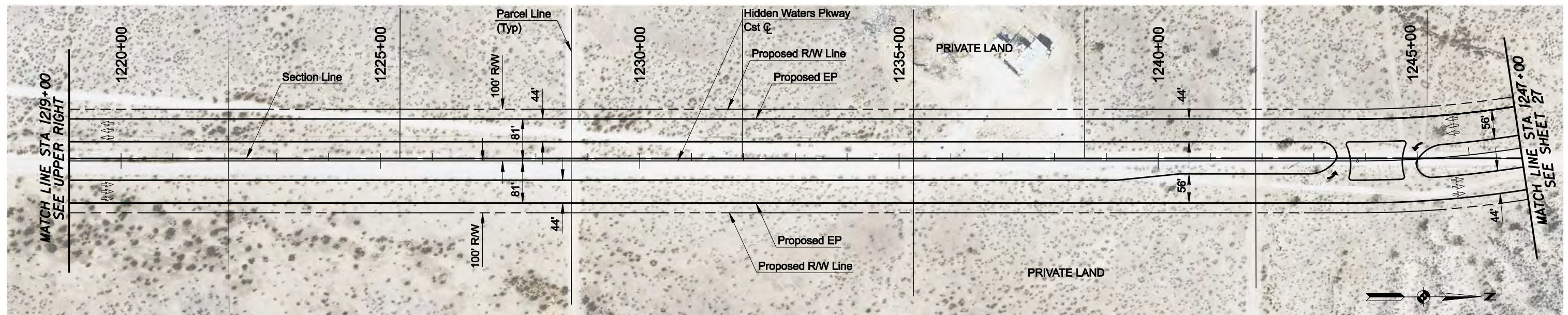
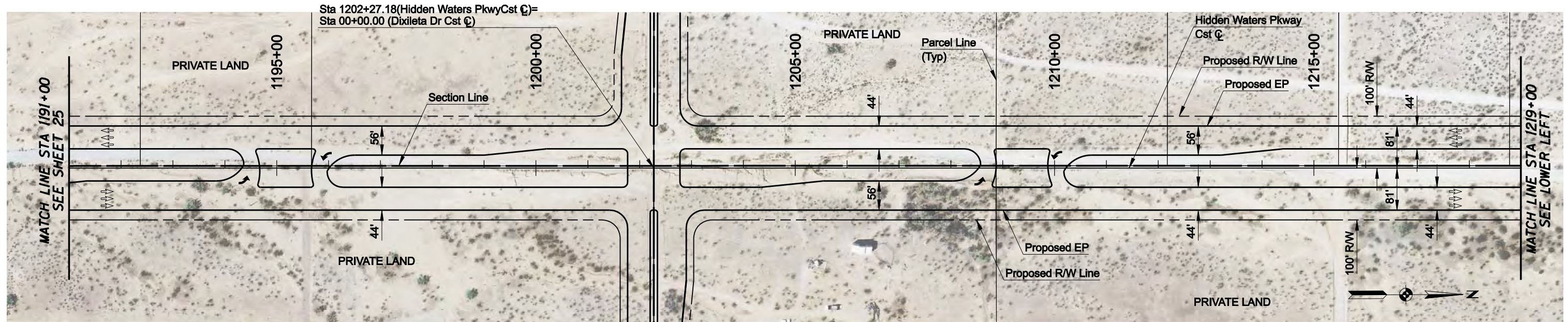


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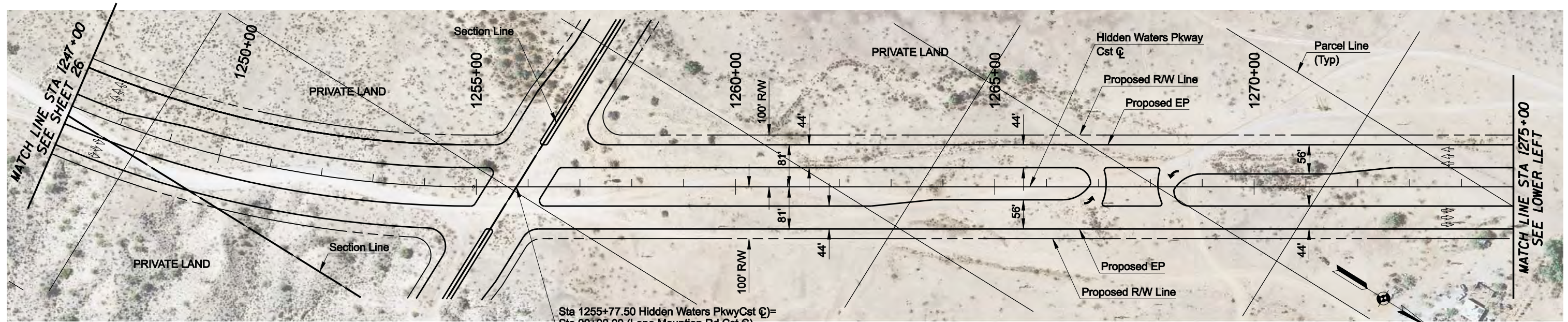


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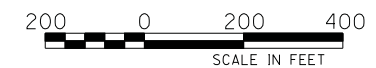
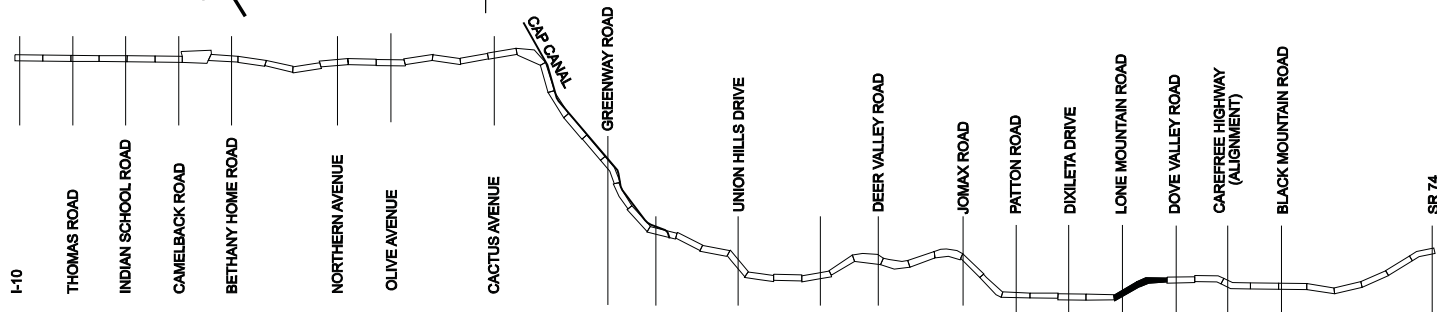
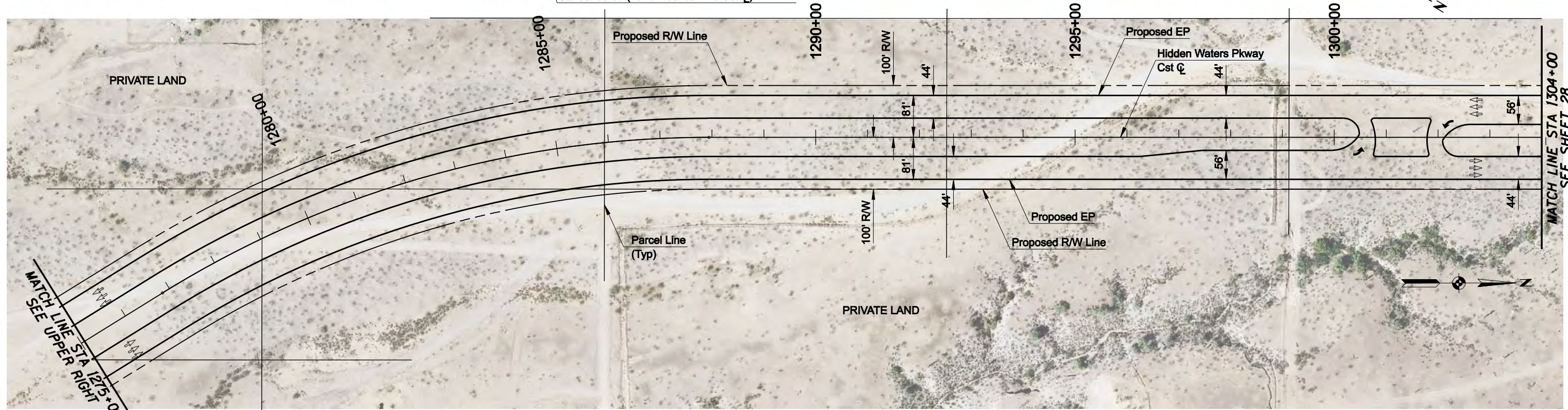
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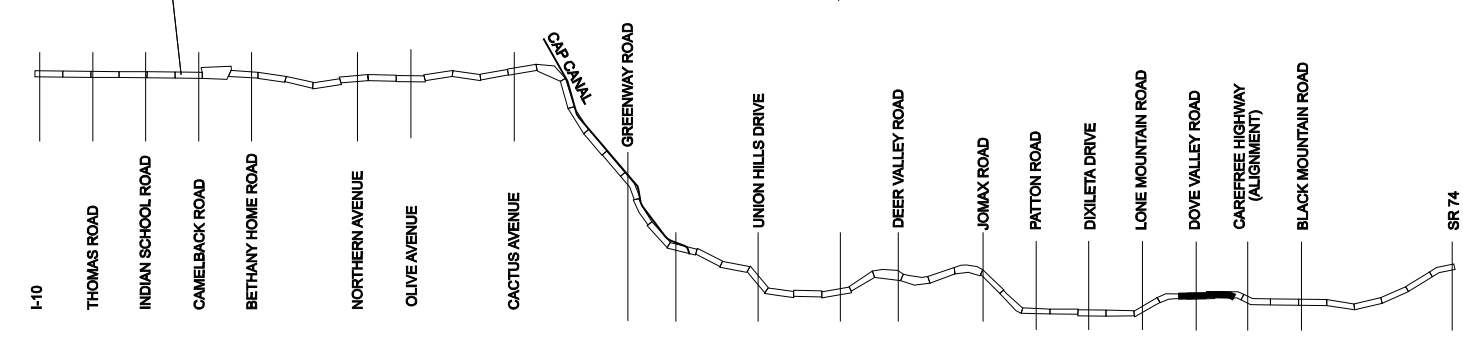
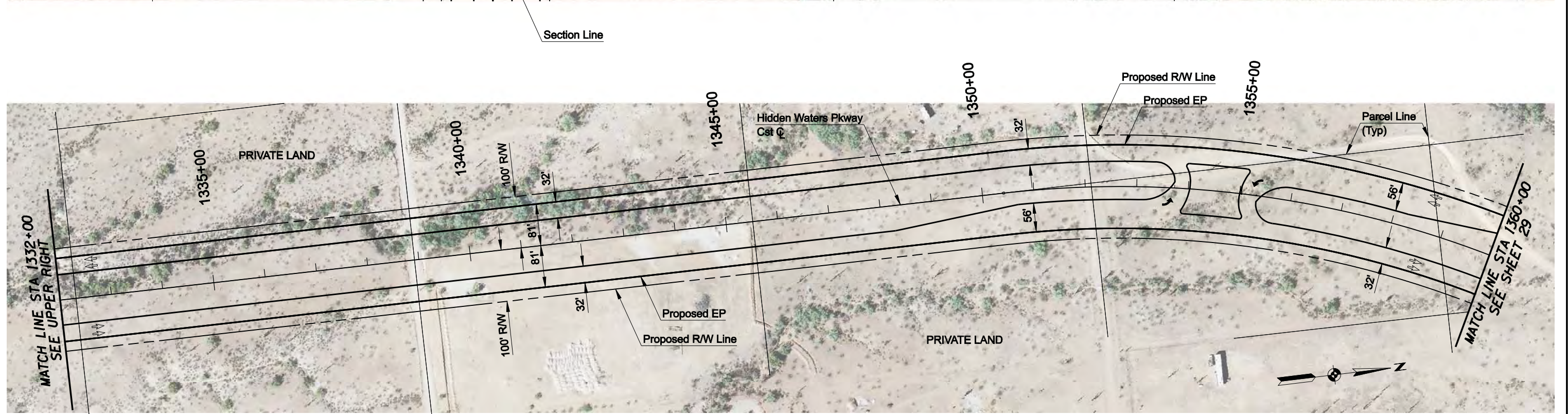
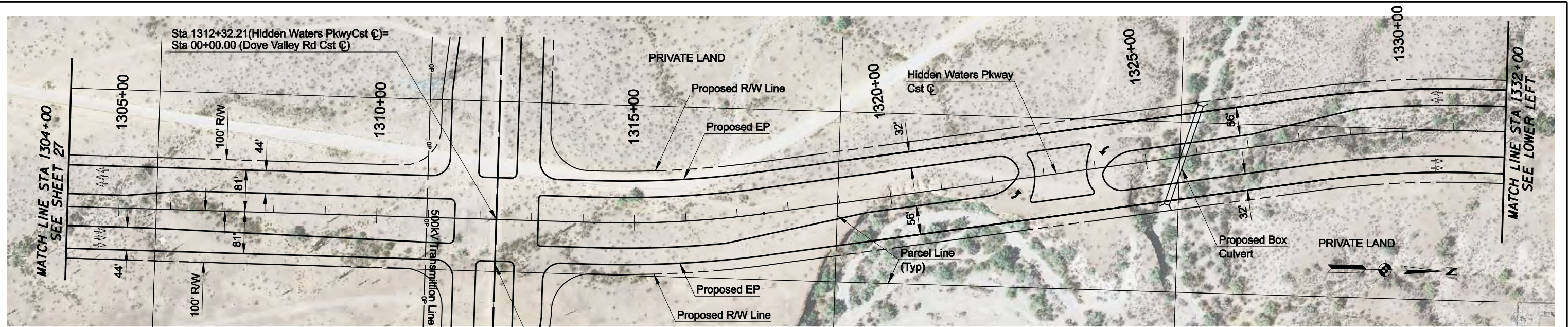


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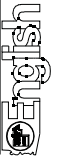


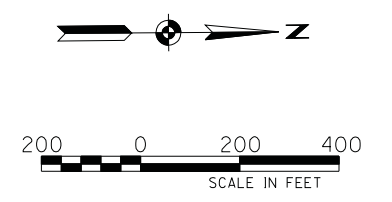
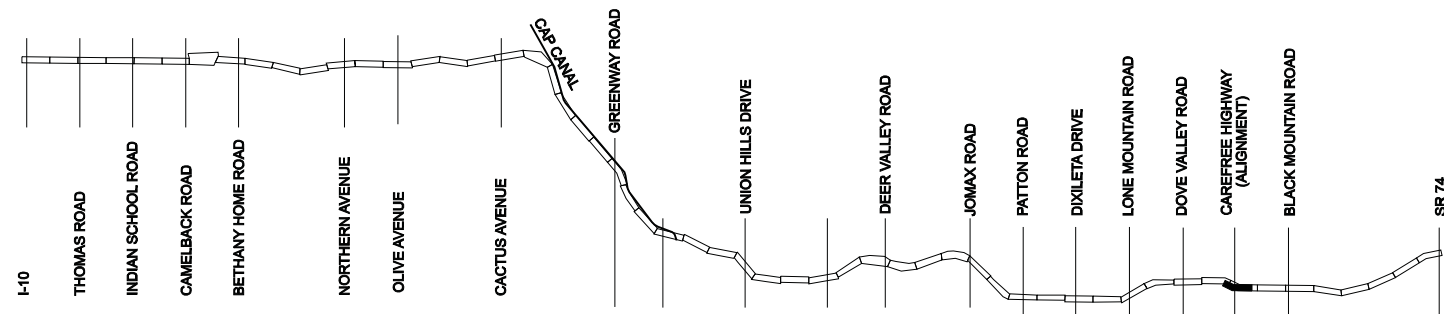
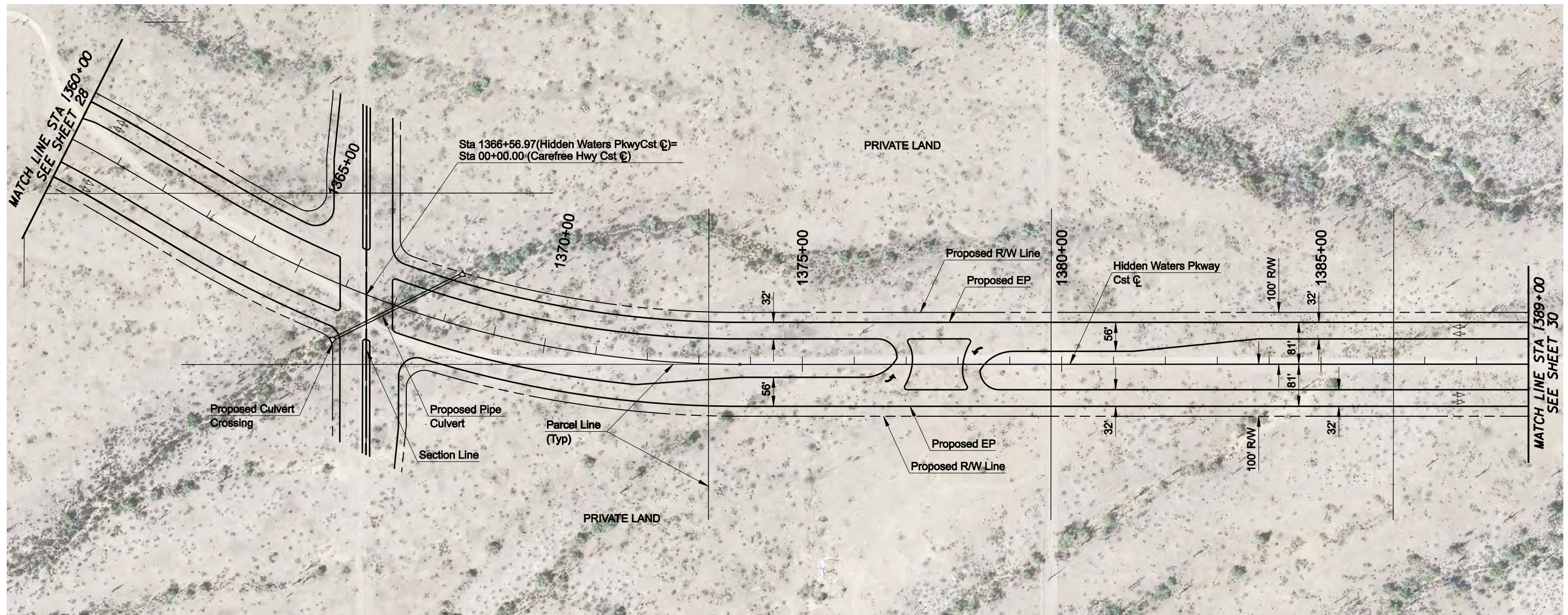
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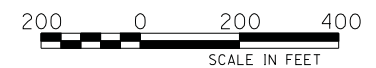
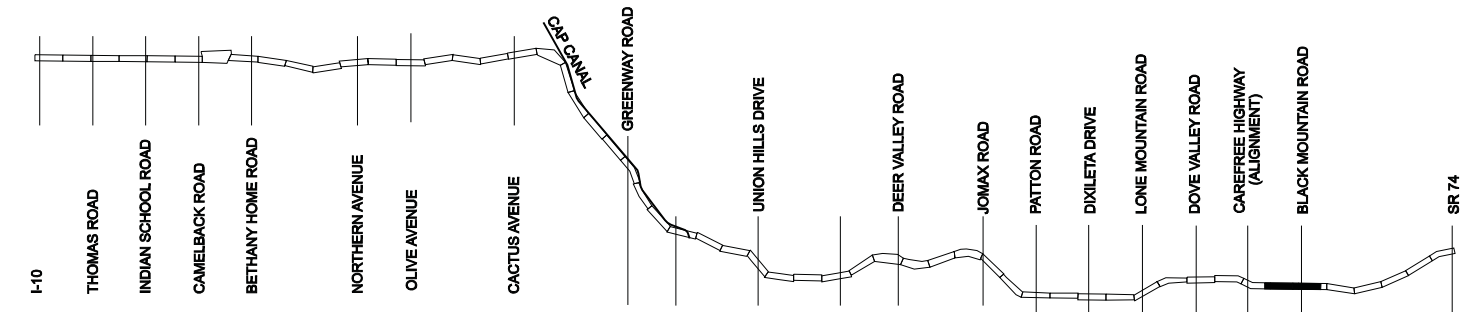
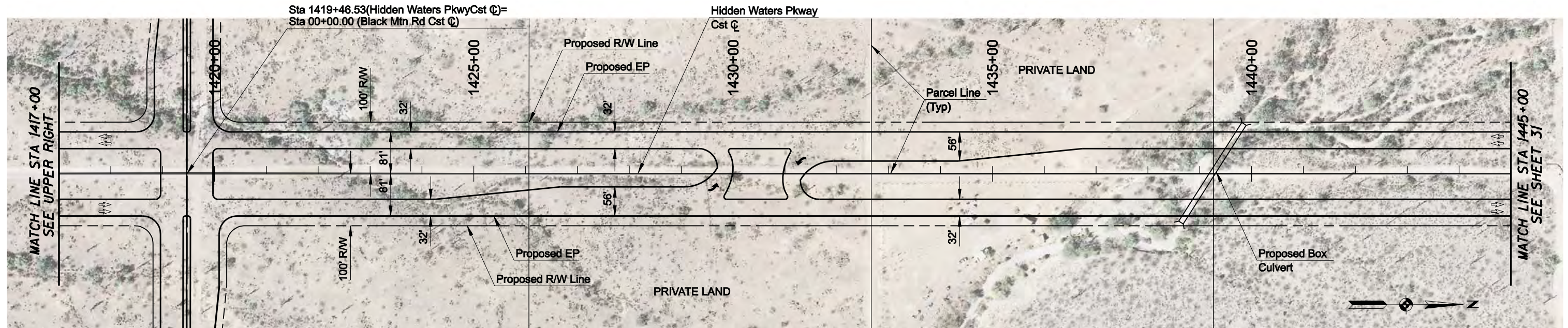
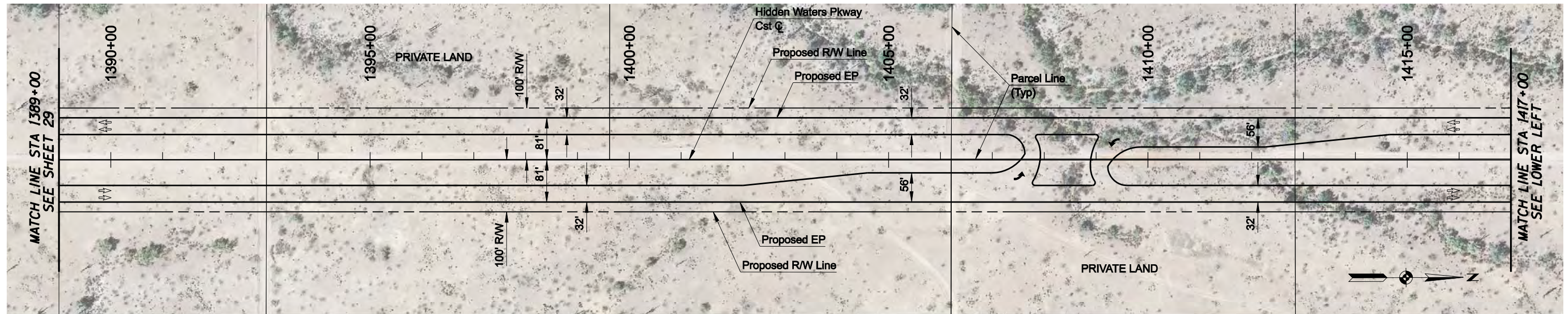


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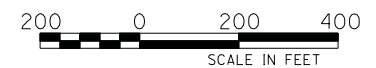
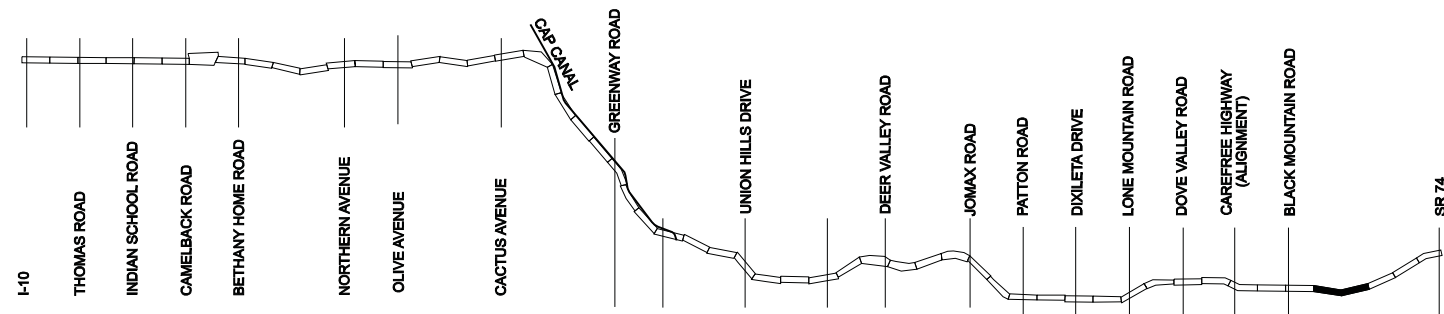
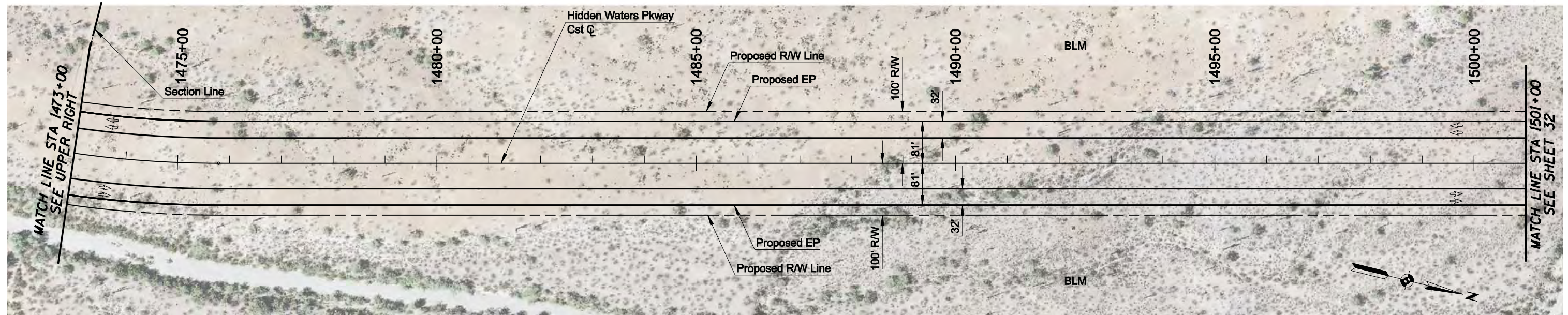
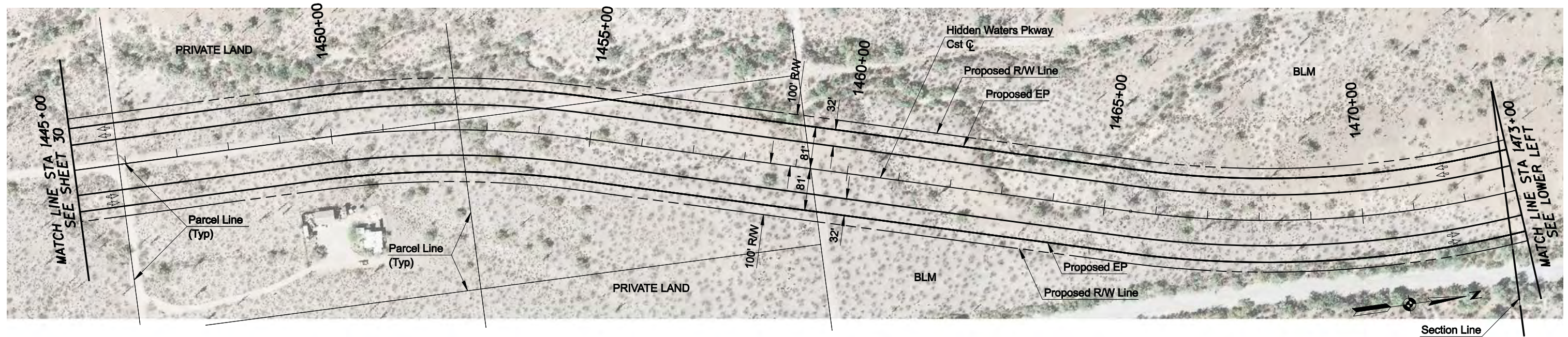
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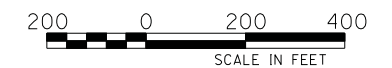
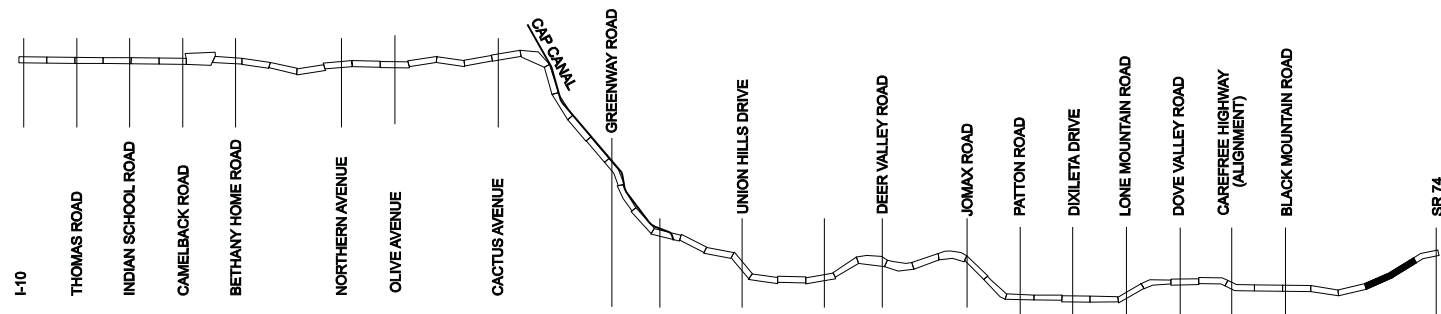
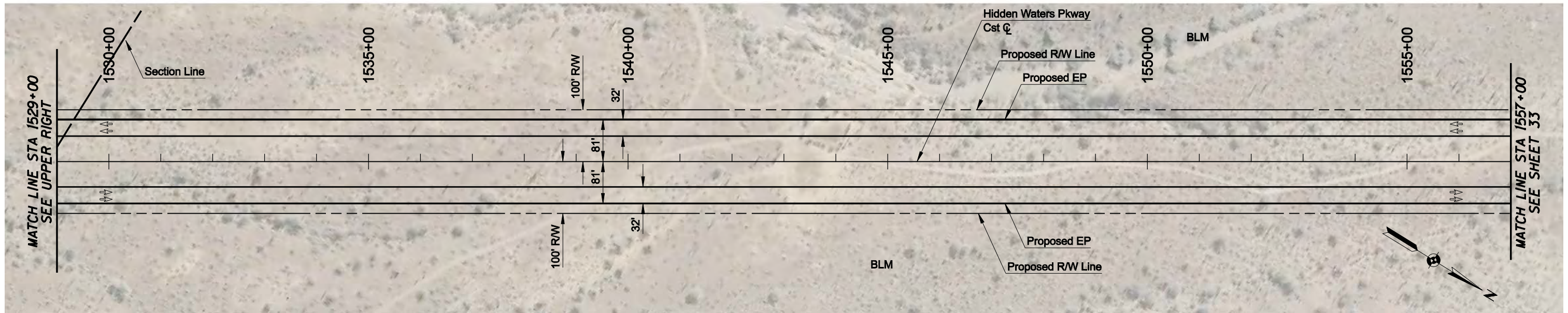
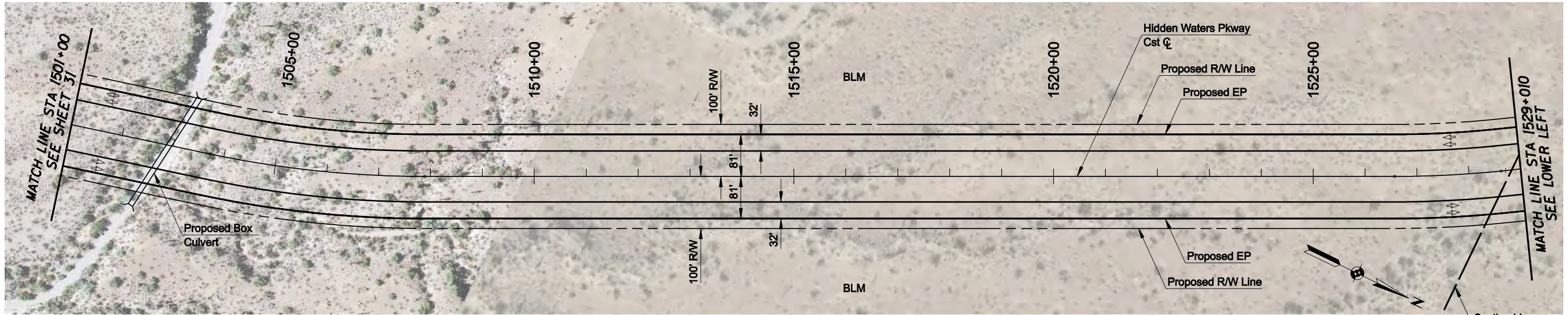


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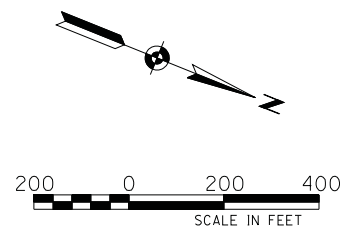
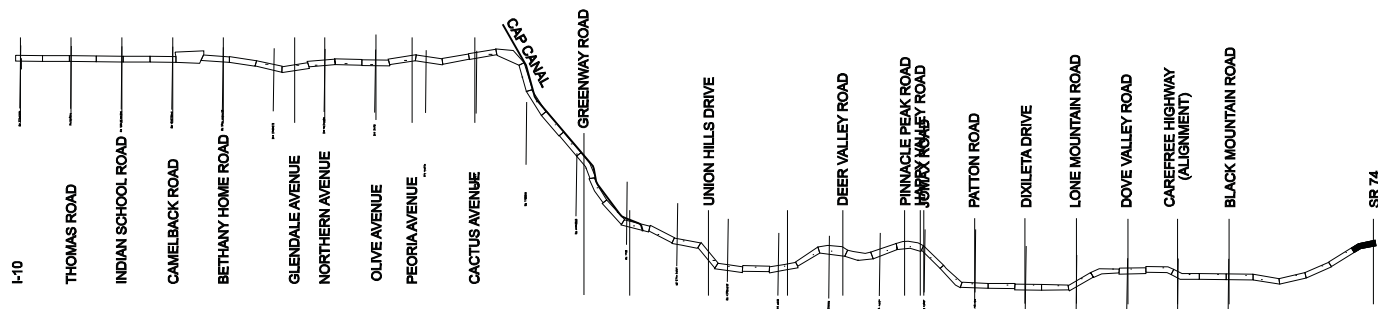
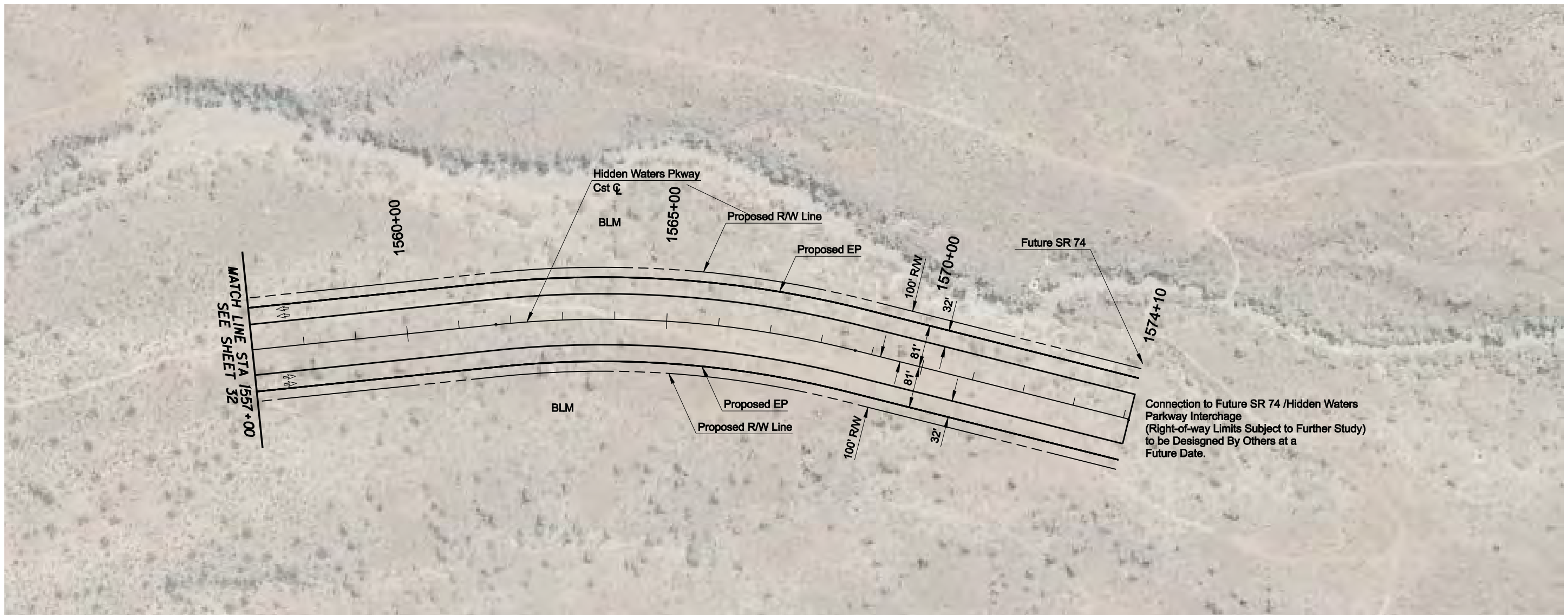
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7.0 Future Activities and Considerations for Future Development

As the preferred alternative becomes better defined through more in-depth phases of project development, additional elements will be incorporated and considered that will address the needs and impacts of future projects within the context of both the current and future settings along the Hidden Waters Parkway corridor.

The following are capsulated key issues identified during this study's Stakeholder Advisory Committee and public involvement process that should be taken into consideration by individual jurisdictions as the recommendations of this study are carried forward through design and construction:

Project Funding

There is currently no funding programmed for construction. It can be anticipated that area developers will participate as part of project requirements.

Access Management Strategies

MCDOT and local jurisdictions have specific expectations regarding roadway access. These strategies should be implemented to ensure a seamless roadway with efficient traffic flow, safety and good access to local land uses.

Environmental Impacts and Noise Mitigation

Specific impacts on the local environment will require further evaluation in future project development.

New Right-of-Way Requirements

Final roadway configuration will determine how much land will need to be acquired.

Landscaping plans

Final project design will specify the type of landscaping to be used.

Drainage Structures

Because the future roadway corridor crosses a number of washes and lies partly in a flood zone, it will be critical to ensure the roadway is designed to provide "all weather" crossings during major storm flows. Bridges along the new roadway will be designed during final roadway design.

Bicycle, Pedestrian and Transit Access

Future projects will be designed to accommodate alternative modes of travel and provide access to trails and neighborhoods in the area.

Corridor Traffic Management

ITS (Intelligent Transportation System) will control operation of traffic between jurisdictions and differing intersection configurations.

Jurisdictional Coordination

As with the overall traffic control, implementation of different corridor improvements and access management concepts will need to be coordinated to ensure a safe, seamless and efficient transportation facility.

Residential Impact within Whispering Ranch

Specific impacts to property within the community will need to be reevaluated prior to final design and construction of the parkway.

Future Roadway Connections

Additional analysis will be required to coordinate/design the future connections with I-10 and the proposed alignments of SR 74 and the Hassayampa Freeway.

Cultural Resources

Only a portion of the study area has been previously surveyed for cultural resources. Additional cultural resource surveys will be required along the final roadway alignment during design.

Wildlife Movement

The Arizona Game & Fish Department (AGFD) has expressed concern regarding potential negative impacts to wildlife movement across the study area. AGFD has requested that the future design of the Hidden Waters Parkway include elements to help promote/facilitate wildlife movement, particularly where the preferred alignment is adjacent to the CAP Canal.

Jackrabbit Wash Crossing

The preferred alignment will require a bridge to span the 100-year floodplain of the Jackrabbit Wash. Further analysis will be required to determine the exact location and limits of the bridge.



8.0 Public Involvement Overview

Building consensus between MCDOT, local agencies, jurisdictions, key stakeholders and the public is vital to the success of the Hidden Waters Parkway North Corridor Feasibility Study. Technical Memoranda 6 documents the general public involvement efforts and stakeholder participation of the Hidden Waters Parkway Study.

8.1 Technical Advisory Committee

A Technical Advisory Committee (TAC) was established to solicit feedback from partnering agencies and key stakeholders at multiple stages of the corridor feasibility study. The TAC and stakeholder group included representatives from the following agencies and interests:

- Arizona Department of Transportation;
- Arizona Game and Fish Department;
- Arizona State Land Department;
- BLM
- Central Arizona Project;
- Developers (El Dorado Holdings, LKY Holdings, Harvard Investments, BET Investments);
- Federal Highway Administration;
- Flood Control District of Maricopa County;
- Utility Companies (SRP, APS, Western);
- Maricopa Association of Governments;
- Maricopa County Planning and Development;
- Maricopa County Department of Transportation;
- Property Owners/Residents;
- Town of Buckeye;
- Toyota Arizona Proving Ground.

The TAC met four times over the course of the study to review progress, provide feedback/direction and build consensus on study recommendations. Additional study coordination meetings were held with TAC members as needed to understand concerns and establish consensus.

TAC members were also invited to review and comment on all draft technical memoranda and the final report.

8.1.1 TAC Meetings

TAC meetings were held at four key milestones over the course of the study. These meetings discussed the following topics:

- *April 13, 2011* – The purpose of this meeting was to present the Work Plan to the TAC. This meeting included a general project overview, definition of the corridor limits, key study goals and objectives, identification of study area issues, project schedules, relevant studies, etc.



- *June 1, 2011* – This meeting was held to review the results of Technical Memoranda 1, 2, and 3, which described the existing and future corridor features, environmental overview and drainage overviews, respectively.
- *August 18, 2011* – The third TAC meeting presented the results of Technical Memorandum 4, which discussed the development and evaluation of the candidate parkway alignments.
- *October 25, 2011* – The final TAC meeting was held to present the detailed analysis of the preferred alignment alternative and to develop consensus on the study recommendations.

Refer to Technical Memo 6 (Appendix F) for summaries of the Hidden Waters Parkway TAC meetings.

8.2 Public Outreach Methods

The MCDOT RightRoads Program conducted three public meetings to solicit public feedback for the Hidden Waters Parkway Study. The “open-house” public meeting format was chosen because it provided a free, open and accurate exchange of information between area residents with specific issues or questions and the project team.

The following outreach methods were used to inform and notify the general public and impacted residents about the study, public input meeting dates and locations and additional opportunities or means for input:

- Media releases
- Newspaper articles
- Display advertisements in local and regional publications
 - Arizona Republic
 - West Valley View
 - Buckeye Valley News
 - Buckeye Star
 - Tonopah Tribune
- MCDOT website
- Partner agency mediums
- Direct mail flyers to adjacent property owners and previous meeting attendees

8.2.1 Public Open House Meetings

The open-house meetings were held to address critical milestones in the study process on the following dates:

- *June 15, 2011* – The first public open house was held during the initial scoping phase of the study to introduce the project to the community and to gather information from the residents about key study area issues and local transportation needs. This meeting also provided the study team members with an opportunity to discuss and elicit feedback regarding the study purpose, goals and objectives.
- *August 30, 2011* – The second public meeting was held during the Alternatives Analysis phase of the study. The purpose of the meeting was to present the



conceptual alignment alternatives to residents and provide the community with the opportunity to comment on the three Candidate Alternative alignments being evaluated for the corridor.

- *November 9, 2011* – The findings and recommendations of the study, including the preferred parkway alignment, a right-of-way footprint, and preliminary engineering details, were presented to the public during the final "Study Findings and Recommendations" public information meeting.

8.3 Public Comment

Over 100 people attended the three public input meetings. Graphics, aerials and display exhibits presented corridor alternatives and study information. Study Fact Sheets and Comment Sheets were distributed to all those in attendance.

Technical Memo 6, summarizes the input received during the three public open house meetings. The *Summary of Public Involvement Report*, prepared by MCDOT Community Relations staff, provides additional detail regarding the public open house meeting materials and is included in Appendix F.



Appendix A

- Technical Memorandum #1 - Existing and Future Corridor Features, June 2011

Appendix B

- Technical Memorandum #2 - Environmental Overview, June 2011

Appendix C

- Technical Memorandum #3 - Conceptual Drainage Report, June 2011

Appendix D

- Technical Memorandum #4 - Candidate Alignments and Evaluation, Sep 2011

Appendix E

- Technical Memorandum #5 - Detailed Preferred Alignment, October 2011

Appendix F

- Technical Memorandum #6 – Public and Stakeholder Involvement, January 2012