



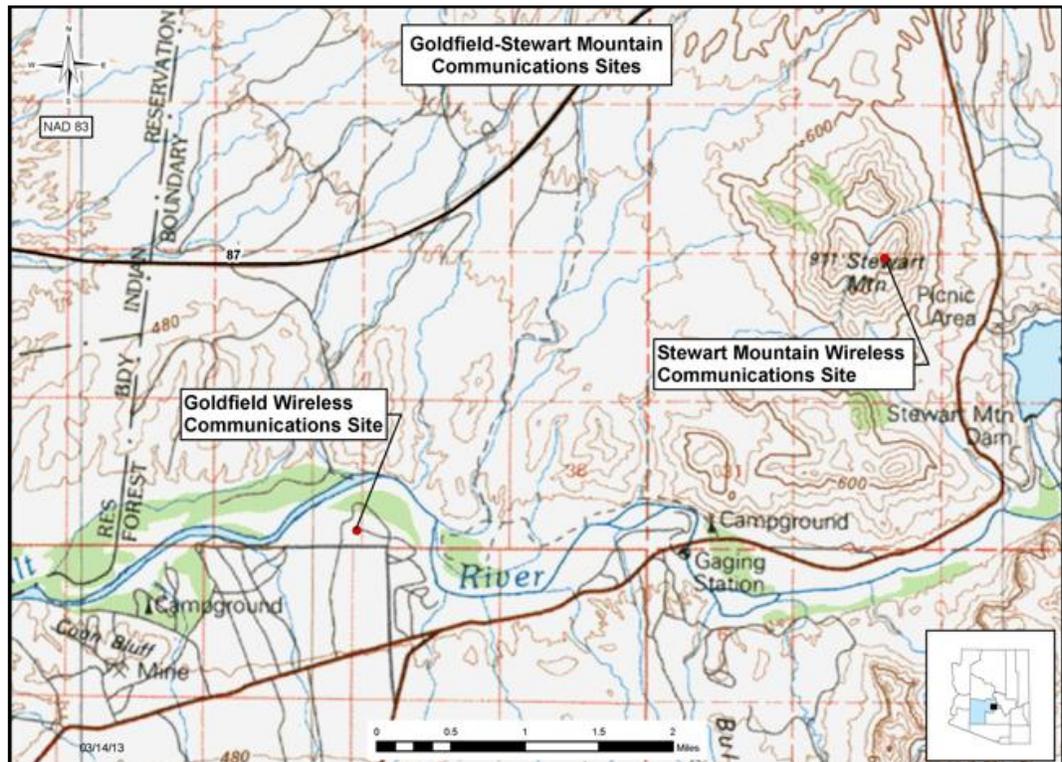
United States
Department of
Agriculture

Forest
Service

Southwestern
Region

July 2013

Environmental Assessment for Goldfield- Stewart Mountain Wireless Communications Facilities



Tonto National Forest

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means of communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TTY). To file a complaint of discrimination, write to USDA, Director of Civil Rights, 1400 Independence Avenue SW, Washington, DC 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TTY). USDA is an equal opportunity provider and employer.

Content

Contents

Summary.....	1
Chapter 1 – Purpose and Need	3
Document Structure	3
Background	3
Purpose and Need for Action	4
Proposed Action	5
Decision Framework.....	7
Issues	8
Chapter 2 – Alternatives	10
Alternatives	10
Design Criteria/Mitigation Measures.....	13
Chapter 3 – Environmental Consequences.....	27
Visual Quality.....	27
Earth and Water Resources	31
Biological Resources	33
Threatened and Endangered Species	37
Forest Service Sensitive Species.....	43
Management Indicator Species.....	45
Migratory Birds	46
Rare Plants	49
Land Use.....	49
Air Quality.....	52
Noise.....	52
Cultural Resources	53
Socioeconomics.....	54
Environmental Justice.....	56
Chapter 4 – Consultation and Coordination	57
I.D. Team Members	57
Consultants.....	57
Federal, State and Local Officials and Agencies	57
Tribes	58
Chapter 5 – References.....	58

Chapter 6 – List of Preparers 61
 U.S. Forest Service, Mesa Ranger District..... 61
 Tonto National Forest, Supervisor’s Office 61

LIST OF FIGURES

Figure 1. General Location Map, Goldfield and Stewart Mountain Communications Sites..... 9
Figure 2. Proposed Goldfield Communications Site 16
Figure 3. Stewart Mountain Communications Site 17
Figure 4. Representative Vegetation at the Stewart Mountain Communications Site. 34
Figure 5. Representative Vegetation at the Goldfield Communications Site. 35

LIST OF TABLES

Table 1. Comparison of Alternatives. 18
Table 2. Acres of soil disturbance under Alternative 2. 32
Table 3. Summary of Impacts for Sensitive Species. 44

APPENDICIES

Appendix A..... 63
 Visual Simulations..... 63
 Goldfield Communications Site 63
Appendix B..... 69
 Visual Simulations..... 69
 Stewart Mountain Communications Site..... 69
Appendix C..... 75
 Tower Design and Road Profile Plan for Goldfield 75
Appendix D 79
 Tower Design Plan for Stewart Mountain 79
Appendix E..... 83
 Special-Status Species..... 83
Appendix F..... 87
 Priority Species of Concern - Vegetation 87
Appendix G 89
 Priority Species of Concern – Migratory Bird..... 89

Summary

Tonto National Forest proposes to authorize construction of new telecommunication facilities designed to accommodate anticipated Federal Communications Commission licensed wireless carriers needs for the Saguaro Lake-Lower Salt River Recreation Area. The project area is located within the Mesa Ranger District, Tonto National Forest, AZ. This action is needed because wireless personal communication services in this area are lacking or unreliable.

The Forest Service (FS) in conjunction with wireless providers and tower companies undertook a process to address wireless communications needs for the Saguaro Lake/Lower Salt River/Bush Highway corridor. As a result, in March 2011 the Tonto National Forest issued a prospectus to solicit proposals from the wireless communications industry to improve wireless services in the Saguaro Lake and Lower Salt River area. The prospectus offered the successful applicant(s) rights to pursue development of a single site or multiple sites under one or more communication site leases. The prospectus listed three sites to consider for accomplishing the stated objective. These three sites listed were near the Tonto National Forest Goldfield/Kerr Administrative Site (Goldfield Administrative Site) (T. 3 N., R. 7 E., Section 34), at the existing Stewart Mountain Communications Site (T. 3 N., R. 8 E., Section 29), and near Saguaro Lake Marina.

The Tonto National Forest selected a proposal from a tower company that proposed a new communications site at the Goldfield Administrative Site and the addition of a new tower at the existing Stewart Mountain Communications Site on the Tonto National Forest at the location labeled Goldfield and Stewart Mountain on figure 1.

The Forest Service proposes to authorize construction of a new communications site (Goldfield Communications Site) and authorize construction of a new tower at the existing Stewart Mountain Passive Microwave Reflector site. The Goldfield Communications Site will be constructed adjacent to the Goldfield Administrative Site located south of the junction of Bush Highway and Usery Pass Road, Maricopa County Arizona and will include a new free standing monopole tower up to 145 feet tall and associated equipment buildings, utility and communication line installations and a short access road. At the existing Stewart Mountain Communications Site a new 45 foot tall monopole tower and associated solar panels and equipment shelter are proposed to be constructed.

In addition, prior to acceptance of the proposed action (alternative 2), the Forest Service also evaluated alternatives proposed as part of the Saguaro Lake/Lower Salt River Communications Plan Prospectus. The DW Holdings proposal was selected by the Tonto National Forest because it best met the goals and objectives of the Tonto National Forest, Forest Plan and Tonto National Forest communications needs. The proposed action was made available to the public and other government agencies for review by a scoping letter sent out for a 30-day comment period. No comments were received from the public. The Arizona Game and Fish Department provided comments with information and potential effects on Sonoran Desert tortoise and bald eagles. The Forest Service was able to include mitigation that addressed concerns of the Arizona Game and Fish Department and therefore a need to develop an additional action alternative to respond to potential issues was not identified.

Chapter 1 – Purpose and Need

Document Structure

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the *National Environmental Policy Act* (NEPA) and other relevant federal and state laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that will result from the proposed action and an alternative. The document is organized into five parts:

- **Introduction:** The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency’s proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- **Alternatives:** This section provides a more detailed description of the agency’s proposed action as well as alternative methods considered for achieving the stated purpose. This discussion also includes design criteria and mitigation measures developed to reduce impacts. Finally, this section provides a summary table comparing the environmental consequences associated with each alternative.
- **Environmental Consequences:** This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by broad groupings of resource areas. Within each section, the affected environment is described first, followed by the effects of alternatives 1 and 2. No action represents no change from the current conditions and therefore is not described in detail except where notable consequences will occur.
- **Agencies and Persons Consulted.** This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- **Appendices:** The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Background

The Forest Service in conjunction with wireless providers and tower companies undertook a process to address wireless communications needs for the Saguaro Lake/Lower Salt River/Bush Highway corridor. As a result, in March 2011 the Tonto National Forest issued a prospectus to solicit proposals from the wireless communications industry to improve wireless services in the Saguaro Lake and Lower Salt River area. The prospectus offered the successful applicant(s) rights to pursue development of a single site or multiple sites under one or more communication site leases. The prospectus listed three sites to consider for accomplishing the stated objective. These three sites listed were near the Goldfield Administrative Site (T. 3 N., R. 7 E., Section 34), at the existing Stewart Mountain Communications Site (T. 3 N., R. 8 E., Section 29), and near Saguaro Lake Marina.

The Tonto National Forest selected a proposal from a tower company that proposed a new communications site at the Goldfield Administrative Site and the addition of a new tower at the existing Stewart Mountain Communications Site on the Tonto National Forest at the location labeled Goldfield and Stewart Mountain in figure 1.

Purpose and Need for Action

The public and government agencies have come to expect reliable wireless telephone and internet service while visiting outdoor recreation areas and traveling major transportation corridors for general use and emergencies. The Bush Highway corridor in the Lower Salt River Recreation Area north of Mesa, Arizona is a major recreation area that experiences heavy traffic and use. Complaints from wireless users and propagation studies show the area currently does not have adequate or reliable wireless service from any of the wireless providers. In general the existing condition of services can be described as either intermittent in a few locations in the area to nonexistent at most locations along the highway corridor and throughout this heavily used recreational area. Inadequate and unreliable wireless communications affects commercial special use permit holders, the Goldfield Administrative Site, other important services in the area such as the nearby Sheriff's Department Substation and the public in general.

All wireless carriers must connect their cell sites to the landline telephone system. Connecting cell sites to the landline telephone system in order for calls from subscribers to be directed to their destination is known as backhaul. This is usually accomplished by having the local telephone company provide digital transmission facilities via copper or fiber cables to the cell site with connectivity through the telephone network back to the carrier's switch. The Saguaro Lake and Lower Salt River area is not within a telephone company's service area and this location is in such a remote location that construction charges to build a fiber optic line to the area is cost prohibitive. For the Saguaro Lake and Lower Salt River area, the carrier's only option for backhaul is to install a microwave radio system between the cell site and a location where they can access a telephone company's network. Currently the carriers are using equipment located on Stewart Mountain Dam that provides microwave signal backhaul from the Marina Tower that must be removed. The carriers located on the marina tower link to the Salt River Project microwave system for microwave backhaul from the facility to fiber optic switch points. The Bureau of Reclamation is requiring removal of the equipment on the dam and the link to the Salt River Project system because having commercial communications facilities on Federal land under Bureau of Reclamation jurisdiction is in violation of the "Bureau of Reclamation purpose."

The Forest Service has been given direction from Congress and the President to facilitate implementation of the Nation's strategy for wireless communications. On August 10, 1995, President Clinton released a memorandum entitled "Facilitating Access to Federal Property for the Siting of Mobile Services Antennas." In this memorandum, the following is stated:

Upon request, and to the extent permitted by law and where practicable, executive departments and agencies shall make available, Federal Government buildings and lands for the siting of mobile service antennas.

On February 8, 1996, the *Telecommunications Act of 1996* was enacted, giving further direction to Federal agencies. In response to the memorandum and the Telecommunications Act, the General Services Administration released a bulletin listed in the Federal Register on June 16, 1997, titled "Placement of Commercial Antennas on Federal Property." This bulletin provides general guidelines and processes for implementation of President Clinton's memorandum. Regarding granting of siting requests, the bulletin states:

Requests for the use of property, right-of-way, and easements by duly authorized telecommunications service providers should be granted unless there are unavoidable

conflicts with the department's or agency's mission, or current or planned use of the property or access to that property.

The desired condition of The Tonto National Forest is to improve wireless communications throughout the Saguaro Lake - Lower Salt River Recreation Area/Bush Highway corridor and meet the need for improved coverage that will provide for the safety and convenience of visitors, businesses, permittees, and multiagency law enforcement. Meeting this desired condition will allow the Tonto National Forest to comply with the direction from Congress and the President to facilitate implementation of the Nation's strategy for wireless communications.

The purpose of the proposed action is to:

1. Improve wireless communication service on the Lower Salt River below Stewart Mountain Dam.
2. Improve wireless coverage to better provide for the safety and convenience of visitors, businesses, permittees, and multiagency law enforcement
3. Remove private commercial communication equipment on Stewart Mountain Dam.
4. Provide adequate wireless and internet communications service to Forest Service at the Goldfield Administrative Site.

Proposed Action

In order to meet the purpose and need, the Forest Service proposes to authorize construction of a new communications facility at the Goldfield Administrative Site, a new tower at the existing Stewart Mountain Communications Site, placement of a four-foot diameter microwave dish on the existing Salt River Project Saguaro Lake Marina Tower (figure 1), and issuance of a Special Use Authorization to DW Holdings, LLC for the use and maintenance of these facilities. The details of the proposal are as follows:

Goldfield Communications Site:

- Authorize construction of the Goldfield Communications Site, which is a new communications site at the Goldfield Administrative Site, in Section 34, T. 3 N., R. 7 E., Gila and Salt River Base Line Meridian (figure 1), which includes the following activities:
- Construction at Goldfield Communications Site will begin by pioneering 100 ft. by 12 ft. of new single lane access road into the site and grading it to drain. (See Appendix C – Standard Forest Service Road Profile drawing). This will involve a dozer followed by a grader and dump trucks with road surfacing material for spot improvement. The surfacing material will support heavy equipment and avoid heavy rutting. The road will be constructed to include appropriate features to provide erosion control and prevent damage from runoff. The new access road will be gated and for administrative use only. Maintenance of this road as well as any roads used by the permittee for access or during construction will be the responsibility of the permittee. Any damage that occurs through access or during construction to any roads used by the permittee will be repaired to previous condition. Any excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If it is unsuitable, it will be removed from the site and disposed of off National Forest land.

- Construct a freestanding monopole tower 145 feet tall. After the road is in, the tower foundation will be dug using an excavator. Excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If excess material were spread, it will be graded for proper drainage. Prior to placement of material in fenced area, a cross section of the fenced area will be provided to the Forest Service for review and approval. If unsuitable, it will be removed from the site in a dump truck and disposed of off National Forest land. Rebar will be installed and then approximately 30 loads of concrete will be brought in for the tower foundation. The foundations for equipment shelters will also be poured at this time. After the concrete is poured, the steel for the tower will be trucked in and assembled in sections within the proposed permit area. The tower will then be stacked using a crane. After the tower is erected, it will be treated by spraying with Natina Steel to give it the appearance of weathered steel.
- Install wireless communications antenna on the tower including microwave dishes.
- Construct radio equipment buildings and backup power supply (generator).
- After the tower, building, and infrastructure are constructed electrical power will be brought to the site via an underground line that will run down the new access road from the existing Salt River Project distribution line located approximately 100 feet north of the tower site. Installation of the underground power will involve digging a trench approximately 3 feet deep followed by placing conduit in the trench and backfilling. Wire will then be pulled through the conduit to the site. A new transformer will be installed at the power line. Backfill of trenches alongside of the existing road will be done in such a manner as to not affect any existing ditches or other runoff/erosion control measures. Any excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If it is unsuitable, it will be removed from the site and disposed of off National Forest land.
- The communications facility will be linked to the Goldfield Administrative Site by underground fiber optics running from the tower site to the existing eastern building. Trenching for this section will run along the existing road totaling approximately 520 feet.). Backfill of trenches alongside of the existing road will be done in such a manner as to not affect any existing ditches or other runoff/erosion control measures. Any excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If it is unsuitable, it will be removed from the site and disposed of off National Forest land.
- Final site work will involve placement of gravel material within the proposed fenced area to provide an all-weather working surface. The tower and equipment building designs are displayed in appendices C and D. The final activity will be installation of a 6 foot tall chain link fence around the 100 x 100 foot fenced area. The fence will be treated with Natina Steel to give it the appearance of weathered steel. There will be approximately 4 to 6 people on site during construction period (4 to 6 weeks) using two vehicles for access to the site.

Stewart Mountain Communications Site:

- Authorize construction of additional facilities at the existing Stewart Mountain Communications Site (figure 3), located in Section 29, T. 3 N., R. 8 E., Gila and Salt River Base Line Meridian, which includes the following activities (appendix D).
- Construction at Stewart Mountain will begin by trimming and lopping vegetation in a circular area of approximately 100 ft., (less than 0.2 acres) at the area designated as a

helispot. A helispot has been identified (figure 3) to facilitate landing and off-loading of materials and personnel.

- Construct a 45 foot tall free standing monopole tower.
- Install two four foot diameter dishes on the monopole.
 - Install a 4 foot by 4 foot by 6 foot equipment cabinet next to the monopole.
 - Install a solar panel approximately 5 foot x 6 foot and battery cabinet.
- Construct a helispot to be used for construction and maintenance access at the location depicted in figure 3. Since there is no road access to Stewart Mountain Communications Site, access for construction and operation will be limited to helicopter and or pedestrian. All construction equipment and materials will be required to be flown in by helicopter. Helispot construction will not require ground disturbance. Activities will be limited to trimming and lopping of vegetation to within two feet of the ground on an area approximately 100 feet in diameter. Install a four foot diameter microwave dish on the existing Saguaro Lake Marina monopole tower owned by Salt River Project located on Forest Service land.
- A portable air compressor will be flown to the tower site for operation of a jack hammer and digging tools to dig the tower foundation. For the most part the tower foundation will be dug by hand. After the foundation has been excavated, rebar will be installed followed by concrete flown in by helicopter. After the foundation is complete, the monopole will be lifted to the site by helicopter and installed. The equipment cabinet and solar panels will then be installed.

Goldfield Communications Site and Stewart Mountain Communications Site

- Issue a Special Use Authorization to DW Holdings for the use and maintenance of each of these facilities.

Decision Framework

Given the purpose and need, the Forest Supervisor will review the alternatives in order to make the following decisions:

- Construct new communication facilities at the Goldfield Administrative Site.
- Construct additional communication facilities at Stewart Mountain.
- To issue a Special Use Authorization to DW Holdings for use and maintenance of each of these facilities.

The proposal was listed in the Schedule of Proposed Actions in January 2012. The proposed action was provided to the public and other agencies for comment during scoping in June 2012. A total of 84 physical addresses received hard copy mailings. The Tonto National Forest received one comment that expressed no concerns with the proposal. Comments were also received from the Arizona Game and Fish Department relating concerns about disturbance during construction to Sonoran Desert tortoises and bald eagles. As is discussed below in the section on Issues, these concerns have been addressed.

In addition, the Forest conducted consultation with federally recognized tribes (See Chapter 4, Consultation and Coordination).

Issues

The Forest Service separated the issues into two groups: significant and nonsignificant issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. Nonsignificant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council for Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." No comments, concerns or issues were brought forward by the public. The Arizona Game and Fish Department raised concerns about effects from noise and construction activities, both from vehicles and machinery at the Goldfield Communications Site, and helicopter noise and flight patterns on nesting bald eagles. They also asked that surveys be conducted at the time of constructions for the presence of desert tortoise. The Forest Service has been able to mitigate or incorporate design criteria that address these requests and concerns. Therefore, there have been no significant issues identified with the project.

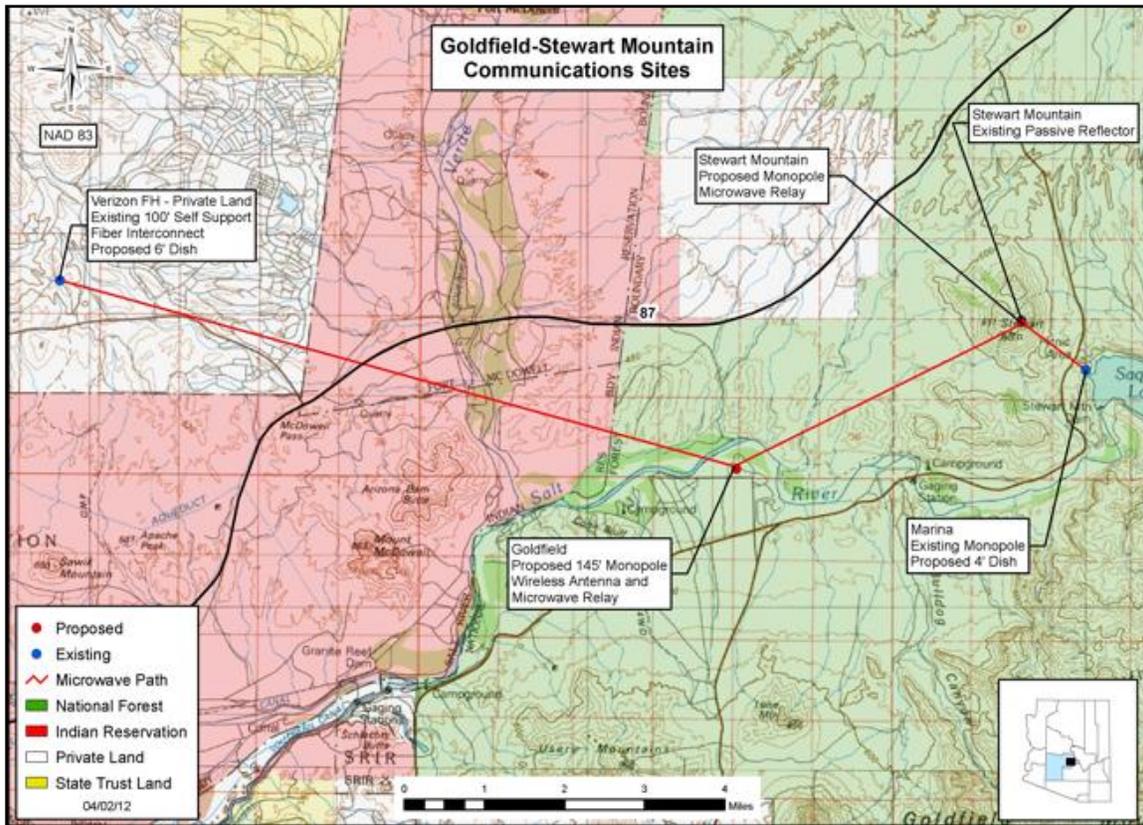


Figure 1. General Location Map, Goldfield and Stewart Mountain Communications Sites.

Chapter 2 – Alternatives

This chapter describes the alternatives considered for the project. This section also presents the proposed action in comparative form, defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternatives

Alternatives Eliminated from Detailed Study

The Tonto National Forest analyzed several alternatives in response to proposals submitted under the Saguaro Lake/Lower Salt River Wireless Communications Prospectus dated March 2011. Tower locations were considered at the tubing outfitter facilities near the intersection of Usery Pass Road and Bush Highway and/or near the Maricopa County Sheriff's Office compound. Tower locations close to Bush Highway were dropped from further consideration because of concerns over the visual quality effects to travelers on the Bush Highway. In addition, in the Prospectus, the Forest Service suggests using the area around the Goldfield Administrative Site. Additional information from Mesa Ranger District personnel confirmed the Forest Service's desire to have the facility located adjacent or within the administrative site. Propagation studies confirmed that a tower at the Goldfield Administrative Site will provide wireless coverage comparable to a tower near the tubing facility.

The Tonto National Forest evaluated the technical and environmental merits of the proposals and eventually selected the DW Holdings LLC proposal for further consideration and evaluation under NEPA. Alternatives proposed and evaluated under the Prospectus process were eliminated from detailed study under this NEPA process because they were environmentally and technically inferior to the Proposed Action.

The need for new wireless communications facilities on the Lower Salt River was established by the wireless industry, the Forest Service, and local law enforcement agencies. Wireless signal propagation studies show that currently, wireless service in this area is unreliable or nonexistent. The applicant looked for alternative locations for a tower in the Goldfield Administrative Site area. Potential tower locations on private land were first investigated. A topographic feature like a mountain top or ridge line is a preferred tower location because wireless signals operate by line of site. A high elevation tower site will not be blocked by other topographic features and will see greater distances. There is no private land in the target area located on mountain tops or a high topographic feature. Typically, private land within The Tonto National Forest is the result of homesteading and is bottom land suitable for agriculture. In addition, there is no vehicular access to any of the mountain tops on The Tonto National Forest land in this area.

Existing communications facilities were investigated and it was determined that there are no existing facilities that will provide wireless service to the target area. It soon became apparent that Goldfield Administrative Site was the only location in the area that provided the topographic position to provide wireless service for the targeted area on the Lower Salt River with reasonable access to electrical power and existing vehicular access. The general area making up Goldfield Administrative Site was determined to be the best location for a new wireless facility to provide service on that portion of the Lower Salt River.

Alternatives Considered in Detail

Alternative 1 – No Action

The no action alternative represents no change from current conditions. No additional wireless communications facilities will be constructed continuing the current state of poor to no wireless service for the Lower Salt River Recreation Area. The wireless carriers microwave system serving the Salt River Project marina tower will continue to use a microwave dish located on Stewart Mountain Dam, which is in violation of Bureau of Reclamation policy, and regulation.

Alternative 2 – Proposed Action

In order to meet the purpose and need, the Forest Service proposes to authorize construction of a new communications facility at the Goldfield Administrative Site, a new tower at the existing Stewart Mountain Communications Site, placement of a four-foot diameter microwave dish on the existing Salt River Project Saguaro Lake Marina Tower (figure 1), and issuance of a Special Use Authorization to DW Holdings, LLC., for the use and maintenance of these facilities. The details of the proposal are as follows:

Goldfield Communications Site:

- Authorize construction of the Goldfield Communications Site, which is a new communications site at the Goldfield Administrative Site, in Section 34, T. 3 N., R. 7 E., Gila and Salt River Base Line Meridian (figure 1), which includes the following activities:
- Construction at Goldfield Communications Site will begin by pioneering 100 ft. by 12 ft. of new single lane access road into the site and grading it to drain. This will involve a dozer followed by a grader and dump trucks with road surfacing material for spot improvement. The surfacing material will support heavy equipment and avoid heavy rutting. The road will be constructed to include appropriate features to provide erosion control and prevent damage from runoff. The new access road will be gated and for administrative use only. Maintenance of this road as well as any roads used by the permittee for access or during construction will be the responsibility of the permittee. Any damage that occurs through access or during construction to any roads used by the permittee will be repaired to previous condition. Any excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If it is unsuitable, it will be removed from the site and disposed of off National Forest land.
- Construct a free standing monopole tower 145 feet tall. After the road is in, the tower foundation will be dug using an excavator. Excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If excess material is spread, it will be graded for proper drainage. Prior to placement of material in fenced area, a cross section of the fenced area will be provided to the Forest Service for review and approval. If unsuitable, it will be removed from the site in a dump truck and disposed of off National Forest land. Rebar will be installed and then approximately 30 loads of concrete will be brought in for the tower foundation. The foundations for equipment shelters will also be poured at this time. After the concrete is poured, the steel for the tower will be trucked in and assembled in sections within the proposed permit area. The tower will then be stacked using a crane. After the tower is erected, it will be treated by spraying with Natina Steel to give it the appearance of weathered steel.
- Install wireless communications antenna on the tower including microwave dishes.
- Construct radio equipment buildings and backup power supply (generator).

- After the tower, building, and infrastructure are constructed, electrical power will be brought to the site via an underground line that will run down the new access road from the existing Salt River Project distribution line located approximately 100 feet north of the tower site. Installation of the underground power will involve digging a trench approximately 4 feet deep followed by placing conduit in the trench and backfilling. Wire will then be pulled through the conduit to the site. A new transformer will be installed at the power line. Backfill of trenches alongside of the existing road will be done in such a manner as to not affect any existing ditches or other runoff/erosion control measures. Any excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If it is unsuitable, it will be removed from the site and disposed of off National Forest land.
- The communications facility will be linked to the Goldfield Administrative Site by underground fiber optics running from the tower site to the existing eastern building. Trenching for this section will run along the existing road totaling approximately 520 feet.). Backfill of trenches alongside of the existing road will be done in such a manner as to not affect any existing ditches or other runoff/erosion control measures. Any excess excavated material will be spread within the 100 X 100 foot fenced area if suitable for such use. If it is unsuitable, it will be removed from the site and disposed of off National Forest land.
- Final site work will involve placement of gravel material within the proposed fenced area to provide an all-weather working surface. The tower and equipment building designs are displayed in Appendix C and D. The final activity will be installation of a 6 foot tall chain link fence treated with Natina Steel around the 100 x 100 foot fenced area. There will be approximately 4 to 6 people on site during construction period (4 to 6 weeks) using two vehicles for access to the site.

Stewart Mountain Communications Site:

- Authorize construction of additional facilities at the existing Stewart Mountain Communications Site (figure 3), located in Section 29, T. 3 N., R. 8 E., Gila and Salt River Base Line Meridian, which includes the following activities (appendix D). Construction at Stewart Mountain will begin by trimming and lopping vegetation in a circular area of approximately 100 ft. (less than .2 acres), at the area designated as a helispot. A helispot has been identified (figure 3) to facilitate landing and off-loading of materials and personnel.
- Construct a 45 foot tall free standing monopole tower.
- Install two four foot diameter dishes on the monopole.
- Install a 4 foot by 4 foot by 6 foot equipment cabinet next to the monopole.
- Install a solar panel approximately 5 foot x 6' foot and battery cabinet.
- Construct a helispot to be used for construction and maintenance access at the location depicted in figure 3. Since there is no road access to Stewart Mountain Communications Site, access for construction and operation will be limited to helicopter and or pedestrian. Construction at Stewart Mountain will require helicopter access. All construction equipment and materials will be required to be flown in by helicopter. Helispot construction will not require ground disturbance. Activities will be limited to trimming and lopping of vegetation to within two feet of the ground on an area approximately 100 feet in

diameter. Install a four foot diameter microwave dish on the existing Saguaro Lake Marina monopole tower owned by Salt River Project located on Forest Service land.

- A portable air compressor will be flown to the tower site for operation of a jack hammer and digging tools to dig the tower foundation. For the most part the tower foundation will be dug by hand. After the foundation has been excavated, rebar will be installed followed by concrete flown in by helicopter. After the foundation is complete, the monopole will be lifted to the site by helicopter and installed. The equipment cabinet and solar panels will then be installed.

Design Criteria/Mitigation Measures

The following design criteria were developed to reduce impacts to scenery, biological resources, and soils.

Design Criteria for Communications Site Facilities

1. The 145 foot monopole tower, antennae, and microwave dishes at Goldfield Communications Site will be treated with Natina Steel to give them the appearance of weathered steel, blending them with the colors in the landform on the north side of the river that serves as their backdrop.
2. The 45 foot tall free standing monopole at Stewart Mountain Communications Site will be painted a color similar to the saguaro cacti present on site.
3. The equipment and battery cabinets will be painted a flat earth tone color that matches the large boulders present on site....
4. Building exterior finishes will be textured. At Goldfield Communications Site, the radio equipment building, generator, and propane tank will be painted a flat earth tone color that blends in well with the surrounding natural landscape. The equipment and battery cabinets at Stewart Mountain Communications site will be painted a color approved by the Tonto National Forest that matches the boulders present on site.
5. The chain link fence will be treated with Natina Steel, giving it the appearance of weathered steel that blends it into the forest setting and eliminates its shiny finish.
6. Monopole towers (narrow profiles) will be used.
7. All disturbed soil will be seeded with native species.
8. During clearing of vegetation for access road, 100 X 100 foot fenced area and helipad, straight lines will be avoided so retained vegetation is natural appearing.

Design Criteria and Mitigation for Wildlife Species of Concern

Sonoran Desert Tortoise

1. The Forest Service requires that presence/absence surveys will be conducted within the project development area prior to beginning construction activities. Surveys may be conducted during the summer monsoon season of July through September (most effective), in the spring during April, and the fall during October.
2. In the event that tortoise(s) are detected and it is determined that handling or relocation is required, the Forest Service will be notified. The Forest Service will contact Arizona Game and Fish Department for coordination and authorization. Additional guidelines for survey,

handling, and mitigation at: <http://www.azgfd.gov/wc/WildlifePlanning.shtml> will also be consulted in addition to contacting an Arizona Game and Fish Department representative.

Bald Eagle

1. Helicopter operations for construction at the Stewart Mountain Communications Site will avoid active bald eagle breeding areas along the Salt and Verde rivers (including Saguaro Lake). Prior to beginning helicopter operations the Forest Service will consult with Arizona Game and Fish Department to coordinate any route avoidance needs.
2. To avoid potential disturbance of nesting eagles at the Goldfield-Kerr or Bulldog bald eagle breeding areas (approximately 1/3 miles from Goldfield Administrative Site and 1.5 miles from the Stewart Mountain Communications Sites respectively), time construction outside of the breeding season of December 1 through June 30. If any construction is necessary during the breeding season, disturbance should be timed to occur after any nestlings present reach 4 weeks of age.
3. The Goldfield-Kerr Breeding Area is being monitored by individuals with the Arizona Bald Eagle Nestwatch program for the 2013 season which started February 8, 2013. The Forest Service requires that if Nestwatch employees are present during construction, time construction activities with Nestwatcher “days on” so that any behavioral/disturbance affects to the nesting pair can be documented immediately. Nestwatchers work a 10 day on/four day off schedule. If Nestwatchers detect significant disturbance as a result of the construction activities construction will cease. Construction could resume once the nestlings fledge or if the breeding/nesting attempt fails early. If coordination is needed during implementation, the Forest Service will contact Bill Burger, Nongame Wildlife Specialist for Region VI, Arizona Game and Fish Department at 480-324-3553 or bburger@azgfd.gov or for bald eagle specific coordination needs contact Kenneth “Tuk” Jacobson, Raptor Management Coordinator, Arizona Game and Fish Department at 623-236-7575 or email at kjacobson@azgfd.gov.

Desert Bighorn Sheep

1. Construction activities will occur outside of the desert bighorn sheep lambing season, from December 1 through June 30, to avoid stress to the ewes and lambs.

Design Criteria and Mitigation for Invasive and Noxious Weeds

Invasive/Noxious Weeds

The contractor shall be responsible for the prevention and control of noxious weeds and/or exotic plants of concern on the area and shall provide prevention and control measures prescribed by the Forest Service. Noxious weeds and exotic plants of concern are defined as those species recognized by the Tonto National Forest, in which the authorized use is located.

The holder shall also be responsible for prevention and control of noxious weed and exotic plant infestations which are not within the authorized area, but which are determined by the Forest Service to have originated within the authorized area.

When determined to be necessary by the authorized officer, the holder shall develop a site-specific plan for noxious weed and exotic plant prevention and control. Such plan shall be subject to Forest Service approval. Upon Forest Service approval, the noxious weed and exotic plant prevention and control plan shall become a part of the authorization, and its provisions shall be enforceable under the terms of the authorization.

1. The Contractor shall employ whatever cleaning methods are necessary to ensure that equipment is free of noxious weeds.
2. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material.

Contractor shall notify Forest Service at least five days prior to moving each piece of equipment on to the work site, unless otherwise agreed. Notification will include identifying the location of the equipment's most recent operations. If the prior location of the off-road equipment cannot be identified, Forest Service may assume that it was infested with noxious weed seeds. Upon request of Forest Service, purchaser must arrange for Forest Service to inspect each piece of off-road equipment prior to it being placed in service.

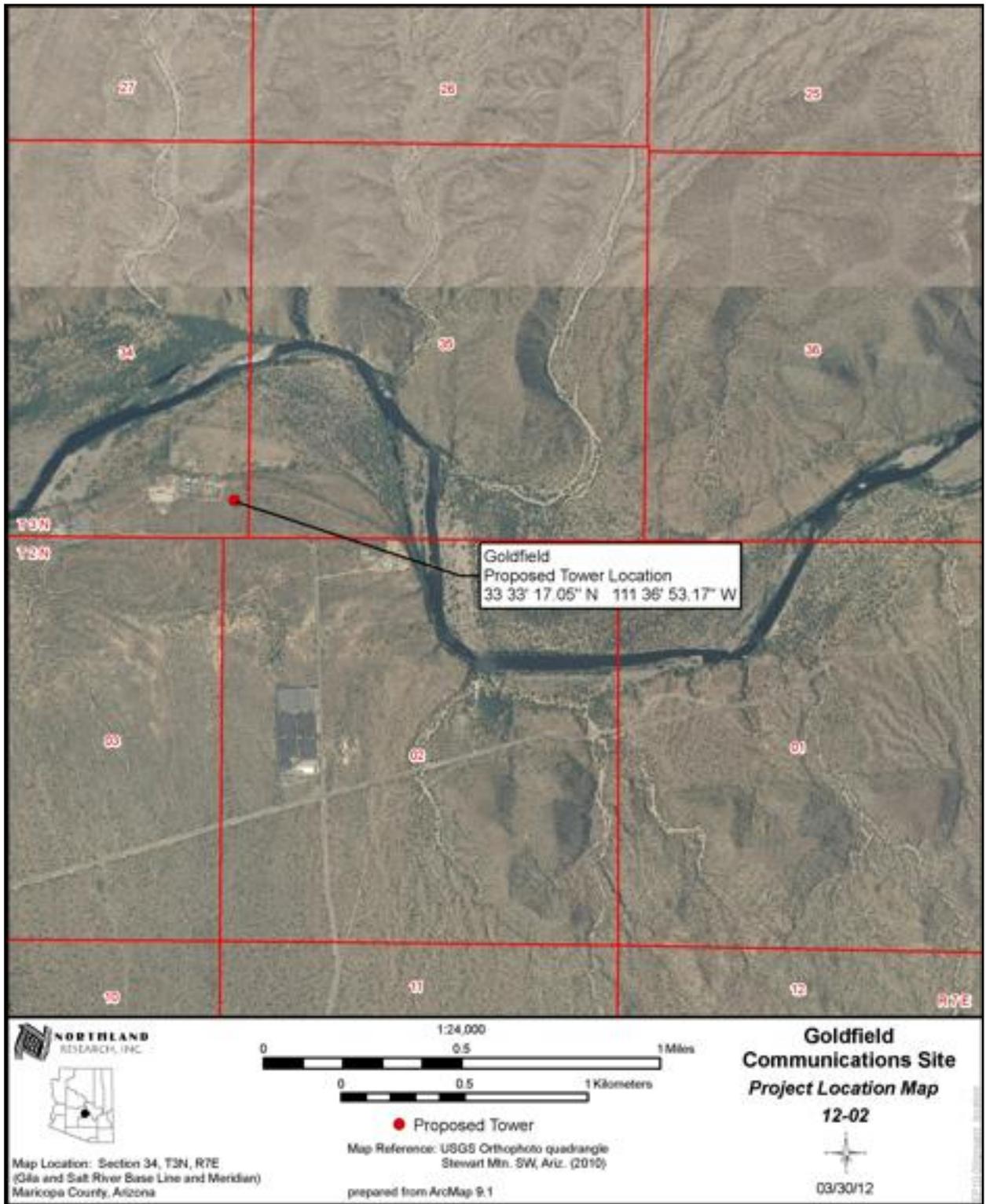


Figure 2. Proposed Goldfield Communications Site

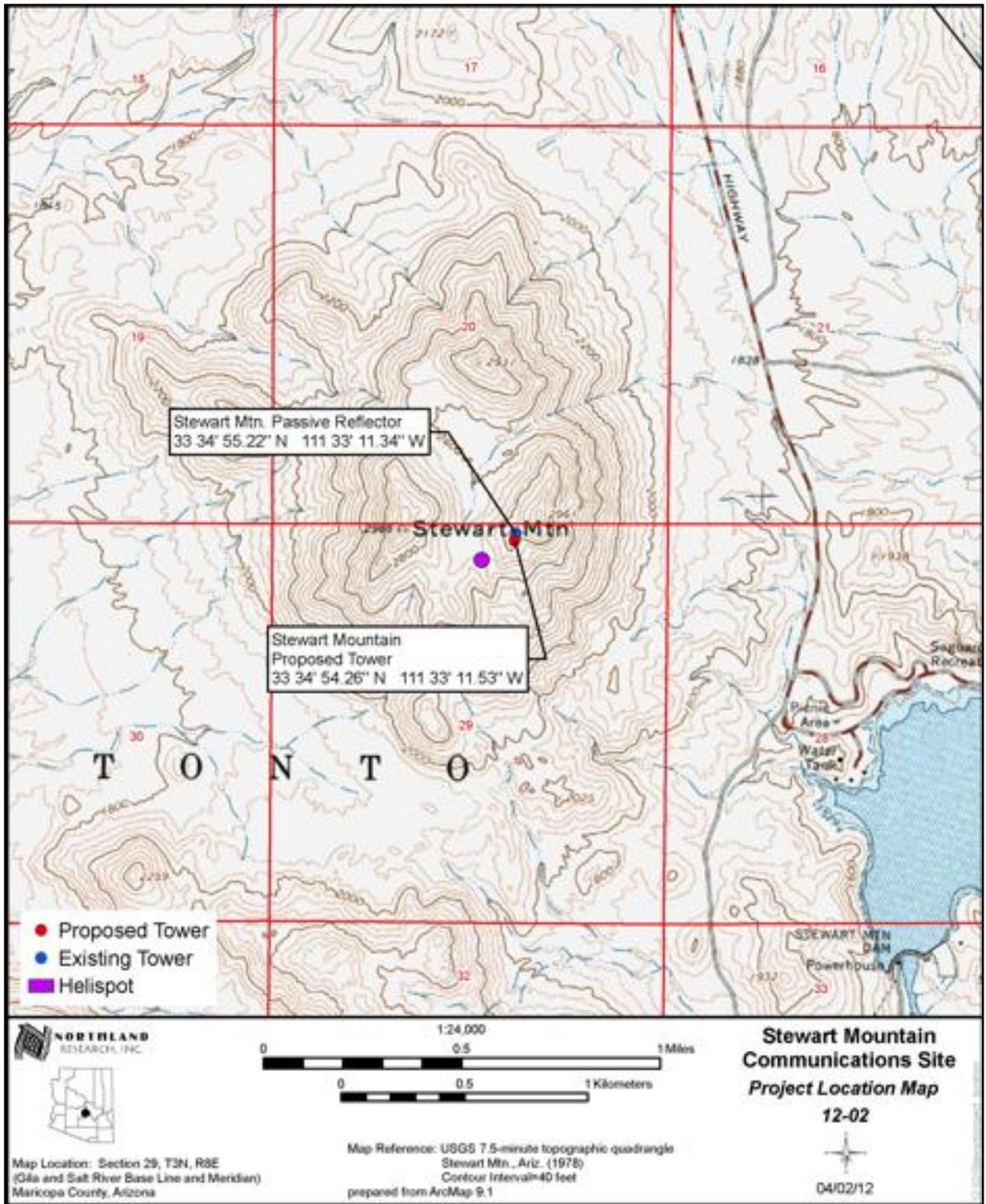


Figure 3. Stewart Mountain Communications Site

Comparison of Alternatives

This section provides a summary of the effects of implementing the proposed action compared to no action. Information in table 1 is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively.

Table 1. Comparison of Alternatives.

Topic	No Action – Alternative 1	Proposed Action Alternative 2
Visual Quality	<p>Goldfield and Stewart Mountain Communications Sites: No change from current condition. There will be no construction or establishment of a Communications site at Goldfield Administrative Site – no cell tower. There will not be a 45 foot tower added to the Stewart Mountain Communications Site.</p>	<p>Goldfield Communications Site: Limited short duration views of the Goldfield Communications Site tower. Generally views of the tower from Bush Hwy are back dropped by topography and far enough off the highway so that there will be no head on duration views. Although the tower will be evident from Bush Highway and Usery Pass Road, the proposed tower will not dominate the landscape and will not represent a noticeable change to the existing landscape for the area. The proposed tower is located within an area that is currently heavily impacted by existing manmade structures that have altered the natural setting and are evident. Therefore, the addition of the proposed tower at Goldfield Administrative Site was found to be within the acceptable range for visual impacts to the area.</p> <p>Stewart Mountain Communications Site The addition of a small 45 foot tall monopole located approximately 100 feet south of the passive reflector will result in minimal change to the landscape character of the area because of the presence of the existing Salt River Project reflector. In addition the microwave dishes will be small (3’ diameter) and the monopole is consistent with the existing vertical characteristics of the saguaro cacti that are present on the site and that cover the mountain. The addition of the small monopole was found to be within the acceptable range for visual resource impacts to the area.</p>
Earth and Water Resources		
Soils	<p>Goldfield and Stewart Mountain Communications Sites: There will be no soil</p>	<p>Goldfield Communications Site: Disturbance on .3 acre or less at Goldfield Communications Site site. The 100 foot, by 12 foot of new access road will extend off</p>

Topic	No Action – Alternative 1	Proposed Action Alternative 2
Soils (cont.)	disturbance due to there not being any ground disturbing activities associated with the no action alternative.	<p>an existing Salt River Project power line road to the fenced and gated communications site and will be constructed to U.S.F.S. Region 3 standards for a single lane fair weather road.</p> <p>Stewart Mountain Communications Site .02 acres for the tower and solar panel foundations at the Stewart Mountain Communications Site. Implementation of best management practices and other construction planning activities will effectively reduce the potential negative effects from construction activities under alternative 2.</p>
Water	<p>Goldfield and Stewart Mountain Communications Sites: There will be no construction activity or communications site facilities adjacent to the Goldfield Administrative Site or at the Stewart Mountain Communications Site under Alternative 1 – No Action, and therefore, no effects to any water resources.</p>	<p>Goldfield Communications Site: The Goldfield Communications Site is approximately 0.25 miles from the Salt River. Due to the flatness of the terrain, and minimal (less than ½ acre) area of disturbance, no impacts to water resources are anticipated from alternative 2 at the Goldfield Communications Site.</p> <p>Stewart Mountain Communications Site: No impacts to water resources are anticipated at the Stewart Mountain Communications Site because there are no naturally occurring perennial surface water resources at the construction sites nor will any sediment from the sites move into any water resources.</p>
Biological Resources		
Vegetation	<p>Goldfield and Stewart Mountain Communications Sites: There will be no construction activity or communications site facilities adjacent to the Goldfield Administrative Site or at the Stewart Mountain Communications Site under Alternative 1 – No Action, and therefore, no effects to any vegetation resources.</p>	<p>Goldfield Communications Site: Vegetation consisting of a few prickly pear cactus, cholla, bursage and acacia will be removed on approximately 0.3 acres necessary for road construction, tower and facility construction.</p> <p>Stewart Mountain Communications Site: Vegetation impacts will be minimal, as the area needed to install the 45 ft. tower and solar panel will disturb only approximately 0.02 acres. The area that will be most impacted will be associated with the 100 ft. circular helispot (less than 0.2 acres), where taller vegetation such as cholla, and palo</p>

Topic	No Action – Alternative 1	Proposed Action Alternative 2
Vegetation		verde trees may need to be mowed or clipped for helicopter landing safety.
Riparian Habitat	<p>Goldfield and Stewart Mountain Communications Sites: There will be no effects to riparian habitat at the Goldfield Administrative Site as a new communications site will not be constructed under Alternative 1 – No Action, and no riparian vegetation will be disturbed. There is no riparian habitat near Stewart Mountain Communications Site.</p>	<p>Goldfiled Communications Site: Due to the separation by the flat to level bench area, vegetated slope, and minimal amount of vegetation to be disturbed and/or removed at the project area there is no effect on riparian habitat at the Goldfield Communications Site. Stewart Mountain Communications Site: There is no riparian habitat within the project area at the Stewart Mountain Communications Site; therefore, alternative 2 will not impact riparian areas.</p>
Invasive Plants	<p>Goldfield and Stewart Mountain Communications Sites: Under Alternative 1 – No Action there will not be a risk of establishment of invasive plants that could arise due to construction or other soil and vegetation disturbances as the communications site will not be constructed at the Goldfield Administrative Site and, there will not be a risk of establishment of invasive plants that could arise due to construction or other soil and vegetation disturbances as the new tower and solar panel sites will not be constructed at the Stewart Mountain Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: The incorporation of the Design Criteria in Chapter 2 will prevent the introduction of new noxious or invasive weed populations and or details eradication measures to take if monitoring finds an occurrence, therefore alternative 2 will not contribute to the spread of invasive species and/or noxious weeds.</p>
Threatened and Endangered Species		
Sonoran Desert tortoise	<p>Goldfield and Stewart Mountain Communications Sites: No habitat loss or mortality to the Sonoran Desert tortoise because there will be no changes to current conditions or effects to desert tortoises as the Goldfield Communications</p>	<p>Goldfield and Stewart Mountain Communications Sites: No special-status species were observed during site reconnaissance, however the Sonoran (Morafka’s) desert tortoise (<i>Endangered Species Act Candidate</i>) is known to occur in the area. Construction and operation/maintenance traffic to the communications sites could</p>

Topic	No Action – Alternative 1	Proposed Action Alternative 2
Sonoran Desert tortoise	Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.	cause mortality to individual tortoises by running over them. An estimated total of less than one acre of suitable habitat for both sites will be impacted by the project. This impact is an extremely small percentage of the species range for desert tortoises. The proposed project will not result in adverse effects to the Sonoran Desert tortoise. Stewart Mountain Communications Site Individuals of the Sonoran Desert tortoise may be impacted by project activities, if present.
Bald eagle Sonoran population	Goldfield and Stewart Mountain Communications Sites: No habitat loss or mortality to the Sonoran bald eagle because there will be no changes to current conditions or effects to bald eagles as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.	Goldfield and Stewart Mountain Communications Sites: Although there is no suitable nesting habitat on the sites, bald eagles nest nearby and bald eagles may hunt in the area. The Goldfield-Kerr Breeding Area is located approximately 1/3 mile away from the Goldfield Communications Site, and the Bulldog Breeding Area is located approximately 1.5 miles south of the Stewart Mountain Communications Site. Workers should be made aware of the possibility of their presence and implement the design criteria specified on pages 11 - 12.
Lesser long-nosed bat	Goldfield and Stewart Mountain Communications Sites: No habitat loss or mortality to the lesser long-nosed bat because there will be no changes to current conditions or effects to lesser long-nosed bat as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.	Goldfield and Stewart Mountain Communications Sites: Lesser long-nosed bats may forage in the area, but are not present during the daytime, when construction work will take place.

Topic	No Action – Alternative 1	Proposed Action Alternative 2
Cactus ferruginous pygmy owl	<p>Goldfield and Stewart Mountain Communications Sites: No habitat loss or mortality to the cactus ferruginous pygmy owl because there will be no changes to current conditions or effects to desert tortoises as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Cactus ferruginous pygmy owls are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site. The sites are north of the range of this species</p>
Cave myotis	<p>Goldfield and Stewart Mountain Communications Sites: No habitat loss or mortality to the cave myotis because there will be no changes to current conditions or effects to desert tortoises as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Cave myotis may forage in the area, but are not present during the daytime, when construction work will take place.</p>
Forest Service Sensitive Species		
Sonoran Desert tortoise	<p>Goldfield and Stewart Mountain Communications Sites: See discussion, Threatened and Endangered Species, above.</p>	<p>Goldfield and Stewart Mountain Communications Sites: See discussion, Threatened and Endangered Species, above.</p>
Bald eagles	<p>Goldfield and Stewart Mountain Communications Sites: See discussion, threatened and endangered species, above.</p>	<p>Goldfield and Stewart Mountain Communications Sites: See discussion, Threatened and Endangered Species, above.</p>

Topic	No Action – Alternative 1	Proposed Action Alternative 2
Desert bighorn sheep	<p>Goldfield and Stewart Mountain Communications Sites: No habitat loss or mortality to desert bighorn sheep because there will be no changes to current conditions or effects to desert tortoises as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Desert bighorn sheep are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site. The cell tower footprint is less than ½ acre at each site, and the helispot at the Stewart Mountain Site is only at 100 foot diameter. Construction activities will be of a short duration, and routine maintenance will be infrequent at all three sites.</p>
Management Indicator Species		
Black –throated sparrow and Canyon towhee	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects to the black-throated sparrow and canyon towhee, as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: There will be no effect to the forestwide population or habitat trend for the two applicable Management Indicator Species (black-throated sparrow and canyon towhee) because of the small amount of habitat impact (less than one acre) relative to the amount of habitat available and used by the species on the Tonto National Forest.</p>
Migratory Birds		
	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects to migratory birds under as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart</p>	<p>Goldfield and Stewart Mountain Communications Sites: The Proposed Action may impact local birds but only minimally through small scale disturbance over a short time period. Any unintentional take reasonably attributable to the implementation of this action alternative is not likely to have any measurable negative effect on migratory bird populations.</p>

Topic	No Action – Alternative 1	Proposed Action Alternative 2
	Mountain Communications Site.	
Rare Plants		
Acuna Cactus	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects to the Acuna as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Construction of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site is unlikely to impact the Acuna cactus. The cactus is not known to occur and the cell tower footprint is less than ½ acre at each site.</p>
Land Use	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects to Land Uses as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Alternative 2 is consistent with management direction to minimize the amount of land allocated to electronic sites by locating additional communications facilities within the existing Stewart Mountain Communications Site and utilizing tower design at Goldfield Communications Site to accommodate multiple wireless providers to eliminate proliferation of towers and communications sites.</p> <p>There will be no impact to any of the land uses associated with the project area.</p>
Air Quality	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects to air quality under as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be</p>	<p>Goldfield and Stewart Mountain Communications Sites: Short-term and temporary air quality impacts will result from construction-related activities and will include fugitive dust and exhaust emissions from construction equipment. Construction will be of relatively short duration and the air-pollutant emissions will be dispersed relatively quickly; therefore, air quality standards will not be approached or exceeded. The proposed project will not generate any air pollutants after completion of</p>

Topic	No Action – Alternative 1	Proposed Action Alternative 2
Air Quality	constructed at the Stewart Mountain Communications Site.	the construction activities other than occasional dust from operational/maintenance traffic on the access road at the Goldfield Communications Site, which will not be distinguishable from other forest road use.
Noise	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects from noise under as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Noise levels resulting from the proposed project will be almost entirely due to construction related activities, which will result in a temporary increase in noise levels during daytime hours and only for the four to six week duration of project implementation.</p>
Cultural Resources	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects to cultural resources under as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: The cultural resource survey reports concluded that no significant cultural resources or isolated occurrences were recorded during the survey and that no direct impacts to cultural resources will result from implementation of alternative 2.</p>
Socioeconomics		
Availability of wireless services	<p>Goldfield and Stewart Mountain Communications Sites: Does not meet purpose and need. Continued limited service along Saguaro Lake – Lower Salt River Recreation Area.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Best meets purpose and need. Goldfield Communications Site – Meets wireless service objectives Will improve wireless service to targeted area. Provides desired wireless signal propagation and microwave dish positions which will meet anticipated wireless industry needs at the site for the next 10 years.</p>

Topic	No Action – Alternative 1	Proposed Action Alternative 2
<p>Removal of communications equipment form Stewart Mountain Dam</p>	<p>Goldfield and Stewart Mountain Communications Sites: Communications equipment providing service to private commercial operations will continue to operate on Stewart Mountain Dam</p>	<p>Goldfield and Stewart Mountain Communications Sites: The Stewart Mountain Communications Site.– 45’ tower provides microwave dish positions that meet minimum height requirements for a link to Goldfield Communications Site and Marina tower. Meets purpose and need to provide a system that allows for removal of the microwave equipment on Stewart Mountain Dam.</p>
<p>Environmental Justice</p>	<p>Goldfield and Stewart Mountain Communications Sites: There will be no changes to current conditions or effects in consideration of environmental justice factors under as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.</p>	<p>Goldfield and Stewart Mountain Communications Sites: Alternative 2 will not result in disproportionate impacts to low-income populations, nor will it impact minority populations.</p>

Chapter 3 – Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternative. It also presents the scientific and analytical basis for the comparison of the alternative with no action as presented in the chart above. Environmental consequences for differing activities are displayed separately. No Action is the current condition and is the baseline for the analysis. Environmental Consequences of the No Action are only displayed when there will be a consequence rather than a lack of consequence.

Visual Quality

The U.S. Forest Service uses the Visual Management System (VMS) to assess and manage visual resources on National Forest land. Application of the Visual Management System determines forest lands' visual management goals, or Visual Quality Objectives (VQO). To determine VQOs, landscapes are inventoried according to their scenic attributes following the National Forest Landscape Management Volume 2, Chapter 1: The Visual Management System (1974), Agriculture Handbook No. 462. These inventories analyze the diversity of natural features and peoples' concern for scenic quality, especially lands viewed by those traveling through the Forest on developed roads and using areas such as recreation sites. Overall, VQOs incorporate the extreme variability of the lands scenic quality, the visual sensitivity of the land and the ability of various Forest landscapes to undergo alteration. It provides a way to analyze the impacts of management activities on forest scenery.

In the development of the Tonto National Forest Plan in 1985, the Forest Visual Resource Inventory assigned a VQO to be used during project planning and implementation for the purpose of maintaining or enhancing the scenic qualities of the Tonto's landscapes. The Forest Plan provides guiding direction on minimizing effects from management activities on visual resources and scenery. Current Forestwide direction is to:

“Manage for Visual Quality Objectives (VQOs) ranging from preservation to maximum modification as defined for each prescription and delineated in the Forest Visual Resource Inventory. Apply design guidelines found in USDA handbooks, National Forest Landscape Management Series” (U.S. Forest Service, 1985, p. 38).

The VMS is the forerunner of the 2003 Scenery Management System (SMS). Forest Service direction is to use SMS to replace VMS at first opportunity. Since the Tonto NF's SMS inventory will not be completed until 2014, the VMS will be used for this analysis.

Methods of Analysis

- 1. Visual Simulations** – Visual simulations were developed for views of the proposed towers as will be seen traveling both directions on Bush Highway. In addition, a simulation was produced of the Goldfield Communications Site proposed tower as will be seen traveling north on Usery Pass road approaching the intersection with Bush Highway and two simulations near the Goldfield Administrative Site, approximately 500 feet away. Visual simulations were developed for tower heights of 145 feet tall (appendix A) using a helium filled balloon. At the time the photographs were taken for the simulations, a breeze was pushing the balloon from right to left on the photos. The balloon was tethered to a string 150

feet long. The balloon was typically pushed over by the breeze about 60 feet from the tether location. Using the formula for sides of a right triangle, the balloon was calculated to be approximately 137 feet tall on the photographs and the simulations were produced accordingly. Visual simulations for a 45 foot tower at the Stewart Mountain Communications Site were developed by using the existing 55 foot tall passive microwave reflector board for comparison (appendix B).

- 2. Visual Management System** - The VMS is the forerunner of the 2003 Scenery Management System (SMS) handbook. Forest Service direction is to use SMS to replace VMS at first opportunity. Since the Tonto NF's conversion from VMS to SMS will not be completed until the end of 2013, the VMS will be used for this analysis.

Affected Environment – Lower Salt River Recreation Area

Visual resources in this area are a primary concern because Bush Highway is a main connector road between State Route (SR) 87 and the cities of Apache Junction and Mesa. The area is also along the Lower Salt River and Saguaro Lake, which are major recreation areas. Tonto National Forest Land Management Plan states: "The visual resource is an important consideration in the management of this area." There is a need to mitigate the visual impacts of proposed communications site improvements in order to blend with the surroundings. Landscape character along the Bush Highway corridor is represented by Sonoran Desert and riparian vegetation associated with the Salt River below Stewart Mountain Dam. Stewart Mountain is a prominent topographical feature located adjacent to Lower Salt River Recreation Area and Saguaro Lake.

According to the Forest Visual Resource Inventory, Retention and Partial Retention are the two VQOs within the proposed communications site improvements and therefore analyzed in this report. Retention and Partial Retention are defined in the Forest Plan as follows:

Retention – A Visual Quality Objective that in general means man's activities are not evident to the casual forest visitor.

Partial Retention - A Visual Quality Objective that in general means man's activities may be evident, but remain subordinate to the characteristic landscape.

Goldfield Communications Site

The proposed Goldfield Communications Site tower site is located on flat ground adjacent to the east side of the Goldfield Administrative Site. The land immediately north of the tower site falls to the Salt River floodplain and river channel. The vegetation at the tower site is typical Sonoran Desert community which includes palo verde, mesquite, ironwood, saguaro, catclaw acacia, creosote, bursage, various cholla, ocotillo, and others. The land immediately north of the tower site is riparian associated with the Salt River. The proposed facility site is obscured by topography and vegetation from view from the Bush Highway when traveling both directions or from the Usery Pass Road looking north when approaching the Bush Highway intersection.

The site is of moderate scenic integrity, which means the landscape is slightly altered but still naturally appearing. The Forest Visual Resource Inventory delineates land in this area as retention.

Stewart Mountain Communications Site

The proposed Stewart Mountain Communications Site tower is located at an existing designated communications site which is the site of a Salt River Project passive microwave reflector linking

communications to Stewart Mountain Dam. The reflector resembles a large billboard and is located near the top of Stewart Mountain facing the Lower Salt River Recreation Area and Saguaro Lake. The proposed tower is located approximately 100 feet southeast of the existing Salt River Project passive microwave reflector (figure 3). The vegetation at the tower site is typical Sonoran Desert community with palo verde, mesquite, ironwood, saguaro cacti, catclaw acacia, creosote, bursage, ocotillo and cholla, present. The geology of the tower site is expressed by the presence of large granite boulders.

The Forest Visual Resource Inventory delineates the land in this area as partial retention VQO.

Environmental Consequences of Alternative 1 – No Action
Goldfield Communications Site

Because Alternative 1 – No Action will mean no change from current conditions meaning there will be no change to the landscape character in the area of the Goldfield Administrative Site. This is because a new communications site will not be constructed. The area will continue at its current level of evidence of man-made alterations. Any effects determined to occur by the presence of a 145 foot tower and the associated communications site infrastructure will not occur under the No Action Alternative.

Stewart Mountain Communications Site

There will be no change to the landscape character at Stewart Mountain because a new 45 foot tower will not be constructed in the existing communications site. The area will continue at its current level of evidence of man-made alterations. Any effects determined to occur by the presence of a 45 foot tower will not occur under the No Action Alternative.

Environmental Consequences of Alternative 2
Goldfield Communications Site

According to the current Forest Visual Resource Inventory the land proposed for Goldfield Communications Site is delineated as Retention VQO meaning management activities are allowed but not evident. The proposed communications tower and facilities will not be consistent with Retention; however, since there are presently numerous man-made alterations evident as seen from Bush Highway and Usery Pass Road the area is not consistent with a Retention VQO because the landscape is not natural appearing. The man-made alterations that are presently visually evident are associated with the existing Tonto National Forest Goldfield Administration Site, the Maricopa County Sheriff Substation buildings and their existing communications towers, antennae, power lines, and the commercial tubing facilities that includes large warehouse type building, communications antennae, and a large parking lot. The proposed tower is located adjacent to Goldfield Administrative Site buildings and power lines.

The proposed Goldfield Communications Site tower is located approximately 0.75 miles north of Bush Highway. Visual simulations show that the tower may be evident when traveling on Bush Highway. However, there will not be any direct long duration views from vehicles traveling in either direction on Bush Highway. Views of the tower will be at angles from the highway and will be short duration when traveling the posted speed limit for the highway. Visual simulations also indicate that the tower will not dominate the landscape at that location as seen from the Bush Highway while traveling in either direction. The equipment shelters, compound fence and other associated communications equipment will not be seen from the highway because the area is located below the level of the surrounding vegetation and will therefore be blocked from view from Bush Highway and Usery Pass Road. The proposed tower has a visual backdrop provided

by the cliffs and bluffs on the north side of the river so the tower will not be silhouetted on the skyline as seen from Bush highway.

The 145 foot tall monopole will be narrow in profile (appendix C) to reduce impacts to the landscape character. In addition, the tower, antennae, and microwave dishes will be treated with Natina Steel to give them the appearance of weathered steel, blending them with the colors in the landform on the north side of the river that serves as their backdrop. Treating the tower will also eliminate any reflective shiny surfaces, enabling the tower to better blend in with background. The equipment building, generator and propane tank will be painted a flat earth tone color that blends in well with the surroundings natural landscape. The color will be approved by the Tonto National Forest.

Although the tower will be evident from Bush Highway and Usery Pass Road, it will not dominate the landscape and will not represent a change to the existing landscape character. The proposed tower is located within an area that is currently heavily impacted by existing manmade structures that have altered the natural setting and are evident. Therefore, the addition of the proposed tower at Goldfield Administrative Site does not represent a noticeable change to the existing altered landscape character of the area. The proposed tower was found to be within the acceptable range for visual impacts to the area.

Stewart Mountain Communications Site

According to the current Forest Visual Resource Inventory the land proposed for the Stewart Mountain Communications Site 45 foot tall tower is delineated as Partial Retention VQO which means management activities may be evident but remain subordinate to the landscape. The proposed additions to Stewart Mountain will not be consistent with Partial Retention because the man-made alterations are not subordinate; however, since there is presently man-made alterations evident as seen from Bush Highway the area is not consistent with Partial Retention. The man-made alteration that is presently visually evident is the Salt River Project passive microwave reflector, which resembles a large billboard. The reflector is very evident from Bush Highway and from Saguaro Lake.

The monopole will be narrow in profile (Appendix C) to reduce impacts to the landscape character and will be located approximately 100 feet south of the passive reflector. The microwave dishes will be small (3' diameter) and the monopole is consistent with the existing vertical characteristics of the saguaro cacti that are present on the site and that cover the mountain. In addition, the proposed monopole will be painted a color similar to the saguaro cacti present on site and the equipment and battery cabinets will be painted a flat earth tone color that matches the large boulders present on site. The colors will be approved by the Tonto National Forest.

Visual quality analysis, including visual simulations, found the proposed tower at Stewart Mountain will blend with the linear features of the saguaro cacti, will be dwarfed by the existing passive reflector and will result in minimal change to the landscape character of the area. The addition of the small monopole was found to be within the acceptable range for visual resource impacts to the area.

Visual Quality Environmental Consequences – Alternative 2 Conclusion

The diversity of natural features and peoples' concern for scenic quality were considered. Although the addition of a tower at Goldfield Communications Site and Stewart Mountain

Communications Site will add man-made features altering the landscape character, alternative 2 will result in minimal change to the landscape character the area and will be within the acceptable range for visual resource impacts.

Cumulative Effects

Past activities that modify visual quality, such as the development of Goldfield Administrative Site and the Salt River Project passive microwave reflector, were considered in the existing scenery classification. There are no ongoing activities or known proposed activities that will affect the visual resources of the Lower Salt River Recreation Area or Saguaro Lake.

Earth and Water Resources

Affected Environment

General Geology

The proposed Goldfield Communications Site is located at an approximate elevation of 1,380 feet above mean sea level. The geology at the Goldfield Communications Site project area is dominated by an upland area formed by ancient alluvial deposits associated with past depositions by the Salt River, which is located approximately ¼ miles from the project site.

The geology of the Stewart Mountain Communications Site is typical of the basin and range topography of the general area. Stewart Mountain is one of the many fault block mountains formed during the Basin and Range Orogeny, (Chronic, 1983). The project site is located near the top of the mountain at an approximate elevation of 2,800 feet mean sea level. The immediate site is characterized by scattered granite boulders with open spaces of granitic soils in between.

Soils

Soils at Goldfield Communications Site are classified as a coarse-grained alluvium. The unified soil classification of the surface soils is silty clayey, with trace gravel. Subsurface deposits are described as highly weathered and fractured weak terrace deposits of colluvium.

Soils at Stewart Mountain are classified as a silty, gravelly, sand, comprised of alluvial deposits and residual soil of granitic origin.

Water

The Salt River is located approximately .25 miles from the Goldfield Communications Site. The tower will be located on a dry bench above the river and associated riparian zone. Terrain between the construction area of the communications site, access road, and the edge of the bench is flat and well vegetated. No naturally occurring perennial surface water resources are present at the Stewart Mountain Site.

Environmental Consequences of Alternative 1 – No Action

Goldfield Communications Site

Soils

There will be no construction activity or communications site facilities adjacent to the Goldfield Administrative Site under Alternative 1 – No Action, and therefore, no disturbance of soils.

Water

There will be no construction activity or communications site facilities adjacent to the Goldfield Administrative Site under Alternative 1 – No Action, and therefore, no effects to any water resources.

Stewart Mountain Communications Site

Soils

There will be no tower construction or installation of a solar panel at the Stewart Mountain Communications Site under Alternative 1 – No Action, and therefore, no disturbance of soils.

Water

There will be no construction activity or new communications site facilities built at the Stewart Mountain Communications Site under Alternative 1 – No Action, and therefore, no effects to any water resources.

Environmental Consequences – Alternatives 2

Goldfield Communications Site

Soils

Impacts to soil resources at the Goldfield Communications Site from alternative 2 are expected to be minimal. The proposed tower site is on flat locations, minimizing cut and fill that will be required to build the site. A maximum total of less than .3 acres of soil will be disturbed as displayed in table 2.

Table 2. Acres of soil disturbance under Alternative 2.

Source of Soil Disturbance	Acres of soil disturbed Goldfield Communications Site	Acres of soil disturbed Stewart Mountain Communications Site
New road construction	0.03	none
Tower/buildings	0.26	> 0.1
Utility	0.01	> 0.1
Totals	0.3	0.2
Project Total	0.5 acres	

Soil disturbance will be kept to a minimum by using existing access roads to the extent possible, with only approximately 100 ft. by 12 ft. of new access road needed at the Goldfield Communications Site. The 100 ft. by 12 ft. of new access road will extend off an existing Salt River Project power line road to the fenced and gated communications site and will be constructed to U.S.F.S. Region 3 standards for a single lane fair weather road.

During construction and maintenance, soil erosion will be minimized by implementing standard construction erosion-control measures described in the Proposed Action and mitigation measures/design criteria as listed on page 12. Implementation of best management practices and other construction planning activities will effectively reduce the potential negative effects from construction activities under alternative 2.

Water

The Salt River flows approximately 0.25 mile from the Goldfield Communications Site. However, the Goldfield Administrative Site is situated on a relatively flat bench separated from the main riparian zone of the river by a vegetated slope. At the communications site, terrain is flat in the area to be disturbed during construction and no sediments will move into any water resources. Due to the flatness of the terrain, and minimal (less than ½ acre) area of disturbance, no impacts to water resources are anticipated from alternative 2 at the Goldfield Communications Site.

Stewart Mountain Communications Site

Soils

There are two area of soil disturbance, each consisting of a few square feet and less than .1 acre in size at the Stewart Mountain Communications Site. The soil disturbance results from construction of the 45 ft. tower footings and the foundation for the solar panel. Implementation of best management practices and other construction planning activities will effectively reduce the potential negative effects from construction activities under alternative 2.

Water

No impacts to water resources are anticipated at the Stewart Mountain Communications Site because there are no naturally occurring perennial surface water resources at the construction sites nor will any sediment from the sites move into any water resources.

Cumulative Effects – Alternatives 2

Other past, present, and reasonably foreseeable actions that could result in impacts to soil include any earth-moving related developments in the project vicinity. A one mile radius and ten years past and/or future was considered for cumulative soil impacts around each communications site. Past soil disturbance is primarily associated with the existing roads and the parking lots and structures at the adjacent Goldfield Administrative Site. All of the roads and facilities associated with the Goldfield Administrative Site are either paved or well maintained and presently have no effect on water resources.

All soil disturbance associated with construction of existing facilities at the Stewart Mountain Communications Site are stable. There are no known reasonably foreseeable activities that will be cumulative to the minimal soil disturbance to occur under alternative 2.

There are no other present or reasonably foreseeable activities that will cause soil disturbance that will be additive to alternative 2, and there are no cumulative effects anticipated on water resources.

Biological Resources

This section provides a general description of the existing environment with respect to: vegetation; riparian habitat; invasive plant species; threatened, endangered, and sensitive species; management indicator species; and migratory birds. Information is summarized from the Biological Reports located in the project record.

Affected Environment – Vegetation

Vegetation at both Goldfield Communications Site and Stewart Mountain Communications Site is characterized by the Arizona Upland Subdivision of the Sonoran Desert Scrub Biotic Community (Turner and Brown 1994). Vegetation in this community includes saguaro (*Carnegiea gigantea*), creosote bush (*Larrea tridentata*), mesquite (*Prosopis* sp.), palo verde (*Parkinsonia florida*), teddy bear cholla (*Cylindropuntia bigelovii* var. *bigelovii*), chain fruit cholla (*Cylindropuntia fulgida*), prickly pear cactus (*Opuntia* spp.), triangle-leaf bursage (*Ambrosia deltoidea*), and ocotillo (*Fouquieria splendens*).



Figure 4. Representative Vegetation at the Stewart Mountain Communications Site.

The Stewart Mountain Communications Site is largely undisturbed, with the exception of existing communications facilities on the mountaintop. Vegetation at the Stewart Mountain Communications Site is sparse due to the rockiness of the site (figure 4). Some of the taller cholla and palo verde trees may need to be lopped and trimmed at the helicopter landing pad, to be located approximately 100 feet below the site.

The Goldfield Communications Site is in an area where there is a substantial amount of past disturbance to the vegetation, from Goldfield Administrative Site, the adjacent Bush Highway and utility lines, the parking lot/staging area for tubing trips on the Salt River, and from groups of people tubing on the river. Figure 5 illustrates vegetation at Goldfield Communications Site.



Figure 5. Representative Vegetation at the Goldfield Communications Site.

Affected Environment – Riparian Habitat

The Goldfield Communications Site project area represents an upland site, with no discernible drainages. There are no aquatic, wetland, or riparian areas on the site, however the Salt River and associated riparian corridor occurs approximately .25 miles north of the project area. There is a 20 to 40 ft. slope that is vegetated with mesquite and desert grasses at the edge of the bench that the project area is located on with the riparian area beginning at the bottom of this slope. There is no riparian vegetation at or near the project area at the Stewart Mountain site.

Affected Environment – Invasive Plants

Surveys did not identify any invasive plants within either of the project areas.

Environmental Consequences of Alternative 1 – No Action Goldfield Communications Site

Vegetation

There will be no effects to vegetation at the Goldfield Administrative Site as a new communications site will not be constructed under Alternative 1 – No Action, and no vegetation will be disturbed.

Riparian Habitat

There will be no effects to riparian habitat at the Goldfield Administrative Site as a new communications site will not be constructed under Alternative 1 – No Action, and no riparian vegetation will be disturbed.

Invasive Plants

Under Alternative 1 – No Action there would not be a risk of establishment of invasive plants that could arise due to construction or other soil and vegetation disturbances as the communications site will not be constructed.

Stewart Mountain Communications Site

Vegetation

There will be no effects to vegetation at the Stewart Mountain Communications Site as new tower and solar panel sites will not be constructed and vegetation will not be mowed or trimmed for the helispot under Alternative 1 – No Action and vegetation will not be disturbed.

Riparian Habitat

There is no riparian habitat at the Stewart Mountain Site.

Invasive Plants

Under Alternative 1 – No Action there would not be a risk of establishment of invasive plants that could arise due to construction or other soil and vegetation disturbances as the new tower and solar panel sites will not be constructed.

Environmental Consequences – Alternatives 2

Goldfield Communications Site

Vegetation

At the Goldfield Communications Site, vegetation consisting of a few prickly pear cacti, cholla, bursage and acacia will be removed on approximately .3 acres necessary for road construction, tower and facility construction. The use of existing access leading up to the Goldfield Communications Site by the Goldfield Road and the existing powerline right-of way will minimize clearing and loss of vegetation.

Due to the minimal amount of soil disturbance and clearing needed for the structures to be installed at this site there is very minimal effect on vegetation.

Riparian Habitat

Due to the separation by the flat to level bench area, vegetated slope, and minimal amount of vegetation to be disturbed and/or removed at the project area there is no effect on riparian habitat at the Goldfield Communications Site.

Invasive Plants

The incorporation of the Design Criteria in Chapter 2, page 14, will prevent the introduction of new noxious or invasive weed populations; therefore, alternative 2 will not contribute to the spread of invasive species and/or noxious weeds. However, the contractor shall be responsible for the prevention and control of noxious weeds and/or exotic plants of concern on the area authorized by the authorization and shall provide prevention and control measures prescribed by the Forest Service. (Also, see Chapter 2 Design Criteria/Mitigation Measures for specific measures to be taken for the prevention and control of noxious weed and exotic plant infestations).

Stewart Mountain Communications Site

Vegetation

At the Stewart Mountain Communications Site vegetation impacts will be minimal, as the area needed to install the 45 ft. tower and solar panel and small equipment shelter is minimal, disturbing only approximately 0.02 acres. The area that will be most impacted will be associated with the 100 ft. circular helispot (less than 0.2 acres), where taller vegetation such as cholla, and palo verde trees may need to be mowed or clipped for helicopter landing safety. This treatment

will be a minor affect to the vegetation, as it is only pruned back and not completely removed. However, this treatment could need to be repeated to maintain the helispot as needed, (usually for infrequent landings for site maintenance purposes.

Riparian Habitat

There is no riparian habitat within the project area at the Stewart Mountain Communications Site; therefore, alternative 2 will not impact riparian areas.

Invasive Plants

Effects will be the same as those described for Goldfield Communications Site.

Cumulative Effects – Alternative 2

Past, present, and reasonably foreseeable actions considered for cumulative effects for vegetation include any project within the last 10 years or 10 years into the future and within one mile, that has or will remove vegetation. Because vegetation removal at both project locations is so minor and there is no known future projects involving vegetation removal within the cumulative effects timeframe there are no cumulative effects to vegetation associated with alternative 2.

Threatened and Endangered Species

The following information is summarized from the Biology Reports located in the project record.

Species Considered

All species listed as Threatened or Endangered, Proposed for listing, or Candidates for listing, under the *Endangered Species Act* for Maricopa County, Arizona were considered, including designated critical habitat. A list of federally listed species known to occur or potentially occurring in Maricopa County, Arizona, was obtained from the U.S. Fish and Wildlife Service Southwest Region 2 website (U.S. Fish and Wildlife Service 2012). The U.S. Fish and Wildlife Service species list is provided in Appendix A of the Wildlife Specialist Report. The Arizona Game and Fish Department maintains a statewide database, the Heritage Data Management System, which tracks records for federally listed species and other species of special concern. The Heritage Data Management System through the Arizona Heritage Geographic Information System online environmental review tool was accessed to determine whether any federally proposed or designated critical habitat or special-status species have been documented near the project area (Arizona Heritage Geographic Information System 2012). In addition to federally listed U.S. Fish and Wildlife Service species, the Arizona Heritage Geographic Information tool includes species that have been identified by the state of Arizona, the Bureau of Land Management, and the U.S. Forest Service as having special designations. Only species listed by the U.S. Fish and Wildlife Service are afforded protection under the *Endangered Species Act*.

Seventeen federally listed species and twelve species identified in the Heritage Data Management System lists (26 total species due to overlap) are addressed in this analysis (see appendix E).

The potential for occurrence of the species on the property addressed in this analysis was based on: 1) documented records; 2) existing information on distribution; and 3) qualitative comparisons of the habitat requirements of each species with vegetation communities or landscape features in the project area. Species that are not present and/or for which no potentially

suitable habitat or critical habitat is present were determined to be not affected by the project and omitted from detailed evaluation.

Special Status Species Evaluation

Species identified in Appendix E that may occur in the project site were further evaluated for documented occurrences within or near the project area and potential impacts from the proposed tower construction. Species biology, analysis of effects, and determination of effects are given below for each species.

A. Sonoran Desert tortoise (*Gopherus morafkai*)

Status

U.S. Fish and Wildlife Service **Candidate** for federal listing, Arizona **Wildlife of Special Concern**, and Forest Service **Sensitive** species.

Life History

Until recently, the Sonoran and Mojave populations of the desert tortoise were considered the same species—*Gopherus agassizii*. The Mojave Desert tortoise occurs to the west and north of the Colorado River in California, Utah, Nevada, and extreme northwest Arizona. The Sonoran Desert tortoise occurs east and south of the Colorado River. The Sonoran Desert population has been reclassified as *Gopherus morafkai*. Arizona is the only state in the United States where the Sonoran Desert tortoise occurs. Arizona encompasses 52 percent of the tortoises' total range; the other 48 percent is in Mexico. Sonoran Desert tortoises are most closely associated with the Arizona Upland and Lower Colorado River subdivisions of Sonoran Desert scrub and Mojave Desert scrub vegetation types (AIDTT 1996). They occur predominately on rocky (generally granitic), steep slopes and bajadas and in palo verde-mixed cacti associations (Arizona Game and Fish Department 2010). Cryptobiotic soils are an important characteristic of Sonoran Desert tortoise habitat. Tortoise burrows are excavated into the soil under rock outcroppings and boulders. Desert tortoises feed primarily on annual forbs and grasses, perennials, nonnative plants, and cacti are a secondary component of their diet (Arizona Game and Fish Department 2010).

Affected Environment

Habitat Evaluation and Suitability

The Goldfield Communications Site is in a flat area adjacent to the Tonto National Forest, Goldfield Administrative Site; tortoises are unlikely to be found in this area. The Stewart Mountain Communications Site is in steep, rocky terrain, potential suitable habitat for the desert tortoise occurs on the project site. Tortoises may occur, however, the area of disturbance to install the cell tower is extremely small, the area could be fenced to exclude tortoises after ensuring there are no tortoises already present onsite. No tortoises, active burrows, or their sign was observed within the project area.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to desert tortoises under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

Even though no desert tortoises, active or abandoned burrows or any other signs were observed during thorough foot surveys of the project area, individuals may be present. Tortoises are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site or Stewart Mountain Communications Site. The cell tower footprint is less than ½ acre at each site, and the helispot at the Stewart Mountain Site is only at 100 foot diameter or less than .2 acres. Construction activities will be of a short duration, and routine maintenance will be infrequent at all three sites. The design criteria specific to the desert tortoise (see Chapter 2 – Design Criteria/Mitigation Measures, page 13) will be implemented upon any discovery of tortoise(s) on the site during construction.

B. Bald eagle-Sonoran population (*Haliaeetus leucocephalus*) pop. 3

Status

U.S. Fish and Wildlife Species of Concern, sheltered under the Bald and Golden Eagle Protection Act, Forest Service Sensitive species, Wildlife of Special Concern in Arizona.

Life History

Bald eagles have an extensive range across North America, from the far northern reaches of Alaska and Canada south to northern Mexico. Bald eagles breed in most of central and southern Canada south to the Great Lakes and Maine, along the Atlantic and Gulf Coast, and along the Pacific Coast from Alaska to Baja California (Sibley 2000). There are disjunct breeding populations in the interior U.S. where suitable habitat occurs (Hunt et al., 1992). Prior to European colonization, an estimated quarter to half million bald eagles lived in North America (64 FR 36454-36464).

Bald eagles migrate from the northern portions of their range to winter in the southern United States and northern Mexico. Bald eagles are known to winter throughout all 11 National Forests in the Southwestern Region (USFS 2001). The eagle population in Arizona is increasing, which coincides with the national trend.

A small resident population of eagles breeds in selective sites in Arizona and New Mexico. Bald eagles have been documented breeding along the Salt, Verde, and Bill Williams rivers, along Tonto Creek, and at Saguaro, Canyon, and Roosevelt Lakes in central Arizona. In 2012, the Arizona Game and Fish Department reported a total of 66 to 68 breeding areas in Arizona, the majority of which occur on national forests.

Bald eagle breeding habitat is characterized by large trees capable of supporting a nest and by a nearby water source that provides an adequate supply of medium-sized to large fish (Johnsgard 1990). Wintering habitats for bald eagles are less closely associated with water than summer habitats (Evans 1982). Roost sites for bald eagles are usually in fairly open stands with trees that are taller than surrounding canopy (Stalmaster and Newman 1978, Keister and Anthony 1983).

In Arizona, bald eagles establish territories and begin breeding between mid-December and mid-March. Breeding habitat for bald eagles in Arizona is exclusively tied to water sources (Hunt et al., 1992). Bald eagles build huge stick nests in large trees, in snags, and on top of tall cliff ledges. Nests are typically up to 6 feet across and are lined with soft materials such as grasses, leaves, and mosses. Incubation takes 34 to 36 days, and nestlings fledge in 70 to 98 days (Ehrlich et al., 1988). Bald eagles often reuse nests year after year (U.S. Fish and Wildlife Service 1995).

Bald eagles primarily eat fish but are also known to eat other small vertebrates and carrion. Waterfowl and large fish such as salmon, catfish, carp, and suckers are the preferred prey. Winter diets for bald eagles can vary depending upon location and food sources, but generally it is believed that wintering eagles depend more on waterfowl and carrion and less on fish (Busch 1986).

Although bald eagles have been shown to be sensitive to disturbance caused by human activities (Brown and Stevens 1997, Hunt et al., 1992), response to disturbance varies. Brown et al., (1999) showed that weapons testing did not affect bald eagle productivity. However, timber harvest, fishing, hunting, boating, and lakeside development are all disturbances known to affect wintering bald eagles (Stalmaster and Newman 1978, Knight et al., 1991, Buehler et al., 1991).

Affected Environment:

Habitat Evaluation and Suitability

Eagles have been nesting in the Saguaro Lake area on and off since at least the 1930s. The Goldfield-Kerr Breeding Area was established in 2009 and is located approximately 1/3 mile away from the Goldfield Communications Site. In 2011, this nest failed; however, surveys conducted in January 2013 determined that the eagles were incubating.

The Bulldog Breeding Area is located south of Bush Highway, within the Bulldog Cliffs, approximately 1.5 miles from the Stewart Mountain Communications Site. A helicopter will be used to ferry materials to the Stewart Mountain Communications Site, with staging near the developed area at the Pobricito Overflow Parking Area adjacent to the Bush Highway.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to bald eagles under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2:

Individual eagles may utilize the general area for hunting, but there is no suitable nesting habitat on site. Bald eagles are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site. The cell tower footprint is less than ½ acre at each site, and the helispot at the Stewart Mountain Site is only at 100 foot diameter. Construction activities will be of a short duration, and routine maintenance will be infrequent at all three sites. The design criteria and mitigations summarized on pages 12 and 13 are designed to reduce and avoid effects when and if disturbance to nesting eagles or eaglets has been observed.

C. Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*)

Status

U.S. Fish and Wildlife Service Endangered.

Life History

The lesser long-nosed bat is found in desert grassland and shrubland up to the oak transition zone (Arizona Game and Fish Department 2011). This species roosts in caves, mine tunnels, and unoccupied buildings during the day. They forage in areas with saguaro, prickly pear, organ pipe cacti, ocotillo, palo verde, and agaves. From late April to late July, pregnant females congregate

at traditional roost sites, give birth, and raise their young at lower elevations within the range of columnar cacti. Males and perhaps nonpregnant females do not arrive until sometime in July. By late July most females and young have dispersed from the maternity colonies, and some have moved to higher elevations where they are found feeding on agave flowers. By late September or October, all of these bats are migrating south to Mexico, exactly where is not known. Lesser long-nosed bats are not present in Arizona during winter months (Arizona Game and Fish Department 2011).

Affected Environment:

Habitat Evaluation and Suitability

Impacts to lesser long-nosed bats are not anticipated due to the absence of caves, mine tunnels, and/or buildings on site. It is possible that bats could forage within the project boundaries. Because bats are nocturnal and construction activities will occur during the day, construction is not likely to affect lesser long-nosed bat foraging activities. Because bats are not present in Arizona in the winter months, there will be no impacts to bats during this time frame. No columnar cacti will be impacted. In addition, the area of disturbance for each communications site will be less than one-half acre.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to the lesser long-nosed bats under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2:

Lesser long-nosed bats may use the area for foraging during the months from late April through September. Bats are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site. The cell tower footprint is less than one-half acre at each site, and the helispot at the Stewart Mountain Site is only at 100 foot diameter. Construction activities will be of a short duration, and routine maintenance will be infrequent at all three sites.

**D. Cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*)
Status**

U.S. Fish and Wildlife Service Species of Concern, Arizona Wildlife of Special Concern, and Forest Service Sensitive species.

Life History

The cactus ferruginous pygmy owl is a small bird found in Sonoran Desert scrub and in mature cottonwood/willow and mesquite bosques below 4,000 feet. Its range extends from central Arizona and extreme southeast Texas south into Michoacan, Mexico (Arizona Game and Fish Department 2001). The cactus ferruginous pygmy owl is a formidable predator, often feeding on prey much larger than itself. It is active in the hours around sunrise and sunset, feeding primarily on lizards, with songbirds, mice, bats, and insects as secondary components of the diet (Arizona Game and Fish Department 2001). This owl nests in natural cavities or abandoned woodpeckers holes in large columnar cacti and trees. They have been found in the Rincon, Pajarito, Puerto Blanco, Ajo, Santa Catalina, and Santa Rita mountains; south and west of the Tortolita Mountains in the Tucson area; along the Gila River near Bonita Creek and San Francisco River; at the San

Pedro River near Dudleyville; and along Sonoyta Creek. The only recent records are from Organ Pipe Cactus National Monument, near Ajo, and suburban Tucson (Arizona Game and Fish Department 2001).

It was originally listed as Endangered in 1997, with critical habitat for the Arizona population designated in 2002. It was removed from the list in 2006, and downgraded to Species of Concern, as a result of questions on the validity of this owl as a distinct species (76 FR 61856).

Affected Environment:

Habitat Evaluation and Suitability

There are columnar cacti in the vicinity of each of the communications sites; however the project area is further north than where cactus ferruginous pygmy owls are known to occur. The cell tower footprint is less than ½ acre at each site, construction activities will be of a short duration, and routine maintenance will be infrequent. No effect to cactus ferruginous pygmy owls is anticipated.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to the cactus ferruginous pygmy owls under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2:

Cactus ferruginous pygmy owls are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site. The sites are north of the range of this species. The cell tower footprint is less than one-half acre at each site, and the helispot at the Stewart Mountain Site is only at 100 foot diameter. Construction activities will be of a short duration, and routine maintenance will be infrequent at all three sites.

E. Cave myotis (*Myotis velifer*)

Status

U.S. Fish and Wildlife Species of Concern.

Life History

The cave myotis occurs in Arizona south of Mogollon rim. This bat has been recorded from the Harquahala Mountains, Gila Bend, Organ Pipe Cactus National Monument and north of Yuma near the Colorado River. Although most migrate south for the winter, a few individuals have been known to occur in southeastern Arizona during the winter (Hoffmeister 1986). They are mostly found between 300 and 5,000 feet (92 to 1,525 m.) in elevation, although there are some cases where they have been found at elevations as high as 8,000 feet (2,684m). Vegetation is usually desert scrub, with creosote bush, brittlebush, palo verde, and cacti, higher elevation populations are found in pine-oak communities. Home ranges for the Arizona populations of this bat can be hundreds of square kilometers during nonmigratory times of the year (Arizona Game and Fish Department 2002).

These bats are colonial; they roost in groups, most often near the entrance of a cave or mine, but they may also be found under bridges and in buildings. Individuals will return to the same location each year. The colonies consist of between 2,000 and 5,000 bats. Maternity colonies in Arizona have between 50 and 15,000 females. Mating occurs in the fall, and possibly again in

winter. Males arrive from southern hibernacula sometime in March, followed a few weeks later by the females. One young is born sometime from May to early July. The young are left in the roost when the mothers leave to feed. Young are ready to fly when they are between 5 and 8 weeks old. Cave myotis leave the roost to feed just after sunset, first flying to water to drink. They glean moths, beetles, and other insects from the air, flying just at the top of the vegetation. By August, the female and young have moved to the same roosts as the males, and in September, the females leave for the winter (Fitch et al., 1981). They enter hibernacula in late September or early October, females sooner than males (Arizona Game and Fish Department 2002).

Affected Environment:

Habitat Evaluation and Suitability

Impacts to cave myotis are not anticipated due to the absence of caves, mine tunnels, and/or buildings on site. It is possible that bats could forage within the project boundaries. Because bats are nocturnal and construction activities will occur during the day, construction is not likely to affect cave myotis foraging activities. Because bats are not present in Arizona in the winter months, there will be no impacts to bats during this time frame. In addition, the area of disturbance for each communications site will be less than one-half acre.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to the cave myotis under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2:

Cave myotis bats may use the area for foraging during the months from March through September. Bats are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site. The cell tower footprint is less than one-half acre at each site, and the helispot at the Stewart Mountain Site is only at 100 foot diameter. Construction activities will be of a short duration, and routine maintenance will be infrequent at all three sites.

Forest Service Sensitive Species

Affected Environment

Nine Forest Service Sensitive species that are known to occur within two miles of the proposed project areas were considered. Detailed analysis is located in the Biological Evaluation located in the project record.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to the Sonoran Desert tortoise, the bald eagle or the Desert Bighorn Sheep under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

Table 3 summarizes impacts for Sensitive Species (Detailed analysis in project record).

The Sonoran Desert tortoise, the bald eagle, and the Desert Bighorn Sheep are the only sensitive species that may be impacted.

Sonoran Desert tortoise

Construction and operation/maintenance traffic to the communications sites could cause mortality to individual tortoises by running over them. The area could be fenced to exclude tortoises after ensuring there are no tortoises already present onsite. An estimated total of less than one acre of suitable habitat for both sites will be impacted by the project. This impact is an extremely small percentage of the species range for desert tortoises.

Bald eagles

Bald eagles may forage or nest in the proposed project vicinity. The Goldfield-Kerr Breeding Area is located approximately one-third mile away from the Goldfield Communications Site, and the Bulldog Breeding Area is located approximately 1.5 miles south of the Stewart Mountain Communications Site. Construction activities will be of a short duration, and routine maintenance will be infrequent. Impacts to nesting bald eagles can be minimized by timing construction to occur outside the breeding season (December 1 through June 30).

Desert bighorn sheep

Desert bighorn sheep may use the area, especially the steep, rocky terrain of the Stewart Mountain Communications Site. Between 120 and 150 desert bighorn are found in the Four Peaks and Superstition Mountains. Desert bighorn sheep are unlikely to be adversely affected by the installation of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site. The cell tower footprint is less than one-half acre at each site, and the helispot at the Stewart Mountain Site is only at 100 foot diameter. Construction activities will be of a short duration, and routine maintenance will be infrequent at all three sites.

Table 3. Summary of Impacts for Sensitive Species.

Species	No Impact	¹ May Impact Individuals Or Habitat, But Will Not Trend Towards Listing	² Will Impact Individuals Or Habitat and Trend Towards Listing
Gila longfin dace(<i>Agosia chrysogaster chrysogaster</i>)	X		
Desert sucker (<i>Catostomus clarkii</i>)	X		
Sonoran sucker (<i>Catostomus insignis</i>)	X		
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	X		

¹ May impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

² Will impact individuals or habitat with a consequence that the action will contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Species	No Impact	¹ May Impact Individuals Or Habitat, But Will Not Trend Towards Listing	² Will Impact Individuals Or Habitat and Trend Towards Listing
Roundtail chub (<i>Gila robusta</i>)	X		
Sonoran Desert tortoise (<i>Gopherus morafkai</i>)		X	
Bald eagle-winter population (<i>Haliaeetus leucocephalus</i>)		X	
Bald eagle-Sonoran population (<i>Haliaeetus leucocephalus</i>) pop. 3		X	
Desert Bighorn Sheep		X	
Lowland leopard frog (<i>Rana yavapaiensis</i>)	X		
Cactus ferruginous pygmy owl (<i>Glaucidium brasilianum cactorum</i>)	X		

**Partial Status: listed Endangered or Threatened, but not in entire range.*

Cumulative Effects – Alternative 2

Other present, past, and reasonably foreseeable activities that may impact the Sonoran Desert tortoise and the desert bighorn sheep, and bald eagles on the Mesa Ranger District include projects that will impact the herbaceous vegetation or crush individuals. There are no known current of reasonably foreseeable projects that will impact the herbaceous vegetation or crush individuals within the cumulative effects area considered, (a one mile perimeter around each site) or within the cumulative effects timeframe considered (10 years). There are no additive impacts to combine or be cumulative with the less than one acre of habitat affected by this project.

Management Indicator Species

Affected Environment

Management Indicators are: “Plant and animal species, communities, or special habitats selected for emphasis in planning, and which are monitored during Forest Plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent” (FSM 2620.5).

The Goldfield Communications Site and Stewart Mountain Communications Site are classified as the Sonoran Desert scrub Biotic Community (Turner and Brown 1994). Vegetation in this community includes saguaro (*Carnegiea gigantea*), creosote bush (*Larrea tridentata*), mesquite (*Prosopis* sp.), palo verde (*Parkinsonia florida*), teddy bear cholla (*Cylindropuntia bigelovii* var. *bigelovii*), chain fruit cholla (*Cylindropuntia fulgida*), prickly pear cactus (*Opuntia* spp.), triangle-leaf bursage (*Ambrosia deltoidea*), and ocotillo (*Fouquieria splendens*).

The proposed Goldfield Communications Site and existing Stewart Mountain Communications Site are located in Management Area 3F of the Tonto National Forest, Forest Plan and prescriptions to guide management in this area are found in Forest Plan, Amendment 25, 08/2006, Replacement Page 104. The Tonto National Forest, Forest Plan identifies the following Management Indicator Species associated with the Sonoran Desert scrub habitat found in Management Area 3F: black-throated sparrow and canyon towhee.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to the Management Indicator Species (black-throated sparrow and canyon towhee) under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

A detailed analysis for Management Indicator Species is located in the Wildlife Specialist Reports located in the project record.

There will be no effect to the forestwide population or habitat trend for the two applicable Management Indicator Species (black-throated sparrow and canyon towhee) because of the small amount of habitat impact (less than one acre) relative to the amount of habitat available and used by the species on the Tonto National Forest.

Migratory Birds

Affected Environment

Executive Order 13186 (January 10, 2001) requires federal agencies to consider management impacts to migratory birds to further the purposes of the Migratory Bird Treaty Act. This analysis considers effects on: 1) Priority Species of Concern listed by Partners in Flight (Latta, et al., 1999) and Birds of Conservation Concern (U.S. Fish and Wildlife Service 2008); 2) Important Bird Areas; and 3) effects to important overwintering areas.

Arizona Partners in Flight Priority Species (Latta et al., 1999) and U.S. Fish and Wildlife Service Birds of Conservation Concern (U.S. Fish and Wildlife Service 2008) associated with the Sonoran Desert vegetation types present in the project area include: northern goshawk, Cordilleran flycatcher, olive-sided flycatcher, purple martin, Grace's warbler, Lewis' woodpecker, flammulated owl, bald eagle, gray flycatcher, gray vireo, black-throated gray warbler, pinyon jay, juniper titmouse, and Bendire's thrasher.

Important Bird Areas

The Salt River portion of the nearby Salt and Verde Riparian Ecosystem IBA extends from Stewart Mountain Dam to the confluence with the Verde River. This IBA is approximately 0.5 miles from the Goldfields site and more than one mile from the Stewart Mountain site. No activities will occur within or affect the Salt River riparian corridor or important bird habitat.

Overwintering Areas

No significant overwintering areas have been formally recognized in the immediate vicinity of the Proposed Action Area. The nearby Salt River is expected to have a higher density of overwintering birds than the general landscape. Due to the distance from the proposed action, there will be no effects to overwintering birds in the Salt River Riparian Corridor.

Migratory Bird Treaty Act Species of Concern

Determination of the effects of the Proposed Action to migratory birds was accomplished by considering: 1) effects to Arizona Partners in Flight Priority Species, 2) effects to Important Bird Areas, and 3) effects to important overwintering areas (U.S Fish and Wildlife Service, 2008). Arizona Partners in Flight identified Priority Species of Concern by associated vegetation type. Sixtythree avian species categories (some species are listed more than once because they occur in more than one vegetation type) have been identified on Tonto National Forest by the Forest Biologist (F. Wong, pers. com. to K. Harbour). The vegetation types found in the Proposed Action where direct effects may occur is the Sonoran Desert scrub (Arizona Upland Biome): palo verde, ironwood, mesquite, catclaw, acacia, saguaro, cholla, barrel cactus, prickly pear, creosote bush, jojoba, crucifixion thorn. Vegetation types adjacent to or within 0.25 miles of the Proposed Action where indirect effects may occur include; Sonoran riparian deciduous forest and woodlands: primarily cottonwood, willow, mesquite, tamarisk (salt cedar), some ash, walnut, and hackberry and Sonoran riparian scrubland (dry wash): mesquite, palo verde, ironwood, burrowbush, desert broom, quailbush, desert willow. Species identified for these vegetation types are listed in Appendix F and will be evaluated. Species occurring in other vegetation types are not affected and are therefore not further evaluated.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to migratory birds under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

It is possible that individual migratory birds may be directly and indirectly affected from the Proposed Action by the ground disturbance at the proposed communications sites. Direct effects could involve the removal of vegetation that supports existing or potential nesting sites or forage. The total area of ground disturbance is less than one acre. Indirect effects include noise disturbance to individual migratory birds that are nesting in or around each tower site including the access roads and helipad. It may also be possible that individual home territories may be altered for resident birds with increased human disturbance during the construction period. Birds remain highly mobile and are likely to relocate when disturbed. Individual migratory birds could be indirectly affected by the Proposed Action through the alteration to community movement within proximity to the tower sites. Operation and maintenance activities are minimal and are not expected to cause changes in territories or nesting activities because they occur infrequently and are of short duration.

Preliminary studies have suggested that short monopole tower construction do not pose a significant threat to migratory birds and bats. There are far fewer collisions and mortalities

associated with the use of short (< 200 feet) monopoles rather than tall towers with obstruction lighting and anchored by guy lines (Dickey and Gates 2007).

The U.S. Fish and Wildlife Service Tower Guidelines incorporated in this project include:

- Collocation – the tower is designed to accommodate four carriers
- Tower height - the tower is less than 199 feet tall and unlit;
- Tower design - free standing with no guy wires
- Location - is not within known habitat of threatened or endangered species

Project activities that could result in incidental take include:

1. Ground disturbing activities (construction of road, tower, equipment buildings, and fence) that could impact ground nesting birds).
2. Installation of manmade structures that birds may strike when in flight.
3. Cutting vegetation that a bird is nesting in.

Effects of ground disturbing activities: None of the migratory species of concern are ground nesters.

Effects of Man Made Structures: Birds can collide with any man made structure when in flight including buildings, towers, fences, cars. The project meets U.S. Fish and Wildlife Service communication tower guidelines to minimize impacts to birds, including: Selfsupporting (no guy wires) towers, unlighted towers, collocation of facilities, and minimizing vegetative clearing through facility positioning. The facility will be fenced. All reasonable measures to minimize the possibility for bird mortality have been incorporated. A multiyear monitoring of six similar communication towers (unguyed, unlit towers) in northern Arizona reported zero to a small fraction of fatalities per tower per year. (Derby 2006). The extremely low anticipated death of less than one bird per year is considered as no impact in this analysis.

Effects of Vegetation Cutting: Vegetation clearing could remove a nest; however the less than one acre of clearing is unlikely to contain more than a few nests based on bird territory sizes.

Finding: The Proposed Action may impact local birds but only minimally through small scale disturbance over a short time period. Any unintentional take reasonably attributable to the implementation of this action alternative is not likely to have any measurable negative effect on migratory bird populations. Appendix G provides our impact assessment for each of the Priority Species of Concern considered.

Cumulative Effects Alternative 2

Identifying a boundary for cumulative effects for migratory birds can be difficult because most of these birds migrate to winter grounds in Central and South America where habitat destruction is believed to be the major cause of decline. This analysis determined that there are no present and reasonably foreseeable activities on the Mesa Ranger District that could impact migratory birds that will be within the cumulative effects analysis area and/or be cumulatively additive to this project. The anticipated small amount of mortality, associated primarily with possible tower collision, in alternative 2 is expected to be only a minimal cumulative effect with no measurable impacts on population levels. Alternative 2 has extremely minor effects from clearing a total of .5 acres of Sonoran Desert vegetation at the Goldfield Communications Site and only a few square feet of vegetation at the Stewart Mountain Communications Site for the tower base and solar

panel base. These small effects of alternative 2 combined with other past, present, and reasonably foreseeable activities will not have a measure impact on population levels.

Rare Plants

A. Acuna cactus (*Echinomastus erectocentrus* var. *acunensis*)

Status

U.S. Fish and Wildlife Service **Proposed Endangered.**

Life History

Patchy populations of the Acuna cactus grow on open, rounded small hills, benches and flats well drained knolls and gravel ridges between major washes. Elevation ranges from 1,300 to 3,937 feet (397 to 1,200m.), with most sources claiming this cactus grows between 1,300 and 2,600 feet. The Acuna cactus is found in the Arizona Upland Subdivision of Sonoran Desert scrub. Dominant associated species include triangle-leaf bursage, palo verde, brittlebush, Mormon tea, ocotillo, creosotebush, ironwood), and buckhorn cholla (A. Phillips, B. Phillips and N. Brian 1982). Soils are composed of granite or granodiorate materials, limestone, and red to white andesite. Texture ranges from course to fine.

Affected Environment

Habitat Evaluation and Suitability

Although suitable habitat is present, the Acuna cactus is not known to occur in the area or on the Tonto National Forest; with the nearest population approximately 50 miles south, near the Gila River. The communications sites are further north than this cactus has been found. It is unlikely to be found on the proposed sites. The area of disturbance will be extremely small, less than one-half acre.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to the Acuna under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences Alternative 2

Construction of the cell towers at the Goldfield Communications Site and Stewart Mountain Communications Site is unlikely to impact the Acuna cactus. The cactus is not known to occur and the cell tower footprint is less than one-half acre at each site.

Land Use

This section provides a general description of the existing environment with respect to a variety of land uses, recreation, range, and Tonto National Forest, Forest Plan land use designations.

Affected Environment

Land Jurisdiction and Ownership

The proposed action is located on land under the jurisdiction of the United States Department of Agriculture, Forest Service, Tonto National Forest, Mesa Ranger District. The Goldfield Communications Site is located at the Goldfield Administrative Site. Part of the purpose and need

for this project is to improve wireless communication service to the administrative site facility. Installing and improving wireless communication service at Goldfield Communications Site and Stewart Mountain Communications Site will also allow nonconforming communications equipment to be removed from Stewart Mountain Dam, which is located on property managed by the Bureau of Reclamation. There are no land exchanges or other forms of major land ownership adjustment planned by the Forest Service in the general vicinity of the project.

Residences, Businesses

The project is located on National Forest System lands with a consistent land ownership pattern. The closest large block of private land is located at Goldfield, 2 miles north of the proposed Goldfield Communications Site and 2 miles west of the Stewart Mountain Communications Site. The Ft. McDowell Indian Reservation is located approximately 1 ½ miles west of the Goldfield Communications Site. The nearest businesses on private land and residences are located approximately 5 miles south, where the towns of Mesa and Apache Junction begin at the Forest boundary. Mesa and Apache Junction are full service communities and are part of the greater Phoenix Metropolitan area. The proposed Goldfield Communications Site is adjacent to government housing associated with the Goldfield Administrative Site and the tubing rental operation.

Utilities

There currently is no electrical power at the proposed Goldfield Communications Site. However power is available from a nearby Salt River Project distribution power line. There currently is not a capability to transmit wireless communications from the proposed communications site.

Currently there is no electrical power service to the proposed Stewart Mountain Communications Site tower.

Transportation

Bush Highway is the main access road to both the Goldfield Communications Site and Stewart Mountain Communications Site project areas and is the main route to the Goldfield Administrative Site and the Lower Salt River, Saguaro Lake, and Canyon Lake Recreation Areas. The highway can experience heavy traffic, especially during the summer months. Maintaining visual quality along this highway corridor is an objective of the Tonto National Forest.

From the Bush Highway, access to the Goldfield Communications Site is via the Goldfield Administrative Site and from the Salt River Project power line service road. Access to the general area for the proposed Stewart Mountain Communications Site is by foot via the Bush Highway or by helicopter, as no existing roads lead to the proposed site. A helicopter landing area, or helispot, that will be located approximately 300 feet southwest of the tower location, is proposed for the Stewart Mountain Communications Site project area.

Recreation

The project areas are located in the Lower Salt River, Saguaro Lake, and Canyon Lake Recreation Areas. This is Management Area 3F of the Tonto National Forest, Forest Plan and prescriptions to guide management in this area are found in Forest Plan, Amendment 25, 08/2006, Replacement Page 104. Management emphasis within the analysis area is primarily water-oriented developed and dispersed recreation. There are 16 developed recreation and public service sites, totaling 111 acres within this management area.

Recreation Special Use Permits

There are numerous Recreation Special Use Permits issued for this management area, most of which are associated with water sports at the lakes and the Salt River. Guidance in the Tonto National Forest, Forest Plan at Amendment No. 25 states that commercial public service sites at Canyon and Saguaro Lakes and on the Lower Salt River will be continued. Cellular communications for businesses associated with recreation special use permits, the Forest Service and Law Enforcement is poor and often nonexistent.

Range Resources

The project is located within the Goldfield grazing allotment which contains 65,102 acres; however, this allotment is closed to grazing.

Existing Forest Plan Land Use Designations

According to the Tonto National Forest Land Management Plan the project area is in Management Area 3F, Mesa Ranger District – Lower Salt River Recreation Area. The vegetation composition of MA 3F is desert, including over 10,380 acres of Sonoran Desert subtype. Lakes and river channel consisting of 2,046 acres, and riparian area consisting of 2,751 acres make up the remaining area. The Tonto National Forest Land Management Plan emphasizes that the reservoirs within this management area have been developed for reclamation purposes and the entire area is currently under a reclamation withdrawal. Reclamation functions may preclude or restrict many Forest Service management activities.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to Land Uses under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

In alternative 2, the facilities are designed to accommodate anticipated wireless communications needs for the next 10 years, so there will be no additional communications sites needed for the Saguaro Lake and Lower Salt River area. There will be no impact to land uses. Existing access roads will be used during project construction and operational activities. Existing roads will not be upgraded beyond the current Forest Service road level designation nor impeded by alternative 2. Access to the Goldfield Communications Site will require construction of 100 linear feet of single lane fair weather road. The new road will be gated and limited to administrative and communications site access only and therefore will not affect the open road system of the Tonto National Forest as designated by the Travel Management Plan. Alternative 2 does not represent any change in the existing condition of recreation resources and activities.

Alternative 2 will have no impact on grazing operations as the allotment is currently closed to grazing. If grazing is allowed in the future alternative 2 will not reduce livestock numbers on the grazing allotment because only a small acreage (less than 2 acres) will be removed from forage availability.

Alternative 2 is consistent with management direction to minimize the amount of land allocated to electronic sites by locating additional communications facilities within the existing Stewart Mountain Communications Site and utilizing tower design at Goldfield Communications Site to

accommodate multiple wireless providers to eliminate proliferation of towers and communication sites.

Cumulative Effects

There are no direct or indirect effects to land uses, therefore there will be no cumulative impacts because there are no effects from alternative 2 that will accumulate with the effects of other past, present, or reasonably foreseeable actions.

Air Quality

Affected Environment

The U.S. Environmental Protection Agency established National Ambient Air Quality Standards for six criteria pollutants (ground level ozone [O₃], carbon monoxide [CO], nitrogen dioxide [NO₂], sulfur dioxide [SO₂], particulate matter, and lead). According to the Environmental Protection Agency website (<http://www.epa.gov/region9/air/>), the nearest index, (Apache Junction), meets all NAAQS; therefore, air quality in the project area is good.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to air quality under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

Short term and temporary air quality impacts will result from construction-related activities and will include fugitive dust and exhaust emissions from construction equipment. Construction will be of relatively short duration and the air pollutant emissions will be dispersed relatively quickly; therefore, air quality standards will not be approached or exceeded. The proposed project will not generate any air pollutants after completion of the construction activities other than occasional dust from operational/maintenance traffic on the access road at the Goldfield Communications Site, which will not be distinguishable from other forest road use.

Cumulative Effects

Other activities considered for cumulative air quality effects include any other project that will produce dust, smoke, or emissions during the four to six week construction period. There are no known construction projects that will occur during this period and therefore there are no cumulative effects on air quality, and air quality standards will not be exceeded.

Noise

Affected Environment

The project area is located in open space. Ambient noise includes motorized traffic on the Bush Highway. The noise-scape for construction activities is estimated at one-half mile. Sensitive receptors such as residences or churches are not located in the anticipated noise-scape for construction activities. However, there is the potential to have nesting bald eagles within one-third mile of the construction site and near helicopter flight operations.

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects from noise under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

Noise levels resulting from the proposed project will be almost entirely due to construction related activities, which will result in a temporary increase in noise levels during daytime hours and only for the four to six week duration of project implementation.

Effects on Special Uses and Recreation: Construction noise will not be audible to Lower Salt River or Saguaro Lake visitors because there are no trails near the lake or river areas in the vicinity of the Goldfield Communications Site or Stewart Mountain Communications Site. Construction noise levels will be audible to recreationists on the Tonto National Forest but will occur in an area of high ambient motorized vehicle noise due to the proximity to the Bush Highway.

Effects on Bald Eagles and other Birds and Wildlife: Design criteria on pages 12 and 13 mitigate effects for noise through either construction activities at the Goldfield Communications Site or helicopter noise at the Stewart Mountain Communications Site if eagles are nesting nearby. Direct observation will be used to determine if nesting eagles are being disturbed. During construction activities and/or helicopter use, if there is any detection of disturbance to the eagles observed during the breeding/nesting season (December 1 – June 30), operations will cease. To avoid impacts to breeding/nesting bald eagles, timing restrictions on construction activities could be implemented as described in the design criteria and as coordinated with the Arizona Game and Fish Department.

Wildlife, mostly birds within 100 yards, may temporarily be displaced by construction noise but will return to the area after construction is completed.

The temporary increase in noise levels due to construction will be minimal compared to the existing ambient noise level.

Cumulative Effects

Other activities considered for cumulative noise effects include any other project that will produce noise during the four to six week construction period within the 0.5 mile noise-scape. No highway construction projects are known. Aircraft noise and highway traffic noise will continue at the current levels. There are no cumulative noise impacts because there are no other past, present, and reasonably foreseeable actions generating noise that will result in increased noise levels. Because the construction period is of short duration and other future projects will not coincide with alternative 2, there will be no cumulative impacts associated with noise.

Cultural Resources

Affected Environment

A cultural resources survey and records search was conducted for the two proposed cell tower sites (Goldfield Communications Site and Stewart Mountain Communications Site). The survey was conducted in October 2012 to identify and assess cultural resources in the project area. A total of 0.26 acres (0.11 acres Goldfield Communications Site, and 0.15 acres at Stewart Mountain Communications Site) was surveyed, for all ground disturbing activities that will occur with the proposed action (see Cultural Resource Reports in the Project Record).

Because no significant historic properties will be affected by construction activities no further archaeological investigation is recommended. If, however, previously unreported cultural resources are identified, then all ground disturbing activities in the vicinity of the find shall cease until the Tonto National Forest Heritage Program and the Forest Archaeologist is notified and the nature and significance of the find is evaluated. Appropriate action should be taken as per *36 CFR Part 800, Section 106*. If human remains are encountered, appropriate action should be taken as per the *Native American Graves Protection and Repatriation Act of 1990* and its implementing regulation, *40 CFR Part 10*.

Due to the location of the project area, the Tonto National Forest has conducted government-to-government consultation with affiliated tribes (See tribal consultation).

Environmental Consequences of Alternative 1 – No Action

There will be no changes to current conditions or effects to cultural resources under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences – Alternative 2

The cultural resource survey reports concluded that no significant cultural resources or isolated occurrences were recorded during the survey and that no direct impacts to cultural resources will result from implementation of alternative 2.

Cumulative Effects

There are no direct or indirect effects to cultural resources, therefore there will be no cumulative impacts because there are no effects from alternative 2 that will accumulate with the effects of other past, present, or reasonably foreseeable actions.

Socioeconomics

This section describes the demographic and economic characteristics found in the project vicinity. It describes the changes to wireless services for the affected communities, potential changes to population, and economic impacts.

Population and Economics - Affected Environment

Local economic and employment opportunities are primarily associated with commercial recreation special use permits for water sports, including concessions for tubing and boating on the Lower Salt River, and various water sports at Saguaro Lake. The Lower Salt River concession is located approximately 0.5 miles south of the of the proposed Goldfield Communications Site

and the Stewart Mountain Communications Site is approximately 1.5 miles northwest of Saguaro Lake. The major economic centers for the areas are primarily Mesa, with a population of 468,000 located 8 miles southwest, and Apache Junction with a population of 40,000 located 5 miles south.

Wireless Service – Affected Environment

The public and government agencies have come to expect reliable wireless telephone and internet service while traveling major transportation corridors for general use and emergencies. The Bush Highway corridor north of Apache Junction, Arizona is a major route to the popular and heavily used Lower Salt River and Saguaro Lake recreation areas, and experiences heavy traffic. In addition to recreationists this corridor has numerous water sports associated businesses with commercial special use permits. The Bush Highway corridor from Goldfield Administrative Site through Saguaro Lake is currently not receiving adequate or reliable wireless service from any of the providers for the traveling public, government administration, and businesses with commercial special use permits. Currently there are gaps in service on the highway near the proposed Goldfield Communications Site and Stewart Mountain Communications Site towers.

Environmental Consequences - Socioeconomic Impacts of Alternative 1 – No Action

The No Action Alternative – Alternative 1, does not meet the Purpose and Need for the project. Wireless personal communication services along the Bush Highway corridor from Goldfield Administrative Site to the Lower Salt River and Saguaro Lake recreation sites are currently unavailable and/or unreliable. Implementing the No Action Alternative will result in continued none to poor wireless communication services in the area which could result in longer response time to emergency services and limited internet/cellular opportunities to the traveling and recreating public, the Goldfield Administrative Site, businesses with commercial special use permits, and the surrounding rural area.

Environmental Consequences - Socioeconomic Impacts Alternative 2

The proposed telecommunication tower sites are unmanned and therefore effects to the population in the area long term will be negligible to nonexistent. Local businesses will not suffer any adverse short or long-term economic impacts from any of the alternatives, and no businesses will be closed or eliminated as a result. There may be short-term benefits to the local and regional economy resulting from construction-related expenditures and employment. A longer term positive impact to the local economy will be reliable and consistent wireless internet service to the residents and workers at Goldfield Administrative Site, commercial water sports businesses, and recreationist in general. Reliable internet and cell phone service will enhance business operations, safety and accident response abilities, and administrative processes and wildfire protection services and operations in this isolated area.

Environmental Consequences – Wireless Service Alternative 2 Goldfield Communications Site– Alternative 2

The Goldfield Communications Site tower will provide wireless service by overlapping signals or cells with existing towers at Fountain Hills and Saguaro Lake Marina. The wireless industry service objectives for the Goldfield Administrative Site area will be met under alternative 2. The facilities proposed under alternative 2 at the Goldfield Communications Site are expected to meet wireless industry needs at the Goldfield Communications Site for the next 10 years. The

Goldfield Communications Site facility under alternative 2 will improve the wireless personal communication services along the Bush Highway, at the Goldfield Administrative Site, and for commercial special use permit operators. Alternative 2 will also provide for wireless internet service for Goldfield Administrative Site. Communications with emergency services will be enhanced. The Goldfield Communications Site tower will function as part of a wireless corridor system designed to provide seamless coverage between Apache Junction/Mesa and Goldfield Administrative Site and the Lower Salt River and Saguaro Lake Recreation Areas.

Stewart Mountain Communications Site – Alternative 2

A 45-foot tower at the existing Stewart Mountain Communications Site provides additional microwave path that eliminates the need for the existing microwave dish on Stewart Mountain Dam. Alternative 2 will allow for the removal of the Stewart Mountain microwave dish and is consistent with the Bureau of Reclamations policy, laws, and regulations.

Cumulative Effects – Socioeconomics

Implementation of alternative 2 will result in an increase in wireless personal communication services. Alternative 2 is designed to accommodate all of the licensed wireless carriers in the area as well as future technologies that require tower space. When considered with other past, present, and foreseeable projects in this area, there are no other projects that will have a similar effect and therefore no cumulative effects associated with alternative 2.

Environmental Justice

Pursuant to *Executive Order 12898 on Environmental Justice*, Federal agencies are to make the achievement of environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations, low-income populations, and Indian tribes and allowing all portions of the population a meaningful opportunity to participate in the development of, compliance with, and enforcement of Federal law, regulations, and policies affecting human health or the environment regardless of race, color, national origin, or income.

Environmental Consequences – No Action Alternative – Alternative 1

There will be no changes to current conditions or effects in consideration of environmental justice factors under Alternative 1 – No Action as the Goldfield Communications Site will not be constructed at the Goldfield Administrative Site, and the new tower and solar panel installation will not be constructed at the Stewart Mountain Communications Site.

Environmental Consequences - Alternative 2

Alternative 2 will not result in disproportionate impacts to low-income populations, nor will it impact minority populations. The Apache Junction, Mesa, and McDowell Indian Reservation areas, including its low income and minority populations, are strongly tied a wide range of industry, with cellular companies having a very small percentage of the overall economy.

Chapter 4 – Consultation and Coordination

I.D. Team Members

Daniel Bray, Assistant Recreation Staff, Mesa Ranger District, Tonto National Forest, IDT Leader
Kelly Kessler, Range/Wildlife Staff, Mesa Ranger District, Tonto National Forest
Scott Wood, Forest Archaeologist, Tonto National Forest
Kimber Jones, Forest Landscape Architect, Tonto National Forest
Jason Scow, Recreation Staff, Mesa Ranger District, Tonto National Forest
Grant Loomis, Forest Hydrologist, Tonto National Forest
Norm Ambos, Forest Soil Scientist, Tonto National Forest
Genevieve Johnson, Forest Planner, Tonto National Forest

Consultants

Suzanne Rhodes, Wildlife Biologist, Northland Research, Inc.
Ken Jacobs, Land Use Specialist, Northland Research, Inc.
Alvin R. Brown, NEPA Specialist, Northland Research, Inc.
Dale Wilson, DW Holdings, LLC.

The Forest Service consulted the following Federal, state and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

Federal, State and Local Officials and Agencies

Scoping letters requesting comments were sent to the following federal and state agencies:

BLM Arizona State Office, Phoenix, AZ
BLM, Glendale, AZ
USDA NRCS, Flagstaff, AZ
USDA NRCS, Tucson, AZ
FAA, Renton, WA
ADOT, Phoenix Office
APS, Phoenix, AZ
Salt River Project, Phoenix, AZ
Arizona Department of Public Safety, Phoenix, AZ
Arizona Department of Regents, Tempe, AZ
BIA, Coolidge, AZ
FBI, Phoenix, AZ
Flood Control District of Maricopa County, Phoenix, AZ
Gila County Department of Emergency Management, Globe, AZ
Pinal County, Radio Communications, Florence, AZ
USFWS, Phoenix, AZ
Arizona Game and Fish Department, Phoenix, AZ

Tribes

This project was added to the Tonto National Forest Schedule of Proposed Actions (SOPA) during the First Quarter of Fiscal Year 2012. On February 1, 2012, the Tonto National Forest Supervisor initiated government to government consultation on the project by sending a consultation letter and an updated copy of the SOPA to the Ft. McDowell Yavapai Nation, Yavapai-Prescott Nation, Yavapai-Apache Nation, Tonto Apache Tribe, San Carlos Apache Tribe, White Mountain Apache Tribe, Salt River Pima-Maricopa Indian Community, the Hopi Tribe, and the Pueblo of Zuni.

The Forest received one letter from the Fort McDowell Yavapai Nation that stated that they had no comments. No other concerns, questions, or comments about the project were received by the Forest.

Chapter 5 – References

- Arizona Game and Fish Department. 2001. *Glaucidium brasilianum cactorum*. **Unpublished abstract compiled and edited by the Heritage Data Management System**, Arizona Game and Fish Department, Phoenix, AZ. 6 pp.
- Arizona Game and Fish Department. 2002. *Myotis velifer*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 7 pp.
- Arizona Game and Fish Department. 2010. *Gopherus agassizii*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 11 pp.
- Arizona Game and Fish Department. 2011. *Leptonycteris curasoae yerbabuena*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 8 pp.
- Arizona Interagency Desert Tortoise Team (AIDTT). 1996. Murray, R.C. and V. Dickinson (eds.) Management Plan for the Sonoran Desert population of the desert tortoise in Arizona. Arizona Interagency Desert Tortoise Team 55pp.
- Brennan, T. C., and A. T. Holycross. 2006. A Field Guide to Amphibians and Reptiles in Arizona. Arizona Game and Fish Department. Phoenix, AZ
- Brown, B.T. and L.E. Stevens. 1997. Winter bald eagle distribution is inversely correlated with human activity along the Colorado River, Arizona. *Journal of Raptor Research* 31(1): 7-10.
- Brown, B.T., G.S. Mills, C. Powels, W.A. Russell, G. D. Therres, and J. J. Pottie. 1999. The influence of weapons-testing noise on bald eagle behavior. *Journal of Raptor Research* 33(3): 227_232.
- Brown, D.E. (ed.). 1994. *Biotic Communities: Southwestern United States and Northwestern Mexico*. Salt Lake City: University of Utah Press.

- Buehler, D.A., T.J. Mersmann, J.D. Fraser, and J.K.D. Seegar. 1991. Effects on bald eagle distribution on Chesapeake Bay. *Journal of Wildlife Management* 55:282-290.
- Busch, D.E. 1986. Bald eagle. Pages 57-64 *in* Glinski, R.L. et al. Eds. Southwest Raptor Management Symposium and Workshop. National Wildlife Federation Science and Techniques. Ser. No. 11. 395 pp.
- Chronic, H. 1983 *Roadside Geology of Arizona*. Mountain Press Publishing Company, Missoula, Montana.
- Derby, C. 2006. Bird and Bat Fatality Monitoring of Six Un-guyed, Unlit Cellular Telecommunication Towers within the Coconino and Prescott National Forests, Arizona: 2006 Season Results. Western EcoSystems Technology, Inc. Cheyenne, Wyoming 82001.
- Dickey, S.D. and J.E. Gates. 2008. Annual Report 2007, The Effect of Cell Towers on Birds and Bats at Rock Creek Park, Washington, D.C. University of Maryland Center for Environmental Science.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. *The birder's handbook*. Simon & Schuster Inc., New York, New York.
- Evans, D. L. 1982. Status reports on twelve raptors. USDI Fish and Wildlife Service Special Science Report. 238. 68 pp.
- Fitch, J. H. Jr., et al. 1981. *Myotis velifer*. Mammalian Species No. 149:1-5.
- Hendricks, D. 1985. *Arizona Soils*. College of Agriculture, University of Arizona, Tucson, Arizona. Available at <http://southwest.library.arizona.edu/azso>
- Hoffmeister, D. F. 1986. *Mammals of Arizona*. University of Arizona Press. pp. 72-74.
- Hunt, W. G., D. E. Driscoll, E. W. Bianchi, and R. E. Jackman. 1992. Ecology of bald eagles in Arizona. Part A: Population overview. Report to U.S. Bureau of Reclamation, Contract 6-CS-30-04470. Biosystems Analysis, Inc., Santa Cruz, California. 235 pp.
- Johnsgard, P.A. 1990. *Hawks, eagles, and falcons of North America*. Smithsonian Institution Press, Washington D.C. 403 pp.
- Keister, G.P. and R.G. Anthony. 1983. Characteristics of bald eagle communal roosts in the Klamath Basin, Oregon and California. *Journal of Wildlife Management* 47(4): 1072-1079.
- Knight, R.L., D.P. Anderson, and N.V. Marr. 1991. Responses of an avian scavenging guild to anglers. *Biological Conservation*. Vol. 56: 195_205.
- Koster, W.J. 1957. *Guide to the fishes of New Mexico*. University of New Mexico Press, Albuquerque.
- Latta, M.J. C.J. Beardmore, T.E. Corman. 1999. Arizona Partners in Flight bird conservation plan. AGFD Tech Rpt 142. 331 pp.
- Northland Research, Inc. 2012. Visual Analysis for the Proposed Goldfield Communication Tower. Flagstaff, Arizona.

- Northland Research, Inc. 2012. Visual Analysis for the Proposed Stewart Mountain Microwave Tower. Flagstaff, Arizona.
- Northland Research, Inc. 2013. Wildlife Specialist Report for the Stewart Mountain and Goldfield Communications Site. Flagstaff, AZ.
- Phillips, A.M. III and W.H. Buskirk. 1982. Status of the Acuña Cactus (*Neolloydia erectocentra* var. *acuñensis*) and the Ajo Rock Daisy (*Perityle ajoensis* in Organ Pipe Cactus National Monument, Arizona. Submitted for Research in Organ Pipe Cactus National Monument Symposium volume. 7 pp. in AGFD 2011. *Echinomastus erectocentrus* var. *acuñensis*. Unpublished abstract compiled and edited by the Heritage Data Management System. Phoenix, Arizona: Arizona Game and Fish Department, Phoenix. 8 pp.
- Sibley, D.A. 2000. The Sibley guide to birds. Alfred A. Knopf, Inc., New York.
- Stalmaster, M.V. and J.R. Newman. 1978. Perch-site preferences of wintering bald eagles in northwest Washington. *Journal of Wildlife Management*. 43:221-224.
- Turner, Raymond M., and David E. Brown, 1994, Tropical-Subtropical Desertlands: Sonoran Desertscrub. In *Biotic Communities: Southwestern United States and Northwestern Mexico*, edited by D. E. Brown, pp. 180–221. University of Utah Press, Salt Lake City.
- USDA. Forest Service Southwestern Region, Tonto National Forest Plan, 1985, as amended.
- U.S. Fish and Wildlife Service. 2008. Birds of conservation concern 2008. Division of Migratory Bird Management, Arlington, Virginia. 85 pp.
- U.S. Fish and Wildlife Service (USFWS). 1995. Bald Eagle (*Haliaeetus leucocephalus*). U.S. Fish and Wildlife Service, Biologue Series. 2 pp.
- U.S. Forest Service (USFS). 2001. Biological Assessment and Evaluation for the Wildland Urban Interface Fuel Treatment. U.S. Forest Service, Southwestern Region. 259 pp.
- United States Department of Agriculture. Forest Service. 1974. National Forest Landscape Management Volume 2, Chapter 1, The Visual Management System, Agriculture Handbook Number 462.
- United States Department of Agriculture. Forest Service. 1985, Land Management Plan. Tonto National Forest Plan.

Chapter 6 – List of Preparers

U.S. Forest Service, Mesa Ranger District

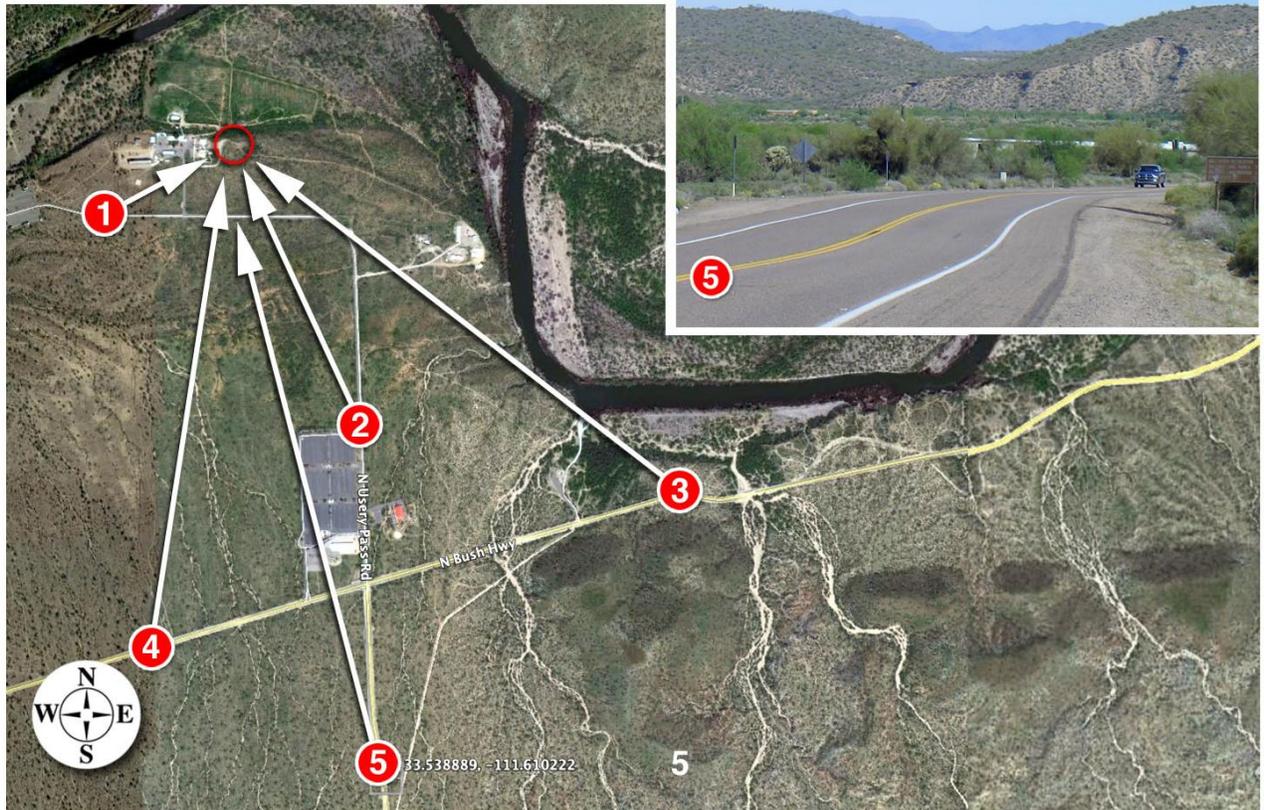
Tonto National Forest, Supervisor's Office

Appendix A

Visual Simulations

Goldfield Communications Site

Appendix A
 Visual Simulations – Goldfield Communications Site



Aerial Map



DW TOWER, INC. Goldfield Tower

Tonto National Forest, AZ

4/14/11

View #1a

Applied Imagination 510 914-0500





DW TOWER, INC. Goldfield Tower

Tonto National Forest, AZ

4/14/11

View #3a

Applied Imagination 510 914-0500

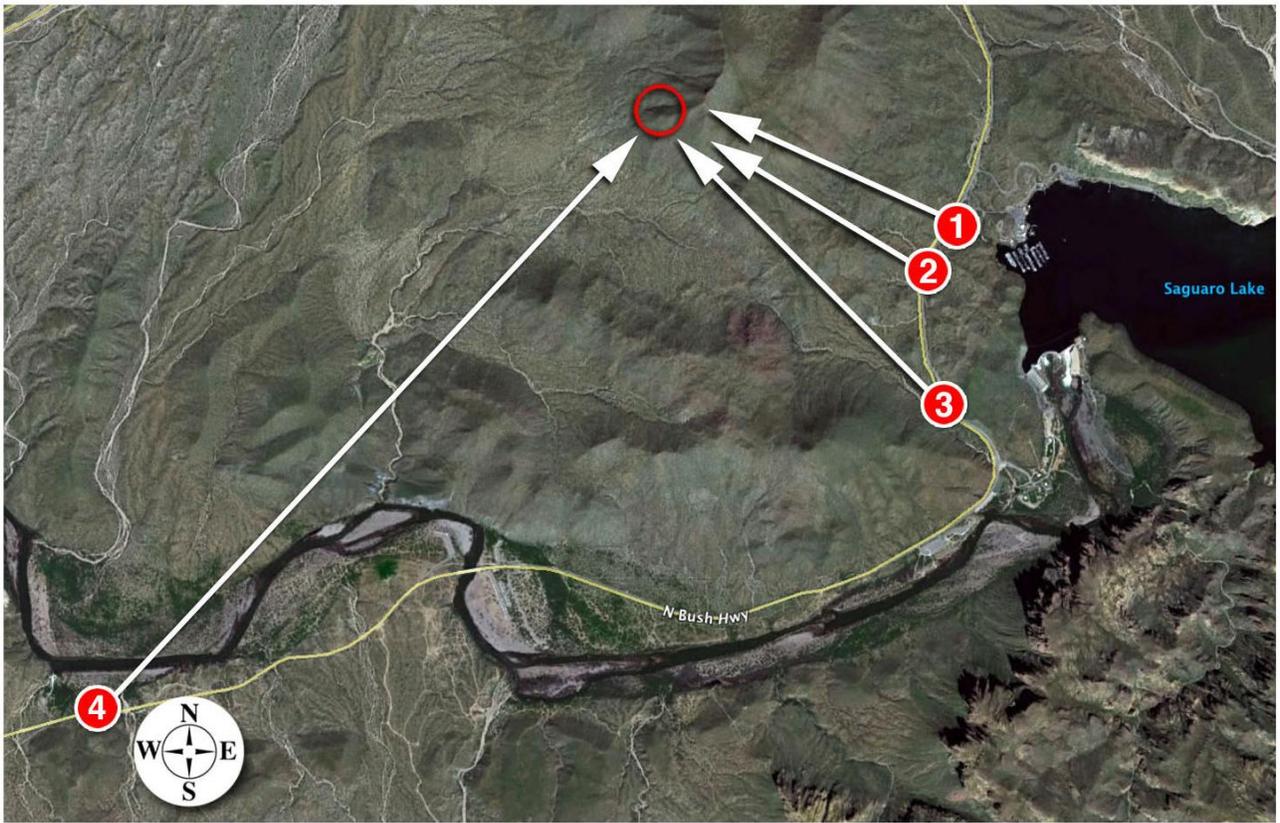


Appendix B

Visual Simulations

Stewart Mountain Communications Site

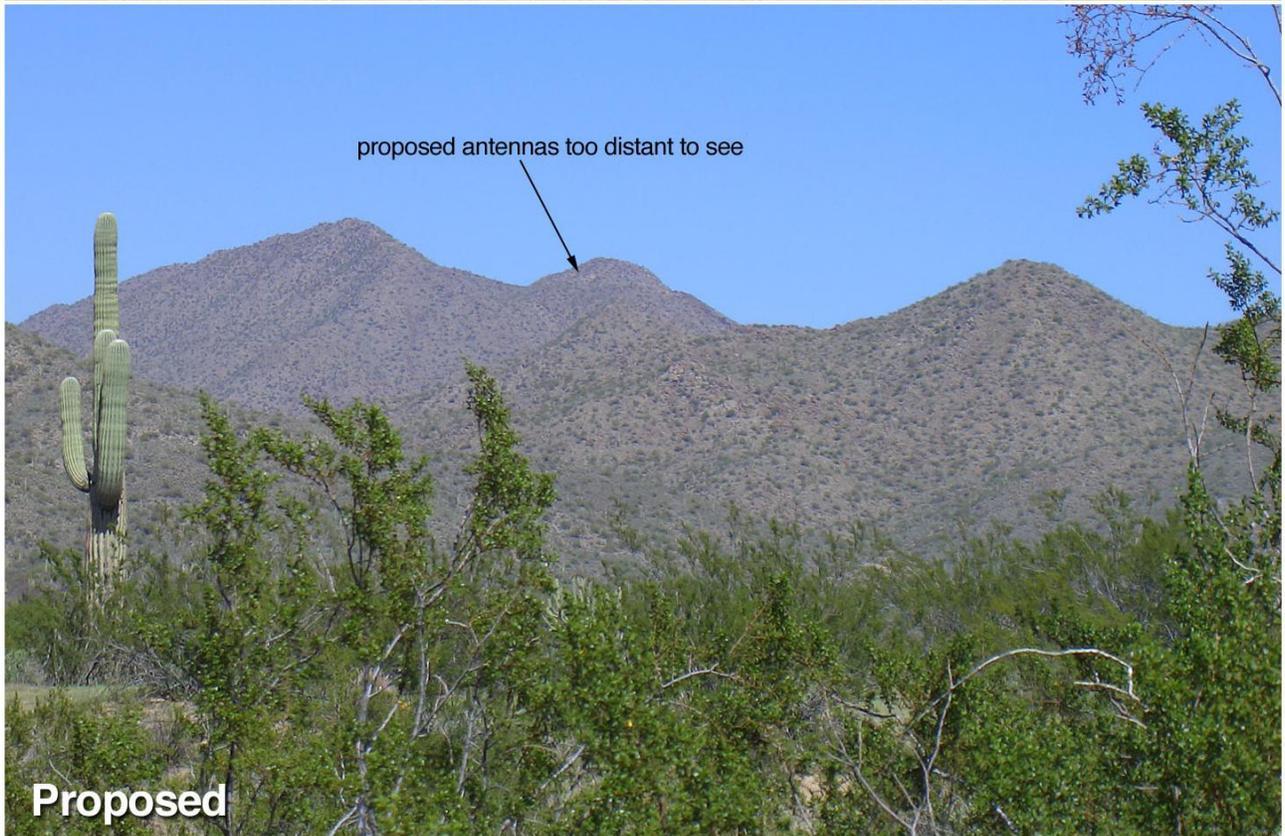
Appendix B
Visual Simulations – Stewart Mountain Communications Site





DW TOWER, INC. **Stewart Mountain** View #1
Tonto National Forest, AZ Applied Imagination 510.914.0500
4/14/11





Stewart Mountain
Tonto National Forest, AZ

4/14/11

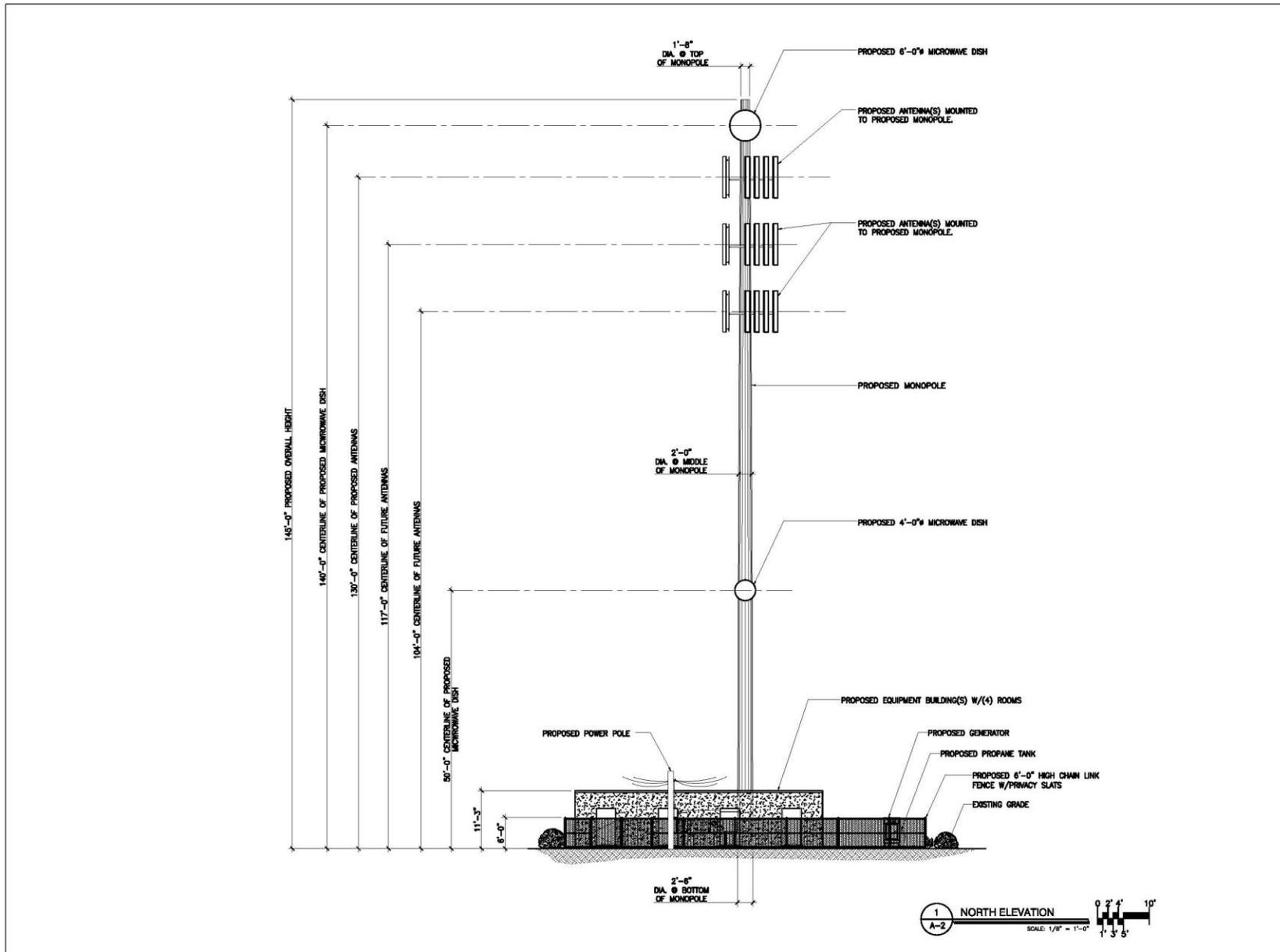
View #4

Applied Imagination 510 914-0500

Appendix C

Tower Design and Road Profile Plan for Goldfield

Appendix C
Tower Design Plan for Goldfield



4555 E. INDIAN ST., #104 MESA, AZ 85205
PHONE: (480) 204-1412 FAX: (480) 830-8363

DW TOWER, INC.
217 CHESTERFIELD DR., SUITE A
CARDIFF, CA 92007
PHONE: (760) 945-6942 FAX: (760) 945-6946

INTERNAL REVIEW	
CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE

THESE DRAWINGS ARE COPYRIGHTED AND THE PROPERTY OF BK DESIGN INC. AND PRODUCED SOLELY FOR THE USE OF OUR CLIENT. ANY REPRODUCTION OR USE OF THE INFORMATION CONTAINED WITHIN SAID DRAWINGS IS PROHIBITED WITHOUT WRITTEN CONSENT BY BK DESIGN INC.

PROJECT NUMBER
1118

REVISIONS	
04.18.11	ISSUE TO CLIENT
06.17.11	CLIENT COMMENTS
11.06.12	CLIENT COMMENTS

PROJECT NAME
GOLDFIELD

PROJECT ADDRESS
OFF USERY PASS RD.
NORTH OF BUSH HWY.
N 85 89 18.8'
W 111 86 54.0'
ARIZONA

SHEET TITLE
PROJECT ELEVATION

SHEET NUMBER

A-2

U.S. FOREST SERVICE REGION 3 MINIMUM STANDARDS FOR SINGLE LANE FAIR WEATHER ROAD

DESIGN CRITERIA

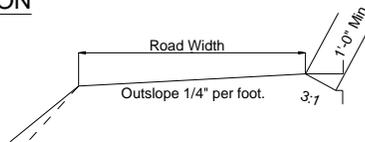
Grade - Maximum of 8% unless in writing by the Forest Service
Alignment - Minimum radius 50 ft.

EXHIBIT B

TYPICAL GRADING SECTION

FILL SLOPES

- 1 1/2: 1 Common
- 1 1/2: 1 Rock



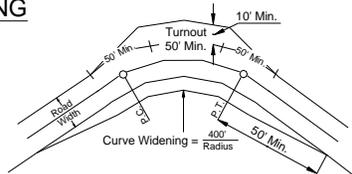
Side cast on contour grade line permitted except where topography is so broken that designed end haul is necessary to obtain reasonable minimum alignment standard.

CUT SLOPES

- 1:1- Common, 0-55% Side Slopes.
- 3/4:1- Common, over 55% Side Slopes.
- 1/2:1- Hardpan - Soft rock.
- 1/4:1- Solid rock.

Ditch only where required for adequate drainage.

EXTRA WIDENING



TURNOUT AND CURVE WIDENING

WIDENING ON FILL

Height of fill at shoulder	Widen each shoulder
0' - 6' (1 1/2:1 Fill Slopes)	1'-0"
Over 6' (1 1/2:1 Fill Slopes)	2'-0"

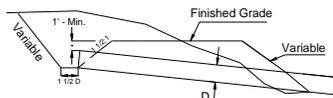
TURNOUT SPACING

Turnouts to be located on blind curves and supplemented between blind curves as necessary to keep spacing less than 1,000 ft.

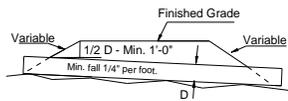
SURFACING

Spot surface with selected material where needed.

CULVERTS



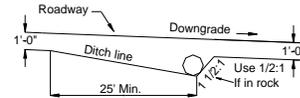
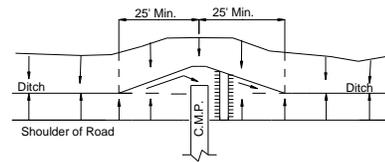
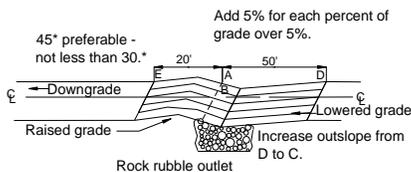
SIDEHILL INSTALLATION



THROUGH FILL

All culvert must discharge at natural ground level unless slope under pipe is protected by rock fill.
Gradient of culverts on Sidehill Installation not less than approaching ditch gradient.

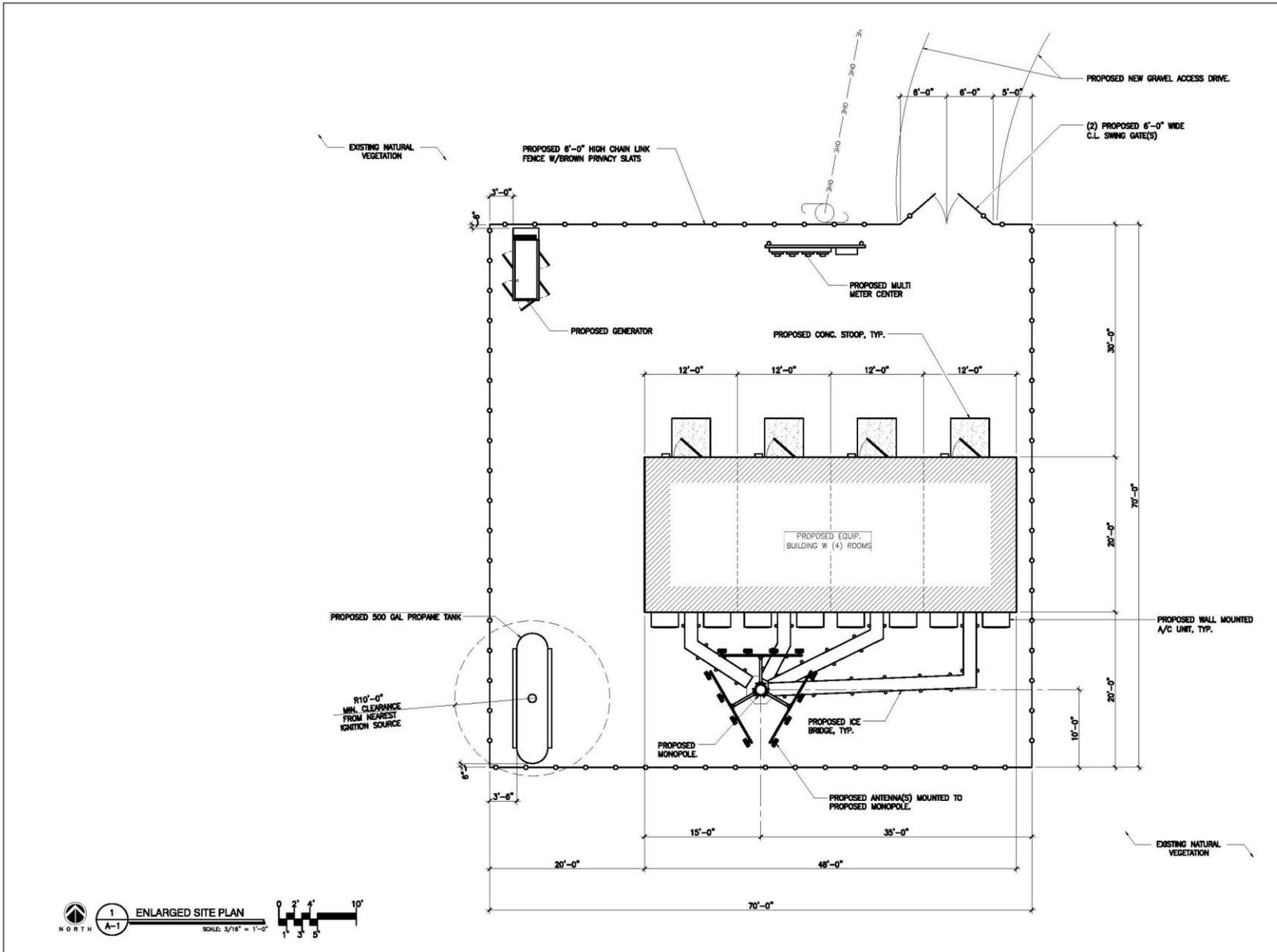
GRADE DIPS



SIDEHILL INSTALLATION

Grade Dips may be used in lieu of culverts ordinarily used for ditch relief.
For spacing of Grade Dips and Ditch Relief Culverts see F.S.M. 5613.54.
R3-7700-86 (1/73)

Appendix C
Tower Design Plan for Goldfield



BK Design Inc.
4635 E. INDOGO ST., #104 MESA, AZ 85206
PHONE: (480) 204-1412 FAX: (480) 690-8552

DW TOWER, INC.
217 CHESTERFIELD DR., SUITE A
CAROLINA, CA 95007
PHONE: (925) 943-9642 FAX: (925) 943-9948

INTERNAL REVIEW	
CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE

THESE DRAWINGS ARE COPYRIGHTED AND THE PROPERTY OF BK DESIGN INC. AND PRODUCED SOLELY FOR THE USE OF OUR CLIENT. ANY REPRODUCTION OR USE OF THE INFORMATION CONTAINED WITHIN SAID DRAWINGS IS PROHIBITED WITHOUT WRITTEN CONSENT BY BK DESIGN INC.

PROJECT NUMBER
1118

REVISIONS	
04.19.11	ISSUE TO CLIENT
08.17.11	CLIENT COMMENTS
11.08.12	CLIENT COMMENTS

PROJECT NAME
GOLDFIELD

PROJECT ADDRESS
OFF USERY PASS RD.
NORTH OF BUSH HWY.
N 33 33' 18.6"
W 111 38' 54.0"
ARIZONA

SHEET TITLE
ENLARGED SITE PLAN

SHEET NUMBER

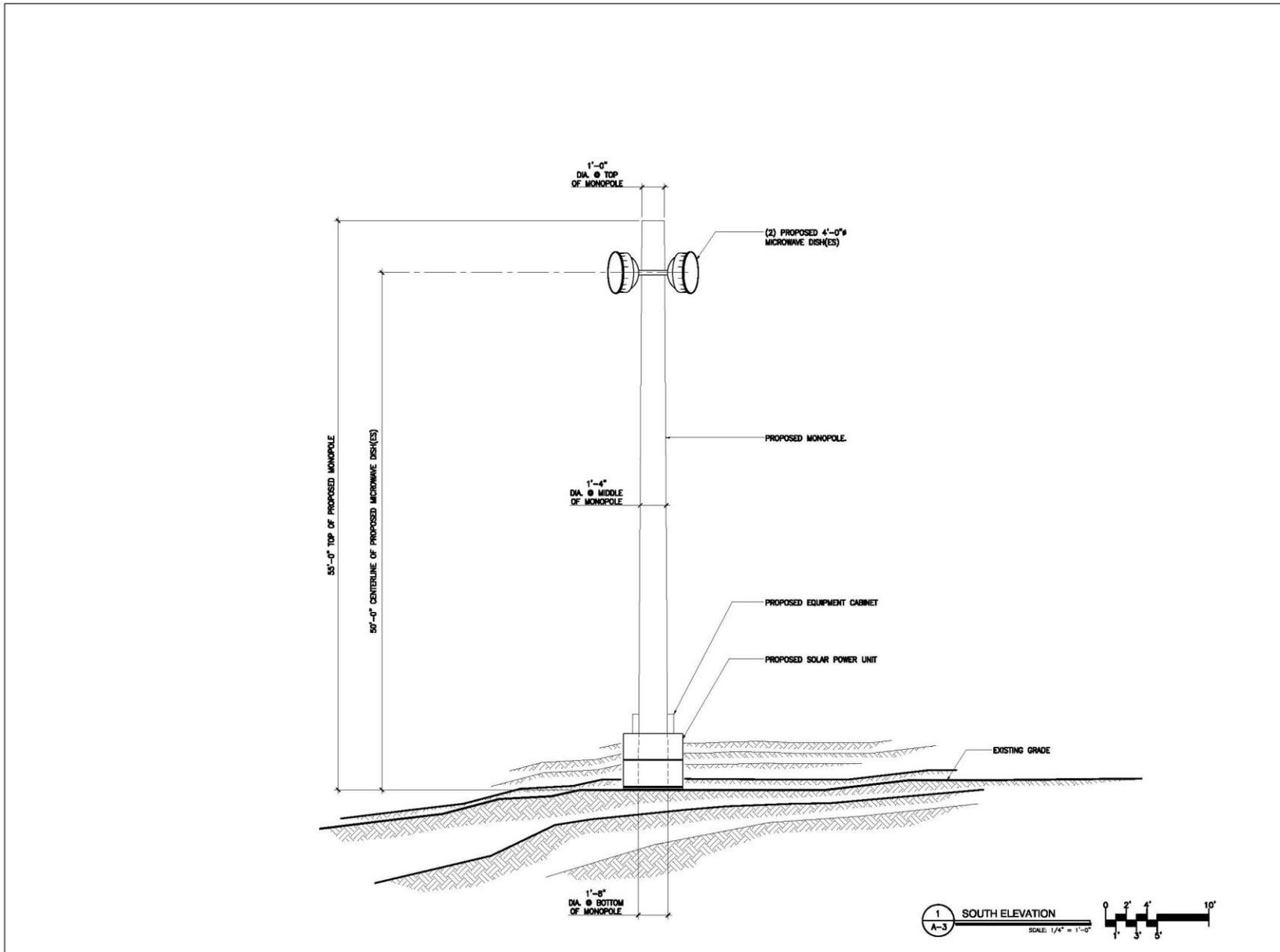
A-1



Appendix D

Tower Design Plan for Stewart Mountain

Appendix D
Tower Design Plan for Stewart Mountain



BK
Design Inc.

4835 E. INDIANO ST., #104 MESA, AZ 85205
PHONE: (480) 204-1412 FAX: (480) 850-6553

DW TOWER, INC.
217 CHESTERFIELD DR., SUITE A
CANTON, CA 95007
PHONE: (707) 943-6642 FAX: (707) 943-6646

INTERNAL REVIEW	
CONSTRUCTION SIGNATURE	DATE
BP SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE

THESE DRAWINGS ARE COPYRIGHTED AND THE PROPERTY OF BK DESIGN INC. AND PRODUCED SOLELY FOR THE USE OF OUR CLIENT. ANY REPRODUCTION OR USE OF THE INFORMATION CONTAINED WITHIN ENO DRAWINGS IS PROHIBITED WITHOUT WRITTEN CONSENT BY BK DESIGN INC.

PROJECT NUMBER
1181

REVISIONS	
Δ	04.20.11 ISSUE TO CLIENT

**PRELIMINARY
NOT FOR
SUBMITTAL**

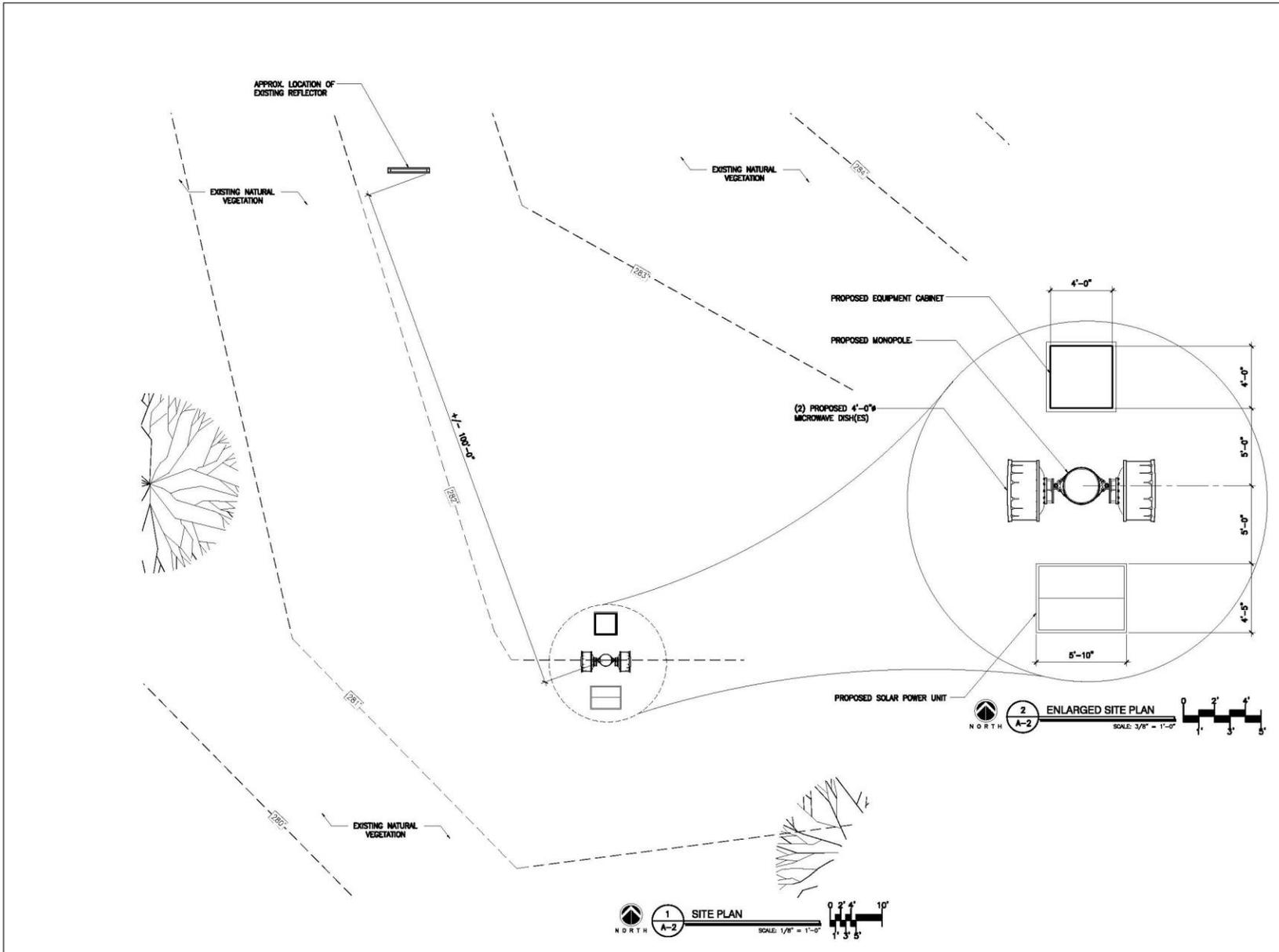
PROJECT NAME
**STEWART
MOUNTAIN**

PROJECT ADDRESS
NORTH OF SAGUARO LAKE
COORDINATES:
N 33 34 53.96"
W 111 52 36.4"
ARIZONA

SHEET TITLE
**PROJECT
ELEVATION**

SHEET NUMBER

A-3



4636 E. INDI GO ST., #104 MESA, AZ 85206
PHONE: (480) 204-1412 FAX: (480) 850-8283

DW TOWER, INC.
217 CHESTERFIELD DR., SUITE A
CAROLFF, CA 95027
PHONE: (708) 943-9042 FAX: (708) 943-9040

INTERNAL REVIEW	
CONTRACTOR SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE

THESE DRAWINGS ARE COPYRIGHTED AND THE PROPERTY OF BK DESIGN INC. AND PRODUCED SOLELY FOR THE USE OF OUR CLIENT. ANY REPRODUCTION OR USE OF THE INFORMATION CONTAINED WITHIN SAID DRAWINGS IS PROHIBITED WITHOUT WRITTEN CONSENT BY BK DESIGN INC.

PROJECT NUMBER
11181

REVISIONS	
Δ 04/20/11	ISSUE TO CLIENT

**PRELIMINARY
NOT FOR
SUBMITTAL**

PROJECT NAME

STEWART MOUNTAIN

PROJECT ADDRESS

NORTH OF SAGUARO LAKE
COORDINATES:
N 33 04 53.96"
W 111 52 38.4"
ARIZONA

SHEET TITLE

ENLARGED SITE PLAN

SHEET NUMBER

A-2

Appendix E

Special Status Species

**With the Potential to Occur within or near the Goldfield-
Stewart Mountain Communications Sites Project Area**

**Special Status Species with the Potential to Occur within or near the Goldfield-Stewart
Mountain Communications Sites Project Area**

Name	USFWS	USFS	State	Habitat	Potential for Occurrence
Gila longfin dace (<i>Agosia chrysogaster chrysogaster</i>)	SC	S		Shallow, intermittent hot low-desert streams to clear and cool brooks <5,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Desert sucker (<i>Catostomus clarkii</i>)	SC	S		Rapids and flowing pools of streams and rivers primarily over bottoms of gravel-rubble with sandy silt in the interstices.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Sonoran sucker (<i>Catostomus insignis</i>)	SC	S		Warm water rivers and streams with gravelly or rocky pools.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	PS:C	S	WSC	Large blocks of riparian woodlands (cottonwood, willow, or tamarisk galleries), <6,500 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Roundtail chub (<i>Gila robusta</i>)	C	S	WSC	Cool to warm waters of rivers and streams, often in the deepest pools and eddies of large streams, 1,000 to 7,500 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Sonoran Desert tortoise (<i>Gopherus morafkai</i>)	C	S	WSC	Primarily rocky hillsides and bajadas of Mohave and Sonoran Desert scrub, also desert grassland, juniper woodland, interior chaparral habitats, and even pine communities. Washes and valley bottoms may be used in dispersal, <7,800 ft.	Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Bald eagle winter population (<i>Haliaeetus leucocephalus</i>)	SC, BGA	S	WSC	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey.	Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Bald eagle Sonoran population (<i>Haliaeetus leucocephalus</i>) pop. 3	SC, BGA	S	WSC	Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey.	Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Saddled leaf-nosed snake (<i>Phyllorhynchus browni</i>)		PS		On flats in foothills and moderate bajada slopes 1,000 to 3,000 ft.	Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Yuma clapper rail (<i>Rallus longirostris yumanensis</i>)	LE		WSC	Fresh water and brackish marshes, <4,500 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Lowland leopard frog (<i>Rana yavapaiensis</i>)	SC	S	WSC	Aquatic systems in desert grasslands to pinyon-juniper, 480 to 6,200 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.

Name	USFWS	USFS	State	Habitat	Potential for Occurrence
Acuna cactus (<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>)	PE			Well drained knolls and gravel ridges in Sonoran Desert scrub, 1,198 to 3,773 ft.	Not known to occur on the TONTO NATIONAL FOREST. Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Arizona cliffrose (<i>Purshia subintegra</i>)	E			White limestone soils derived from tertiary lakebed deposits, <4,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
California least tern (<i>Sterna antillarum browni</i>)	E			Open, bare or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems, <2,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Desert pupfish (<i>Cyprinodon macularius</i>)	E			Shallow springs, small streams, and marshes. Tolerates saline and warm water, <4,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Gila topminnow (<i>Poeciliopsis occidentalis occidentalis</i>)	E			Small streams, springs, and cienegas vegetated shallows, <4,500 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Lesser long-nosed bat (<i>Leptonycteris curasoae yerbabuena</i>)	E			Desert scrub habitat with agave and columnar cacti present as food plants, 1,600 to 11,500 ft.	Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	T			Nests in canyons and dense forests with multilayered foliage structure 4,100 to 9,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Razorback sucker (<i>Xyrauchen texanus</i>)	E			Riverine and lacustrine areas, generally not in fast moving water and may use backwaters, <6,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Sonoran pronghorn (<i>Antilocapra americana sonoriensis</i>)	E			Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations, 2,000 to 4,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	E			Cottonwood/willow and tamarisk vegetation communities along rivers and streams, <8,500 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Woundfin (<i>Plagopterus argentissimus</i>)	E			Inhabits shallow, warm, turbid, fast-flowing water, <4,500 ft. Tolerates high salinity.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Sprague's pipit (<i>Anthus spragueii</i>)	C			Strong preference to native grasslands with vegetation of intermediate height and lacking woody shrubs, <5,000 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.

Appendix E
Special-Status Species

Name	USFWS	USFS	State	Habitat	Potential for Occurrence
Tucson shovel-nosed snake (<i>Chionactis occipitalis klauberi</i>)	C			Sonoran Desert scrub; associated with soft, sandy soils having sparse gravel, 785 to 1,662 ft.	Neither the species nor its habitat occur within the project area or will be impacted by this project.
Cactus ferruginous pygmy owl (<i>Glaucidium brasilianum cactorum</i>)	SC	S	WSC	Streamside cottonwoods and willows and adjacent mesquite bosques, usually with saguaros on nearby slopes; or along dry washes with large mesquite, palo verde, ironwood, and saguaro, 1,300 to 4,000 ft.	Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Cave myotis (<i>Myotis velifer</i>)	SC			Desertscrub with creosote, brittlebush, palo verde and cacti. Roost in caves, tunnels, and mineshafts, and under bridges, and sometimes in buildings within a few miles of water, mostly between 300 and 5,000 ft.	Suitable habitat is present in the project vicinity. This species is evaluated in more detail in the following section.
Desert bighorn sheep		S	WSC		

- E Endangered
- LE Listed Endangered: imminent jeopardy of extinction.
- LT Listed Threatened: imminent jeopardy of becoming Endangered.
- PS Partial Status: listed Endangered or Threatened, but not in entire range.
- PE Proposed Endangered
- PT Proposed Threatened
- C Candidate. Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.
- SC Species of Concern. The terms "Species of Concern" or "Species at Risk" should be considered as terms-of-art that describe the entire realm of taxa whose conservation status may be of concern to the U.S. Fish and Wildlife Service, but neither term has official status (currently all former C2 species).
- WSC Wildlife of Special Concern in Arizona.
- S Sensitive: those taxa occurring on National Forests in Arizona which are considered sensitive by the Regional Forester.
- BGA Bald and Golden Eagle Protection Act

Appendix F

Priority Species of Concern - Vegetation

Vegetation Types in or Near the Proposed Activities Tonto National Forest

Priority Species of Concern on Tonto National Forest for Vegetation Types In or Near the Proposed Activities.

Sonoran Desertscrub (Arizona Upland Biome): palo verde, ironwood, mesquite, catclaw, acacia, saguaro, cholla, barrel cactus, prickly pear, creosote bush, jojoba, crucifixion thorn

Bendire’s Thrasher (<i>Toxostoma bendirei</i>)	
Canyon Towhee <i>Pipilo fuscus</i>	
Costa’s Hummingbird (<i>Calypte costae</i>)	
Elf Owl (<i>Micrathene whitneyi</i>)	
Gila Woodpecker (<i>Melanerpes uropygialis</i>)	
Gilded Flicker (<i>Colaptes chrysoides</i>)	
Golden Eagle (<i>Aquila chrysaetos</i>)	
Peregrine Falcon (<i>Falco peregrinus</i>)	
Phainopepla (<i>Phainopepla nitens</i>)	
Prairie Falcon (<i>Falco mexicanus</i>)	
Purple Martin (<i>Progne subis</i>)	

Sonoran riparian deciduous forest and woodlands: primarily cottonwood, willow, mesquite, tamarisk (salt cedar), some ash, walnut, and hackberry

Bald Eagle (<i>Haliaeetus leucocephalus</i>)	
Bell’s Vireo (<i>Vireo bellii</i>)	
Common Black hawk (<i>Buteogallus anthracinus</i>)	
Northern Beardless Tyrannulet (<i>Camptostoma imberbe</i>)	
Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>)	
Western Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	
Yellow Warbler (<i>Dendroica petechia</i>)	

Sonoran riparian scrubland (dry wash): mesquite, palo verde, ironwood, burrowbush, desert broom, quailbush, desert willow

Bell’s Vireo (<i>Vireo bellii</i>)	
Costa’s Hummingbird (<i>Calypte costae</i>)	
Lucy’s Warbler (<i>Vermivora luciae</i>)	
Phainopepla (<i>Phainopepla nitens</i>)	

Appendix G

Priority Species of Concern – Migratory Bird

Proposed Action Impact Analysis Tonto National Forest

Proposed Action Impact Analysis for Tonto National Forest Migratory Bird Priority Species of Concern

Species	Tonto National Forest Vegetation Type Designation	Brown’s (1994) Biotic Community Equivalent	Habitat Preferences *	Potential Habitat and Disturbance Impacts
Golden Eagle <i>(Aquila chrysaetos)</i>	Pinyon-juniper; Madrean evergreen woodland. Sonoran Desert scrub	Great Basin Conifer Woodland, Madrean Evergreen woodland, Arizona Upland Subdivision	This raptor is usually found in open country, in prairies, open wooded country and barren areas, especially in hilly or mountainous regions. They nest on rock ledges, cliffs or in large trees.	This species is known from the Arizona Upland subdivision. No suitable nesting habitat near KGAS. Suitable nesting habitat on Stewart Mtn. No known nests within 0.25 miles of activities. Direct or significant indirect impacts to this species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Peregrine Falcon <i>(Falco peregrinus)</i>	Pinyon-juniper; Sonoran Desert scrub	Great Basin Conifer Woodland; Arizona Upland subdivision	Optimum peregrine habitat is generally considered to be steep, sheer cliffs overlooking woodlands, riparian areas or other habitats supporting avian prey species in abundance.	Suitable foraging habitat in Salt River. Suitable nesting/foraging habitat on Stewart Mtn. No known eyries within 0.25 miles of activities. No impacts to foraging habitat. Direct or significant indirect impacts to this species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Costa’s hummingbird <i>(Calypte costae)</i>	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	This hummingbird is generally associated with well vegetated Sonoran and Mojave Desert scrub uplands, particularly near desert washes. Nesting often occurs in a variety of trees, including palo verde, at heights of approximately 1 to 16 ft.	This species could be present in the Proposed Action Area. Less than 1 acre of potentially suitable desert scrub habitat will be impacted. Although individuals of this species could be impacted by vegetation clearing, significant impacts to the species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Bendire’s Thrasher <i>(Toxostoma bendirei)</i>	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	This thrasher is most commonly found in Sonoran Desert scrub, usually in areas with an abundance of trees, shrubs, and cacti that are adjacent to more open areas. They are often found in xeroriparian conditions, and they may use rural agricultural areas. They will use grasslands if enough shrubs are present.	This species could be present in the Proposed Action Area. Less than 1 acre of potentially suitable desert scrub habitat will be impacted. Although individuals of this species could be impacted by vegetation clearing, significant impacts to the species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.

Proposed Action Impact Analysis for Tonto National Forest Migratory Bird Priority Species of Concern

Species	Tonto National Forest Vegetation Type Designation	Brown’s (1994) Biotic Community Equivalent	Habitat Preferences *	Potential Habitat and Disturbance Impacts
Canyon Towhee (<i>Pipilo fuscus</i>)	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	This towhee is generally found in arid and brushy conditions, and it is most common in Sonoran Desert scrub, including more densely vegetated dry washes and rocky foothill slopes. It is occasionally found in chaparral, Madrean evergreen woodland, and sparsely populated rural communities.	This species may be present in the Proposed Action Area but is more likely to occur in the adjacent washes. Less than 1 acre of potentially suitable desert scrub habitat will be impacted. Although individuals of this species could be impacted by vegetation clearing, significant impacts to the species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Elf Owl (<i>Micrathene whitneyi</i>)	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	This small owl is commonly found in Arizona Upland vegetation, but it is also common in other habitats with woody vegetation, including Madrean evergreen woodland. It requires cavities in saguaros or trees for nest sites.	It is unlikely that the elf owl occurs within the Proposed Action Area because no cavities for nest sites were observed. The elf owl could occur in the adjacent area and could be temporarily be dislocated by noise. Although individuals of this species could be impacted by construction noise, significant impacts to the species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Gila Woodpecker (<i>Melanerpes uropygialis</i>)	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	This woodpecker is most commonly found in the Arizona Upland subdivision, although it will also use riparian areas with large cottonwoods, willows, sycamores, and mesquites. It requires saguaros or large trees for excavation of its nest cavities.	This species is likely present in the Proposed Action Area. Approximately 0.5 acres of potentially suitable desert scrub habitat will be impacted by geophysical study activities. Although individuals of this species could be impacted by geophysical study activities, significant impacts to the species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Gilded flicker (<i>Colaptes chrysoides</i>)	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	This woodpecker is found primarily in Sonoran Desert uplands, particularly in areas containing saguaro cacti. It commonly nests in cavities in saguaros greater than 15 ft. tall or riparian trees.	Unlikely this species is present in the Proposed Action area due to limited amount of saguaro cacti. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.

Proposed Action Impact Analysis for Tonto National Forest Migratory Bird Priority Species of Concern

Species	Tonto National Forest Vegetation Type Designation	Brown's (1994) Biotic Community Equivalent	Habitat Preferences *	Potential Habitat and Disturbance Impacts
Phainopepla <i>(Phainopepla nitens)</i>	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	Mistletoe is a key habitat requirement for this species, and it is able to use a variety of vegetation types if mistletoe is present. The phainopepla is most common in Sonoran Desertscrub, but it may also be found in riparian woodlands. It is less common in pinyon-juniper woodlands and in Madrean evergreen woodlands.	This species could be present in the Proposed Action Area. Less than 1 acre of potentially suitable desert scrub habitat will be impacted. Although individuals of this species could be impacted by vegetation clearing, significant impacts to the species are unlikely. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Prairie Falcon <i>(Falco mexicanus)</i>	Sonoran Desert scrub	Arizona Upland Subdivision, Sonoran Desert scrub	This raptor is mainly found in deserts and grasslands, where it prefers more arid and more open conditions than the peregrine falcon. Nesting areas have been reported in pinyon-juniper areas and in Madrean evergreen woodlands.	No suitable nesting habitat near KGAS. Suitable nesting habitat on Stewart Mtn. No known nests within 0.25 miles of activities. May forage in area. No impacts to nesting sites or forage base. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Purple martin <i>(Progne subis)</i>	Sonoran Desert scrub	Sonoran Desert scrub	Depending on subspecies, this large swallow is found in Sonoran Desert scrub with numerous saguaro cavities or in higher elevation woodlands. It nests primarily in cavities above approximately 15 ft. in saguaros and 30 ft. in trees.	Not expected from or adjacent to Proposed Action due to lack of saguaros with cavities. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.

Proposed Action Impact Analysis for Tonto National Forest Migratory Bird Priority Species of Concern

Species	Tonto National Forest Vegetation Type Designation	Brown’s (1994) Biotic Community Equivalent	Habitat Preferences *	Potential Habitat and Disturbance Impacts
Bald eagle <i>(Haliaeetus leucocephalus)</i>	Sonoran riparian deciduous forest and woodlands		Large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey. Elevation varies.	Goldfield-Kerr Breeding Area located on Salt River approx. 0.25 miles from Goldfield site. Bulldog Breeding Area 1.5 miles south of Stewart Mountain Communications Site. Timing restrictions on heavy construction (December 1 – June 30) eliminates any potential for noise impacts to breeding. No impact to habitat. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Bell’s Vireo <i>(Vireo bellii)</i>	Sonoran riparian deciduous forest and woodlands Sonoran Riparian Scrubland	Sonoran Riparian Scrubland	This vireo prefers dense, low, shrubby vegetation in lowland riparian areas, with willows, mesquite and seep willows.	Small areas of lowland riparian area are present within 0.25 miles of the Goldfield site. No habitat will be impacted. Noise from construction activities could cause Bell’s vireo to temporarily redistribute. Significant indirect impacts to this species are unlikely due to the small project size and limited construction period. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Common Black hawk <i>(Buteogallus anthracinus)</i>	Sonoran riparian deciduous forest and woodlands		This riparian obligate prefers mature gallery forests along perennial streams. Common Black hawks prefer to nest in large trees (23 to 30 m., 75 to 100 ft.) found in groves. They are sensitive to human disturbance which can lead to nest abandonment.	Suitable nesting and foraging habitat is located in the Salt River approx. 0.25 miles from the Goldfield site. No direct impacts to habitat will occur. Human activity is sufficiently distant to avoid disturbance to any potential nest site. Timing restriction for bald eagle avoids disturbance from construction noise during early & most sensitive part of breeding cycle. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.

Proposed Action Impact Analysis for Tonto National Forest Migratory Bird Priority Species of Concern

Species	Tonto National Forest Vegetation Type Designation	Brown’s (1994) Biotic Community Equivalent	Habitat Preferences *	Potential Habitat and Disturbance Impacts
<p>Northern Beardless – Tyrannulet <i>(Camptostoma imberbe)</i></p>	<p>Sonoran riparian deciduous forest and woodlands</p>		<p>From lowlands to up to 6,000 feet is generally associated with semi-open brushy woodlands, scrubby riparian thickets, and edges of gallery or secondary forest. It tends to occupy patchy forest habitat and avoids dense forest interiors. Flowing water is frequently but not always present. Nests are typically well-concealed globular balls of vegetation nestled in caterpillar or spider webs, or in clumps of vegetation. Nests are most commonly situated in or on top of tent caterpillar webs, on horizontal limbs of black willow or Fremont cottonwood, 6 to 50 ft. above the ground.</p>	<p>Unlikely this species is present within or in the vicinity of the Proposed Action due to its range in southern Arizona. Therefore the Proposed Action will not create any direct or indirect effects to the species.</p>
<p>Southwestern Willow Flycatcher <i>(Empidonax traillii extimus)</i></p>	<p>Sonoran riparian deciduous forest and woodlands</p>		<p>Cottonwood/willow and tamarisk vegetation communities along rivers and streams. < 8,500 ft.</p>	<p>Suitable nesting and foraging habitat is located in the Salt River approx. 0.25 miles from the Goldfield site. No direct impacts to habitat will occur. No indirect noise impacts are expected at this distance. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.</p>
<p>Western Yellow-billed Cuckoo <i>(Coccyzus americanus)</i></p>			<p>Riparian cottonwood-willow galleries (salt cedar is also used). Dense understory foliage appears to be an important factor in nest site selection, while cottonwood trees are an important foraging habitat. The species is usually found at elevations less than 2011 m (6,600 ft.).</p>	<p>Suitable habitat is located at the Salt River approx. 0.25 miles from Goldfield Administrative Site. No direct impacts to habitat will occur. No noise disturbance is expected due to the distance. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.</p>

Proposed Action Impact Analysis for Tonto National Forest Migratory Bird Priority Species of Concern

Species	Tonto National Forest Vegetation Type Designation	Brown’s (1994) Biotic Community Equivalent	Habitat Preferences *	Potential Habitat and Disturbance Impacts
Yellow Warbler <i>(Dendroica petechia)</i>			Yellow Warblers spend the breeding season in thickets and other disturbed or regrowing habitats, particularly along streams and wetlands.	Yellow warblers most likely breed along the Salt River. No direct impacts to habitat will occur. No noise disturbance is expected due to the distance. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.
Lucy’s Warbler <i>(Vermivora luciae)</i>	Sonoran Riparian Scrubland	Sonoran Riparian Scrubland	Although this warbler will breed in dryer conditions than other North American warblers, it is most abundant along perennial or intermittent drainages with mesquite. They are primarily found in Sonoran Desert scrub, but they may also use cottonwood-willow riparian areas.	Small areas of lowland riparian area are present in the vicinity of the Goldfield site. No habitat will be impacted. Noise from construction activities could cause Lucy’s warbler to temporarily redistribute. Significant indirect impacts to this species are unlikely due to the small project size and limited construction period. The Proposed Action will have no effect on long-term population trends within Tonto National Forest.