

WASTEWATER COLLECTION SYSTEM, PHASES 1 AND 2 DESERT TORTOISE FOCUSED SURVEY



CITY OF TWENTYNINE PALMS, SAN BERNARDINO COUNTY, CALIFORNIA

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> > 12 May 2022

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1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) was contracted by Terra Nova Planning and Research to conduct a focused survey for the desert tortoise (*Gopherus agassizii*) at the site of Phases 1 and 2 of a proposed wastewater collection system project (project) in Twentynine Palms, San Bernardino County, California. This report provides methods, results, and discussion of the survey.

1.1 Project Location and Topography

The project is entirely within the City of Twentynine Palms, San Bernardino County, California (see Figure 1). It is located primarily on the 7.5-minute Twentynine Palms, Calif. United States Geological Survey (USGS) quadrangle extending slightly south into the Queen Mountain, Calif. USGS quadrangle. It is in Township 1 North, Range 9 East, in portions of Sections 15, 16, 20-22, 27-29, 32 and 33 (see Figure 2). Project topography is roughly level overall, with some low hills in the southwestern area. Elevations range from approximately 1,795 feet (547 meters) in the northeast to 2,140 feet (652 meters) in the southwest. The land within the study area generally slopes from the southwest to the northeast (NV5 2022).

1.2 Project Description

Phase 1 includes:

- Trunk sewers for Phase 1.
- Collector sewers for Phase 1.
- Two existing package treatment plants for the Turtle Rock and Desert Knoll Developments.
- The two large dense military housing developments on Two Mile Road and Joe Davis Drive.
- The residential area northeast of the Adobe Road Two Mile Road intersection.
- The commercial area on Adobe Road and Amboy Road north of Samarkand Drive.

Phase 2 includes:

- Trunk sewers for Phase 2.
- Collector sewers for Phase 2.
- Two planned package treatment plants for project Phoenix and the Wander Hotel.
- The dense downtown area east of Donnell Hill. This area has a balanced mix of both residential and commercial land use.

See Figure 3 for a project overview.





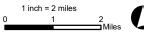
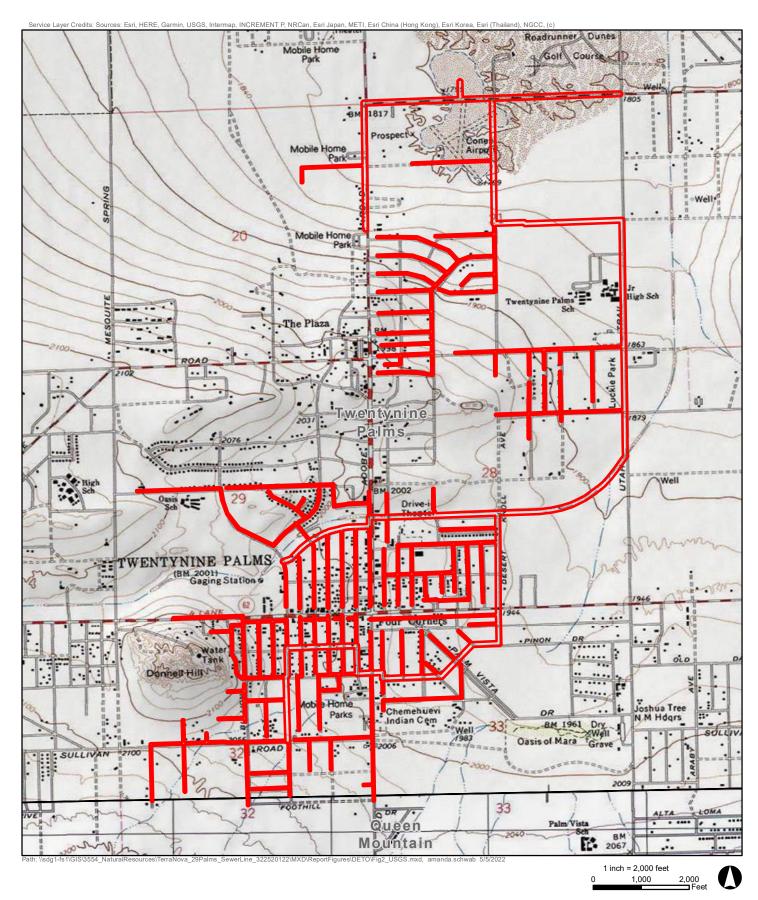


FIGURE 1

Regional Vicinity Twentynine Palms Wastewater Collection System, Phases 1 and 2 Twentynine Palms, CA

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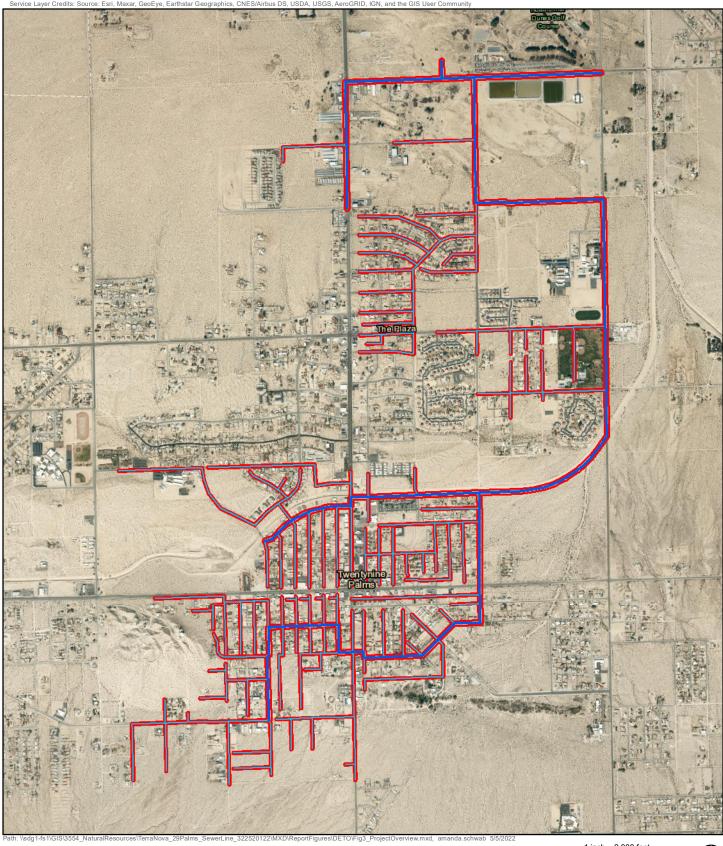




Project Area

FIGURE 2

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Proposed Trunk SewerProposed Collector SewerProject Area



FIGURE 3

Project Overview Twentynine Palms Wastewater Collection System, Phases 1 and 2 Twentynine Palms, CA

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2.0 BACKGROUND ON THE DESERT TORTOISE

The desert tortoise is a long-lived, terrestrial turtle, with a domed carapace (upper shell) and rounded, stumpy elephantine hind limbs. The front limbs are flattened and heavily scaled for digging and without webbed toes. The carapace is oblong with rounded sides due to the joining of the carapace to the plastron (lower shell). The scutes are often yellowish in the middle and have grooved, parallel, concentric growth rings that form outward with age toward the scute margins. The plastron is typically yellowish, becoming brown around the scute margins. The head is relatively small and rounded in front with reddish-tan coloring and the iris being greenish-yellow. The front and hind feet are about equal in size and the tail is of short length.

Desert tortoises in the Mojave and Colorado deserts west and north of the Colorado River were listed by the U.S. Fish and Wildlife Service (USFWS) as threatened on April 2, 1990 (USFWS 1990). They are also listed as threatened by the State of California. Proposed actions within the range of the Mojave desert tortoise fall under purview of the federal Endangered Species Act 1973, as amended (ESA), in addition to State regulations. These tortoises have since been named as a full species, still *G. agassizii*, no longer conspecific with tortoises south and east of the Colorado River that were reclassified as *G. morafkai* (Murphy et al. 2011). USFWS (2019). For purposes of the ESA, desert tortoise habitat is defined as 1) areas with presence of desert tortoises or desert tortoise sign, 2) dispersal areas (i.e., habitat corridors), or 3) areas suitable for desert tortoises as identified by the USFWS or in the most recent approved recovery plan for the Mojave population of the desert tortoise (USFWS 2011).

The desert tortoise is most common in desert scrub, desert wash, and Joshua tree habitats in a variety of terrain types, including alluvial fans, valleys, rocky hillsides, and washes. They require friable soil for burrow and nest construction. Burrows are typically found at the base of shrubs, in the interspaces between shrubs, and occasionally in caliche soil bank areas or underneath boulders/rocks. They are herbivores and feed on a variety of plants including annual herbs and perennial grasses.

Tortoise activity is greatest during the spring and early summer, and to a lesser extent during the fall; however, tortoises can be active at any time of the year during appropriate weather conditions. Although tortoises hibernate during the winter and typically emerge in late February or early March, hatchlings and juveniles can be fairly active during the winter months. Adults will also emerge from their burrows to drink if water resources have been limited during the previous activity season and/or winter precipitation has provided standing water. Their activity is usually much reduced during hot summer months, but they may be active following summer rains or if temperatures are moderate (Boarman 2003). They retreat into their horizontal burrow to avoid surface temperature extremes and to escape from predators. Desert tortoises are known to utilize an average of 7-12 burrows at any given time. Multiple tortoises are also known to occasionally share a single burrow (Bureau of Land Management "BLM" 2006).

Threats to desert tortoises include loss or degradation of habitat, vandalism, poaching, intentional killing, predation on young tortoises by the common raven (*Corvus corax*) and other predators (*e.g.* kit fox, snakes, etc.), and disease (*e.g.* Mycoplasmosis). Off-road vehicles, military training maneuvers, mining, and livestock grazing also affect tortoise habitat by collapsing burrows, eroding soils, reducing availability of food plants, eliminating shrubs which would provide shade for tortoises and support for their burrows, and ultimately results in surface disturbance that promotes conditions more conducive to invasion by exotic plant species, which provide less nutritional value to tortoises than the native species that were replaced. Human activities, including garbage dumping, landfills, roads, increased nesting opportunities, irrigation, and increased vehicle use have also led to increased numbers of common ravens in California deserts. Ultimately, the increased predation on young tortoises by common ravens reduces recruitment into breeding populations (Boarman 2003).

Tortoises are most often detected by scat, sign, and burrows/pallets. Tortoises themselves can sometimes be detected aboveground foraging or moving about or in burrows by shining a light within. Tortoise sign includes scat, tracks, eggshell fragments, courtship rings, drinking depressions, carcasses, or fragments thereof. Presence of sign is an indication that tortoises either occur, or have recently occurred, at a particular location that is likely to be part or all of a lifetime home range. Sign can be detected at any time of the year and always indicates suitable habitat, if not occupied habitat.

3.0 METHODS

3.1 Literature Review and Records Search

A literature review and record search were conducted to identify occurrences of desert tortoise, critical habitat for desert tortoise, or any designated desert tortoise management areas within the project footprint. The review included:

- A report from the California Department of Fish and Wildlife' (CDFW's) California Natural Diversity Data Base (CNDDB) for a five-mile radius of the project site (CDFW 2022a),
- The USFWS (2022) Environmental Conservation Online System (ECOS) including critical habitat mapping and an Information for Planning and Consultation (IPaC) report.
- Aerial photographs, and
- Pertinent documents from the Wood library and project files (e.g., other biological surveys from the general vicinity).

3.2 Focused Survey

Wood biologists conducted desert tortoise focused surveys daily from 5 April 2022 through 11 April 2022 (see Appendix A). The surveys followed guidance for linear projects in the protocol: *Preparing for Any Action that May Occur Within the Range of the Mojave Desert Tortoise* (USFWS 2019). The survey included the trunk lines and the 50-foot action area on either side of them plus the collector lines and a 25-foot action area on either side of them. Except where fully developed, all relatively natural lands in the project footprint, including bare ground next to such lands was surveyed.

4.0 RESULTS

4.1 Focused Survey

As reported in the biological resources assessment for the project (Wood 2022), much of the alignment is surrounded by the homes, businesses, and public facilities that will be served by the proposed system. The remaining habitat is a patchwork of varying sizes of undeveloped vacant lots and lands. Most undeveloped lands are not pristine, but instead show signs of anthropogenic disturbance, such as mechanical disturbance of soil, vegetation removal, off road vehicle tracks, and trash dumping. Nevertheless, the undeveloped lands provide potential habitat and corridors for desert tortoise between developed/disturbed areas.

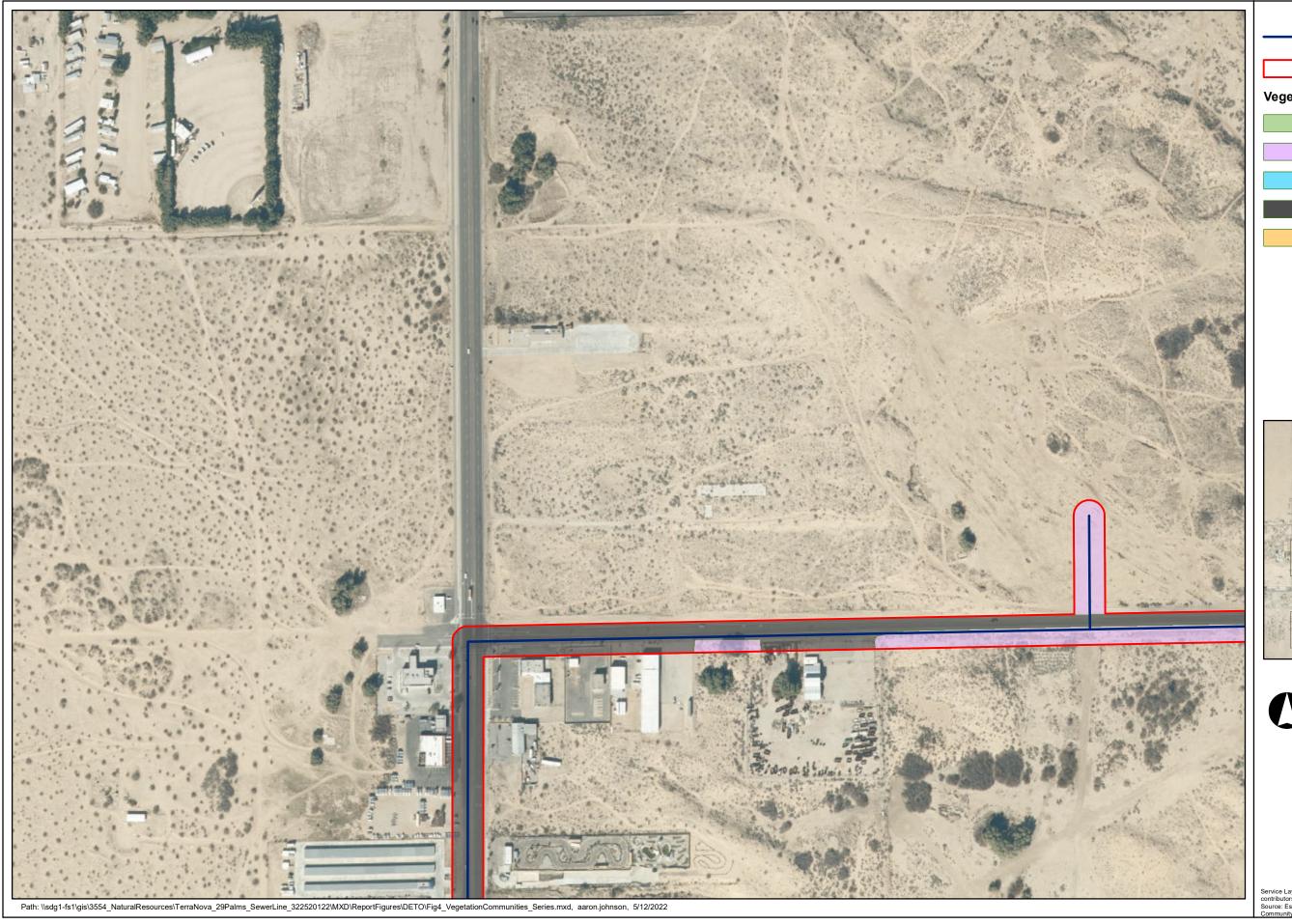
No specific soil mapping was available for most of the project site (United States Department of Agriculture, Natural Resources Conservation Service 2019.). The only mapped soil is near the southeast site corner: "Pintobasin gravelly sand, 1 to 3 percent slopes." In general, most observed soils appeared consistent with gravelly sands, but some soils in the northeast project area included apparent alkali sinks, fine sands, and even dunes.

Where not developed, the primary vegetation community present throughout the project area is Creosote Bush Scrub dominated by creosote bush (*Larrea tridentata*) with various co-dominants including white bur-sage (*Ambrosia dumosa*), white rhatany (*Krameria bicolor*), allscale saltbush (*Atriplex polycarpa*) and cheesebush (*Ambrosia salsola*). In the northern project area there are stand of Saltbush Scrub dominated by allscale saltbush (*Atriplex polycarpa*) and/or four-wing saltbush (*Atriplex canescens*) and Desert Sink Scrub dominated by bush seepweed (*Suaeda nigra*). A major flood control channel which originates from Fortynine Palms Canyon to the southwest is present onsite, as well as other unnamed drainages. These are mapped as Desert Wash Systems and where plants have not been removed by flood control agencies, they are vegetated with species such as smoke tree (*Psorothamnus spinosus*) and catclaw (*Senegalia greggii*). Vegetation communities in the project footprint are mapped on Figure 4) and are based on those in USGS (2004). A full list of plant and vertebrate wildlife species detected onsite is included in Wood (2022).

4.2 Literature Review

The closest desert tortoise records within the CNDDB (CDFW 2022) are within a polygon present immediately west of the project area. Tortoise densities within that polygon were estimated at 20 - 50 per square mile in 1990-1991.

The proposed project site is within the Western Mojave Recovery Unit (USFWS 2011). It is not within designated critical habitat for the desert tortoise (see Figure 5).



Survey Area

Vegetation Communities

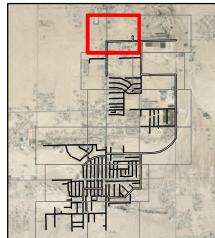
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub





1 inch = 300 feet 0 300 Fee

FIGURE 4a

Vegetation Communities Twentynine Palms Wastewater Collection System, Phases 1 & 2 Twentynine Palms, CA

wood

Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetM contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS Us Community



Survey Area

Vegetation Communities

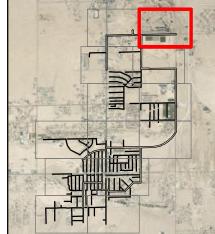
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub





1 inch = 300 feet

FIGURE 4b



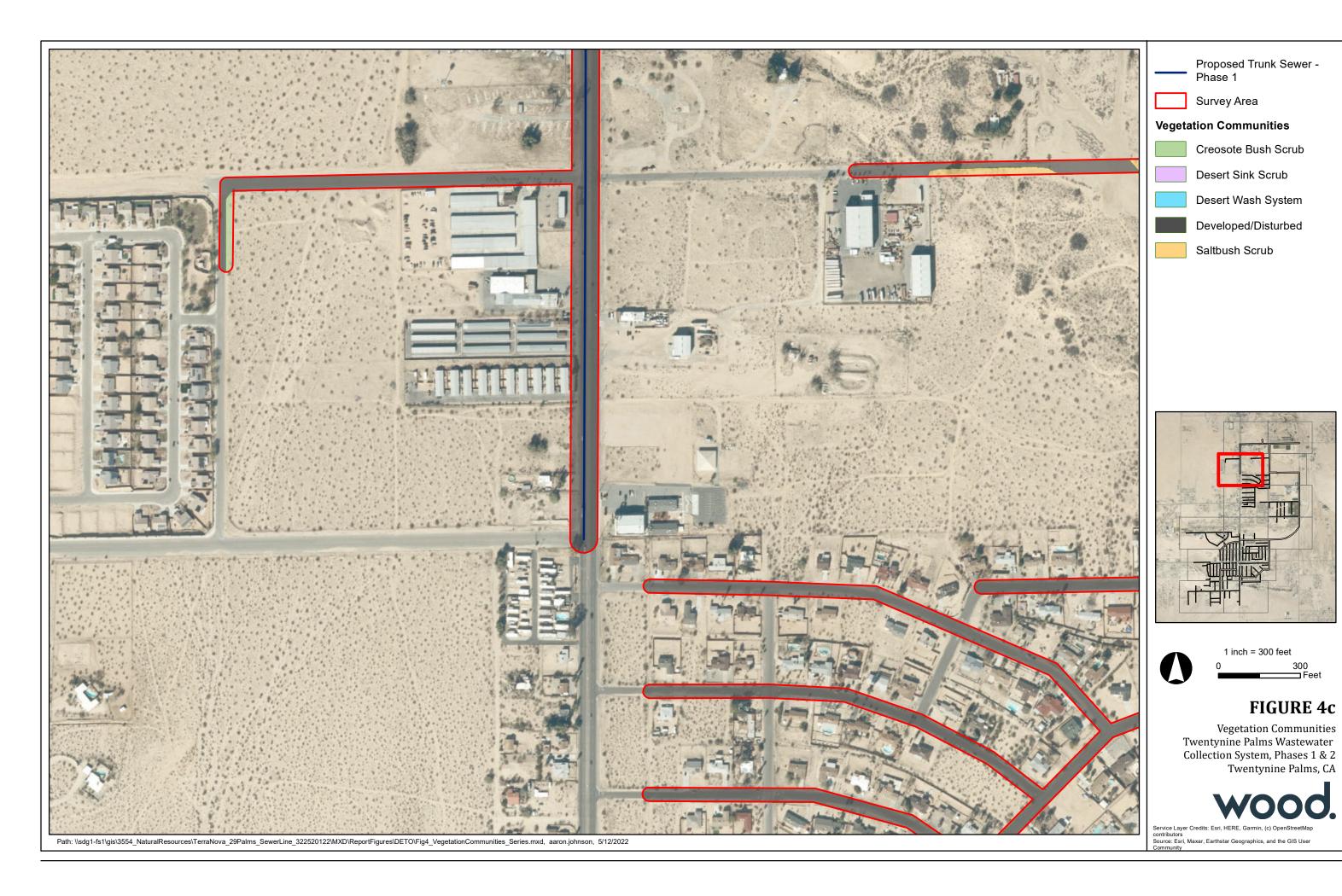
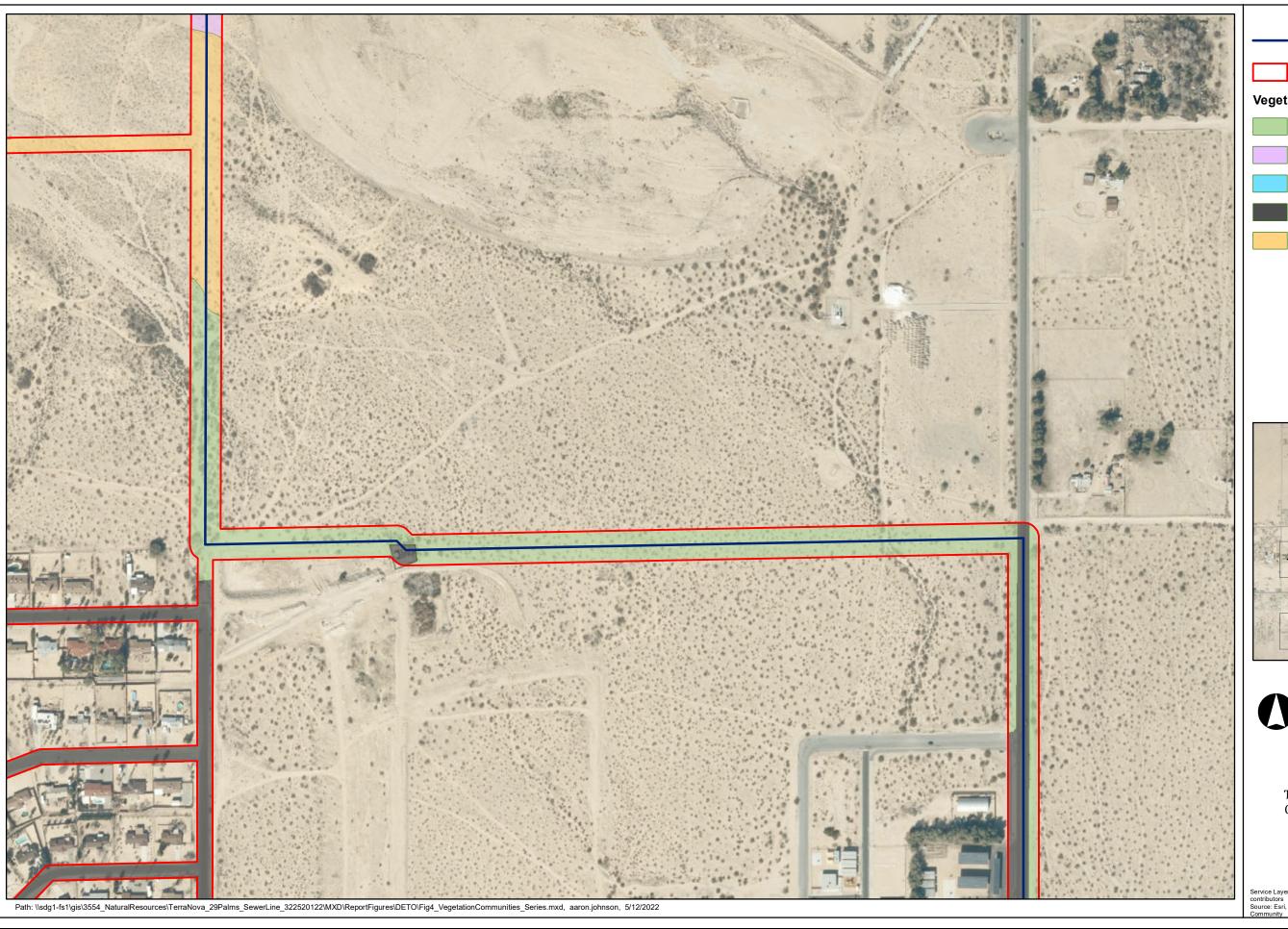


FIGURE 4c



Survey Area

Vegetation Communities

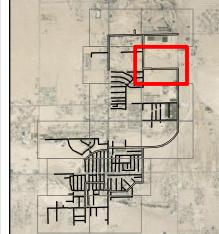
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub





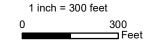
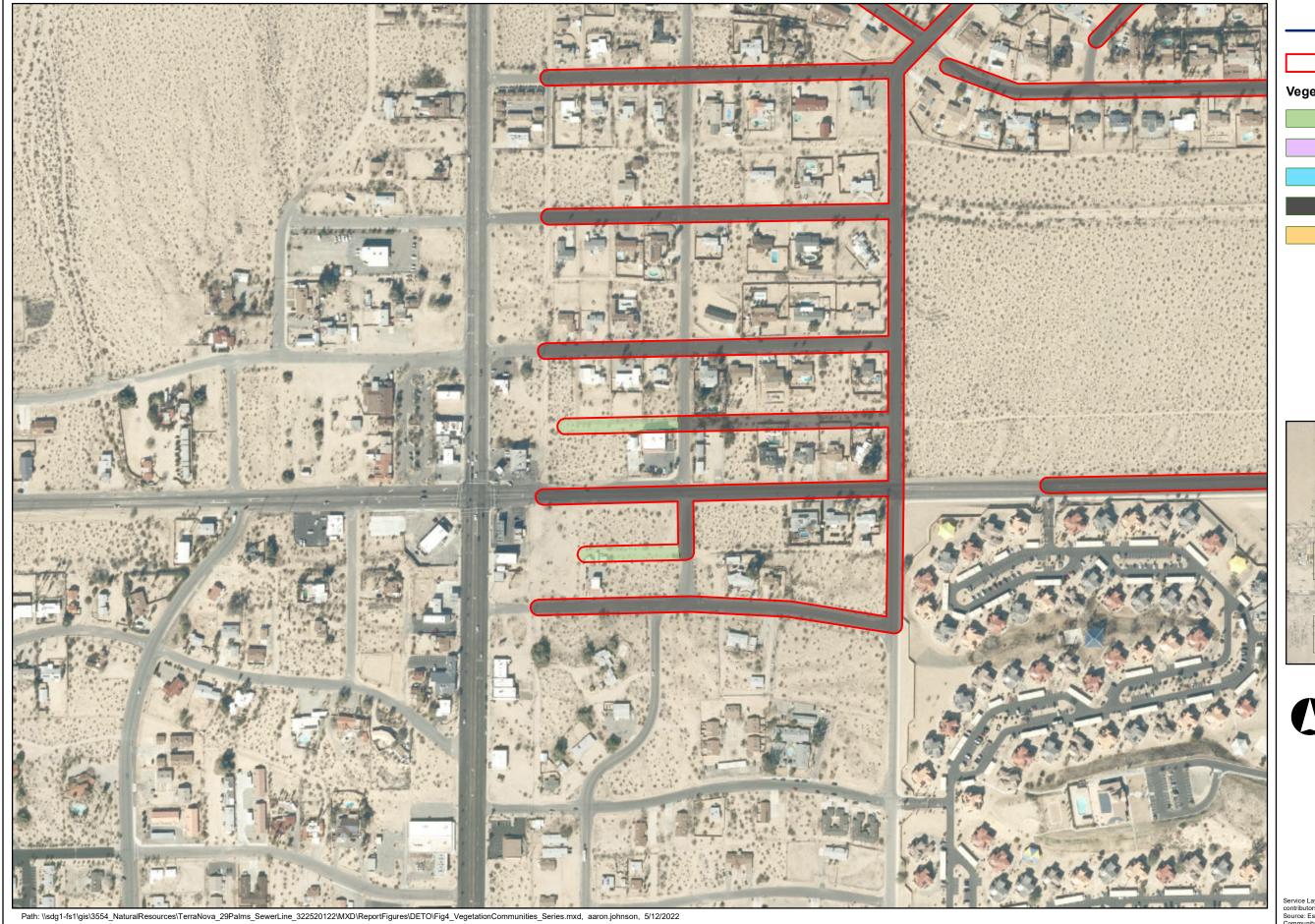


FIGURE 4d





Survey Area

Vegetation Communities

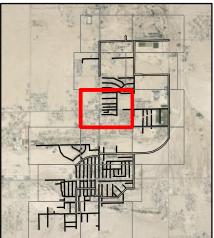
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub

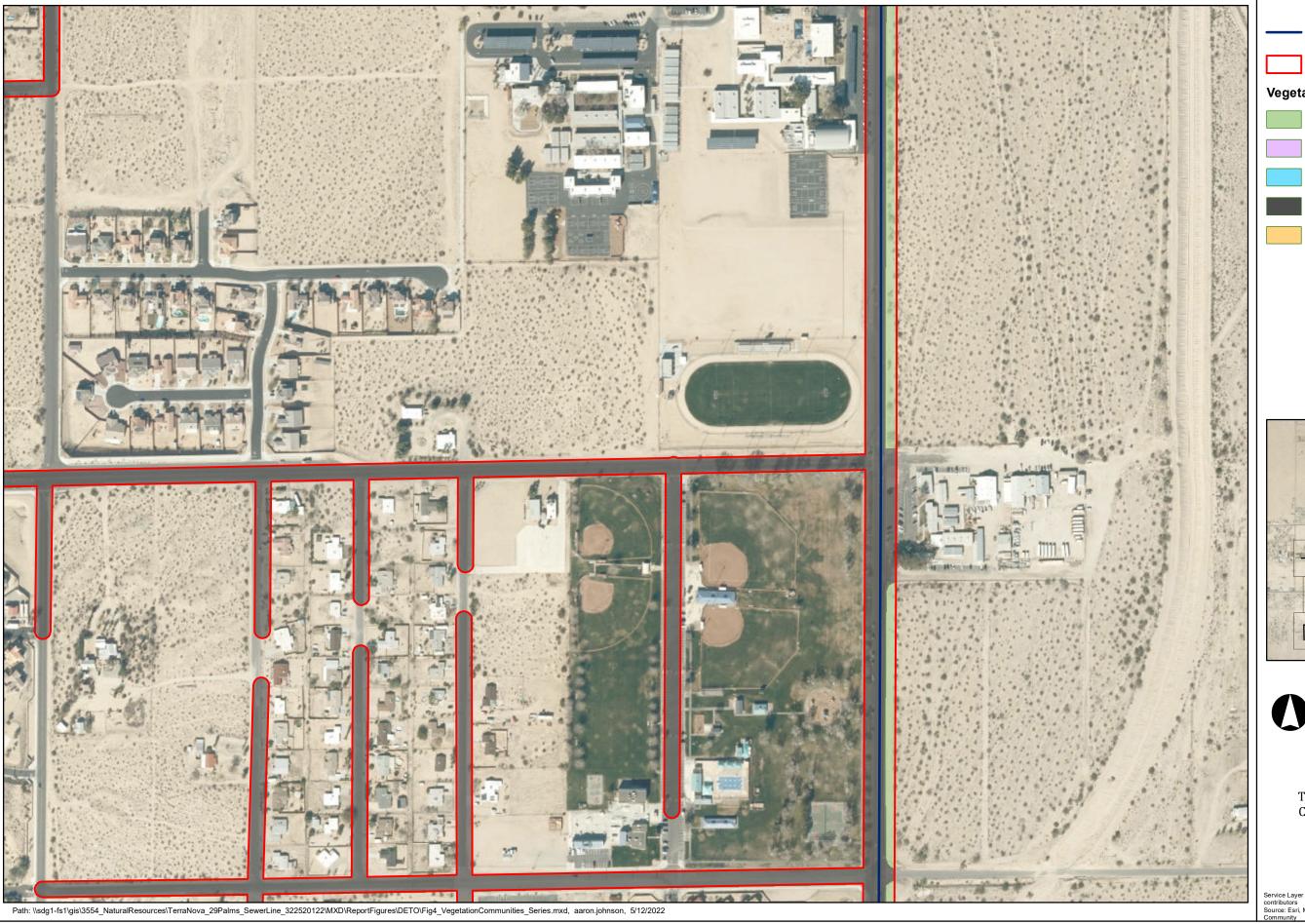




1 inch = 300 feet

FIGURE 4e





Survey Area

Vegetation Communities

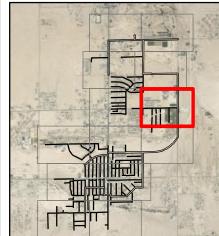
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub

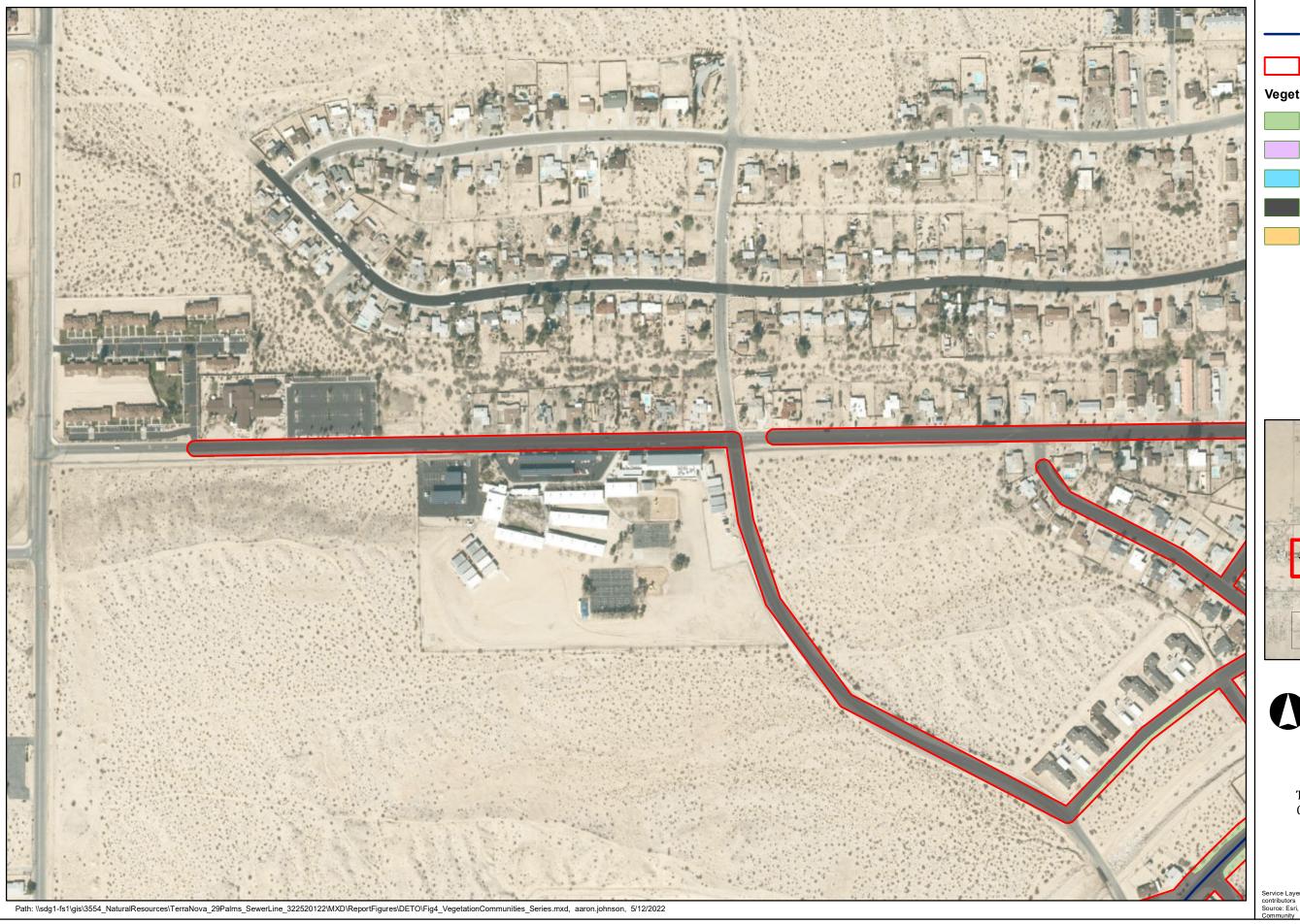




1 inch = 300 feet

FIGURE 4f





Survey Area

Vegetation Communities

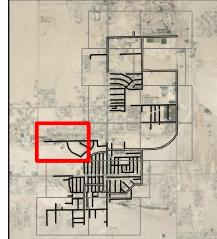
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub





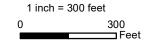
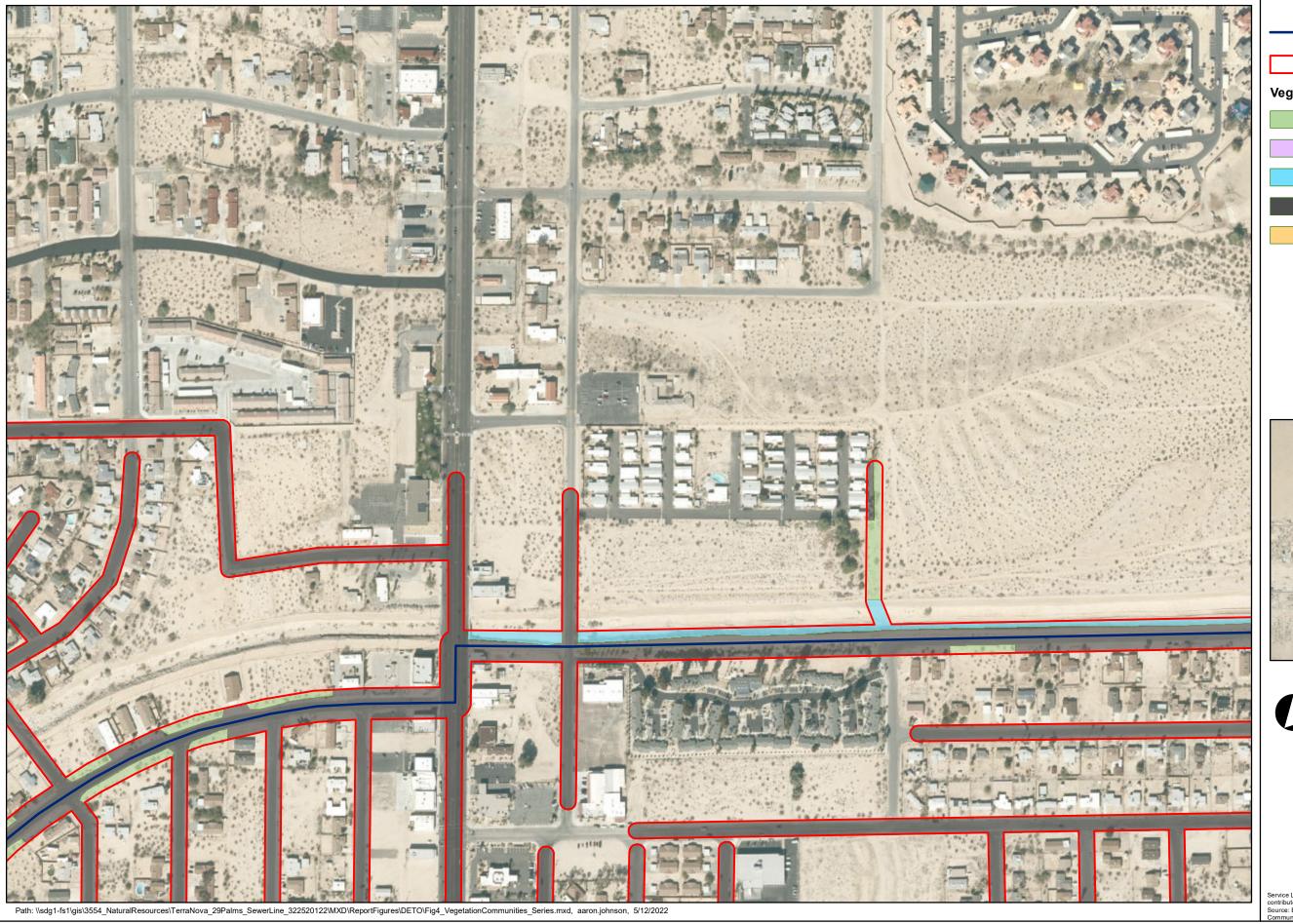


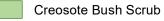
FIGURE 4g

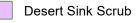


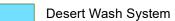




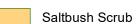
Vegetation Communities

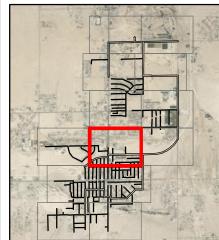














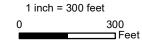
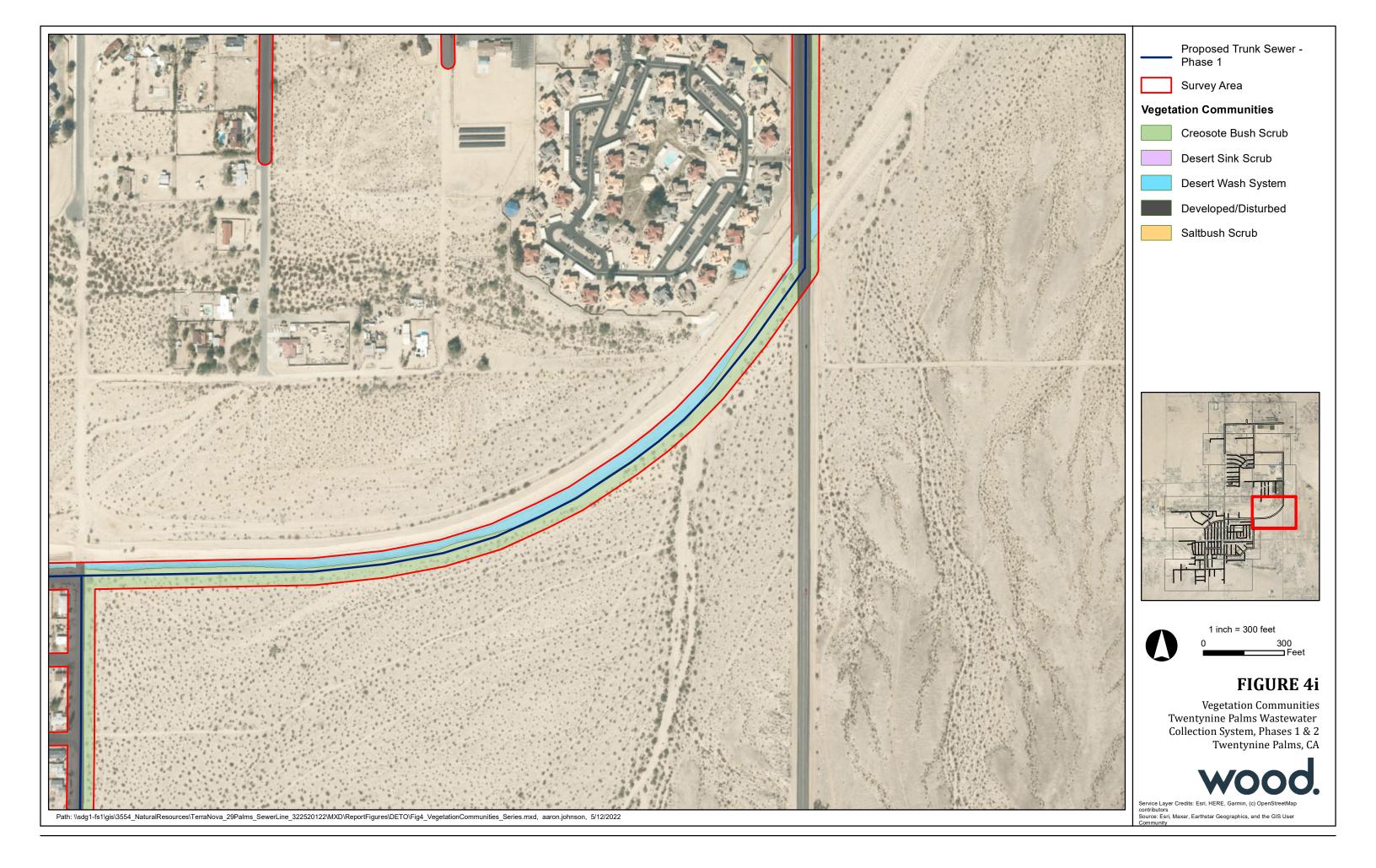


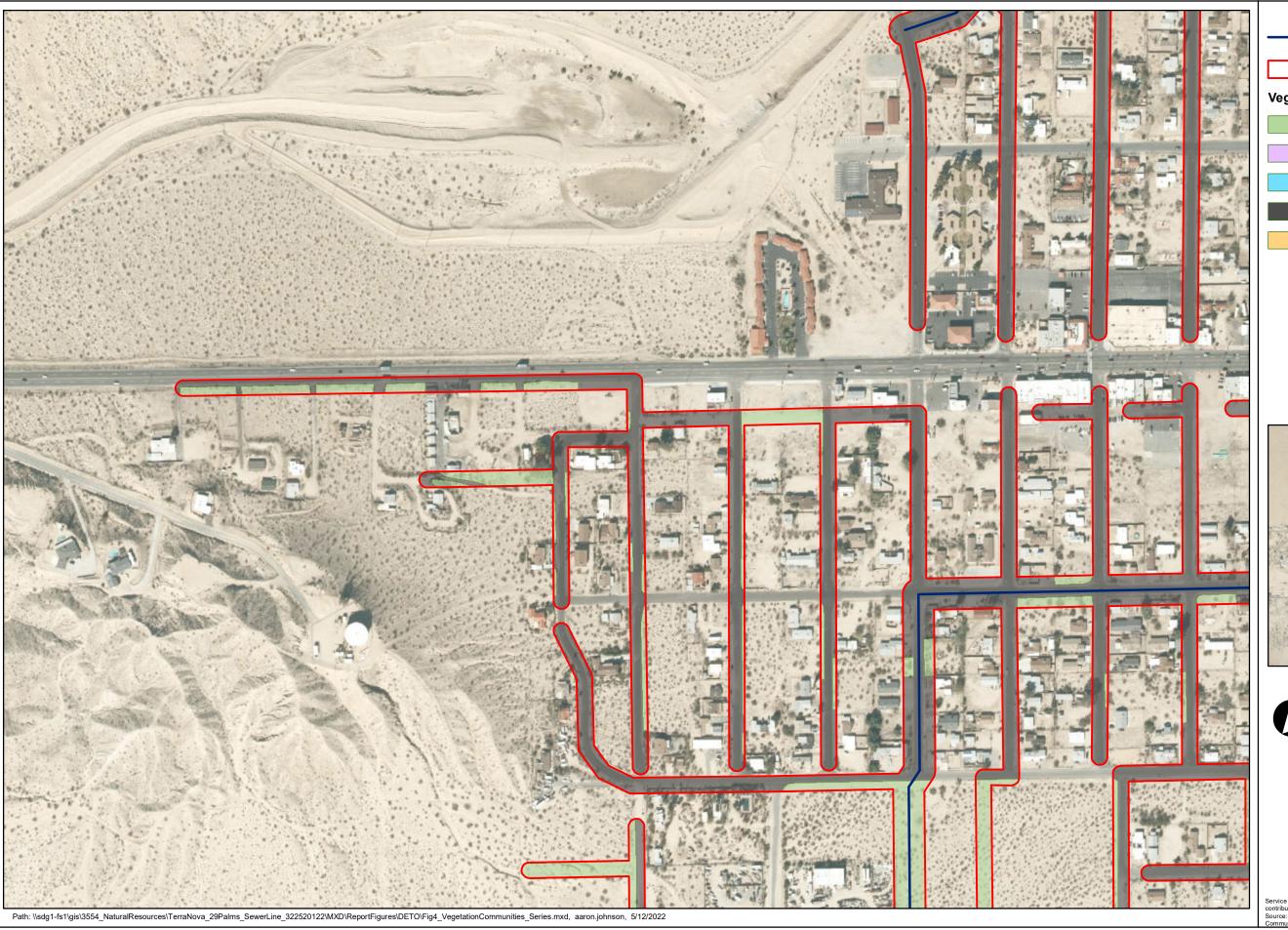
FIGURE 4h

Vegetation Communities Twentynine Palms Wastewater Collection System, Phases 1 & 2 Twentynine Palms, CA



Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMa contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User





Survey Area

Vegetation Communities

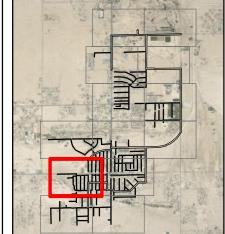
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub





1 inch = 300 feet 0 300 Fee

FIGURE 4j

Vegetation Communities Twentynine Palms Wastewater Collection System, Phases 1 & 2 Twentynine Palms, CA



Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetM contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS Use

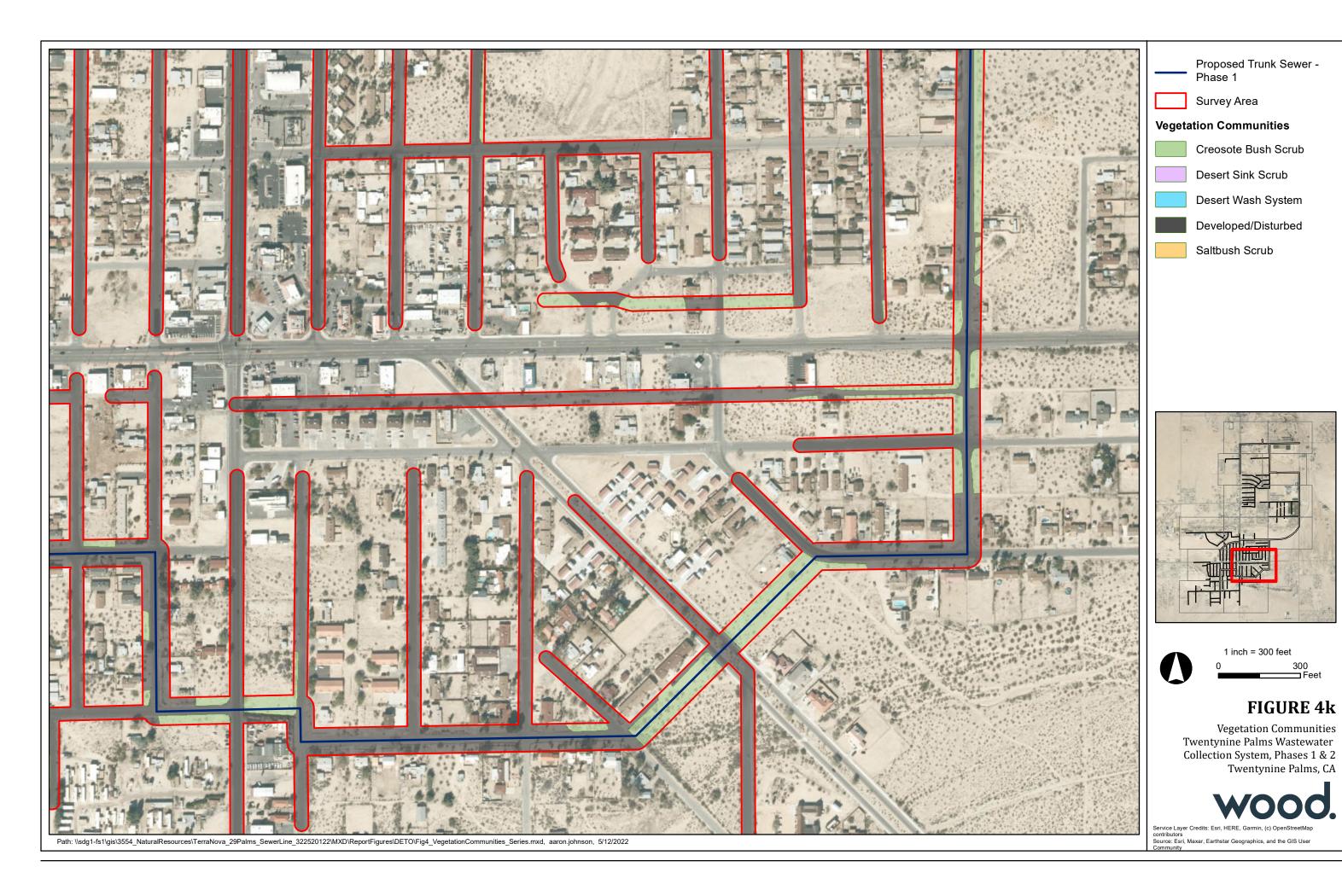
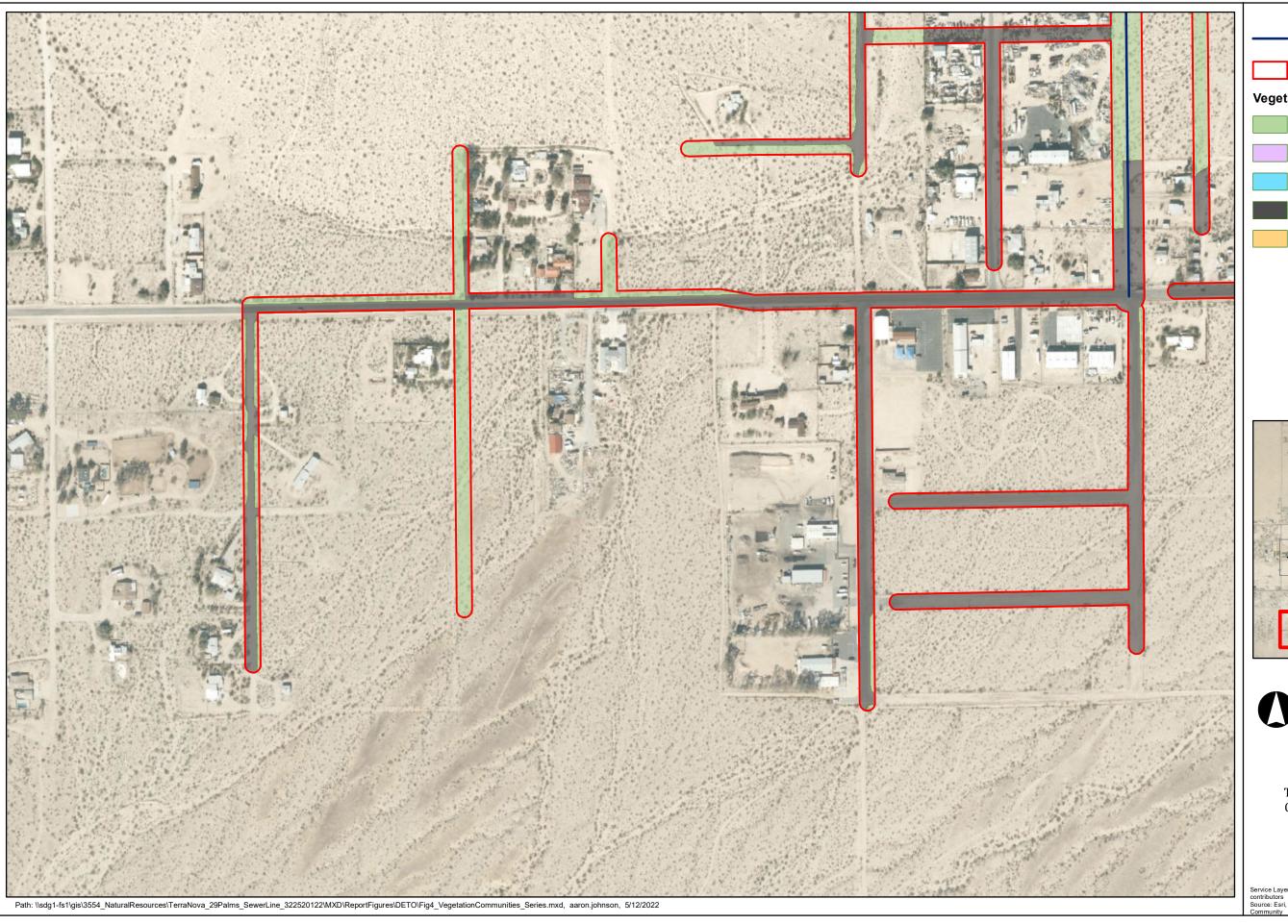


FIGURE 4k



Survey Area

Vegetation Communities

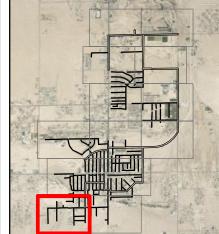
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub

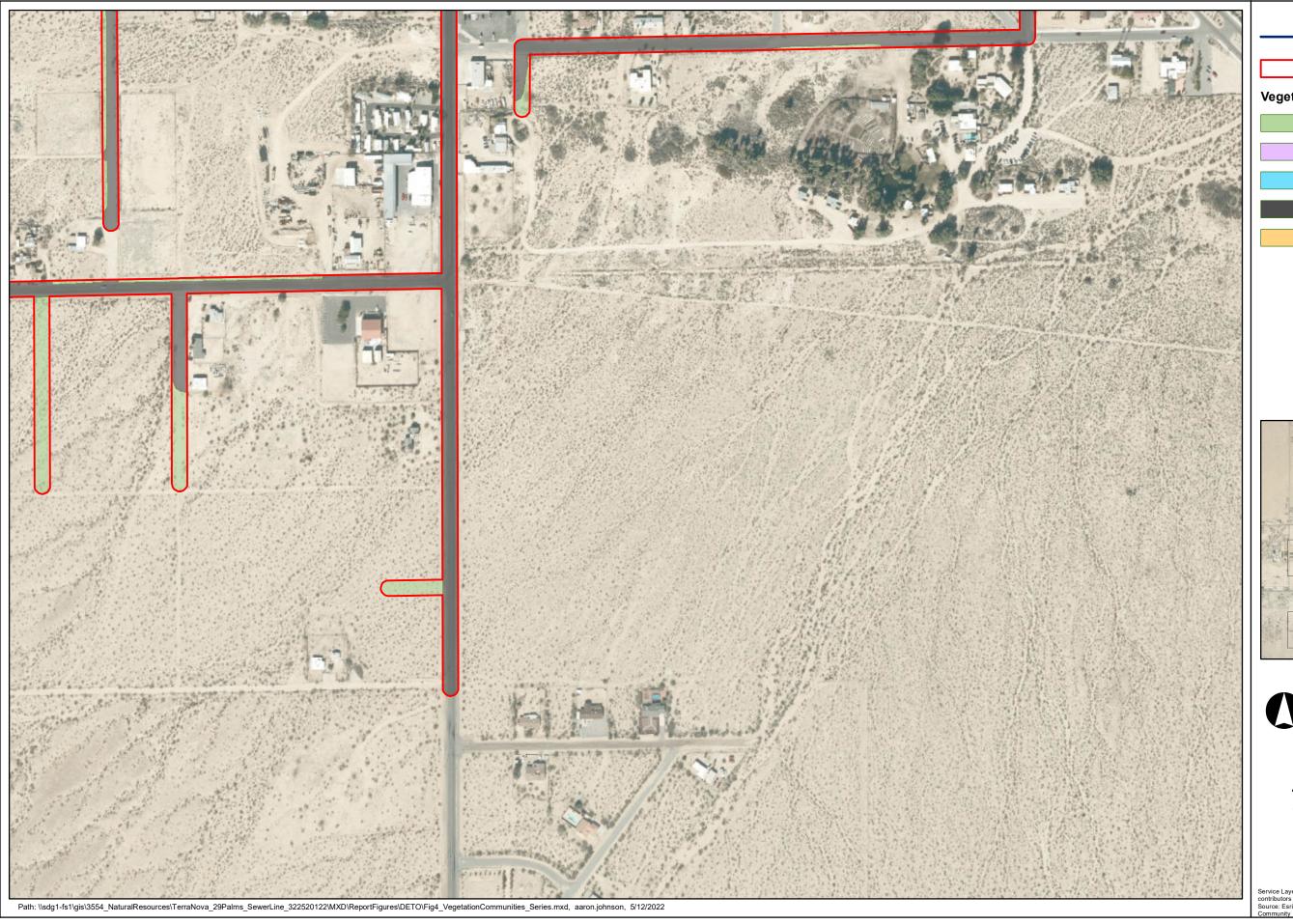




1 inch = 300 feet

FIGURE 41





Survey Area

Vegetation Communities

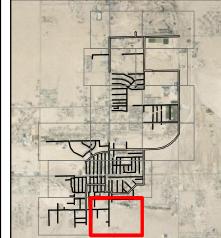
Creosote Bush Scrub

Desert Sink Scrub

Desert Wash System

Developed/Disturbed

Saltbush Scrub





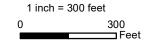


FIGURE 4m

Vegetation Communities Twentynine Palms Wastewater Collection System, Phases 1 & 2 Twentynine Palms, CA



Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

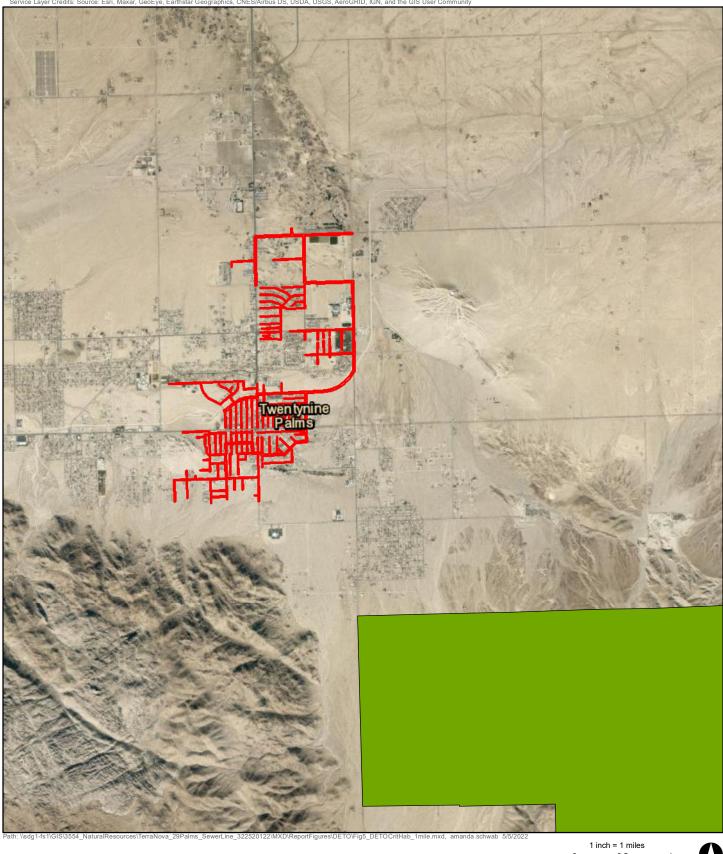








FIGURE 5

Desert Tortoise Critical Habitat Twentynine Palms Wastewater Collection System, Phases 1 & 2 Twentynine Palms, CA

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5.0 DISCUSSION

Although there is no desert tortoise critical habitat designated on the project site, it is present approximately 1.5 miles to the southeast. Further, the vegetation communities occurring on the project site (e.g. Creosote Bush Scrub, Saltbush Scrub) are habitats typically utilized by desert tortoises, and the CNDDB reported populations immediately to the west in 1990-1991. During the focused survey, Wood biologists were provided an anecdotal report by a local resident who stated that they had observed a mating pair of desert tortoises in the southern project area last year.

Despite all that, the focused survey detected no desert tortoises or desert tortoise sign within the project footprint and action area. Further, although desert tortoise was not the primary target, focused surveys for the burrowing owl were conducted in a 150-meter buffer around the project footprint and action area. No desert tortoises or desert tortoise sign were detected within that buffer either.

Despite the absence of desert tortoise and sign, the project area is surrounded by potential habitat with past occupied habitat and designated critical habitat nearby. For these reasons desert tortoises may enter the project area in the future. The following mitigation and minimization measures are recommended to ensure that any potential impacts to the desert tortoise are avoided:

- 1) A worker's environmental awareness program (WEAP) would be implemented to educate the construction crew of potential special status species present on the project site.
- 2) Construction and maintenance personnel would be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, it would not be moved until the desert tortoise had left of its own accord. All desert tortoise observations would be reported to a qualified biologist and the wildlife agencies.
 - 3) A qualified biologist should monitor construction when it is occurring adjacent to undeveloped lands to ensure that tortoises do not enter the work area and that they are not disturbed if present.
 - 4) Any open trenches adjacent to habitat should be monitored by a qualified biologist daily. If left open overnight or at any time when not monitored, they should be fenced and/or covered to prevent entry by desert tortoises. Exit ramps should be present within open trenches.

Desert tortoises cannot be taken (harmed, harassed) under state and federal law. This report and any recommended mitigation measures do not constitute authorization for incidental take of the desert tortoise.

6.0 REFERENCES

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Appendix A Survey Forms

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Date of survey:	5 4 2	2 Survey	biologist(s):	Tim Chumi	EY	and phone number) Aue, Boling Dro, enty mae Palm M coordinates, lat-long, and/o	V.					
Date of survey.	(day, month, year) . // / / / / / / / / / / / / / / / / /	Revision	Ave. Spitt	me, email, a	Ave. Bolina Dr.	Hastinas Dr.					
Site description	Elm Dr.	Dullivan Mi	(project name a	and size; general location)	7	ed Pla	(
County:		Quad:_	27 Palms	Location Location	on: /w (UT	M coordinates, lat-long, and/o: #: / ‡2 Transect le	or TRS; map datum)					
Circle one 100%	6 coverage or Sam	pling Area size	e to be surve	7227	ranseci	Start time: 11:00	am/nm					
GPS Start-poin	t: 34, 12 (easting, nort	hing, elevation in me	eters)	1727								
GPS End-point	: 34 .12 (easting, north	5113 -1 thing, elevation in m	16,0600 eters)	279	E	End time: 13/58	am/pm)					
Start Temp:	32_9CF	End Te	emp:	_% 1-								
Live Tortoises Tortoise location Assess MCI Existing tag #												
Detection number	The same and the s		Time	Tortoise location (in burrow. all of tortoise beneath plane of burrow opening, or not in burrow)		Approx MCL >180 mm? (Yes, No or Unknown)	and color, if present					
1												
2												
3					/ "							
4		-										
5		4	5/20									
6		100 4		٠,								
7						18						
8						8						
)	Tortoise	Sign (burr	ows, scats, car	casses	, etc)						
Detection GPS location number Fasting Northing				pe of sign s, scats, carcass, etc)		Description and comments						
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Date of survey	1:542	2 Survey	biologist(s)	Adobe Rd and size; general location)	NEY		V				
Site descriptio	n: Sulliver	Rd. Yucco	Ave.	Adobe Rd "	name, email,	and phone number)					
County: SB)	Quad:	(project name 29 Palm	and size; general location) Locat	tion: Tu	venty n, ne Pal TM coordinates, lat-long, and/o	m S				
Circle one: 100	% coverage or San	npling Area size	to be surve	eved:	Transec	rm coordinates, lat-long, and/ot t #: Transect le	or TRS; map datum)				
GPS Start-poi	nt: 34,128	215, -116.	059740	6		Start time: 14:05					
(analisa madalas afaration is matera)											
GPS End-point: 34.12474C, -116.054485 End time: 16:15 am/pm Start Temp: 89 ° F End Temp: 1/2 ° F											
				e Tortoises							
Detection GPS location number Easting Northing			Time	Tortoise loca (in burrow: all of tortoise plane of burrow opening burrow)	e beneath	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present				
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		Tortoise S	ign (burr	ows, scats, car	casses,	etc)					
Detection number	GPS location Easting Northing		Type of sign (burrows, scats, carcass, etc)		Description and comments						
1				9							
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8			17 19								

Date of survey	1: 6 4 2	Survey	biologist(s)	: Tim Chum	ley	Lauryn Dus	to	2)				
Date of survey: 6 4 22 Survey biologist(s): Tim Chamley Lauryn Dusto (day, month, year) Site description: Old Dale Rel, Cactus Ave, Cholla Ave, Smoke Tree Ave, Yucca Ave, Tamarisk Ave, Desert Quent) (project name and size: general location) Quad: 29 falms Location: Twenty nine Palms Split Rock (UTM coordinates, lat-long, and/or TRS; map datum) Pine. Circle one: 100% coverage or Sampling Area size to be surveyed: Transect #: 122 Transect length: 1.1												
County: 5B Quad: 29 falms Location: Twenty nine Palms 3pl+ &												
Circle one: 100% coverage or Sampling Area size to be surveyed: Transect #: 122 Transect length: But												
GPS Start-point: 39.135145 -1/6. 031264 Start time: 12:10 am/pm 41113												
GPS End-point: 34.133469 -116.045491 End time: 16:50 am/pm (easting, northing, elevation in meters)												
Start Temp: <u>Bl°</u> %CF End Temp: <u>B6</u> °C												
Live Tortoises												
Detection number	1 may 1 may 1	ocation Northing	Time				Existing tag # and color, if present					
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	*	Tortoise S	ign (burr	ows, scats, car	casses,	etc)						
Detection number	GPS location Easting Northing		Type of sign (burrows, scats, carcass, etc)		Description and comments							
1												
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3				4/6/22								
4	Twe			11								
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7		c)										
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Version: October 8, 2019

Date of survey	7 4 2	Z Survey	biologist(s)	Lauryn	Dio	and phone number) Musquite A wenty Palms M coordinates, lationg, and/ t#: Transect li	i	
Site descriptio	n: Cottonwood	od Dr. Inn L	2. Nati	Park Pr. Old"	name, email, a Dake Ro	and phone number) Mesquite A	ve Palo Verd	
County: SE	3	Quad:	(project name 29 Palm	and size; general location) Locat	tion: To	centy Palms		
Circle one: 100	%Coverage or Sar	npling Area size	to be surve	eyed:	Transec	M coordinates, lat-long, and/ t #: Transect I	or TRS; map datum) ength: 46	
GPS Start-poir	nt: 34.131 9 (easting, no	92 - 116,	254424	į —	5	Start time:7 / 3	am/pm	
GPS End-poin	(easting, no. (e	thing, elevation in met	ers) 6.0645	512	E	End time:	am/pm	
0	66 of	rthing, elevation in met	ters)	2		SAME SAME SAME		
Start Temp:	<u> </u>	End lei					· · · · · · · · · · · · · · · · · · ·	
			LIV	e Tortoises Tortoise loca	ntion	, MCI	Existing tag #	
Detection number		ocation Northing	Time	(in burrow: all of tortois plane of burrow opening	e beneath	Approx MCL ≥180 mm?	and color, if	
				burrow)		(Yes, No or Unknown)	present	
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2						The state of the s		
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4				and the second s				
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	L	Tortoise S	Sign (burr	ows, scats, car	casses,	etc)		
Detection number			Type of sign (burrows, scats, carcass, etc)			Description and comments		
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Date of survey	(day, month, yea	Survey	biologist(s)	: IIN CAL	(name, email,	and phone number)	
Site descriptio	in: Holly A	18, Pinon L	Or, Desc	and size: general location	Cacto	Lawryn Do and phone number) 5 Dr. alley sentyn ine Palm M coordinates, tat-long, and/	
County: SE		Quad:_	29 Palm	SLoca	ation: Tue	entynine Palm	5
Circle one: /100)% coverage or Sar	noling Area size	to be surve	eved:	Iransec	t #: 1\$2 Transect le	ength: / 0
GPS Start-poi	nt: 34,13	51846 -11	6. 04963	35	_	Start time: <u>// : 00</u>	
GPS End-poin	nt: 34,71 (easting, no	35100 rthing, elevation in me	- 1/6, 04 ters)	5598	_ E	End time:	
Start Temp: _	79° 00 F	End Te	mp: <u> </u>	°EF			
***************************************				e Tortoises			
Detection number		ocation Northing	Time	Tortoise loc (in burrow: all of torto plane of burrow openi burrow)	ise beneath	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
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		Tortoise S	Sign (burr	ows, scats, ca	rcasses,	etc)	
Detection	GPS lo	ocation	Ту	pe of sign	1	Description and co	mments
number	Easting	Northing	(burrows,	scats, carcass, etc)	-		THITIETIS
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Date of survey	7 4 2	22_Survey I	biologist(s):	Tim CHO	MLET	Lawryn and phone number) 10, Tames 15k Au entyine Palms M coordinates, lat-long, and	Dueto	30
Site description	(day, month, year	Vista Dr. :	Split Rock	Ave. Desert G	Jeen Al	and phone number) 10. Tamerisk Au	e Yuceate	Smoke Tree Ace
County:	5B	Quad: 2	(project name) 29 Palw	and size; general location)	ion: Tur	entypine Palms	,	Chola Ave
Circle one: hoos	% overage or Sam	noling Area size	to be surve	eved:	Transect	M coordinates, lat-long, and/ t #: _/ #2 Transect le	or TRS; map datum) ength: 2,0 m	1
GPS Start-poir	t: 34,1404	24 -116. thing, elevation in mete	054544	,,	S	Start time:/3 :o	am/pm	
GPS End-point	(easting, nor 34, 1357	thing, elevation in mete 96 -116, 15 thing, elevation in mete	ers) 3576			End time: 14:45		
O	(easting, nor	thing, elevation in meter	ers)	026				
Start Temp:	US X P	End Ten		e Tortoises				
	0001		LIVE	Tortoise loca	tion	Approx MCL	Existing tag #	AND CONTRACTOR OF THE PARTY OF
Detection number	GPS Id Easting	Northing	Time	(in burrow: all of tortois plane of burrow opening burrow)	e beneath	≥180 mm? (Yes, No or Unknown)	and color, if present	32 bellevisted by herman has been been been been been been been bee
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6		CONTROL OF THE PARTY OF THE PAR	Service Control of the Control of th					
7	The state of the s							
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		Tortoise S	ign (burr	ows, scats, car	casses,	etc)		
Detection number	AND AND	ocation Northing		pe of sign scats, carcass, etc)		Description and co	omments	
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3				100417	A CONTRACTOR AND ADDRESS AND A			
4				(Augustian Company)	41		r	
. 5			and the same of th					
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				1	7		3
Date of survey	: 7 4	22 Survey I	biologist(s)	:_ 7 m (HUNLE	nd phone number)	: Ave, Sun Court
Site descriptio	n: Cruic Gent	er Dr. El Pa	seo Driv	and size general location	Ave Bag	ley Ave, Kicca	: Ave, Sun Court
County: Si	8	Quad:	29 Pal	m 5 Loc	ation: Tu	entynine tal. M coordinates, lat-long, and/	or TRS; map datum)
Circle one: (100	% coverage or Sam	npling Area size	to be surve	eyed:	_ Transect	#: <u>/ - 2</u> Transect le	ength: 1,9
GPS Start-poir	nt: 34.141	734 - 116	05436	7	_ s	tart time:15:00	≥am/p௵
GPS End-poin	t: 34,142 (easting, nor	702 - 11	6.0702 ers)	243	E	nd time:17:3	am/om
		End Ten					
			Liv	e Tortoises			
Detection number		ocation Northing	Time	Tortoise loc (in burrow: all of tortoplane of burrow open burrow)	oise beneath ning, or <i>not in</i>	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
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	y-	Tortoise S	ign (burr	ows, scats, ca	rcasses,	etc)	
Detection number	100 April 100 Ap	ocation Northing		rpe of sign s, scats, carcass, etc)	-	Description and co	omments
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2	2			4/1/22	A STATE OF THE PARTY OF THE PAR		
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8	and the second					u.c.	salagony and conservations and conservations and conservations and conservations are conservations and conservations are conservations and conservations are conservations ar

.)	USFWS 2010 DI	SERT TORTOISE P	RE-PROJECT SURVEY	Y DATA SHEET	
Please s	submit a completed copy to	the action agency and	local USFWS office with	nin 30-days of survey com	pletion
Date of su	rvey: 8 APR 22	Survey biologist(s): <u>N</u>	-WILCOX, N	MOORHATCH,	T. CHUMLE
Site descr	iption: SAPR 22 (day, month, year)	OVA 29 PAL	MS SEWER	t phone number)	L. DUOTO
County:		Quad: 29 Palm 3	Location: Uta	h Trail to Desert kinds	N to Ambay Rd,
Circle one	2: 00% coverage or Sampling Are	ea size to be surveyed	I ransect a	#: 1-4 I ransect length:	
GPS Start	point: 34.157648 point: 34.16769 (easting, northing, eleval)	107, 116,000 100 in meters) 116,036	515600 st	art time: <u>0750 @</u> nd time: <u>0945 </u> §n	
GPS End-	(easting, northing, eleval	tion in meters)	T Charles by	nd time: 17 1773 an	ypm .
Start Tem	p: <u>63</u>	ind Temp: <u>\$7</u> °F		A	
Detection number	GPS location Easting Northing	Time	Tortoise location (in burrow: all of tortoise beneath burrow opening, or not in bu.	plane of >160-mm?	Existing tag # and color, if
1			out of opening, or not in our	Unknown)	present
2			- A	4/14	
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			\bigcirc		
6					
7			7		
8			la .		
		SAL.	scats, carcasses, et	tc)	
Detection number	GPS location Easting Northing	Type of (burrows, scats, o		Description and comm	ents
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3					
4					
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6	90				
7 .	*				
	ere.	140			

Page: ____of____ Transect number: ____4 WERL, MODO

USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion

Date	of survey: 🗴 🛧	Surve	y biologist(s): M	WILCOX, A	AHACON L	TCOL, TCH	UMLEY,
Site	of survey: 🗴 🛧 day, no	RRA NOVA	29 PALL	IS SEWE	R	1.50	010
Cour	e one: 100% coverage Start-point: 34 End-point: 34 (eas	Quad:	(project name and size	ze; general location) Location	1: Utah Tr	Desert Knol	(WD canal)
Circl	e one: 100% coverage	or Sampling Area siz	te to be surveyed:	:T	ransect # <u>5 - 8</u>	Transect length:	
GPS	Start-point: 34	14661573	-16.036	44925°	Start time	10=416	pm/pm
GPS	End-point: 34	14085200	-116,045	41965	End time:	11-14	mypm
Star	t Temp: <u>85</u> °	End T	emp: <u>86</u> °F	-			
			Live Tor	rtoises			× *
Detection number		ocation Northing	Time	(in burrow: all of torto	location bise beneath plane of or not in burrow)	Approx MCL >160-mm? (Yes, No or Unknown)	Existing tag # and color, if present
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	115	Tortoise	Sign (burrows,	, scats, carcas	sses, etc)		
Detection number		ocation Northing	Type of (burrows, scats, o		Desc	ription and comn	nents
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vans versesiva contesso de solici							Commence of the Commence of th

Page: 1 of 1
Transect number: 5-8

CACW, ANHU, DIPGOSAURUS DOR., ILTGS, COHU, ROPI, JAMMO LEU, PHAI, LBWO, CAGS **USFWS 2010 DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET** Please submit a completed copy to the action agency and local USFWS office within 30-days of survey completion APR 22 Survey biologist(s): M. WILCOX, N. MOORHATCH Location: Desert Knoll (62 to Brena Vista Quad: County: (UTM coordinates, lat-long, and/or TRS; map datum) Transect #: 9-10 ransect length: Circle one 100% coverage of Sampling Area size to be surveyed: 04532870 Start time: 1300 14083708 GPS Start-point: GPS End-point: Start Temp: End Temp: **Live Tortoises** Approx MCL Existing tag # **GPS** location Tortoise location Detection >160-mm? Time and color, if (in burrow: all of tortoise beneath plane of number Easting Northing (Yes, No or Unknown) burrow opening, or not in burrow) present 1 2 3 4 5 6 7 8 Tortoise Sign (burrows, scats, carcasses, etc) Detection **GPS** location Type of sign Description and comments number (burrows, scats, carcass, etc) Easting Northing 1 2 3 4 5 6 7

8

Page:	of (
Transect num	ber: <u>9-</u> 1	0

Date of survey	3 4 2	2 Survey	biologist(s):	tim CHU	MLET	Lauryn Di and phone number)	ioto,
Site description	n: Amboy	Rd			(Harrie, erriali, a	and priorie number)	
County:	18	Quad:	(project name 29 Pala	and size; general location Loc	n) ation: <u>Ta</u>	venty Palms M coordinates, lat-long, and/	or TRS: man datum)
Circle one: 100	% coverage or San	npling Area size	to be surve	yed:	_ Transect	t#: 1 + 2 Transect le	ength: 0,25 m
GPS Start-poir	nt: 34.150/	73 -1/6, 03 thing, elevation in meta	4237			Start time: 1300	
GPS End-poin	t: <u>34./50</u> 2	thing, elevation in metal thing, elevation in metal	049761		_ E	nd time: 14:00	am/pm
Start Temp:	(easting, nor	thing, elevation in met End Ter	ers) np: <u>9/</u>	ge F		*	
			Live	e Tortoises			
Detection number	GPS to	ocation Northing	Time	Tortoise loc (in burrow: all of torto plane of burrow open burrow)	oise beneath	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
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		Tortoise S	Sign (burr	ows, scats, ca	rcasses,	etc)	
Detection number	250/1 555 20	ocation Northing		pe of sign scats, carcass, etc)	47	Description and co	omments
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2				18/22	The state of the s		
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6	applicated to	and the same of th				· ·	
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Date of survey	r. <u>94</u> 2	Survey t	oiologist(s)	: Tim Chum	ley	Melanie Brand phone number) Shua Dr., Pa	ickovac	
Site descriptio	n: Buene Vi	sta Pr. " (ditch), Casit	a Dr. Gurgon	io Dr., J	loshua Dr., Pa	Im View Ave,	Athol-Ave.
County:		Quad:	(project name	Loca	tion:	M coordinates lat long and	/or TRS man datum)	Cienega Dr F & W Ct
Circle one: 100	% coverage or San	npling Area size	to be surve	eyed:	Transect	t #: Transect I Start time:744 End time:1050	ength:	MegguiteAu
GPS Start-poi	nt: 34, 139 (easting, nor	13/6, -//	(6.045 rs)	706	5	Start time: <u>0744</u>	/ _am/pm	Pale Verde Av.
GPS End-poin	t:(easting, nor	rthing, elevation in mete	rs)		E	End time: 1050	am/øm	Of Oliver 1. 16
Start Temp: _	71° XF	rthing, elevation in mete	ъ: <u>88°</u>	of of				
2 1000 0000				e Tortoises		<u> </u>		
Detection number		ocation Northing	Time	Tortoise loca (in burrow: all of tortois plane of burrow openin burrow)	e beneath	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present	
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6								
7						\$20		
8				-				
		Tortoise S	ign (burr	ows, scats, car	casses,	etc)		especial in the second of the
Detection number	Entrol Br	ocation Northing		pe of sign scats, carcass, etc)	÷.	Description and co	omments	
1						Market Order Company of the Company		
2				1/9/22				
3			(w)					
4							2	
5								
6						3		
7								
8			1					

Date of survey	9 4 2	2 Survey	biologist(s)	time G	UMLET	Melanie	Buckovar
Site description	n: Two Mi	le Roat, Wa	einwrigh	+ Ave, Halse	(name, email,	sert Knoll, Mar	me Aug Joe Davis Ra
County:	5B	Quad:	29 P	and size, general location	cation: Tue	venty nine Paly	Buckovar ine Aul Joe Davis Ra n S or TRS; map datum)
Circle one: 100	% coverage or Sam	opling Area size	to be surve	eyed:	_ Transec	t#: [#2 Transect le	ength: <u>/,5 m</u> ,
GPS Start-poir	nt: 34,150 (easting, nor	183 -/16. thing, elevation in met	<u>036705</u> ers)	M:		Start time: 11:00	
GPS End-poin	t: 34, 146, (easting, nor	673 - // 4 thing, elevation in met	ers)	25	[End time: _12;35	am/m
Start Temp:	25° 25	End Ter	np: <u>93</u>	2°F			
**************************************		v	Live	e Tortoises		1	<u></u>
Detection number	GPS lo Easting	ocation Northing	Time	Tortoise Ic (in burrow: all of tor plane of burrow ope burrow	oise beneath ning, or <i>not in</i>	Approx MCL ≥180 mm? (Yes. No or Unknown)	Existing tag # and color, if present
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5		The second secon	and the same of th				
6		And the second					
7	Mark Mark Mark Mark Mark Mark Mark Mark						
8							=
-		Tortoise S	Sign (burr	ows, scats, c	arcasses,	etc)	
Detection number	GPS to	ocation Northing		pe of sign , scats, carcass, etc)	4	Description and co	omments
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2				1 0	- Aller and Alle	A CONTRACT OF THE PARTY OF THE	
3				a /4/22			
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7			-				
8				70.00			- and or any other con-

Date of survev	10 4	22 Survey	biologist(s)	: Tim CHUM	NEY	EMILY U	RQUIDI
Site description	(day, month, yea	in Hury CA	lwy 62) (n	iame, email, a	and phone number)	
County:	SB	Quad:	(project name 29 Palv	and size; general location) Locat	ion: Tu	EMILY () and phone number) ventynine to M coordinates, lat-long, and/	or TRS: map datum)
Circle one: 100	%coverage or Sam	npling Area size	to be surve	eyed:	Transect	#: <u>1 </u>	ength: <u>0,3 m</u> i
GPS Start-poir	nt: 34, 135 (easting, nor	376 -116	.06340	9		Start time: 67;	
GPS End-point	t: 34, 135 (easting, nor	376 - 16	.06808	38	E	and time: 8:0	o (am/pm
Start Temp:	(easting, nor	thing, elevation in met	np: <u>45</u>	of of	9		
	1		Liv	e Tortoises			T = : ::
Detection number	GPS lo Easting	ocation Northing	Time	Tortoise loca (in burrow: all of tortoise plane of burrow opening burrow)	e beneath	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
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		Tortoise S	Sign (burr	ows, scats, car	casses,	etc)	
Detection number	GPS lo Easting	ocation Northing		rpe of sign :, scats, carcass, etc)	7	Description and co	omments
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. 5							one of the second
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-8						2.	

Version: October 8, 2019

Date of survey	10 4	ZZ Survey	biologist(s)): Tim	(HV	MLE	TEMILY and phone number)	DRQUIDI
Site descriptio	n: Two M	le Rd (De	esut Kno	011 to AZ	tec (nam	ne, email, a	and phone number)	
County: 5	B	Onad.	(project name	e and size; general	location)	n. Tu	wentynine Pali M coordinates, lat-long, and/	n s
Circle one: 100	10/ 00/407000 or Con	nalina Aroa sizo	to be surv	ovod:	т.	(UT	M coordinates, lat-long, and/	or TRS; map datum)
							Start time: 8:20	
GPS Start-poil	nt: 34.150 (easting, no	rthing, elevation in met	ters)	5001		3		_
GPS End-poin	t: 34, 75 (easting, no	rthing, elevation in met	- // 6 .0 (ters)	48570		E	and time: 8:49	(am/pm
Start Temp:	it: 34, 15	End Ter	mp: <u>67</u>	° CF				
		,		e Tortoise				
Detection number	GPS le Easting	ocation Northing	Time	(in burrow: all plane of burro		eneath	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if _present
1						10	The second section of the section of th	Approximation of the state of t
2				102		a d andrew Street Market	surprise the Control of the Control	
3				4/10/22	Santa Property Section 19			
4			Twe					
5								
6								
7							8	
8								
		Tortoise S	Sign (burr	ows, scats	, carca	sses,	etc)	
Detection number		ocation Northing		rpe of sign s, scats, carcass, et	'c)	=	Description and co	mments
1							Market Strategy and Strategy an	
2				,)	12	And the second		
3				4/10/	and the same of th			5
4			(Int	ASSESSED AND ASSESSED				
5								
6							**	
7								
8							7	·

Date of survey	10 4.	22 Survey	biologist(s)	tim Con	MLET	EMILY (Mil Rd, Cresturew
Site description	(day, month, year	Aug Sieta	Pr Pi	lazz Rd Ho	name, email, a	and phone number)	Mile Rd Cresturan
Site description	GB	The Diesia	(project name	and size; general location)	7.	ed E	lane
County:	75 77	Quad:	27 rays	Loca	tion:(UT	M coordinates, lat-long, and/o	or TRS; map datum)
Circle one 1000	% coverage or San	npling Area size	to be surve	eyed:	Transect	:#: /+2 Transect le	ength:
GPS Start-poir	nt: 34.15 (easting, nor	thing, elevation in met	-116.00	19895	S	Start time: 0922	Chillian .
GPS End-poin	t: 34, 14 (easting, nor	49%7 - rthing, elevation in met	116,0 ers)	53653	E	End time: 11:50	<u>(am</u> /pm
Start Temp:(69° %F	End Ter	np: 75	205			
			Liv	e Tortoises			
Detection number	15-27 200	ocation Northing	Time	Tortoise loca (in burrow: all of tortois plane of burrow openin burrow)	e beneath	Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present
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2				1 100	and the second second second second second		
3			4	10 2			
4		10	and C	are the second			
5		ACCOUNTS TO THE PROPERTY OF THE PARTY OF THE	Karan				
6	at the state of th	And the second second					
7	AND STORY OF THE PARTY OF THE P					1	
8							
		Tortoise S	ign (burr	ows, scats, car	casses,	etc)	A CONTRACTOR OF THE PROPERTY O
Detection number		ocation Northing		pe of sign . scats, carcass, etc)		Description and co	mments
1						and had a converted a constant	and the second s
2		N.		1 2	Committee of the Commit	Not have the state of the state	
3				4110/22	o a grand political de la constantina della cons		
4			Tol	and the second s			
5		and the second second	and the same of th				
6		and the second second				4	
7							
8						A	

Version: October 8, 2019

D 1 6	10 4	22 0	la i a l a a i a 47 a V	+0	1 9min Rus	Enne 1)	e A WIDI			
Date of survey	(day, month, yea	Survey	Diologist(s)	1 1 D est	name, email,	EMILY UNA and phone number) As Downer, Azto centy nine Palm M coordinates, lat-long, and/	1 D	1 Par D.		
Site descriptio	n: <u>Nesert</u> o	Knoll 4ve	(project name	and size; general location)	* 3 an	es voive, Azto	ective, ves	Samzukna Pr		
County: 2		Quad:	29 Fal	Locat	ion: /w	renty nime lain	or TRS; map datum)	Z reme		
Circle one 100	% coverage or San	npling Area size	to be surve	eyea:	Transec	t#: /** Transect is	ength: 1.0 mi			
GPS Start-poir	nt: 34.14 (easting, no	5748 -//	6,045. ers)	\$ 13		Start time:				
GPS End-poin	t: 34,15 (easting, no	54875 -/ rthing, elevation in met	16.053 ers)	3451	E	End time: 14:40	am/pm			
Start Temp:	18° 9CF	End Ter	np: <u>80°</u>	_e=						
Live Tortoises										
Detection number	2000 300 3	GPS location Easting Northing		Tortoise location (in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)		Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present			
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2					AND SHOP OF THE PARTY OF THE PA					
3			1 22	Tu						
4		A	10 0							
5							<u> </u>			
6										
7						Þ				
8					7					
Tortoise Sign (burrows, scats, carcasses, etc)										
Detection number	i	GPS location Easting Northing		Type of sign (burrows, scats, carcass, etc)		Description and co				
1						and the second section of the second	and the second			
2				1,0/22	and the second second second second	September 18 .				
3				L WI						
4			10			20.000 500 50				
. 5										
6			8			- 18				
7		,					100			
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Date of survey	1: 10 4	22 Survey	biologist(s)	. I'm (4	umlE	T Emicy Unand phone number)	RRUIDI	
Site descriptio	in: Calle 1	odd			mame, email, e	and priorie flumber)		
County:	SB	Quad:	(project name 29 Pa	and size; general location)	tion: Tu	entynine Pall	m 5 or TRS; map datum)	
Circle one: 100	owcoverage or Sai	_{mpling} Area size	to be surve	eyed:	Transect	:#: <u>/ / </u>	ength: <u>330 f</u>	
GPS Start-poi	nt: 34,16	117/ -//6	,0509	63		Start time: 14:50	am/pm	
GPS End-poir	nt: 34. 161 (easting, no	154 - 116 orthing, elevation in met	, o 4 99	77	. E	and time:	am/pm	
		End Ter			F-3-30-30-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-			
			Live	e Tortoises				
Detection number	GPS I Easting	ocation Northing	Time	Tortoise location (in burrow: all of tortoise beneath plane of burrow opening, or not in burrow)		Approx MCL ≥180 mm? (Yes, No or Unknown)	Existing tag # and color, if present	
1 %					* "	The state of the s		
2			1		AND THE PERSON OF THE PERSON O			
3			1/0/	22				
4		Ywe						
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7						18		
8								
		Tortoise S	ign (burr	ows, scats, car	casses,	etc)		
Detection number	GPS location Easting Northing			pe of sign , scats, carcass, etc)		Description and comments		
1						Company of the Section of the Sectio		
2				/	arrest to be account to the second	arkenergy.		
3			- 12	2 months				
4			4 12 6	and the second				
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6						X.		
7				32				
8								
1								

Date of survey	: _// 4	ZZ Survey	biologist(s)	I'm CHUM	LET X	ATHAN MOORE	HATCH LEVIN.	
Site description	n: Calle 7	odd " cas	stend		(name, email, a	and phone number)		
County	5 B	Onad.	(project name	and size; general location;	otion: Tu	ecutyn ine Pa M coordinates, lat-long, and	lms	
	/					:#: <u>/ £ 2</u> Transect I		
GPS Start-poir	nt: <u>94.161</u> (easting, nor	249 -// thing, elevation in meter	6.045	3 7 5		Start time:		
GPS End-point	t: 34.141	216 -1	16,048	803	. Е	ind time: <u>08</u> :	<u>30_am)</u> pm	
GPS End-point	60° CF	End Ter	np: <u>65</u> °	2CF				
		3.00		e Tortoises				
Detection number		GPS location Time (in burrow: all of tort plane of burrow ope		Tortoise loca (in burrow: all of tortoise plane of burrow openin burrow)	e beneath >180 mm2		Existing tag # and color, if present	
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2					-	St. Andrews and Market		
3				4/11/22	Constitution of the last of th		~	
4		eson (For					
5		/						
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7						, No.		
8								
		Tortoise S	ign (burr	ows, scats, car	rcasses,	etc)		
Detection number	GPS location Easting Northing		Type of sign (burrows, scats, carcass, etc)		Description and comments			
1							and the second s	
2						The state of the s		
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