3.10.2.3 Impact Assessment Methods

The assessment of impacts relied heavily on the cultural resource studies (refer to Section 3.15) and hydrological analyses (refer to Sections 3.4 and 3.5) conducted for this Draft EIS. Goals, objectives, and management prescriptions for the Carrow-Stevens Ranches ACEC and Three Rivers Riparian ACEC (BLM 1995) were reviewed for potential conflicts with the Proposed Action. In addition, for the Carrow-Stevens Ranches ACEC, maps of the proposed and alternative pipeline corridors and descriptions of the pipeline construction and maintenance activities were compared with previously prepared maps of the Carrow and Stephens ranches. Cultural resource specialists also visited that site.

3.10.2.4 Actions Incorporated into the Proposed Action to Reduce or Prevent Impacts

The Proposed Action includes the following measures to reduce or prevent potential adverse environmental impacts on ACECs:

- Disturbed areas would be revegetated in accordance with the Reclamation Operation Maintenance Plan for BLM-Managed Lands (refer to Section 2.2.8.9 and Appendix B) to minimize impacts on and promote revegetation of native plants. The plan includes salvage and transplanting of selected species. Quarterly visual inspections and annual leak detection inspections of the pipeline would be conducted on foot and no roadway would be maintained along the pipeline through the ACEC.

- A detailed evaluation of any effects to the Carrow-Stephens Ranches ACEC from construction of a natural gas pipeline or installation of an OPGW would be conducted in accordance with the terms of the Programmatic Agreement developed for the Project in compliance with Section 106 of the National Historic Preservation Act. This agreement defines a consultation process for avoiding or mitigating any identified adverse effects on significant cultural resources (refer to Section 2.2.8.11,).

- The Proposed Action contains measures designed to monitor groundwater levels and provide water to augment shallow groundwater and surface water flow in the Big Sandy River sufficient to prevent changes to these hydrologic systems which may otherwise occur as a result of the Project. Therefore, no changes to shallow groundwater levels or surface water flows in the Big Sandy River are predicted as a result of the Project.

3.10.2.5 Impact Assessment

Proposed Action

Carrow-Stephens Ranches ACEC

The Kingman Area Resource Management Plan defined 5 objectives and 13 management prescriptions for the Carrow-Stephens Ranches ACEC. One objective and two management prescriptions are relevant for the impact analysis. Objective 1 stipulates that surface disturbance be minimized. Prescription 8 stipulates that within the US 93 corridor, new rights-of-way are to be confined to the area west of the highway. The Resource Management Plan subsequently was amended to eliminate this prescription and BLM now considers any proposed new rights-of-way on a case-by-case basis. Prescription 10 stipulates that native plants not be removed from the ACEC.

The Proposed Action would involve the installation of a 16- to 20-inch-diameter pipeline within corridor segment T4, which includes the western portions of the Carrow-Stephens Ranches ACEC. Typically, corridor segment T4 extends 1,000 feet to the east and west of the existing rights-of-way for the transmission lines. However, the corridor is expanded to 4,000 feet west in the vicinity of the Carrow-Stephens

Ranches ACEC to accommodate design of a specific alignment that would avoid any encroachment into this ACEC (Figure 3.10-3).

Cultural resource surveys of the portion of corridor segment T4 that overlaps with the ACEC are limited to the right-of-way and access road for the Mead-Phoenix Project 500-kV transmission line and the western edge of the proposed realignment corridor for US 93. No archaeological or historical sites have been found by these surveys. This suggests a low probability for archaeological and historical sites in the remainder of the ACEC, but much of corridor segment T4 within the ACEC remains unsurveyed. Location of the pipeline in this western portion of the ACEC would be consistent with the BLM objective of minimizing impacts on the historic ranches in the ACEC, but construction would involve removal of native plants, which would not be consistent with BLM Prescription 10 and therefore would be a significant impact. An alignment within the corridor that completely avoids the ACEC would have no impacts on the ACEC.

Three Rivers Riparian ACEC

The Kingman Area Resource Management Plan defined 8 objectives and 21 management prescriptions for the Three Rivers ACEC. One objective and one management prescription are relevant to the assessment of impacts of the Proposed Action. Objective 3 is to obtain minimum instream flow to support aquatic and riparian habitat values. Prescription 19 states that the riparian area condition evaluation inventory and monitoring must be continued.

The Proposed Action would not directly disturb any area within the boundaries of the Three Rivers Riparian ACEC.

The Proposed Action contains measures designed to monitor groundwater levels and provide water to augment shallow groundwater and surface water flow in the Big Sandy River sufficient to prevent changes to these hydrologic systems which may otherwise occur as a result of the Project. Therefore, no changes to shallow groundwater levels or surface water flows in the Big Sandy River are predicted as a result of the Project. Therefore, no impact on the instream flows, aquatic resources, or riparian conditions of the ACEC are anticipated.

The analysis of spills and stormwater and wastewater discharges concluded that the proposed use of best management practices would avoid significant impacts on the quality of surface water and groundwater (refer to Sections 3.4.2.5 and 3.5.2.5). Therefore the Proposed Action would have no significant impacts on the quality of surface water and groundwater within the Three Rivers Riparian ACEC.

Alternative R Gas Pipeline Corridor

Carrow-Stephens Ranches ACEC

The impacts of this alternative on the Carrow-Stephens Ranches ACEC would not differ from the Proposed Action except that the Alternative R gas pipeline route would use corridor segment R4 through the ACEC. Corridor segment R4 is widened through the ACEC to include the 200-foot-wide US 93 right-of-way, as well as the typical corridor width extending 400 feet to the east of the highway right-of-way. This corridor modification is intended to accommodate installation of the pipeline in the US 93 right-of-way to avoid impacts to other parts of the ACEC. ADOT plans to eventually relocate this segment of US 93 up to 1,200 feet to the west to move the highway farther from the historic ranches, and therefore is amenable to this strategy. The corridor also is widened to 1500 feet east of the US 93 right-of-way south of Gunsight Canyon. This modification is intended to accommodate the proposed realignment of US 93 east of the current roadway in the southeastern part of the ACEC.

Almost all of the portion of corridor segment R4 corridor that overlaps the ACEC has been inventoried for cultural resources. Other than the Carrow and Stephens Ranches, the only other

recorded resource is a segment of the Hillside to Kingman Highway, which was built in 1924. This road has been evaluated as eligible for the National Register of Historic Places for it potential to yield important information. This historic road is on the west side of US 93 through the ACEC. Installation of the pipeline on the west side of US 93 is likely to damage segments of this road.

The historical ranch buildings and other features that are the focus of BLM's public interpretation planning are all located east of US 93 (refer to Figure 3.10-2). Construction of the pipeline east of the right-of-way through the clusters of buildings and other features at the Carrow Ranch and Stephens Ranch would be counter to BLM objectives for the ACEC and therefore a significant impact.

The existing US 93 roadway is centered within the right-of-way, and installation of the pipeline within the right-of-way would temporarily disturb most of the area between the shoulder of the highway and the edge of the right-of-way. There are segments of an unlined irrigation ditch within the US 93 right-of-way. This ditch was cleaned, repaired, and used to irrigate fields of the Carrow-Stephens Ranches into the 1970s (Stephens, personal communication, 2001), but the alignment may date from the 1880s. Installation of the pipeline within the right-of-way is likely to damage as much as 200 to 300 feet of the ditch. A culvert beneath the highway crosses the ditch at this location. Although highway construction has compromised the historical integrity of the ditch, additional disturbance is likely to be considered an adverse effect as defined by regulations implementing the National Historic Preservation Act.

The family cemetery at the Carrow Ranch is the most sensitive resource subject to potential direct construction impacts. The cemetery is on a ridge that extends into the right-of-way. The three recognizable graves in the cemetery are just east of the right-of-way fence. Any direct construction impacts on the graves in the cemetery would be a significant impact.

The construction and maintenance of US 93 has not disturbed the entire right-of-way, so installation of the pipeline would alter terrain and vegetation that has remained intact along the margins of the highway right-of-way. After the pipeline is installed, the disturbed areas would be graded to blend with adjacent topography.

There would be no aboveground pipeline facilities within the ACEC to introduce visual intrusions, but the terrain and vegetation disturbed by construction would leave an unnatural scar that would take several years to recover to a more natural condition. Requirements to inspect and maintain the pipeline in a safe condition do not allow large vegetation to grow above the pipeline. Therefore, the disturbed and unnatural vegetation pattern above the pipeline is likely to be a long-term effect noticeable from the historic Carrow Ranch complex. This alteration of vegetation would be relatively minor compared to the disturbances introduced by US 93 but removal of native vegetation is counter to Prescription 10 and therefore a significant impact. The pipeline also may hinder the restoration of the current US 93 alignment to more natural contours if it is abandoned.

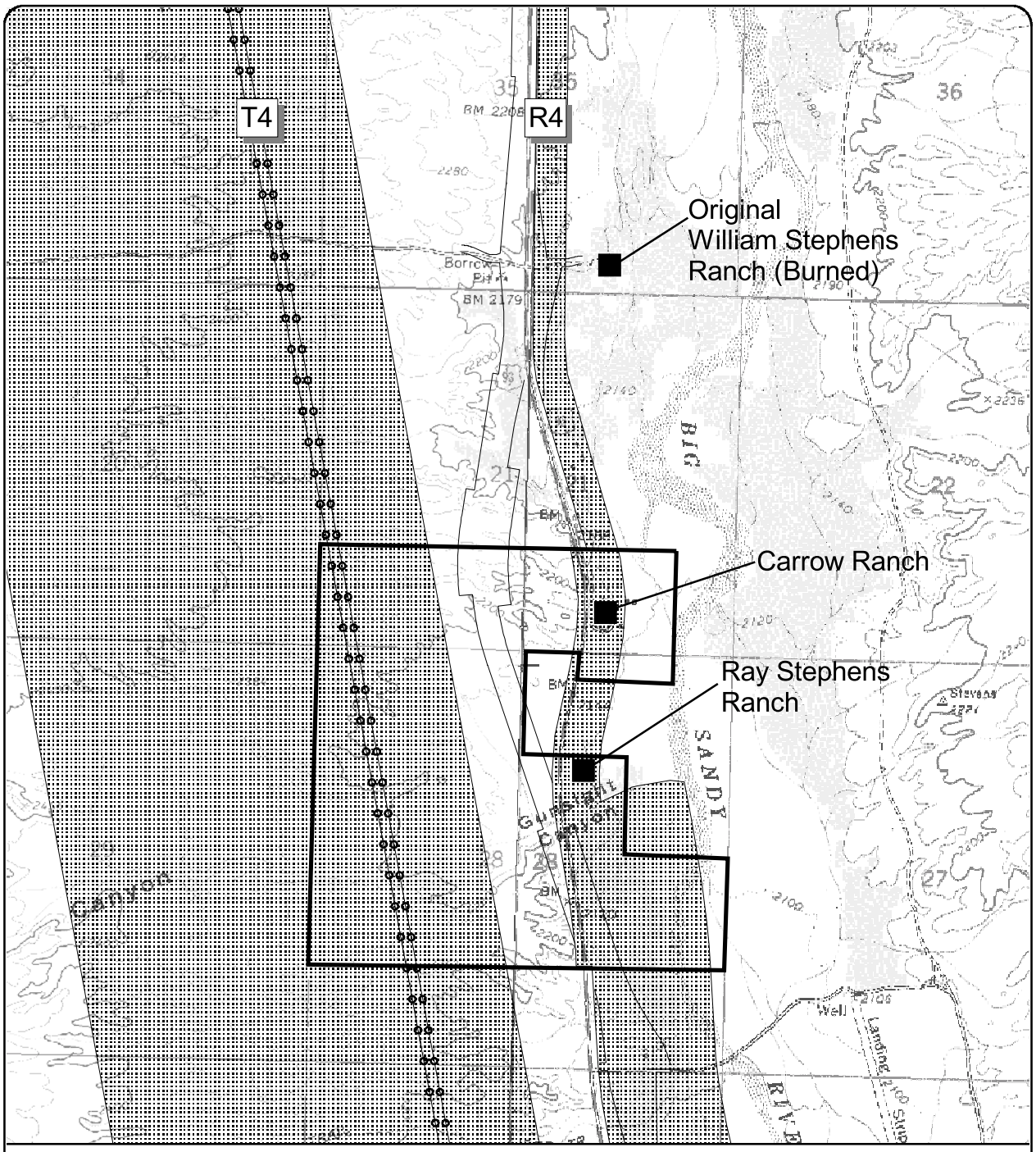
Three Rivers Riparian ACEC

As with the Proposed Action, the Alternative R gas pipeline corridor would not directly disturb any area within the boundaries of the Three Rivers Riparian ACEC, and would have no significant impacts on the quality or quantity of surface water and groundwater within this ACEC.

Alternative T Gas Pipeline Corridor

Carrow-Stephens Ranches ACEC

The Alternative T gas pipeline corridor would use the same corridor segment T4 as the Proposed Action. As discussed above, construction of the pipeline within the portion of the corridor that overlaps the ACEC would involve removal of native plants, which is not



Relation of Natural Gas Pipeline Corridors to Carrow-Stephens Ranches ACEC

Big Sandy Energy Project EIS

Legend

Resource Components
- Carrow-Stephens Ranches ACEC
- U.S. 93 Realignment

Project Components
- Pipeline Corridor Segments
  - Proposed Pipeline Corridor - R1, C1, T3, C3, T4, R5
  - Alternative R Corridor - R1, R2, R3, C3, R4, R5
  - Alternative T Corridor - T1, T2, T3, C3, T4, T5

General Reference
- Mead-Liberty/Mead-Phoenix Transmission Lines
- Stream/River
- U.S. Route

0 0.25 0.5

Scale in Miles

Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

N

x:/bigsandy/projects/acec.apr

Figure 3.10-3

consistent with BLM Prescription 10 and therefore would be a significant impact. This wide corridor segment is intended to accommodate an alignment that would completely avoid the Carrow-Stephens Ranches ACEC and have no impacts on the ACEC.

Three Rivers Riparian ACEC

As with the Proposed Action, the Alternative T gas pipeline corridor would not directly disturb any area within the boundaries of the Three Rivers Riparian ACEC, and would have no significant impacts on the quality or quantity of surface water and groundwater within this ACEC.

Communication Facilities

Carrow-Stephens Ranches ACEC

One option for the alternative substation dual/redundant communications system would involve installation of an OPGW as a replacement of one of the static wires on the existing Mead-Liberty 345-kV transmission line. This line passes through the Carrow-Stephens Ranches ACEC about 0.5 mile or more to the west of the historic ranches. Installation of the fiber optic line is not expected to require any new roads, but heavy trucks require pads about every three miles to pull and tension the OPGW. These pads involve disturbance of only a fraction of an acre. No more than one pad, at most, would be within the ACEC and it would be sited to avoid vegetation.

The right-of-way for the Mead-Liberty line has not been surveyed for cultural resources, but intensive survey for the adjacent Mead-Phoenix Project 500-kV transmission line and access roads identified no archaeological or historical sites within the boundaries of the Carrow-Stephens Ranches ACEC. These survey results indicate that significant archaeological or historical sites are unlikely to be present in areas that would be affected by the OPGW installation. Therefore, installation of the OPGW is unlikely to significantly impact the ACEC, but additional intensive survey would be required to confirm that conclusion.

Three Rivers Riparian ACEC

The use of either of the options for the alternative dual/redundant communications systems for the substation would have no effect on the Three Rivers Riparian ACEC.

No-Action Alternative

The Big Sandy Energy Project would not be developed under the No-Action Alternative. Therefore, the natural gas pipeline and the OPGW would not be built and would have no effect on the Carrow-Stephens Ranches ACEC. No impacts on the Three Rivers Riparian ACEC would be expected.

3.10.2.6 Mitigation and Residual Impacts

If adopted, one of the following measures would be implemented to avoid or reduce significant impacts if the Proposed Action or corridor segment T4 is selected for construction:

- To avoid any effects on the Carrow-Stephens Ranches ACEC, the gas pipeline route in corridor segment T4 would not be constructed within the boundaries of this ACEC.

With the implementation of this measure, there would be no residual significant impacts.

- To minimize terrain disturbance within the Carrow-Stephens Ranches ACEC, the design of the specific alignment would be developed and implemented in close coordination with BLM and ADOT.

Even with implementation of this measure, significant impacts would remain.

If adopted, the following measures would be implemented to avoid or reduce significant impacts if alternative pipeline corridor segment R4 is selected for construction:

- The pipeline would be installed so that it would not hinder restoration of US 93 through this ACEC to a more natural topography.

- To minimize impacts on the Carrow-Stephens wildlife movement corridor, additional reclamation efforts, such as replanting removed trees and succulents and revegetating with native seeds, woud be undertaken.

- The pipeline would be designed to avoid impacts on the family cemetery immediately adjacent to US 93.

- Disturbance of the historic irrigation ditch within the US 93 right-of-way would be minimized and any construction damage would be repaired.

- Even with the implementation of these measures, significant impacts would remain if corridor segment R4 is selected.

3.11 VEGETATION

This section describes the affected environment and environmental consequences related to vegetation. Special status species are discussed in Section 3.14. Vegetation within wetlands and riparian areas are described in Section 3.12.

3.11.1 Affected Environment

The following sections describe the current vegetative communities; this provides a baseline for the assessment of impacts and environmental consequences.

3.11.1.1 Region of Influence

The region of influence for the analysis of impacts to vegetation consists of an area 0.5 mile around the proposed power plant site and associated facilities, within the proposed and alternative gas pipeline corridors, and along the route of the OPGW installation.

3.11.1.2 Existing Conditions

The vegetation within the region of influence consists of elements that are characteristic of the Arizona Upland Subdivision of the Sonoran Desert, Mohave desertscrub, Semidesert Grassland, and Great Basin conifer woodland. Most of the region of influence has also been mapped as semi-desert grassland (Brown and Lowe 1980). The vegetative communities appear highly ecotonal; that is, they exhibit characteristics of the four major non-riparian biotic communities listed above. Semi-desert grassland areas dominate, but contain many plant species that are characteristic of Mohave and Sonoran desertscrub. Similarly, areas where Sonoran desertscrub elements dominate (e.g. near Wikieup), there are species present that are characteristic of Mohave desertscrub (e.g., Joshua tree). To the northwest, near Interstate 40, where Great Basin Conifer woodlands dominated by juniper occur, there are also elements of Mohave desertscrub, Sonoran desertscrub, and semi-desert grassland interspersed with the woodland elements. The limits of a particular vegetation community are determined to some extent by climate (e.g., minimum seasonal temperatures, minimum seasonal precipitation). Local factors such as elevation, soil type, slope exposure, cold air drainages, and soil porosity interact with climate to dictate local and regional distribution of vegetation.

Overall, the vegetation within the region of influence is a complex mix of species that represent several biotic communities of northwestern Arizona. None of the plant communities present are purely Mohavean or Sonoran in composition. However, no plant communities in the region of influence are predominantly Mohavean, and for the purposes of this Draft EIS desertscrub communities will be referred to as Sonoran, following Brown and Lowe (1980).

Vegetation along the perennial reaches of the Big Sandy River is characteristic of the Sonoran

Riparian Deciduous Forest Woodland as described by Minckley and Brown (1994).

Sonoran desertscrub, semi-desert grassland, Great Basin conifer woodland, and xeroriparian vegetation are described in more detail below. Lists of plant species identified in the region of influence are presented in Table 3.11-1. Approximate areas of these vegetative communities are shown on Figure 3.11-1.

Sonoran Desertscrub – Arizona Upland Subdivision

The Arizona Upland Subdivision of Sonoran Desertscrub forms a curving border at the northeastern edge of the Sonoran Desert. Most of this subdivision is on slopes, broken ground, and multi-dissected sloping plains. The subdivision generally is characterized as a scrubland or low woodland of leguminous trees. Several open layers of shrubs and perennial succulents fill in intervening spaces (Turner and Brown 1982). Trees found in the region of influence that are characteristic of this subdivision include blue paloverde, foothill paloverde, honey mesquite, and cat-claw acacia. In some portions of the region of influence foothill paloverde is accompanied by or replaced by crucifixion thorn.

Cacti are an important component of this subdivision. Species present in the region of influence include saguaro, hedgehog cactus, beavertail cactus, and Christmas cholla.

Semi-Desert Grassland

In general, semi-desert grassland is present surrounding the Chihuahuan desert, and in some areas in west-central Arizona. It is a perennial grass-scrub dominated landscape. Semi-desert grassland in the region of influence is bounded at lower elevations by Sonoran Desertscrub and at higher elevations by Great Basin conifer woodland. Although semi-desert grassland is positioned geographically between distinct vegetation communities and shares floral and faunal constituents of these communities, it is a distinctive and separate biome (Brown 1982a). Grass species present in the region of influence that are characteristic of semi-desert grassland include bush muhly, three-awn, and black grama. Shrub species present include creosote bush, mesquite, crucifixion thorn, and snakeweed. Buckwheats, mallow, whipple cholla, and banana yucca also are common in the region of influence.

Great Basin Conifer Woodland

These woodlands are structurally simple and tend to be present in rocky habitats with thin soil. They are characterized by unequal dominance of Utah juniper and singleleaf piñon. Juniper is generally more prevalent than singleleaf piñon. Great Basin conifer woodland is generally open-spaced (as is the case in the region of influence), except at higher elevations and in less xeric sites (Brown 1982b). Species present in the region of influence that are typical of this community include buckwheats, globe mallow, beavertail cactus, and crucifixion thorn. Common shrubs include barberry, and banana yucca. Turbinella oak is sparsely scattered in this vegetation community.

Xeroriparian Vegetation

Xeroriparian vegetation includes plants that may be limited to, or are noticeably more abundant in, ephemeral washes. This community is present because of higher water availability at drainages, although drainages often provide only seasonal water flow. Xeroriparian communities are dominated by trees that are also present in the adjacent uplands in smaller, shrub-like forms. Vegetation present in these communities is often denser and larger than vegetation found in surrounding areas. Some species present in xeroriparian habitats are not found in surrounding communities. An example of one of these species is the desert willow. Xeroriparian

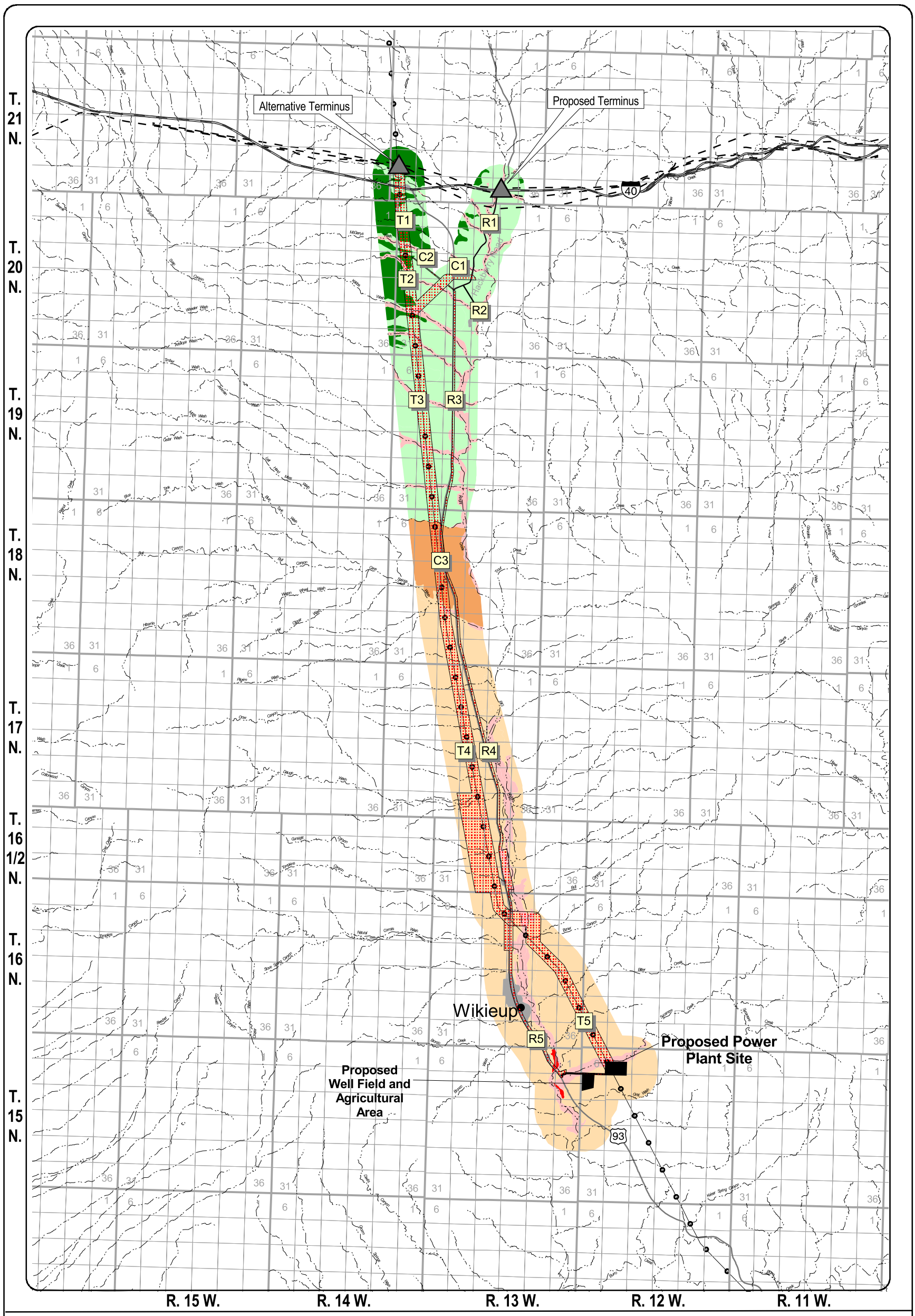
TABLE 3.11-1 PLANT SPECIES WITHIN THE REGION OF INFLUENCE	
Common Name	Scientific Name
Sonoran Desertscrub	
Arabian grass	*Schismus arabicus*
Aster	*Aster subulatus*
Barrel cactus	*Ferocactus* sp.
Beavertail cactus	*Opuntia basilaris*
Blue paloverde	*Parkinsonia florida*
Brassica	*Brassica* sp.
Burro-brush	*Hymenoclea monogyra*
Catclaw acacia	*Acacia greggii*
Cheeseweed	*Hymenoclea salsola*
Chia	*Salvia columbariae*
Christmas cholla	*Opuntia leptocaulis*
Creosote bush	*Larrea tridentata*
Crucifixion thorn	*Canotia holacantha*
Desert broom	*Baccharis sarothroides*
Desert chicory	*Rafinesquia neomexicana*
Desert marigold	*Baileya multiradiata*
Desert trumpet	*Eriogonum inflatum*
Dock	*Rumex* sp.
Fairyduster	*Calliandra eriophylla*
Fiddleneck	*Amsinckia intermedia*
Filaree	*Erodium cicutarium*
Five-stamen tamarisk	*Tamarix chinensis*
Four-wing salt bush	*Atriplex canescens*
Globemallow	*Sphaeralcea ambigua*
Goldenhead	*Acamptopappus sphaerocephalus*
Grey thorn	*Ziziphus obtusifolia*
Hedgehog cactus	*Echinocereus engelmanii*
Honey Mesquite	*Prosopis glandulosa*
Jimmyweed	*Isocoma pleurifolia*
Joshua-tree	*Yucca brevifolia*
Lehman's lovegrass	*Eragrostis lehmanniana*
Little leaf paloverde	*Parkinsonia microphylla*
Lupine	*Lupinus* spp.
Machaeranthera	*Machaeranthera pinnatifida*
Mexican poppy	*Eschscholtzia mexicana*
Mohave aster	*Xylorhiza tortifolia*
Mormon tea	*Ephedra trifurca*
Narrowleaf golden weed	*Haplopappus linearifolius*
Ocotillo	*Fouquieria splendens*
Owl clover	*Orthocarpus purpurescens*
Paper Daisy	*Psilostrophe cooperi*
Parry dalea	*Marina parryi*
Phacelia	*Phacelia* sp.
Pincushion	*Cheanactis macrantha*
Popcorn flower	*Cryptantha* sp.

TABLE 3.11-1 PLANT SPECIES WITHIN THE REGION OF INFLUENCE	
Common Name	Scientific Name
Purple mat	*Nama demissum*
Rayless goldenrod	*Isocoma wrightii*
Rock gilia	*Gilia scopulorum*
Sacred datura	*Datura meteloides*
Saguaro	*Carnegiea gigantea*
Skeleton weed	*Eriogonum deflexum*
Teddy–bear cholla	*Opuntia bigelovii*
Tobacco	*Nicotiana obtusifolia*
Tumbleweed	*Salsola iberica*
Turpentine bush	*Ericameria linearifolia*
Wallace eriophyllum	*Eriophyllum wallacei*
White brittlebush	*Encelia farinosa*
White bursage	*Ambrosia dumosa*
White rhatany	*Krameria grayi*
White-thorn acacia	*Acacia constricta*
Wire lettuce	*Stephanomeria* sp.
Wolfberry	*Lycium* sp.
Wooly daisy	*Eriophyllum lanosum*
Wooly plantain	*Plantago insularis*
Semi-Desert Grassland	
Arizona necklace	*Sophora arizonica*
Banana yucca	*Yucca baccata*
Beavertail cactus	*Opuntia basilaris*
Big galleta	*Pleuraphis rigida*
Big root	*Marah gilensis*
Bladder sage	*Salazaria mexicana*
Black grama	*Bouteloua eriopoda*
Blue paloverde	*Parkinsoniua florida*
Brassica	*Brassica* sp.
Brownfoot	*Acourtia wrightii*
Burrobrush	*Hymenoclea monogyra*
Bush muhly	*Muhlenbergia porteri*
Canaigre	*Rumex hymenosepalus*
Catclaw	*Acacia greggii*
Cheeseweed	*Hymenoclea salsola*
Chia	*Salvia columbariae*
Cholla cactus	*Opuntia* spp
Christmas cholla	*Opuntia leptocaulis*
Creosote bush	*Larrea tridentata*
Crucifixion thorn	*Canotia holacantha*
Desert marigold	*Baileya multiradiata*
Desert trumpet	*Eriogonum inflatum*
Fiddleneck	*Amsinckia intermedia*
Filaree	*Erodium cicutarium*
Fluffgrass	*Erioneuron pulchellum*
Fremont barberry	*Berberis fremontii*
Globemallow	*Sphaeralcea ambigua*
Goldenhead	*Acamptopappus sphaerocephalus*

TABLE 3.11-1 PLANT SPECIES WITHIN THE REGION OF INFLUENCE	
Common Name	Scientific Name
Groundsel	*Senecio multiflora*
Guara	*Gaura* sp.
Hairy grama	*Bouteloua hirsuta*
Hill locust	*Lotus humistratus*
Indian ricegrass	*Oryzopsis hymenoides*
Joshua-tree	*Yucca brevifolia*
Lehman's lovegrass	*Eragrostis lehmanniana*
Locoweed	*Astragalus* sp.
Lupine	*Lupinus* spp.
Mexican poppy	*Eschscholtzia mexicana*
Narrowleaf golden weed	*Haplopappus linearifolius*
Needle grass	*Stipa* sp.
Oneseed juniper	*Juniperus monosperma*
Paintbrush	*Castilleja* spp.
Paper flower	*Psilostrophe cooperi*
Phacelia	*Phacelia* sp.
Pincushion	*Cheanactis* sp.
Popcorn flower	*Cryptantha* spp.
Prickly-pear cactus	*Opuntia* sp.
Primrose	*Camissonia clauiformis*
Purple mat	*Nama demissum*
Rayless encelia	*Encelia frutescens*
Red brome	*Bromus madritensis*
Rock gilia	*Gilia scopulorum*
Sacred datura	*Datura meteloides*
Snakeweed	*Gutierrezia sarothrae*
Tansy mustard	*Descuraniana* sp.
Telegraph plant	*Heterotheca camphorata*
Three-awn grass	*Aristida* sp.
Tumbleweed	*Salsola iberica*
Turbinella oak	*Quercus turbinella*
Turpentine bush	*Ericameria linearifolia*
Twist flower	*Streptanthus cordatus*
Wallace eriophyllum	*Eriophyllum wallacei*
Whipple cholla	*Opuntia* whipplei
White brittlebush	*Encelia farinosa*
White bursage	*Ambrosia dumosa*
White ratany	*Krameria grayi*
Wild buckwheat	*Eriogonum fasciculatum*
Wolfberry	*Lycium* sp.
Wooly plantain	*Plantago insularis*
Yucca	*Yucca* sp.
Great Basin Conifer Woodland	
Algerita	*Berberis haematocarpa*
Arizona necklace	*Sophora arizonica*
Banana yucca	*Yucca baccata*
Beavertail cactus	*Opuntia basilaris*
Bladder sage	*Salazaria mexicana*

TABLE 3.11-1 PLANT SPECIES WITHIN THE REGION OF INFLUENCE	
Common Name	Scientific Name
Brownfoot	*Acourtia wrightii*
Bush muhly	*Muhlenbergia porteri*
California buckwheat	*Eriogonum* sp.
Chia	*Salvia columbariae*
Cholla cactus	*Opuntia* spp.
Clematis	*Clematis* sp.
Colorado four-o-clock	*Mirabilis multiflora*
Combur	*Pectocaryia* sp.
Crucifixion thorn	*Canotia holacantha*
Desert ceanothus	*Ceanothus greggii*
Desert globemallow	*Sphaeralcea ambigua*
Desert needlegrass	*Stipa speciosa*
Desert trumpet	*Eriogonum inflatum*
Fiddleneck	*Amsinckia intermedia*
Filaree	*Erodium cicutarium*
Fluffgrass	*Erioneuron pulchellum*
Fremont barberry	*Berberis fremontii*
Fremont phacelia	*Phacelia fremontii*
Goldenhead	*Acamptopappus sphaerocephalus*
Goosefoot	*Chenopodium berlandieri*
Graythorn	*Ziziphus obtusifolia*
Hairy grama	*Bouteloua hirsuta*
Large yellow desert primrose	*Oenethera primaveris*
Locoweed	*Astragalus* sp.
Lotus	*Lotus* sp.
Mexican poppy	*Eschscholtzia mexicana*
Mountain mahogany	*Cercocarpus montanus*
Narrowleaf golden weed	*Haplopappus linearifolius*
Oneseed juniper	*Juniperus monosperma*
Paintbrush	*Castilleja* spp.
Phacelia	*Phacelia* sp.
Popcorn flower	*Cryptantha* sp.
Primrose	*Camissonia clauiformis*
Red brome	*Bromus madritensis*
Salsify	*Tragopogon porrifolius*
Silver puffs	*Uropappus lindleyi*
Singleleaf pinyon	*Pinus monophylla*
Small-headed snakeweed	*Gutierrezia sarothrae*
Three-awn grass	*Aristida* sp.
Turbinella oak	*Quercus turbinella*
Turpentine bush	*Ericameria linearifolia*
Utah juniper	*Juniperus osteosperma*
Vervain	*Verbena* sp.
Wallace eriophyllum	*Eriophyllum wallaceii*
White ratany	*Krameria grayi*
Wild buckwheat	*Eriogonum fasciculatum*
Winterfat	*Ceratoides lanata*
Wooly plantain	*Plantago insularis*

TABLE 3.11-1 PLANT SPECIES WITHIN THE REGION OF INFLUENCE	
Common Name	Scientific Name
Wooly-fruited bursage	*Ambrosia eriocentra*
Xeroriparian Areas	
Arabian grass	*Schismus arabicus*
Blazing star	*Mentzelia jonesii*
Brassica	*Brassica* sp.
Burro brush	*Hymenoclea monogyra*
Catclaw acacia	*Acacia greggii*
Cheeseweed	*Hymenoclea salsola*
Chia	*Salvia columbariae*
Cream cups	*Platystemon californicus*
Crucifixion thorn	*Canotia holacantha*
Desert broom	*Baccharis sarothroides*
Desert dandelion	*Malacothrix glabrata*
Desert willow	*Chilopsis linearis*
Dock	*Rumex* sp.
Fiddleneck	*Amsinckia intermedia*
Filaree	*Erodium cicutarium*
Fluffgrass	*Erioneuron pulchellum*
Fremont barberry	*Berberis fremontii*
Gilia	*Gilia hutchinsifolia*
Lotus	*Lotus* sp.
Lupine	*Lupinus* spp.
Mexican poppy	*Eschscholtzia mexicana*
Owl clover	*Orthocarpus purpurascens*
Phacelia	*Phacelia* spp.
Popcorn flower	*Cryptantha* spp.
Primrose	*Camissonia clauiformis*
Purple mat	*Nama demissum*
Rabbitbrush	*Chrysothamnus nauseosis*
Red brome	*Bromus madritensis*
Rock gilia	*Gilia scopulorum*
Sacred datura	*Datura meteloides*
Seep willow	*Baccharis glutinosa*
Spreading fleabane	*Erigeron divergens*
Tansy mustard	*Descuraniana* sp.
Thistle	*Cirsium* sp.
Tidy-tips	*Layia glandulosa*
Tobacco	*Nicotiana obtusifolia*
Turbinella Oak	*Quercus turbinella*
Turpentine bush	*Ericameria linearifolia*
Wallace eriophyllum	*Eriophyllum walacei*
Western honey mesquite	*Prosopis glandulosa*
Wolfberry	*Lycium* sp.
Wooly-fruited bursage	*Ambrosia eriocentra*



Legend

Resource Components
- Disturbed/Urban Area
- Great Basin Conifer Woodland
- Semidesert Grassland
- Transition between Arizona Upland and Semidesert Grassland
- Arizona Upland
- Sonoran Riparian: Deciduous Riparian
- Xeroriparian Vegetation

Project Components
- Pipeline Corridor Segments
  - Proposed Pipeline Corridor - R1,C1,T3,C3,T4,R5
  - Alternative R Corridor - R1,R2,R3,C3,R4,R5
  - Alternative T Corridor - T1,T2,T3,C3,T4,T5
- Proposed Plant Facilities

General Reference
- Existing Pipelines
- Mead-Liberty/Mead-PhoenixTransmission Lines
- Stream/River
- Interstate
- U.S. Route

0 5
Scale in Miles
Universal Transverse Mercator Projection
1927 North American Datum
Zone 12

N

Vegetation

Big Sandy Energy Project EIS

Figure 3.11-1

x:/bigsandy/projects/biology.apr

communities provide habitat for wildlife, corridors for wildlife movement, and greater water availability than in surrounding areas.

Species Protected Under Arizona Native Plant Law

Several native plant species present in the region of influence are not special status species as defined and discussed in Section 3.14, but are protected under the Arizona Native Plant Law. Saguaros, banana yuccas, joshua trees, and ocotillo are listed by the Arizona Department of Agriculture (ADA) as *salvage-restricted*. Plants in this category have a high potential for damage by theft or vandalism. Blue paloverdes, foothill paloverdes, honey mesquites, and banana yucca are listed as *harvest-restricted*. These species are subject to excessive harvesting or overcutting because of the intrinsic value of their by-products, fiber, or woody parts. Crested saguaros, which are listed as *highly safeguarded*, may be found anywhere saguaros are present. Species in the highly safeguarded category include plants whose prospects for survival in this state are in jeopardy, plants that are in danger of extinction throughout all or a significant portion of their ranges, or plants that are likely to become jeopardized or in danger of extinction (ADA 1999).

Under the Arizona Native Plant Law, protected species may not be legally possessed, taken or transported from the growing site without a permit from ADA. If protected native plants will be cleared, the land owner or owner's agent must provide written notification to the ADA. In addition, Federal and state agencies have their own mitigation requirements for ADA-protected plant species.

3.11.2 Environmental Consequences

3.11.2.1 Identification of issues

The following issues were identified as the basis for the assessment of impacts:

- Removal of plant species protected under the Arizona Native Plant Law
- Reduction of habitat for listed and special status species
- Removal of xeroriparian vegetation

3.11.2.2 Significance Criteria

Xeroriparian vegetation is relatively uncommon within Arizona vegetation communities. Therefore, impacts on vegetation by the Proposed Action and alternatives would be considered significant if unmitigated loss of xeroriparian vegetation would occur.

3.11.2.3 Impact Assessment Methods

Current conditions were evaluated using existing resources, such as a vegetation map and report prepared by Greystone (2000) and several reconnaissance surveys. Impacts to individual vegetation communities were evaluated by comparing acreages that would be disturbed with the total amount of those communities present within the state. Because xeroriparian habitats are relatively rare within native vegetation communities, impacts to xeroriparian communities were evaluated by determining if any removal of xeroriparian vegetation would occur.

3.11.2.4 Actions Incorporated into the Proposed Action to Reduce or Prevent Impacts

The Proposed Action includes the following measures to reduce or prevent potential adverse impacts to vegetation:

- Reclamation plans have been developed for private, state, and BLM-managed lands and would be implemented on the selected pipeline route. Revegetation of native plants in areas of temporary disturbance would be completed in accordance with the Reclamation Operation Maintenance Plan for BLM-Managed Public Lands and

Reclamation Plan for State and Private Lands (Appendix B). Two-tracks constructed for access to the pipeline would be reseeded. All other areas of temporary disturbance in the proposed power plant site vicinity or along the pipeline route would be subject to salvage of native plant species and reseeded.

- The Reclamation Plan for BLM-Managed Public Lands stipulates that if reseeding on BLM-managed land is determined to be unsuccessful, a second attempt would be made.

- Native vegetation protected by the Arizona Native Plant Law is present throughout the region of influence. All areas of potential disturbance, including the proposed power plant site, substation, evaporation ponds, access road, and pipeline route, would be subject to pre-construction surveys to identify species listed under the Arizona Native Plant Law. Surveys for these species would be conducted according to the procedures detailed in Section 2.2.8.10. Protected plant species from all disturbed areas would be salvaged and transplanted, although the Arizona Native Plant Law does not require the salvage of protected plants from private land. Plants salvaged from state and private lands would be transplanted to ADOT project sites. Protected plants on BLM-managed public lands would be salvaged, stored in nursery areas, and transplanted in the pipeline corridor, as specified in Section 2.2.8.9 Reclamation and salvage procedures for protected plants on private and BLM-managed public lands are described in the Reclamation Operation Maintenance Plan for BLM-Managed Public Lands and Reclamation Plan for State and Private Lands, respectively (Appendix B).

- As noted in Section 2.2.8.9, measures to reduce the impacts of clearing of native vegetation include revegetation of temporarily disturbed areas. The overall intent of these reclamation activities is to reestablish a vegetative cover that is similar to pre-construction conditions and consistent with adjacent vegetation communities. Revegetation procedures are described in the Reclamation Operation Maintenance Plan for BLM-Managed Public Lands and Reclamation Plan for State and Private Lands (Appendix B).

- The reclamation plans propose revegetation of impacted ephemeral stream channels with appropriate xeroriparian native plant species. Revegetation procedures would be as described in the Reclamation Operation Maintenance Plan for BLM-Managed Public Lands and Reclamation Plan for State and Private Lands.

3.11.2.5 Impact Assessment

Proposed Action

The proposed Project would physically disturb approximately 621 acres. Plant communities present within the region of influence are characteristic of Sonoran desertscrub, semi-desert grassland, and Great Basin conifer woodland. Impacts on these vegetation communities are summarized in Table 3.11-2.

Proposed Power Plant, Substation, Access Road, and Associated Facilities

Construction activities at the proposed power plant site, substation, and evaporation ponds would affect approximately 56 acres. The proposed plant access road construction would impact 21 acres, well pad sites and well pad access roads would impact 26 acres, and the proposed agricultural activities would impact 107 acres, for a total of 108 acres. Of these 108 acres, 34 acres would not be impacted by permanent facilities. These areas would be reclaimed through regrading and revegetation, as described in the Reclamation Plan for State and Private Lands, but this restoration process would require several years. The remaining 74 acres of non-sensitive vegetation would be permanently lost. All of this area is within the Arizona

TABLE 3.11-2 IMPACTS ON VEGETATION COMMUNITIES			
Vegetation Community	Total Acres of Disturbance*	Acres of Permanent Disturbance*	Acres of Temporary Disturbance*
Power Plant and Associated Facilities (Substation, Evaporation Ponds, Access Road, etc.)			
Sonoran desertscrub	108	74	34
Semi-desert grassland	0	0	0
Great Basin conifer woodland	0	0	0
Proposed Gas Pipeline Corridor			
Sonoran desertscrub	252	30	222
Semi-desert grassland	145	17	128
Great Basin conifer woodland	9	1	8
Alternative R Gas Pipeline Corridor			
Sonoran desertscrub	251	30	221
Semi-desert grassland	142	17	125
Great Basin conifer woodland	0	0	0
Alternative T Gas Pipeline Corridor			
Sonoran desertscrub	251	27	224
Semi-desert grassland	104	11	93
Great Basin conifer woodland	63	7	56
Crossover Segment C2			
Sonoran desertscrub	0	0	0
Semi-desert grassland	12	0	12
Great Basin conifer woodland	0	0	0
OPGW Installation			
Sonoran desertscrub	2.5	0	2.5
Semi-desert grassland	2.5	0	2.5
Great Basin conifer woodland	0	0	0
Agricultural Activities			
Sonoran desertscrub	107	107	0
Semi-desert grassland	0	0	0
Great Basin conifer woodland	0	0	0

* Acreages are approximate and impacts were attributed to the most abundant vegetation type within each corridor segment. If two or more vegetation types are present, impacts were split proportionately between these vegetation types. Xeroriparian vegetation is present along ephemeral drainages in all three listed vegetation communities (refer to Section 3.12.2.1).

Upland Subdivision of Sonoran desertscrub. Vegetation in these areas has been previously disturbed by livestock grazing.

The proposed power plant site, associated substation, evaporation ponds, and agricultural activities are located on land that encompasses several ephemeral drainages. Removal of this vegetation along these drainages would constitute a significant impact on xeroriparian vegetation. The exact area of impacted xeroriparian vegetation cannot be estimated because of variable widths of this vegetation and discontinuous distribution along the washes. Descriptions of, and impacts on, these drainages are described in Section 3.12.2.

The proposed access road to the plant site would impact the xeroriparian vegetation along Sycamore Creek and several small ephemeral channels. Unmitigated removal of this vegetation would represent a significant impact. Description of, and impacts on these drainages are described in Section 3.12.2.

Sonoran desertscrub is extensive in Arizona and removal of 108 acres would not negatively impact this community on a regional level. Measures developed to reduce impacts to native vegetation and incorporated into the Proposed Action would reduce the loss of ADA-protected plants and may promote the revegetation of areas of temporary disturbance.

Communication Facilities

The OPGW option for the Proposed Action would pass through areas of Sonoran desertscrub, semi-desert grassland, and Great Basin conifer woodland. Because this line would be installed on existing structures, the OPGW would have no permanent impact on vegetation communities in this vicinity. However, up to 5 acres would be temporarily disturbed for construction activities. The area disturbed would be reclaimed in accordance with either the Reclamation Operation Maintenance Plan for BLM-Managed Public Lands or the Reclamation Plan for State and Private Lands (refer to Appendix B).

The microwave dishes would be installed on existing towers and would have no impact on vegetation.

Proposed Gas Pipeline Corridor Plant communities present along the proposed natural gas pipeline corridor include Great Basin conifer woodland, semi-desert grassland, and Sonoran desertscrub. Construction of the pipeline within this corridor would impact approximately 406 acres, as detailed below. Up to 48 acres would be permanently disturbed to provide a 10-foot wide two-track (refer to Section 2.2.5).

Native vegetation along corridor segment R1 is mostly semi-desert grassland. A few small areas of Great Basin conifer woodland are present at the northern end and western edge of this corridor segment. Ongoing cattle grazing has impacted vegetation along this corridor segment. Because the alignment through this corridor segment is within Hackberry Road, the disturbance to vegetation is estimated to be approximately 24 acres, assuming that the 90-foot-wide disturbed area would be wider than the existing roadway. Native vegetation along corridor segment C1 is primarily semi-desert grassland. Great Basin conifer woodland is present near the intersection of corridor segments C1 and T3. On-going livestock grazing has impacted the vegetation in these communities. Construction activities along this corridor segment would disturb approximately 31 acres. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance of approximately 3 acres.

Native vegetation along corridor segment T3 is mainly semi-desert grassland, with a few small patches of Great Basin conifer woodland and xeroriparian vegetation. This corridor segment has experienced impacts on vegetation as a result of on-going livestock grazing. Construction activities within corridor segment T3 would result in the disturbance of 94 acres.

Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 10 acres.

Corridor segment C3 is in a transition zone between semi-desert grassland and Sonoran desertscrub. The vegetation in this corridor segment includes species that are characteristic of both of these communities. Construction activities along corridor segment C3 would disturb 20 acres. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 2 acres.

Native vegetation along corridor segment T4 is characteristic of the Arizona Upland Subdivision of Sonoran desertscrub. As on other corridor segments, native vegetation has been impacted by on-going livestock grazing activities. Pipeline construction activities within this corridor segment would result in disturbance to 153 acres of native vegetation. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 17 acres.

Vegetation along corridor segment R5 is also representative of the Arizona Upland Subdivision of Sonoran desertscrub. Construction of the pipeline in this corridor segment would result in the disturbance of 84 acres of vegetation. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 11 acres.

Semi-desert grassland, Great Basin conifer woodland, and Sonoran desertscrub are extensive in Arizona and disturbance of 406 acres would not adversely impact these communities on a regional level. Measures developed and incorporated into the Proposed Action to reduce impacts on native vegetation would reduce the loss of ADA-protected plants and may promote the revegetation of areas of temporary disturbance. Reseeding would also promote the revegetation of xeroriparian communities impacted by the pipeline.

Continued disturbance, such as livestock and off-road vehicles, would severely limit the germination and long-term establishment of plants (Burgess and Graves 1983). Even when revegetation efforts are successful, complete rehabilitation of plant communities is very slow. A study of natural revegetation of pipeline routes in the Mohave desert predicted that plant biomass recovery to predisturbance conditions could take as long as 100 years (Lathrop and Archbold 1980). Although revegetation efforts may decrease recovery time, complete rehabilitation is not expected to occur quickly.

The proposed pipeline corridor crosses many small drainages, most of which support xeroriparian vegetation. This vegetation would be cleared within a 90-foot corridor around the gas pipeline. Permanent removal of any xeroriparian vegetation would constitute a significant impact. Descriptions of, and impacts on, these drainages are discussed in Section 3.12.2.

Alternative R Gas Pipeline Corridor

Plant communities present along the alternative natural gas pipeline corridor include semi-desert grassland, Great Basin conifer woodland, and Sonoran desertscrub. Construction of this route would impact approximately 393 acres, as detailed below. Approximately 47 acres would be permanently disturbed to provide a 10-foot-wide two-track. Corridor segments R1, C3, and R5 are described above under the proposed corridor.

Native vegetation along corridor segment R2 is characteristic of semi-desert grassland. On-going cattle grazing has impacted vegetation along this corridor segment. Construction activities along corridor segment R2 would disturb up to 9 acres. Because the alignment through this corridor segment is within Hackberry Road, the disturbance to vegetation is estimated to be approximately 5 acres. Native vegetation within corridor segment R3 is representative of semi-desert grassland. On-going livestock grazing has impacted the vegetation in this corridor segment.

Construction activities within this corridor segment would impact 103 acres. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 11 acres.

Native vegetation on corridor segment R4 is representative of the Arizona Upland Subdivision of Sonoran desertscrub. Pipeline construction activities within this corridor segment would impact 153 acres. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 17 acres.

Semi-desert grassland, Great Basin conifer woodland and Sonoran desertscrub are extensive in Arizona and disturbance to 393 acres would not negatively impact these communities on a regional level. As stated for the proposed corridor, measures incorporated into the Proposed Action to reduce impacts to native vegetation would reduce the loss of ADA-protected plants and may promote the revegetation of areas of temporary disturbance. Reseeding would also promote the revegetation of xeroriparian communities impacted by the pipeline. Successful reseeding of native plants is more likely when further disturbance to impacted areas does not occur.

The alternative corridor crosses small drainages, many of which support xeroriparian vegetation. This vegetation would be cleared within a 90-foot corridor around the gas pipeline. Permanent removal of xeroriparian vegetation would constitute a significant impact. Descriptions of, and impacts on, these drainages are discussed in Section 3.12.2.

Alternative T Gas Pipeline Corridor

Plant communities present along the transmission line corridor include semi-desert grassland, Great Basin conifer woodland, and Sonoran desertscrub. Construction of this route would impact 418 acres, as detailed below. Approximately 45 acres would be permanently disturbed to provide a 10-foot wide two-track.

Corridor segments T3, C3, and T4 are described above under the proposed corridor.

Vegetation along corridor segment T1 is characteristic of Great Basin conifer woodland, interspersed with small patches of grasslands. Ongoing cattle grazing has impacted vegetation along this corridor segment. Construction of the natural gas pipeline in this corridor segment would impact 41 acres. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 4 acres.

Native vegetation along corridor segment T2 included areas of Great Basin conifer woodland interspersed with areas of semi-desert grasslands. On-going cattle grazing has also impacted vegetation along this corridor segment. Construction of the pipeline in this corridor segment would impact 24 acres. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 3 acres.

Native vegetation along corridor segment T5 is representative of the Arizona Upland Subdivision of Sonoran desertscrub. Pipeline construction activities within this corridor segment would impact 86 acres of vegetation. Construction and maintenance of a two-track in this corridor segment would result in permanent disturbance to 9 acres.

Semi-desert grassland, Great Basin conifer woodland and Sonoran desertscrub are extensive in Arizona and disturbance to 418 acres would not adversely impact these communities on a regional level. As stated for the proposed and Alternative R gas pipeline corridors, measures incorporated into the Proposed Action would reduce the loss of ADA-protected plants and may promote the revegetation of areas of temporary disturbance. Reseeding also would promote the revegetation of xeroriparian communities impacted by the pipeline. Successful reseeding of native plants is more likely when further disturbance to impacted areas does not occur.

The alternative pipeline corridor crosses many small drainages, many of which support xeroriparian vegetation. This vegetation would be cleared within a 90-foot corridor around the gas pipeline. Permanent removal of any xeroriparian vegetation would constitute a significant impact. Descriptions of, and impacts on, these drainages are discussed in Section 3.12.2.

Crossover Segment C2

Native vegetation within crossover segment C2 is dominated by semi-desert grassland with a small area of Great Basin conifer woodland at the northwest end of the corridor segment. Pipeline construction activities in this corridor segment would impact 25 acres. Because the alignment through this corridor segment is within the old route for US 93, the disturbance to vegetation is estimated to be approximately 12 acres. No additional maintenance pathway would be required in this corridor segment, and there would be no new permanent disturbance to vegetation.

Semi-desert grassland and Great Basin conifer woodland are extensive in Arizona and disturbance to 25 acres would not adversely impact these communities on a regional level. As stated for each corridor, measures developed to reduce impacts to native vegetation would reduce the loss of ADA-protected plants and may promote the revegetation of areas of temporary disturbance. Successful reseeding of native plants is more likely when further disturbance to impacted areas does not occur.

No-Action Alternative

Under the No-Action Alternative, no native vegetation would be cleared. No impacts would occur on species protected under Arizona Native Plant Law or xeroriparian vegetation. The private lands cleared for the groundwater production and monitoring wells that were used to identify and test the lower aquifer would remain.

Mitigation and Residual Impacts

If adopted, the following measures would be implemented to avoid or reduce significant impacts:

- Revegetating impacted ephemeral stream channels within the proposed or alternative gas pipeline corridors with appropriate native plant species would mitigate impacts on xeroriparian vegetation. Revegetation procedures would be similar to those described for native vegetation communities in the Reclamation Operation Maintenance Plan for BLM-Managed Public Lands and the Reclamation Plan for State and Private Lands where applicable. Where possible, transplanted shrubs should be used in the xeroriparian areas to reduce the time for restoration.

- Loss of xeroriparian vegetation along the ephemeral streams eliminated by construction at the well sites and at the agricultural development in Section 7 would be mitigated by planting appropriate native shrub species adjacent to the alternate stormwater channel, following procedures described in the Reclamation Plan for State and Private Lands. Where possible, transplanted shrubs should be used along this channel. Species that should be planted include honey mesquite, desert willow, catclaw acacia, white ratany, and graythorn, where conditions are appropriate.

- Loss of xeroriparian vegetation along the ephemeral streams eliminated by construction of the power plant, substation, and evaporation ponds would be mitigated by planting appropriate native shrub species adjacent to the stormwater diversion channel, following procedures described in the Reclamation Plan for State and Private Lands. Where possible, transplanted shrubs should be used along this channel. Species that should be planted include honey mesquite, desert willow, catclaw acacia,