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File No. 039610-0001

DOCKET
07-AFC-1
DATE MAR 17 2008
RECD. MAR 17 2008

March 17, 2008

VIA FEDEX

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-1
1516 Ninth Street, MS-4
Sacramento, California 95814-5512

Re: Victorville 2 Hybrid Power Project: Docket No. 07-AFC-1

Dear Sir/Madam:

Pursuant to California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, enclosed herewith for filing please find a copy of Applicant's Biological Assessment Second Addendum for the above-referenced project.

Please note that the enclosed submittal was filed today via electronic mail to your attention and to all parties on the CEC's current electronic proof of service list.

Very truly yours,

Paul E. Kihm
Senior Paralegal

Enclosure

cc: CEC 07-AFC-1 Proof of Service List (w/encl. via e-mail)
Michael J. Carroll, Esq. (w/encl.)

Victorville 2 Hybrid Power Project
BIOLOGICAL ASSESSMENT SECOND ADDENDUM

Prepared for:

City of Victorville
14390 Civic Drive
Victorville, California 92392
(760) 955-5029

And

Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017
(213) 244-1800

On behalf of:

Inland Energy
14420 Civic Drive, Suite 7
Victorville, California 92392
(760) 843-5450

And

ENSR Corporation
1220 Avenida Acaso
Camarillo, CA 93012
(805) 388-3775

Prepared by:

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(951) 369-8060

Principal Investigator:
Thomas B. Egan
Senior Ecologist

AMEC Job #6554000228
11 March 2008

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Exhibit A2. Victorville 2 Hybrid Power Project Linear Utility Segment 2.
Exhibit A3a. Victorville 2 Hybrid Power Project Linear Utility Segment 3.
Exhibit A3b. Victorville 2 Hybrid Power Project Linear Utility Segment 3.
Exhibit A3c. Victorville 2 Hybrid Power Project Linear Utility Segment 3.

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EXHIBIT C. Analysis of Potential Vegetation Impacts Due to Nitrogen Deposition from Victorville 2 Hybrid Power Project Combustion Source Emissions

EXHIBIT D. Victorville 2 Hybrid Power Project Desert Tortoise (*Gopherus agassizii*) Translocation Plan

Victorville 2 Hybrid Power Project
BIOLOGICAL ASSESSMENT SECOND ADDENDUM

1.0 INTRODUCTION

This Biological Assessment Second Addendum (BA Second Addendum) has been prepared by AMEC Earth & Environmental, Inc. (AMEC) on behalf of ENSR Corporation for the City of Victorville and Inland Energy, Inc. concerning the proposed Victorville 2 Hybrid Power Project (VV2 Project or Project), located in the City of Victorville, San Bernardino County, California (Figure 1). The purpose of this document is to address comments submitted by the California Department of Fish and Game (CDFG) for their use in analyzing potential impacts to state-listed species under the auspices of the California Endangered Species Act (CESA), as well as other special status species and resources that may be affected by the Project.

A Biological Assessment (BA) was prepared by AMEC (2007) and submitted to the CDFG, the U.S. Environmental Protection Agency (EPA) and the U.S. Fish and Wildlife Service (FWS) pursuant to an Endangered Species Act (ESA) Section 7 consultation regarding EPA's issuance of a Prevention of Significant Deterioration (PSD) permit for the Project under the federal Clean Air Act, and pursuant to CESA Section 2081. A BA Addendum (AMEC 2008) was also previously prepared and submitted to the above agencies to address Project modifications arising following BA submittal. The "*Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California*" (1-8-07-F-67) was issued by the FWS on January 23, 2008.

The three focal species addressed in the BA, BA Addendum and BA Second Addendum are the state and federally listed-threatened desert tortoise (*Gopherus agassizii*), the state listed-threatened Mohave ground squirrel (*Spermophilus mohavensis*) and the western burrowing owl (*Athene cunicularia hypugea*). The latter avian species is a CDFG-designated Species of Special Concern protected by both the California Fish and Game Code and the federal Migratory Bird Act. The desert tortoise has also been specifically addressed in the above biological opinion issued for the Project.

Four state and/or federally listed avian species are also known to utilize riparian habitats in portions of the nearby Mojave River: least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and Swainson's hawk (*Buteo swainsoni*). All of the above avian species have been previously addressed in the BA and BA Addendum prepared for the Project. Both the least Bell's vireo and southwestern willow flycatcher have also been specifically addressed in the above biological opinion issued for the Project.

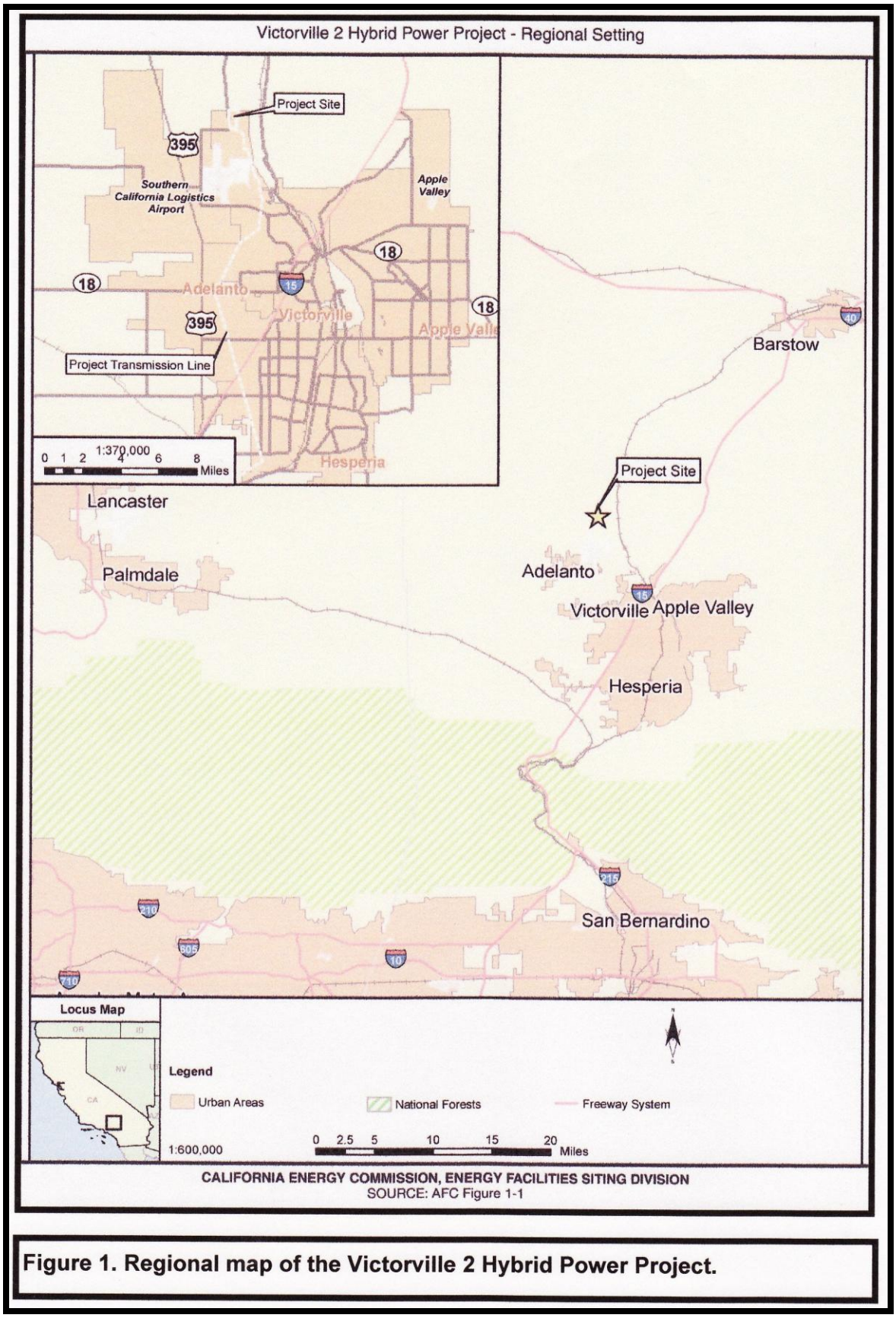


Figure 1. Regional map of the Victorville 2 Hybrid Power Project.

2.0 ENVIRONMENTAL CONSEQUENCES OF THE PROJECT

2.1 Temporary and Permanent Impacts

2.1.1 Analysis of Impacts Due To Salt and Nitrogen Deposition.

Further analyses of the potential for impacts from salts emitted from the Project cooling tower and from nitrogen emitted from the Project combustion equipment, as well as linear utility location relative to drainages, have been added to clarify the analysis provided in the BA and BA addendum previously prepared for the Project.

While small amounts of salts will be present in evaporative mist emitted by the proposed power plant's cooling tower, these salts are unlikely to adversely affect habitat used by the desert tortoise, MGS, burrowing owl, least bell's vireo, southwestern willow flycatcher, Swainson's hawk or western yellow-billed cuckoo over the short or long term. This conclusion is based on the Project's air quality impact assessment finding that only a very small amount of salt (<0.09 $\mu g/m^3$) would potentially reach that portion of the Mojave River situated closest to the Project. A virtually undetectable amount of salt (<0.01 $\mu g/m^3$) from mist drifting from the cooling tower would potentially reach habitat federally designated as critical habitat for the southwestern willow flycatcher.

Even on a long-term basis, only a very small amount of salt from the proposed cooling tower would be deposited within the Mojave River. As the limited and deciduous vegetation occurring in this reach of the Mojave River is known to be adapted to the natural salt deposition/buildup produced by in an arid riparian environment, it can be concluded that this aspect of the Project is unlikely to adversely affect habitat used by the above listed avian species. The FWS (2008) has concurred with this analysis in the Biological Assessment (1-8-07-F-67) issued for the Project. A discussion of the analysis of salts from the cooling tower is contained in Exhibit B.

Project emissions are also expected to contain minute amounts of nitrogen. The combustion turbine generators and other combustion equipment associated with the Project will emit up to 108 tons per year of NOx emissions, due to the combustion of natural gas and diesel fuels. Of these total NOx emissions, 32.9 tons of nitrogen per year would be the maximum amount of nitrogen deposited on soils situated immediately adjacent to the Project site. Desert substrates are generally poor in nitrogen; an increased level of nitrogen could promote the growth and spread of non-native plants, which are generally adapted to a higher level of soil nitrogen than native plants.

While nitrogen deposition may benefit non-native annual grasses occurring in the immediate vicinity of the Project to a small degree, this deposition is not expected to extend very far from the plant's power block (where the combustion sources are located) or substantially benefit non-native plants already growing in the vicinity to the detriment of native plant species. As specified in the BA Addendum, the value of desert tortoise, MGS and burrowing owl habitat in proximity to the Project is not expected to be substantially diminished (Exhibit C).

Similarly, nitrogen emissions anticipated as a result of Project operations are also not expected to influence Mojave River riparian vegetation that could potentially be used by least Bell's vireo, southwestern willow flycatcher, Swainson's hawk and western yellow-billed cuckoo (Exhibit C).

2.1.2 Avoidance of Drainages

The Project's access roads and linear utilities have been designed and/or routed to largely avoid drainages. A few existing road segments within washes would be used to access some transmission line tower and 39 steel pole locations associated with the 115kV transmission line in linear utility feature segment 3. However, no new towers, poles, road spurs/improvements or any additional surface disturbance would be created within drainages occurring in the Project area, as graphically depicted in Exhibit A.

Transmission line alignments located in proximity to drainages have been designed to span streambeds. Horizontal drilling, with pipeline placement beneath streambeds, is to be used in the few instances where pipelines would cross drainages. Therefore, as described in the BA (AMEC 2007) and BA Addendum (AMEC 2008), no streambeds or any drainage feature would be affected by the Project.

2.1.3 Avoidance of Impacts to Avian Species in the Mojave River

While detectable impacts to riparian vegetation in the Mojave River as a result of the Project are not anticipated, there is potentially suitable avian nesting (and roosting) habitat within the Mojave River situated east of the potable and reclaimed water pipeline alignments (Exhibit A).

The closest pipeline (reclaimed water) surface disturbance would be situated at a distance of 70 feet from the entrenched river corridor. Portions of surface disturbance work associated with the potable water pipeline to be located along Perimeter Road, would be situated at a similar, but greater, distance (150 feet plus) from the entrenched river corridor.

Although no listed avian species has been reported as nesting or roosting in this proximal portion of the Mojave River, a nesting season avoidance measure has been incorporated into Project mitigation (AMEC 2007). Accordingly, all Project activities are scheduled to avoid the avian nesting season (February 15 through August 31).

Outside of this potential nesting season, qualified biological monitors are to be onsite in Project areas proximal to the Mojave River to ensure linear utility feature installation does not impact any migrating special status species which may be disturbed by construction activities (AMEC 2007).

Consequently, the Project is not anticipated to affect potential nesting or roosting by riparian-plant community bird species (i.e., least Bell's vireo, southwestern willow flycatcher, etc.).

2.1.4 Project Impact Acreage

In addition to the power plant, two primary staging areas and pipeline impact acreage, the Project involves surface disturbance acreage associated with the creation of new spur roads to a number of 230 kV transmission line tower sites, transmission tower and pole installation areas, minor road improvements outside of drainages, as well as line-pulling areas in primarily previously disturbed areas to install transmission lines (AMEC 2007, 2008).

The updated entirety of this Project impact, as outlined in Tables 1 to 3 of the BA Addendum (AMEC 2008), will result in the temporary and permanent loss of 438.5 acres of suitable habitat for the desert tortoise. As additionally described in the BA (AMEC 2007) and BA Addendum (AMEC 2008), MGS presence has been assumed for the entire Project area. Consequently, the temporary and permanent loss of 438.5 acres of suitable desert tortoise habitat also represents the temporary and permanent loss of 438.5 acres of suitable habitat for the MGS, as suitable habitat in the region for these two species is similar.

2.2 Cumulative Impacts

Cumulative impacts for the Project have been assessed in the previously-prepared BA (AMEC 2007) and BA Addendum (AMEC 2008).

3.0 IMPACT MINIMIZATION AND MITIGATION

Measures designed to minimize and/or mitigate impacts have been previously identified in the BA (AMEC 2007) and BA Addendum (AMEC 2008). These measures have been fully incorporated into the Project. This includes desert tortoise handling specifications outlined in the "*Victorville 2 Hybrid Power Project Desert Tortoise (Gopherus agassizii) Translocation Plan*" (AMEC 2008), attached as Exhibit D of this BA Second Addendum.

4.0 CONCLUSION

This BA Second Addendum has incorporated additional analysis and support documents (Exhibits A-D) in response to CDFG comments on the previously prepared BA (AMEC 2007) and BA Addendum (AMEC 2008) for the Victorville 2 Hybrid Power Project.

5.0 LITERATURE CITED AND REFERENCES

AMEC Earth & Environmental, Inc. (AMEC). 2007. Victorville 2 Hybrid Power Project Biological Assessment. Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

AMEC Earth & Environmental, Inc. (AMEC). 2008. Victorville 2 Hybrid Power Project Biological Assessment Addendum. Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

AMEC Earth & Environmental, Inc. (AMEC). 2008. Victorville 2 Hybrid Power Project Desert Tortoise (*Gopherus agassizii*) Translocation Plan. Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

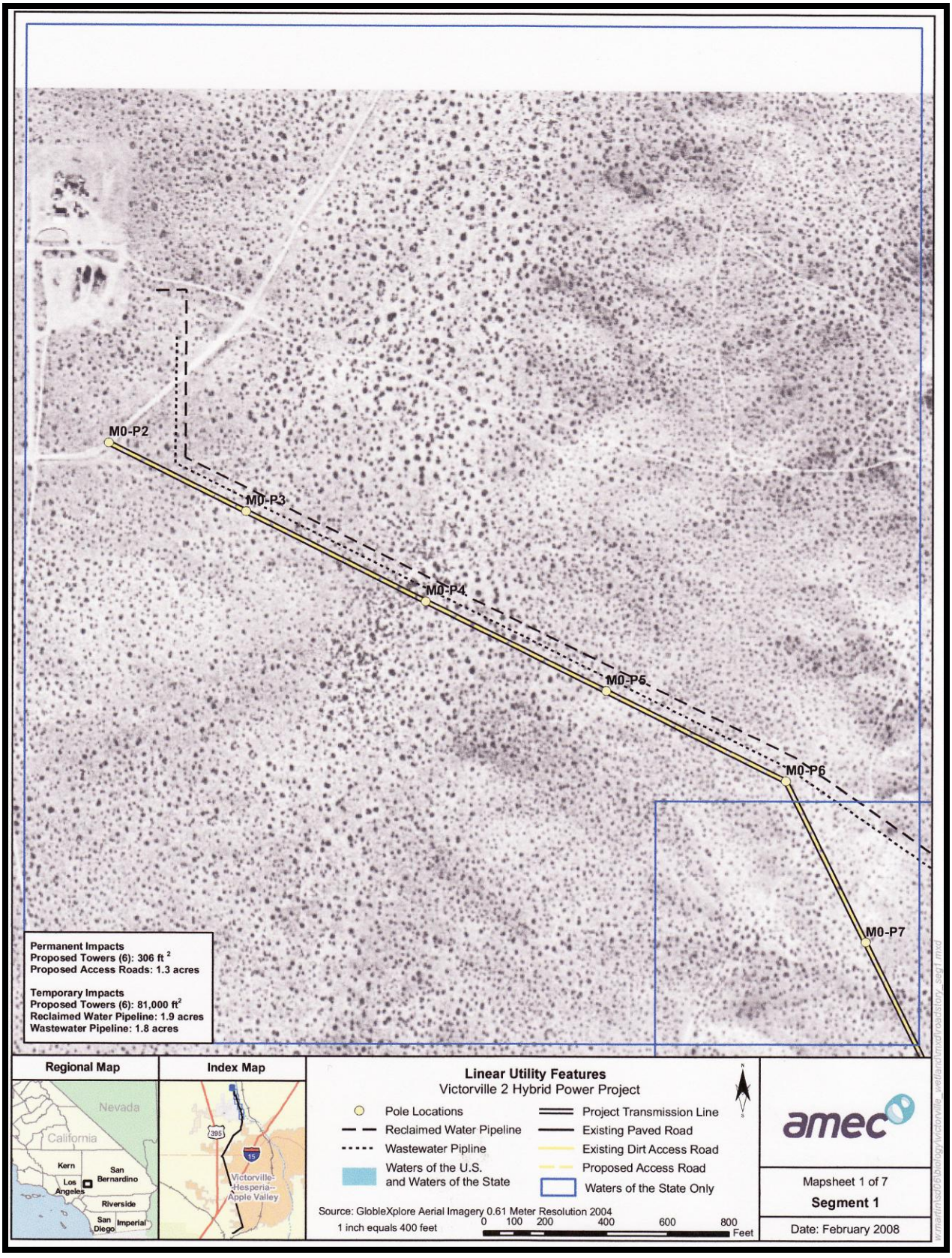
U.S. Fish and Wildlife Service (FWS). 2008. Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California (1-8-07-F-67). Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

EXHIBIT A

Victorville 2 Hybrid Power Project
Linear Utility Segment Maps

Exhibit A1.

Victorville 2 Hybrid Power Project
Linear Utility Segment 1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M0-P3
M0-P4
M0-P5
M0-P6
M0-P7
Permanent Impacts
Proposed Towers (6): 306 ft 2
Proposed Access Roads: 1.3 acres
Temporary Impacts
Proposed Towers (6): 81,000 ft2
Reclaimed Water Pipeline: 1.9 acres
Wastewater Pipeline: 1.8 acres
Regional Map
Nevada
California
Kern
San Bernardino
Los Angeles
Riverside
San Diego
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Index Map
395
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Victorville-Hesperia-Apple Valley
Linear Utility Features
Victorville 2 Hybrid Power Project
Pole Locations
Reclaimed Water Pipeline
Wastewater Pipline
Waters of the U.S. and Waters of the State
Project Transmission Line
Existing Paved Road
Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
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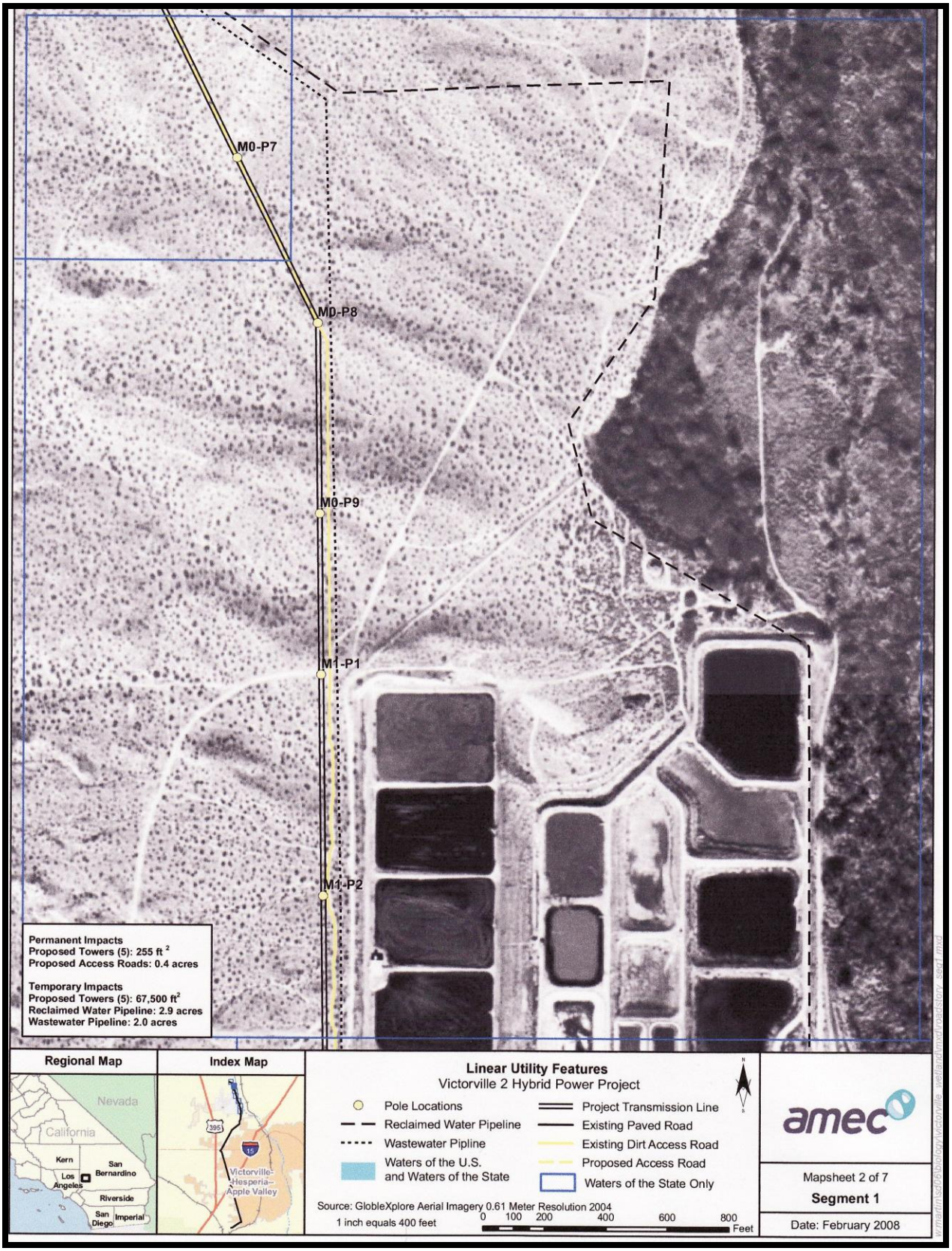
Feet
Mapsheet 1 of 7
Segment 1
Date: February 2008


M0-P7
M0-P8
M0-P9
M1-P1
M1-P2
Permanent Impacts
Proposed Towers (5): 255 ft 2
Proposed Access Roads: 0.4 acres
Temporary Impacts
Proposed Towers (5): 67,500 ft2
Reclaimed Water Pipeline: 2.9 acres
Wastewater Pipeline: 2.0 acres
Regional Map
Nevada
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Existing Paved Road
Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
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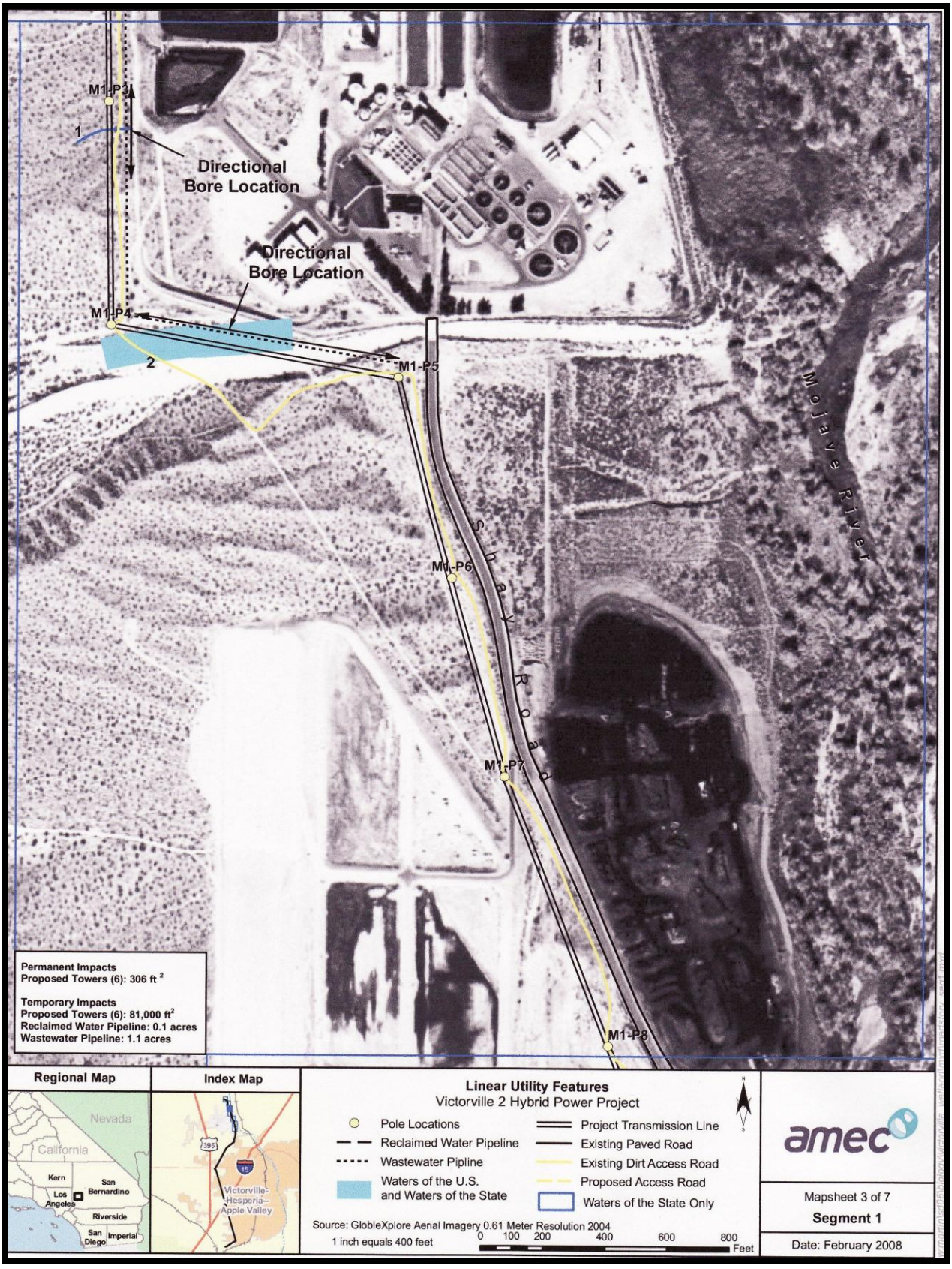
Date: February 2008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Directional
Bore Location
Directional
Bore Location
M1-P4
2
M1-P5
M1-P6
M1-P7
M1-P8
Shay Road
Mojave River
Permanent Impacts
Proposed Towers (6): 306 ft 2
Temporary Impacts
Proposed Towers (6): 81,000 ft2
Reclaimed Water Pipeline: 0.1 acres
Wastewater Pipeline: 1.1 acres
Regional Map
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Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
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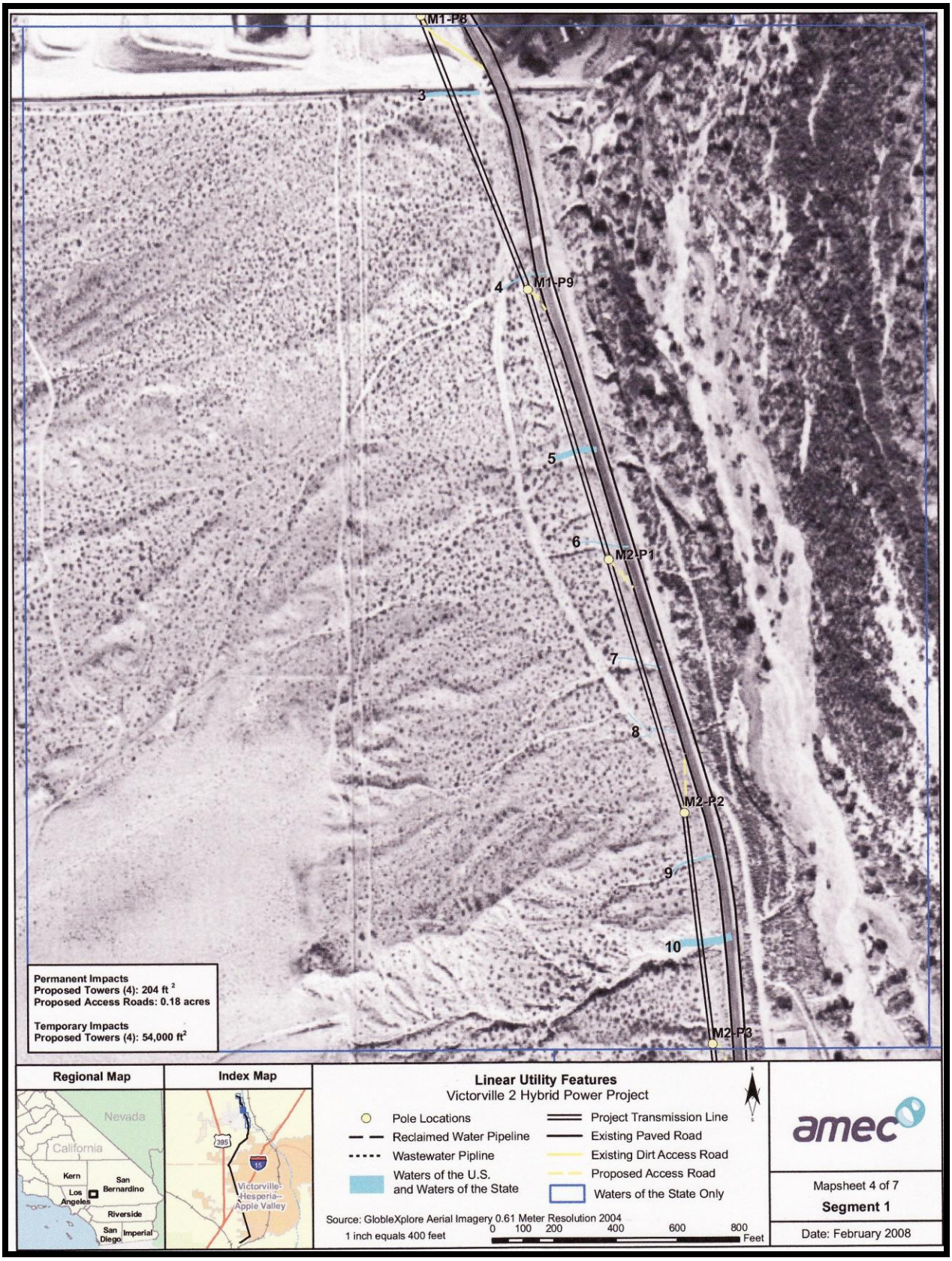
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M1-P9
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M2-P1
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M2-P2
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10
M2-P3
Permanent Impacts
Proposed Towers (4): 204 ft 2
Proposed Access Roads: 0.18 acres
Temporary Impacts
Proposed Towers (4): 54,000 ft2
Regional Map
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Mapsheet 4 of 7
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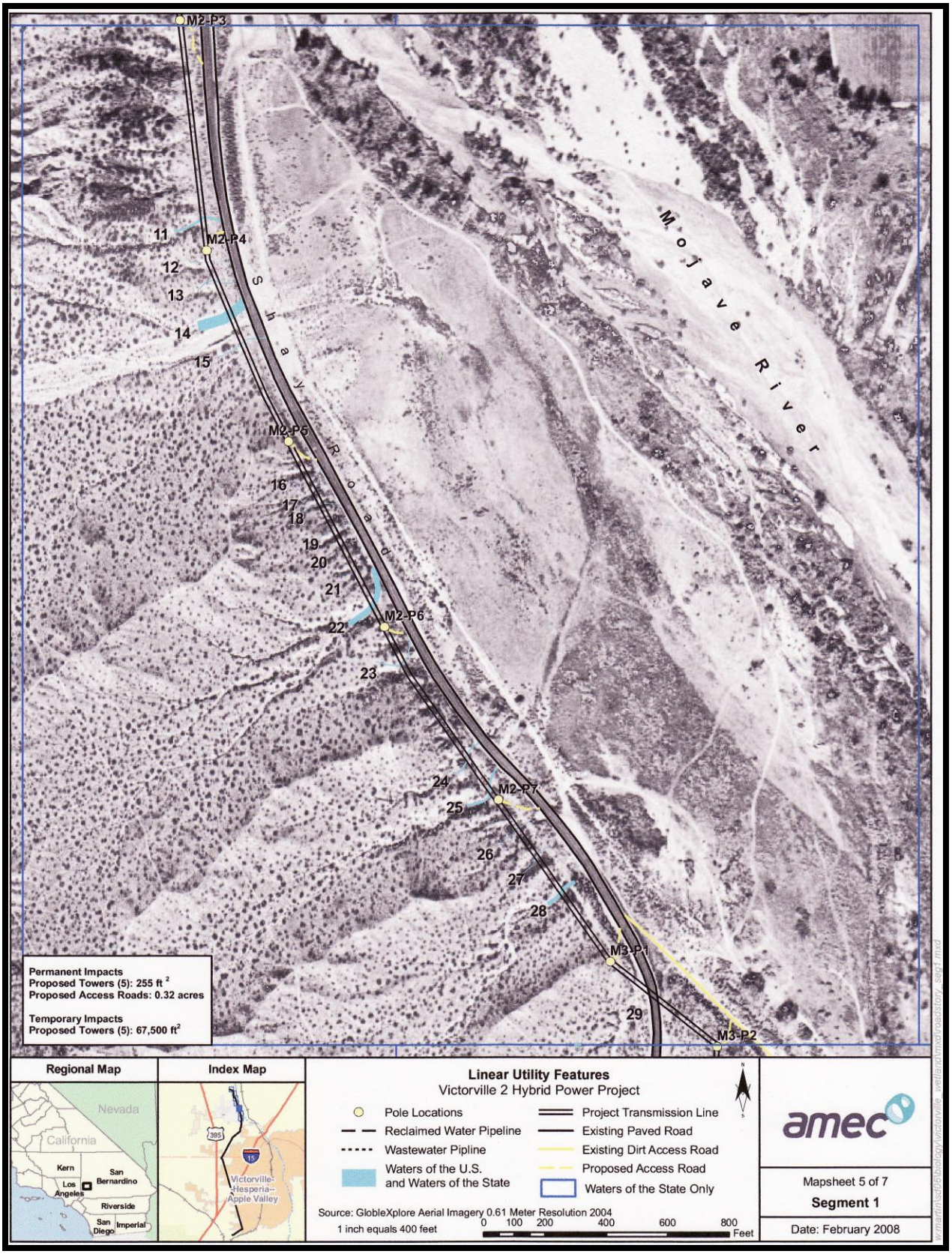
Date: February 2008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S h a y R o a d
M o j a v e R i v e r
Permanent Impacts
Proposed Towers (5): 255 ft 2
Proposed Access Roads: 0.32 acres
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Proposed Towers (5): 67,500 ft2
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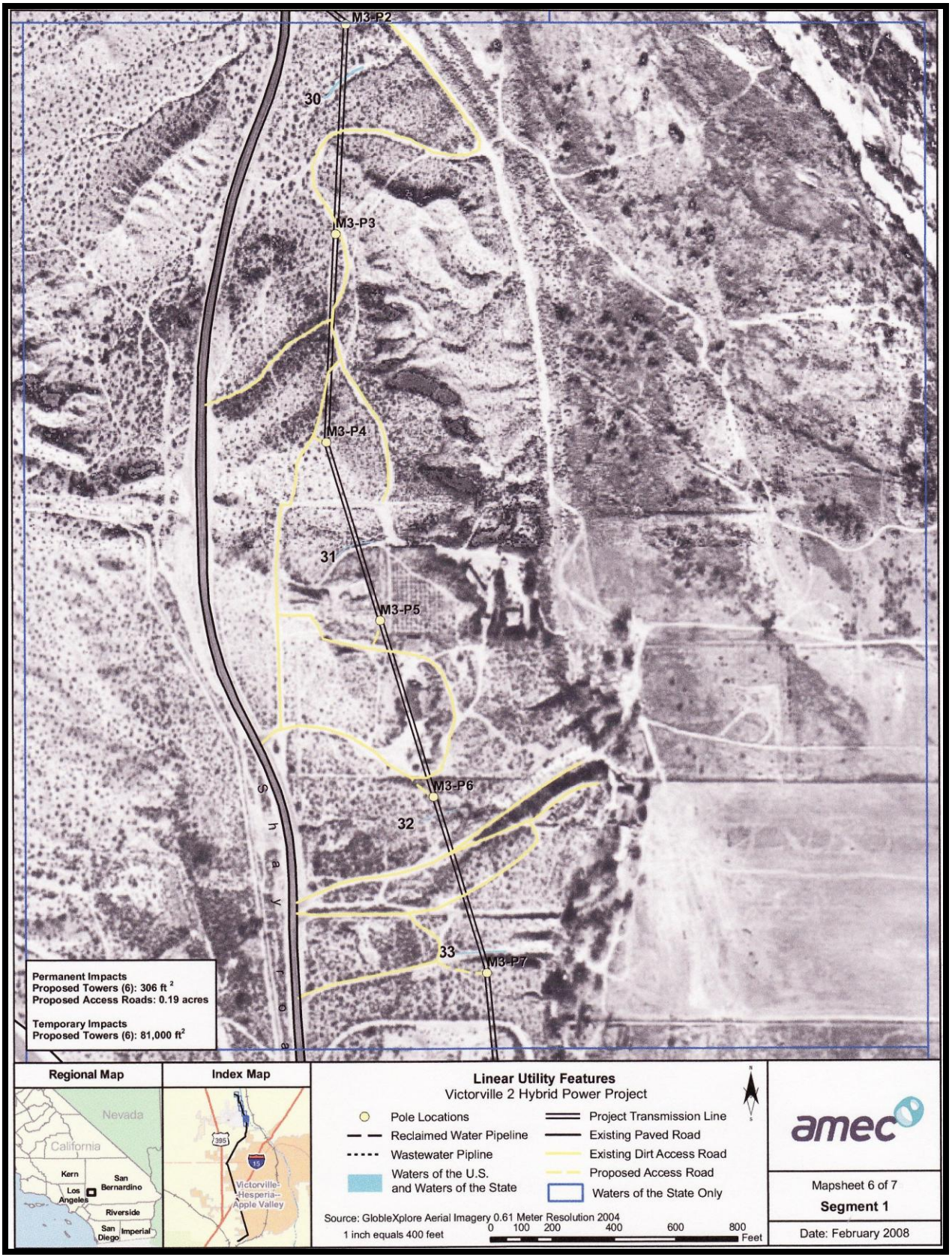
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M3-P7
Shay Trona
Permanent Impacts
Proposed Towers (6): 306 ft 2
Proposed Access Roads: 0.19 acres
Temporary Impacts
Proposed Towers (6): 81,000 ft2
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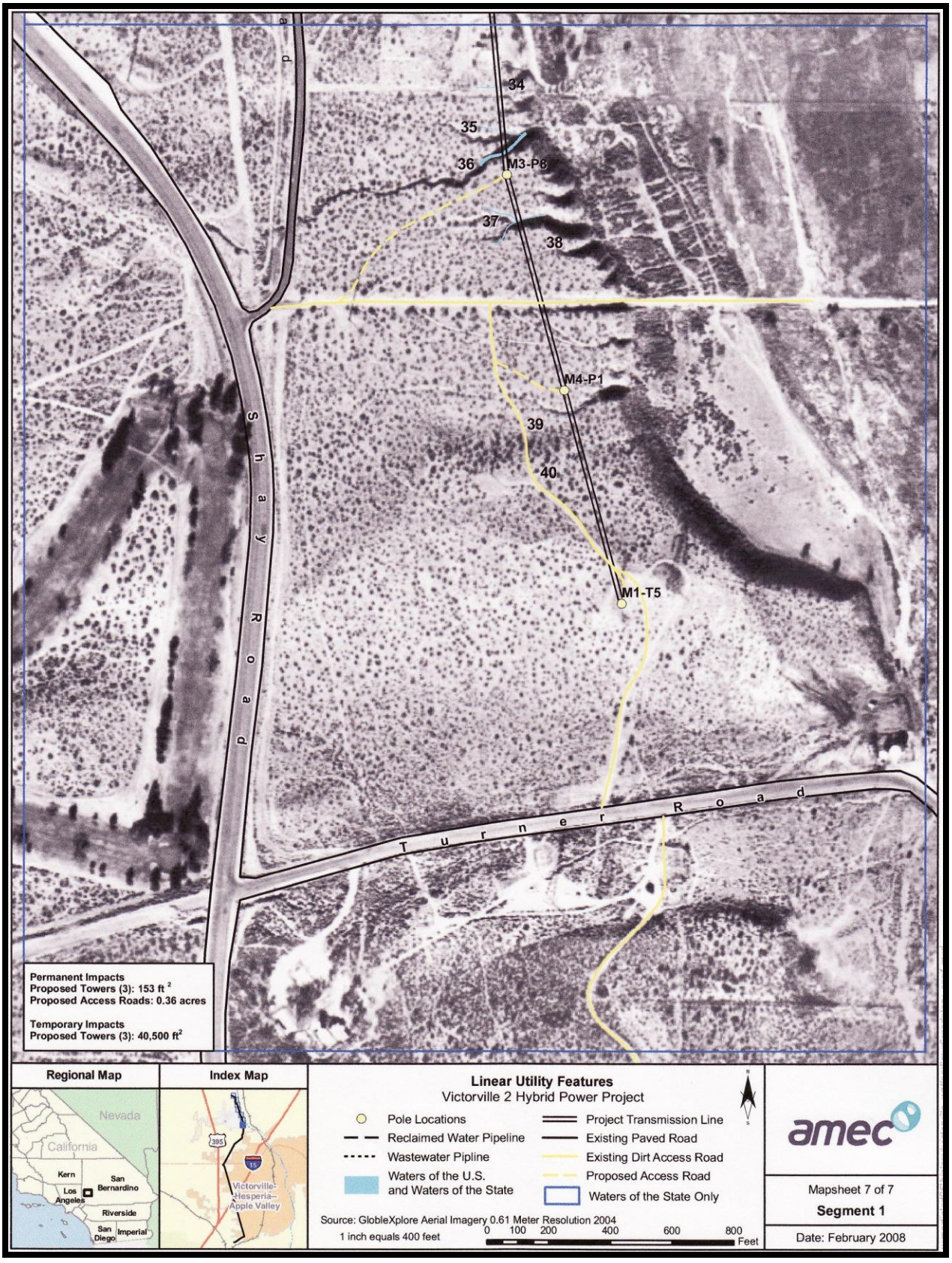
Date: February 2008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37
38
M4-P1
39
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M1-T5
Shay Road
Turner Road
Permanent Impacts
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Proposed Access Roads: 0.36 acres
Temporary Impacts
Proposed Towers (3): 40,500 ft2
Regional Map
Nevada
California
Kern
San Bernardino
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Riverside
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Proposed Access Road
Waters of the State Only
Source: GlobleXplore Aerial Imagery 0.61 Meter Resolution 2004
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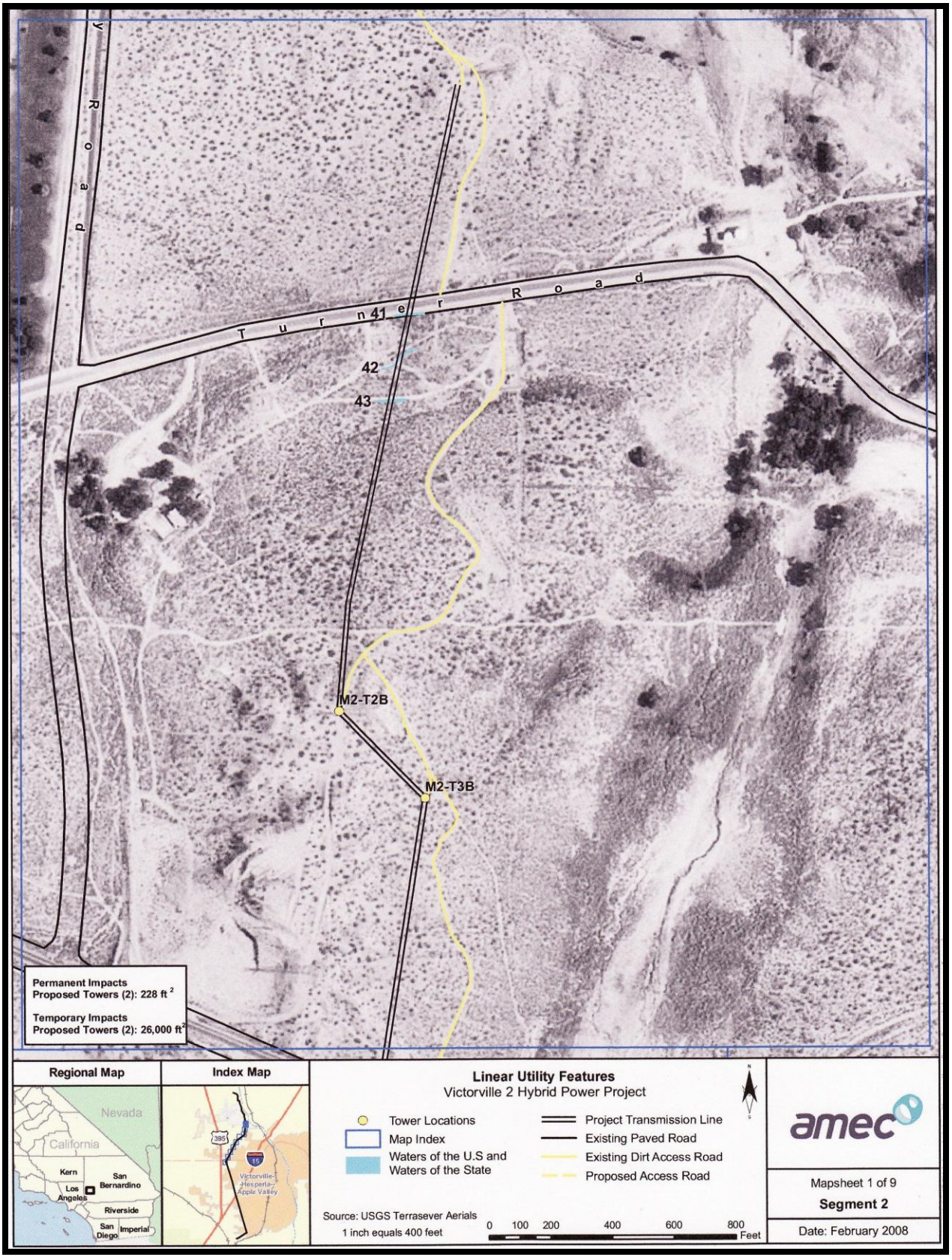
Mapsheet 7 of 7
Segment 1
Date: February 2008

Exhibit A2.

Victorville 2 Hybrid Power Project
Linear Utility Segment 2


y
R o a d
T u r n e r R o a d
41
42
43
M2-T2B
M2-T3B
Permanent Impacts
Proposed Towers (2): 228 ft 2
Temporary Impacts
Proposed Towers (2): 26,000 ft2
Regional Map
Nevada
California
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Existing Dirt Access Road
Proposed Access Road
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Segment 2
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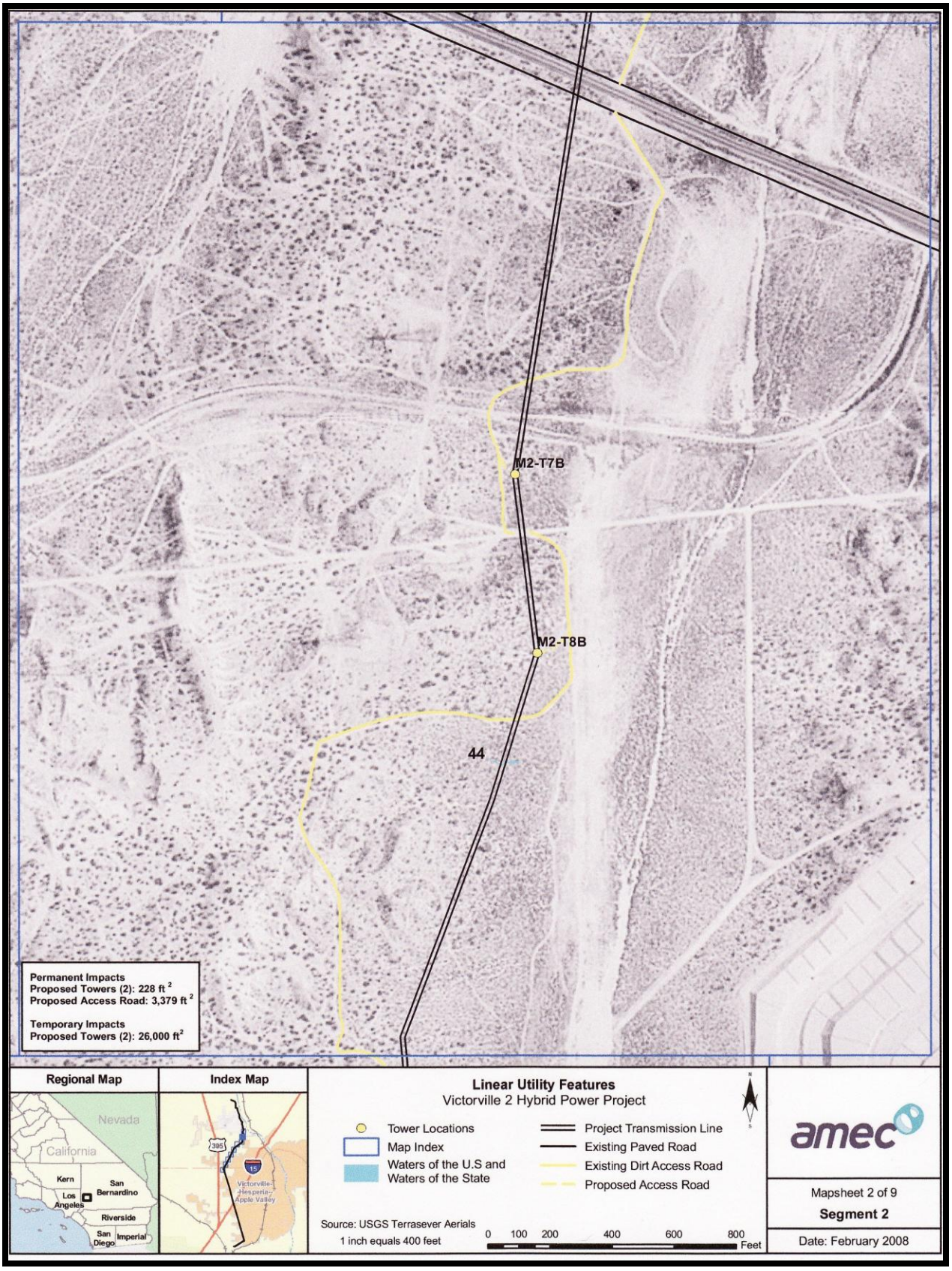
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M2-T8B
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Permanent Impacts
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Proposed Access Road: 3,379 ft 2
Temporary Impacts
Proposed Towers (2): 26,000 ft2
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Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
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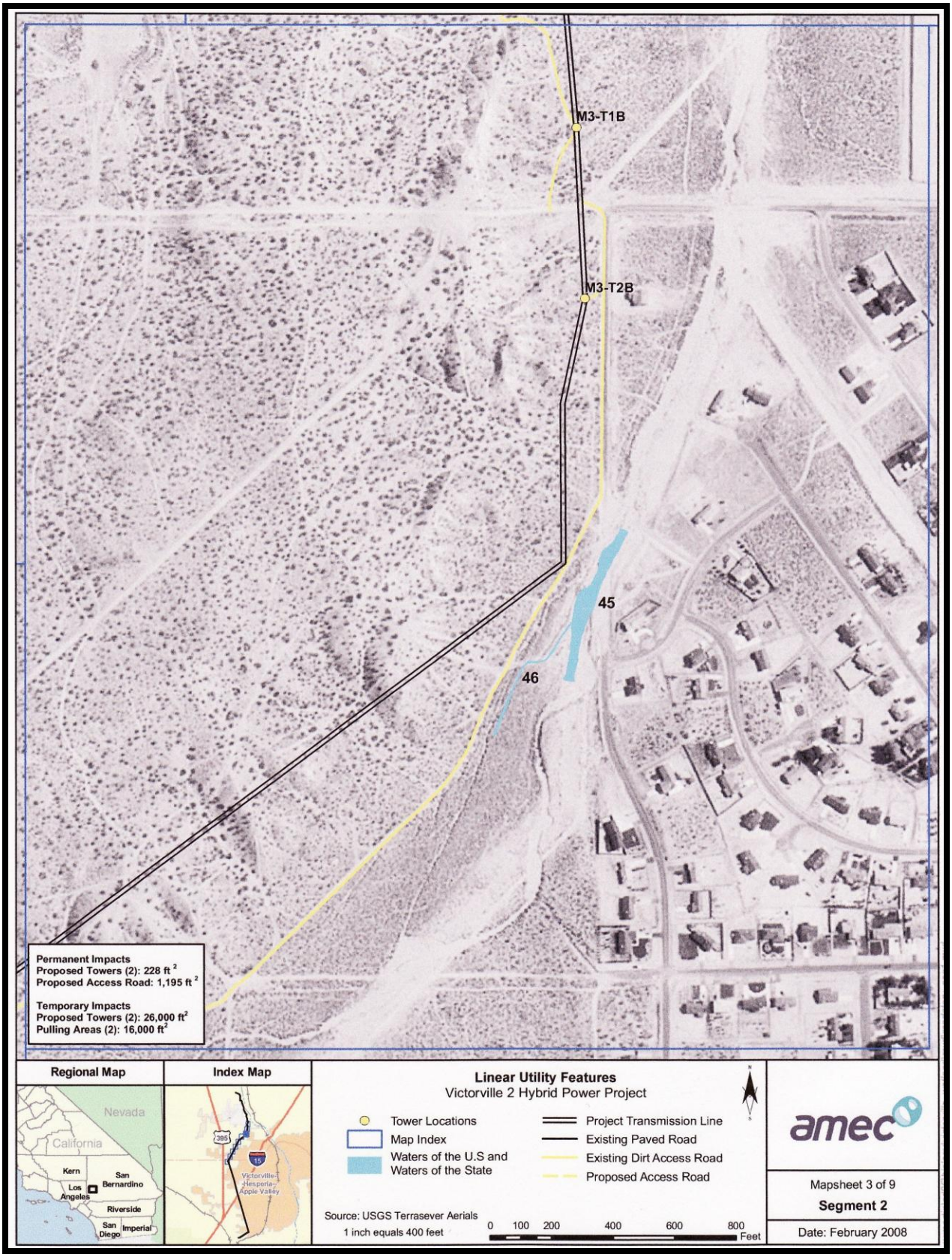
0 100 200 400 600 800 Feet
Mapsheet 2 of 9
Segment 2
Date: February 2008


M3-T1B
M3-T2B
45
46
Permanent Impacts
Proposed Towers (2): 228 ft 2
Proposed Access Road: 1,195 ft 2
Temporary Impacts
Proposed Towers (2): 26,000 ft2
Pulling Areas (2): 16,000 ft2
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Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
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Feet
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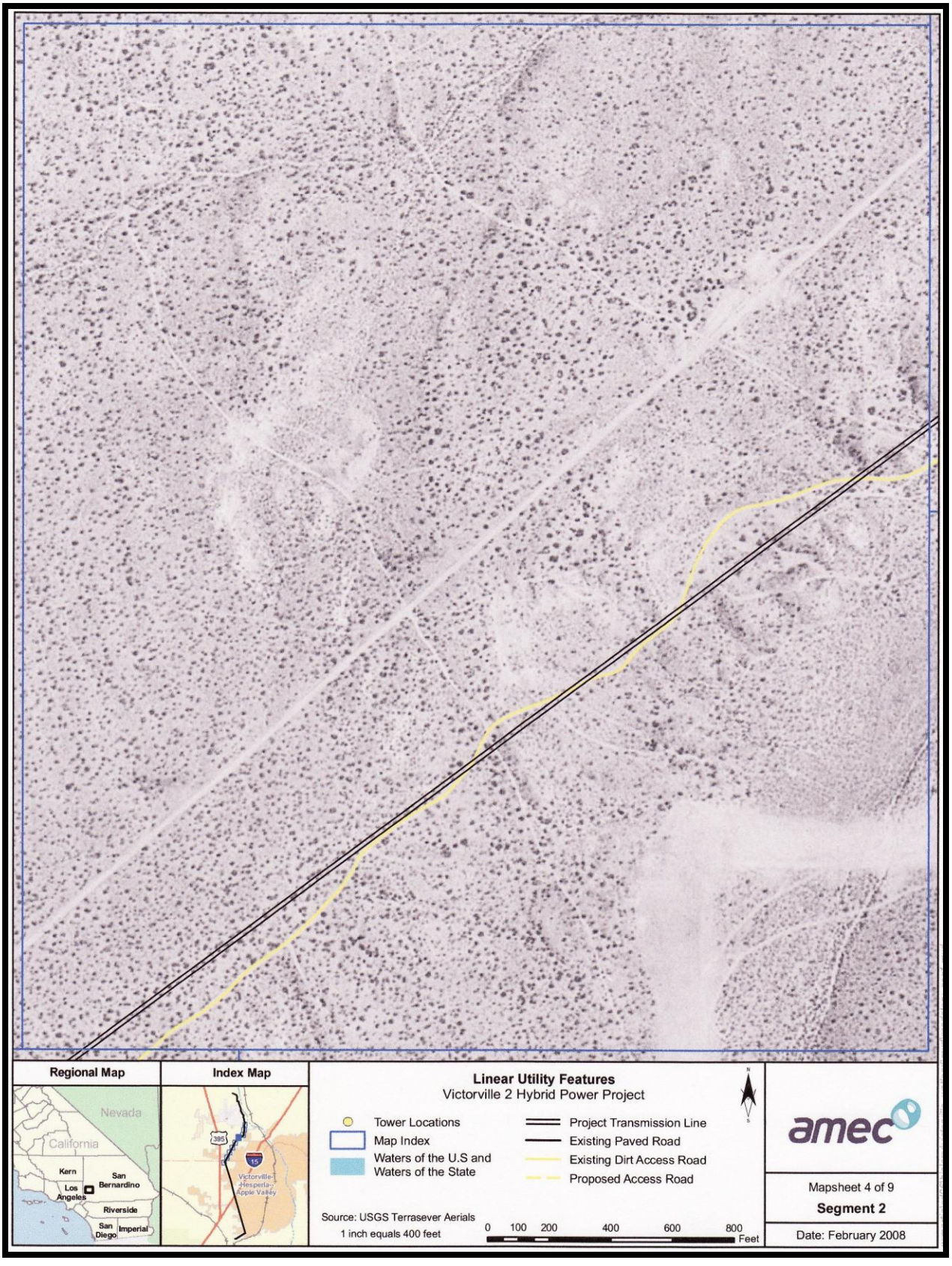
Date: February 2008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Proposed Access Road
Source: USGS Terrasever Aerials
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Feet
Mapsheet 4 of 9
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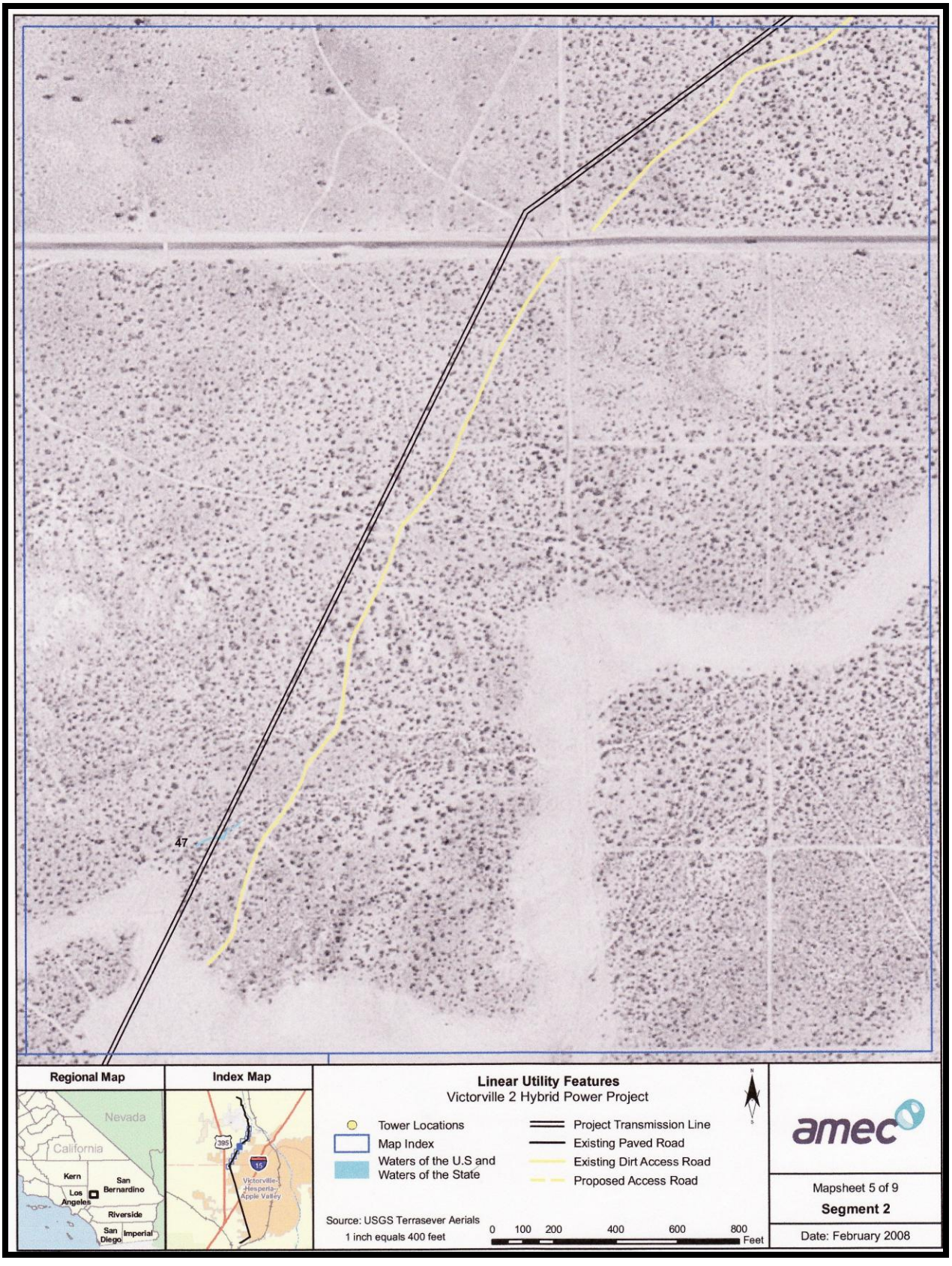
Date: February 2008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Proposed Access Road
Source: USGS Terrasever Aerials
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Mapsheet 5 of 9
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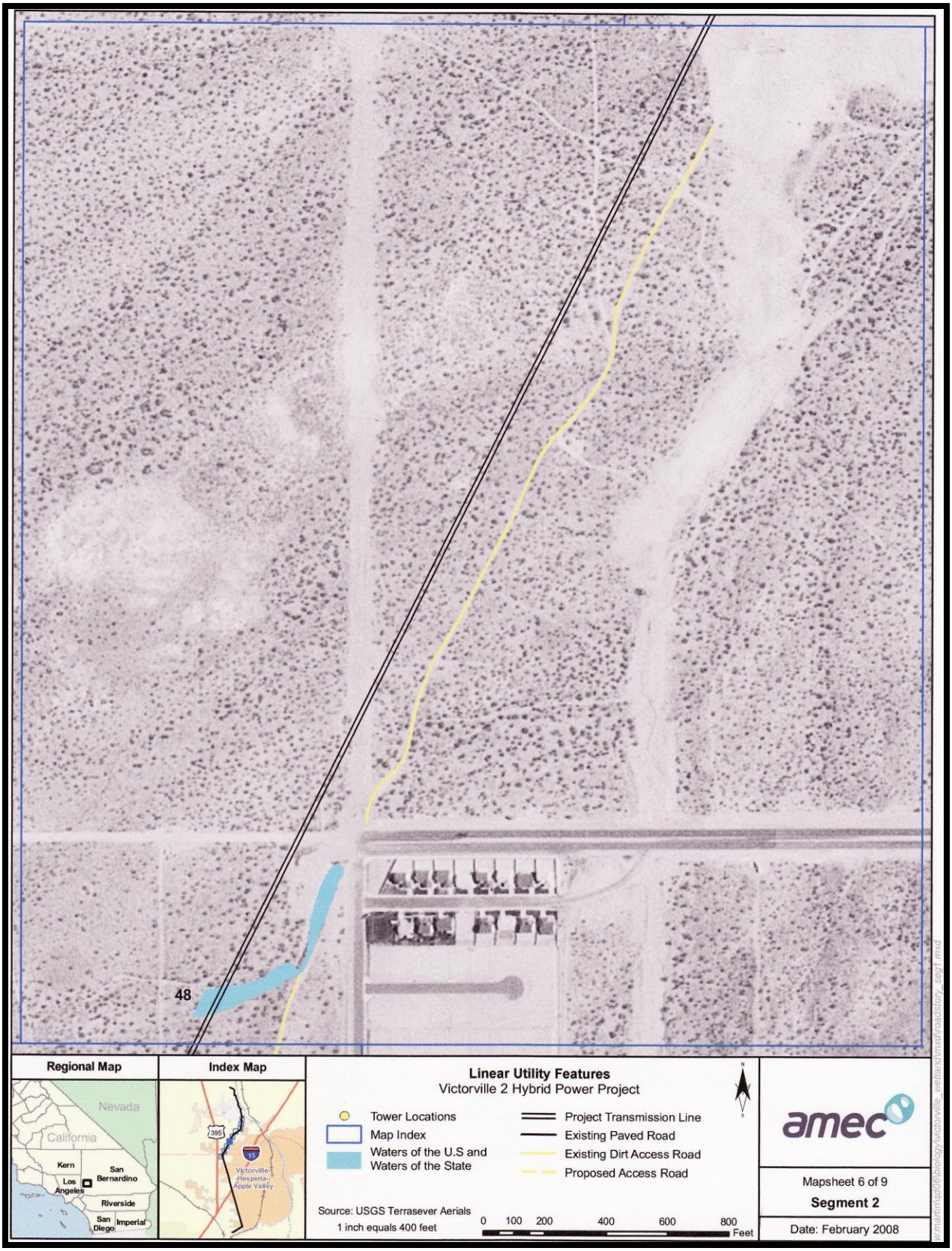
Date: February 2008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Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
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Mapsheet 6 of 9
Segment 2
Date: February 2008
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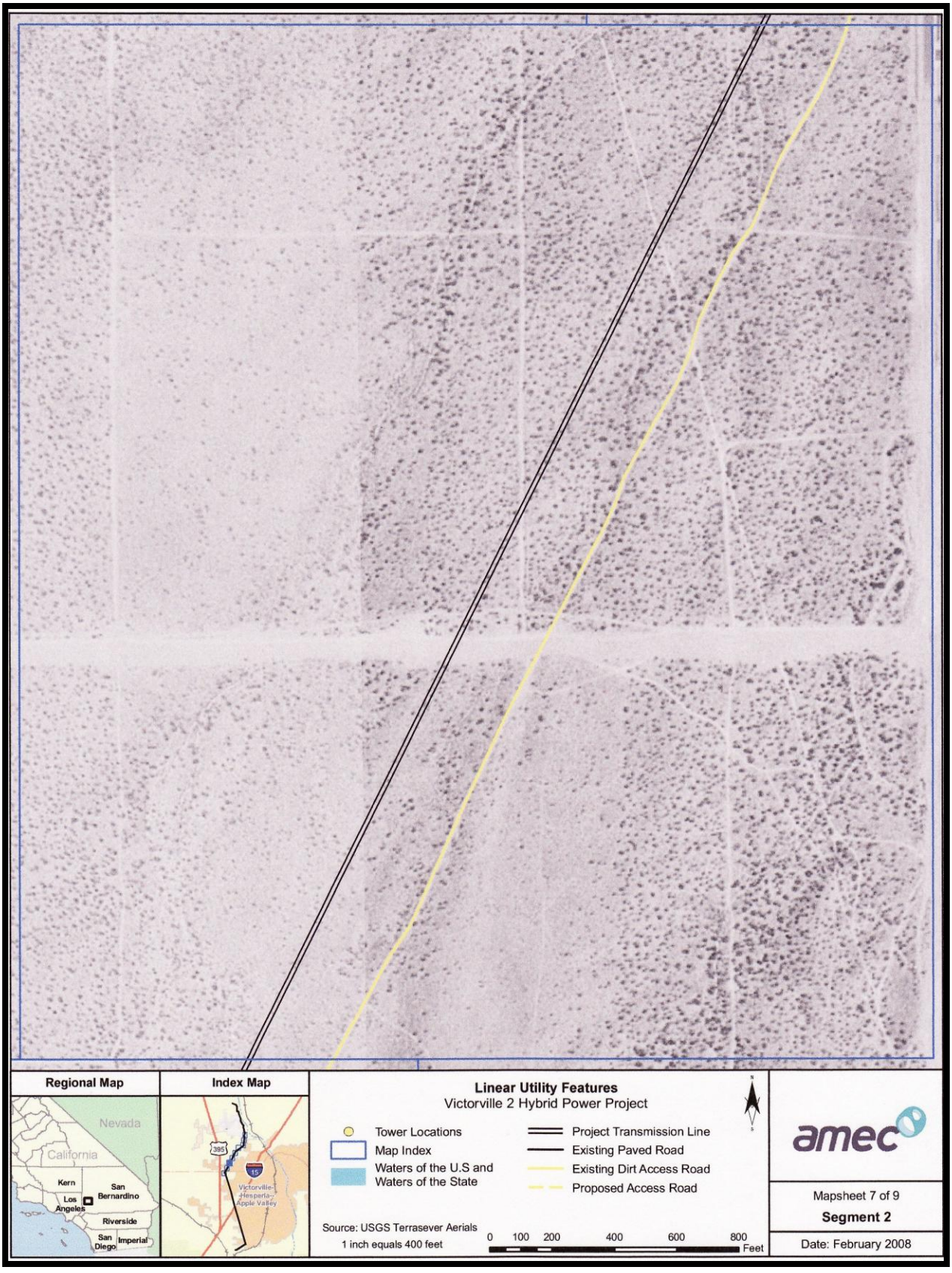
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Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
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Feet
Mapsheet 7 of 9
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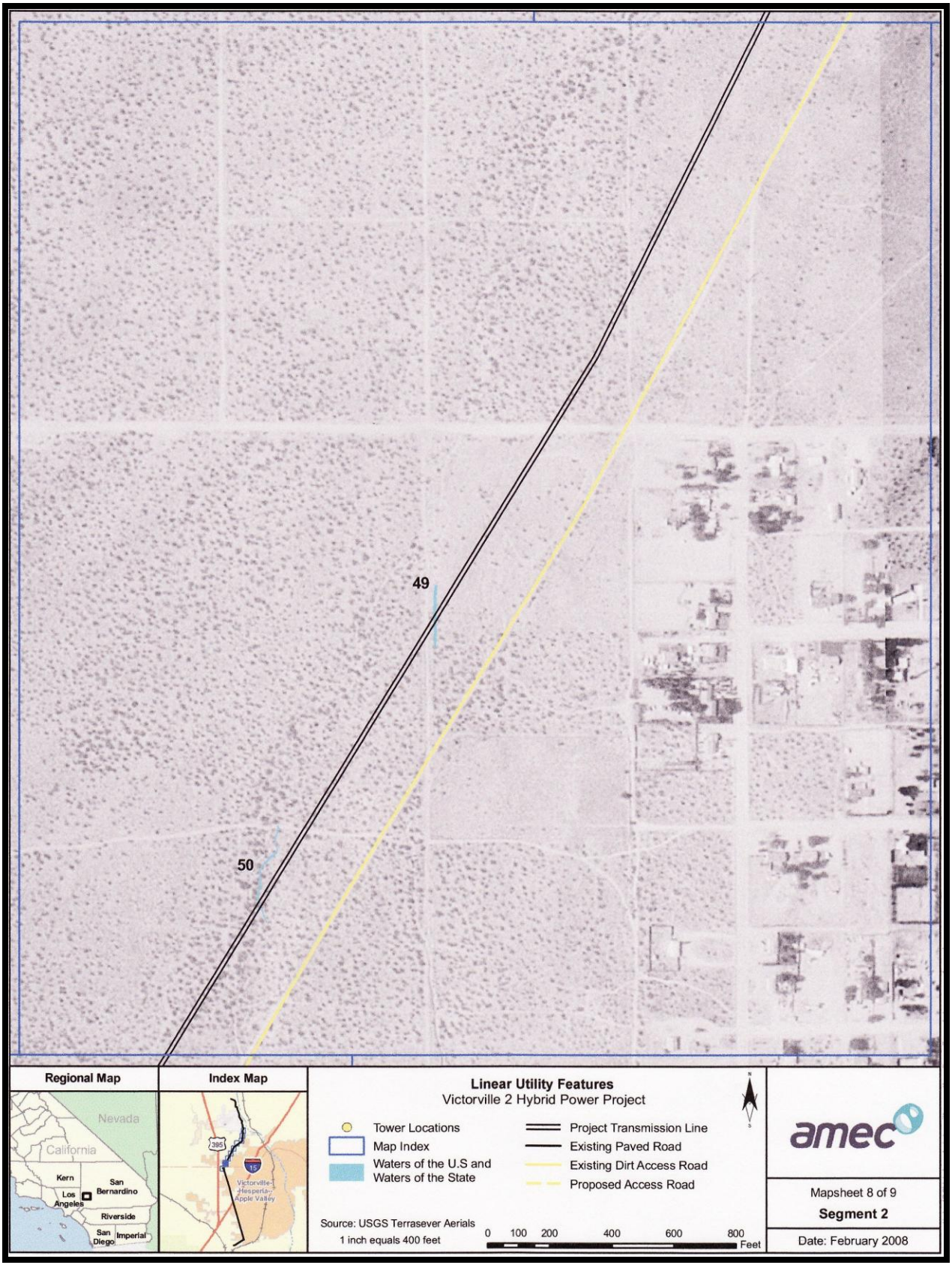
Date: February 2008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Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800
Feet
Mapsheet 8 of 9
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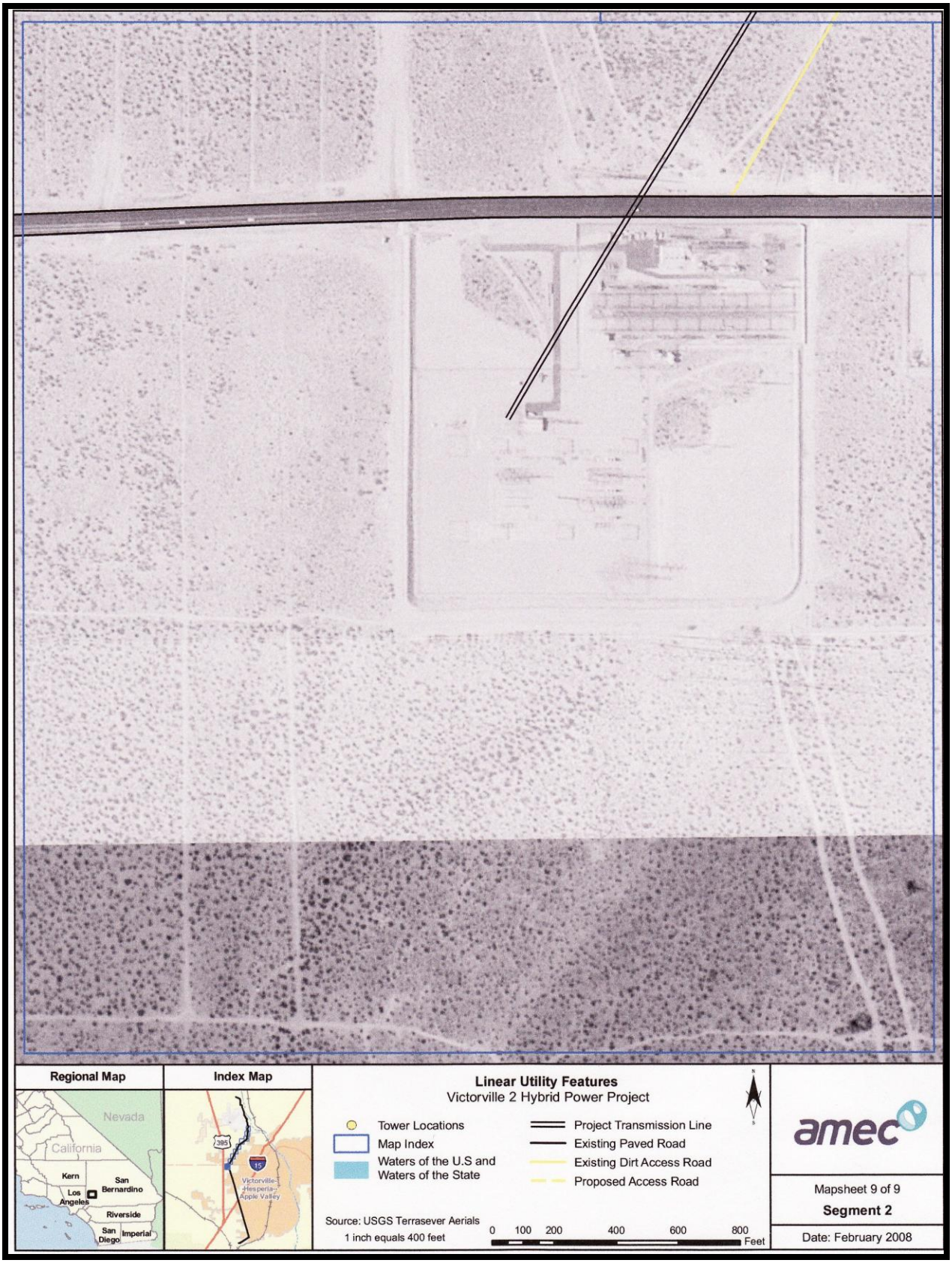
Date: February 2008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Proposed Access Road
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1 inch equals 400 feet
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Feet
amec
Mapsheet 9 of 9
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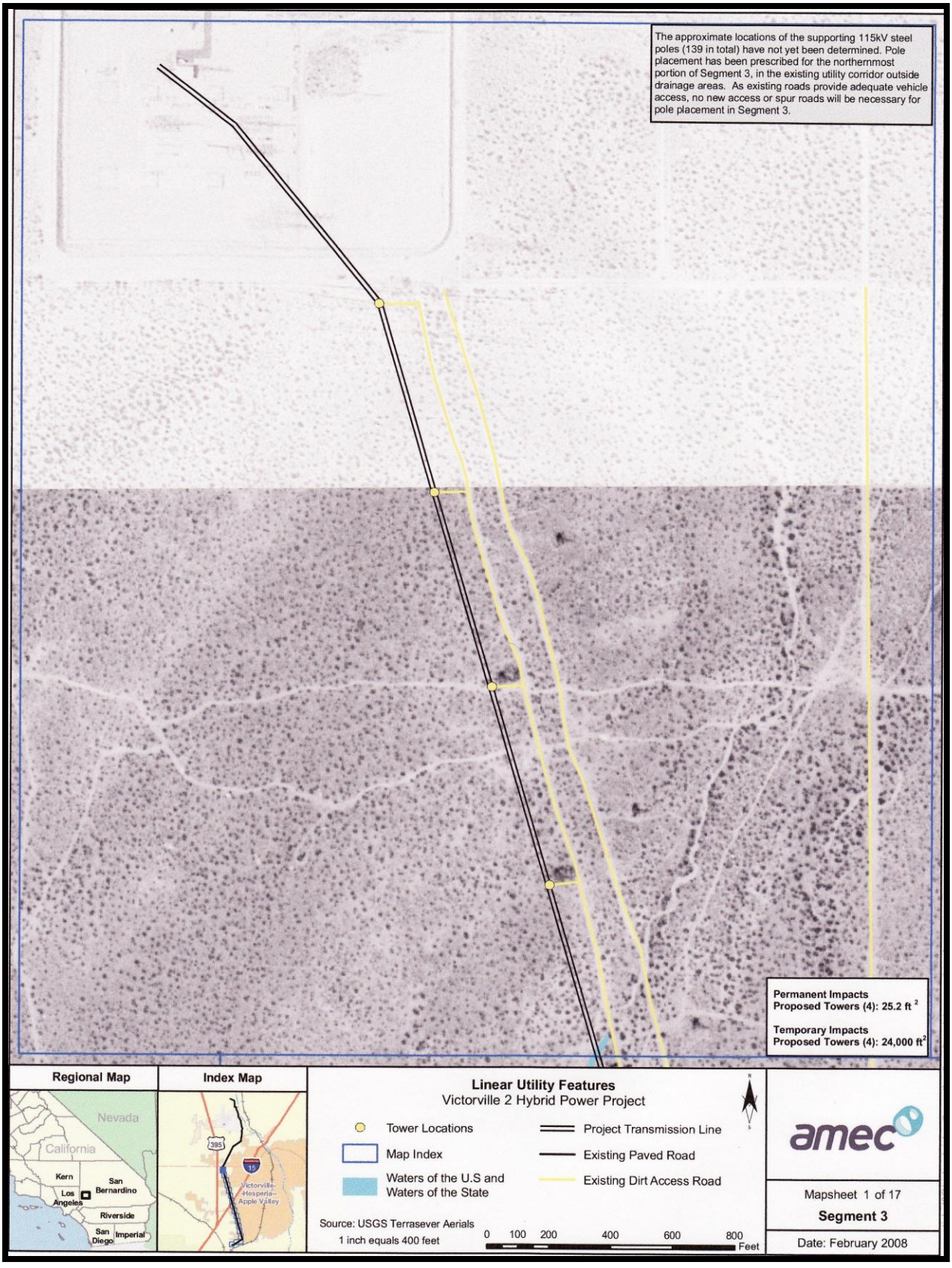
Date: February 2008

Exhibit A3a.

Victorville 2 Hybrid Power Project
Linear Utility Segment 3


The approximate locations of the supporting 115kV steel poles (139 in total) have not yet been determined. Pole placement has been prescribed for the northernmost portion of Segment 3, in the existing utility corridor outside drainage areas. As existing roads provide adequate vehicle access, no new access or spur roads will be necessary for pole placement in Segment 3.
Permanent Impacts
Proposed Towers (4): 25.2 ft 2
Temporary Impacts
Proposed Towers (4): 24,000 ft2
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Kern
San Bernardino
Los Angeles
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San Diego
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Tower Locations
Map Index
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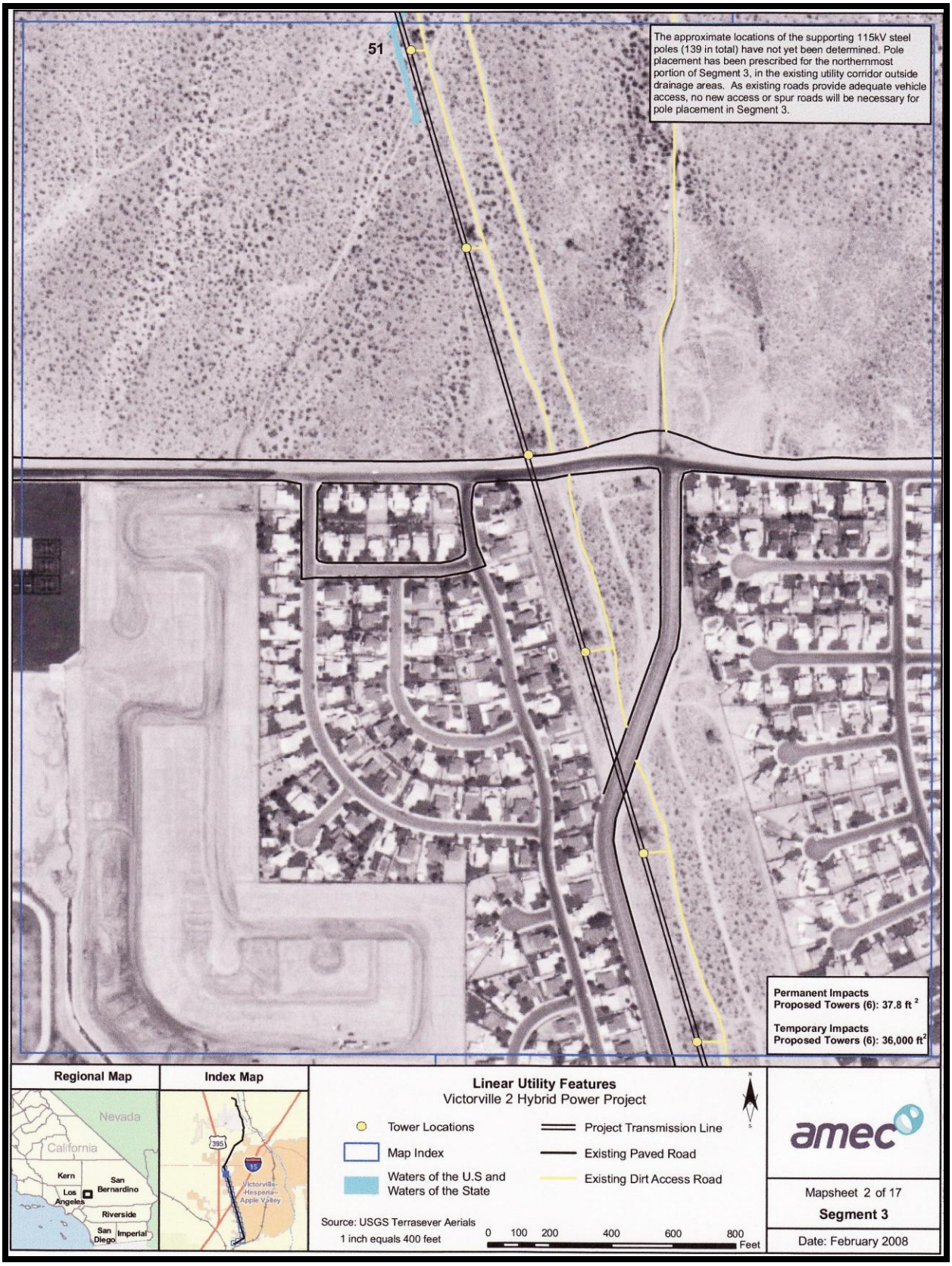
Existing Dirt Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800 Feet
Mapsheet 1 of 17
Segment 3
Date: February 2008


51
The approximate locations of the supporting 115kV steel poles (139 in total) have not yet been determined. Pole placement has been prescribed for the northernmost portion of Segment 3, in the existing utility corridor outside drainage areas. As existing roads provide adequate vehicle access, no new access or spur roads will be necessary for pole placement in Segment 3.
Permanent Impacts
Proposed Towers (6): 37.8 ft 2
Temporary Impacts
Proposed Towers (6): 36,000 ft2
Regional Map
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San Bernardino
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Existing Paved Road
Existing Dirt Access Road
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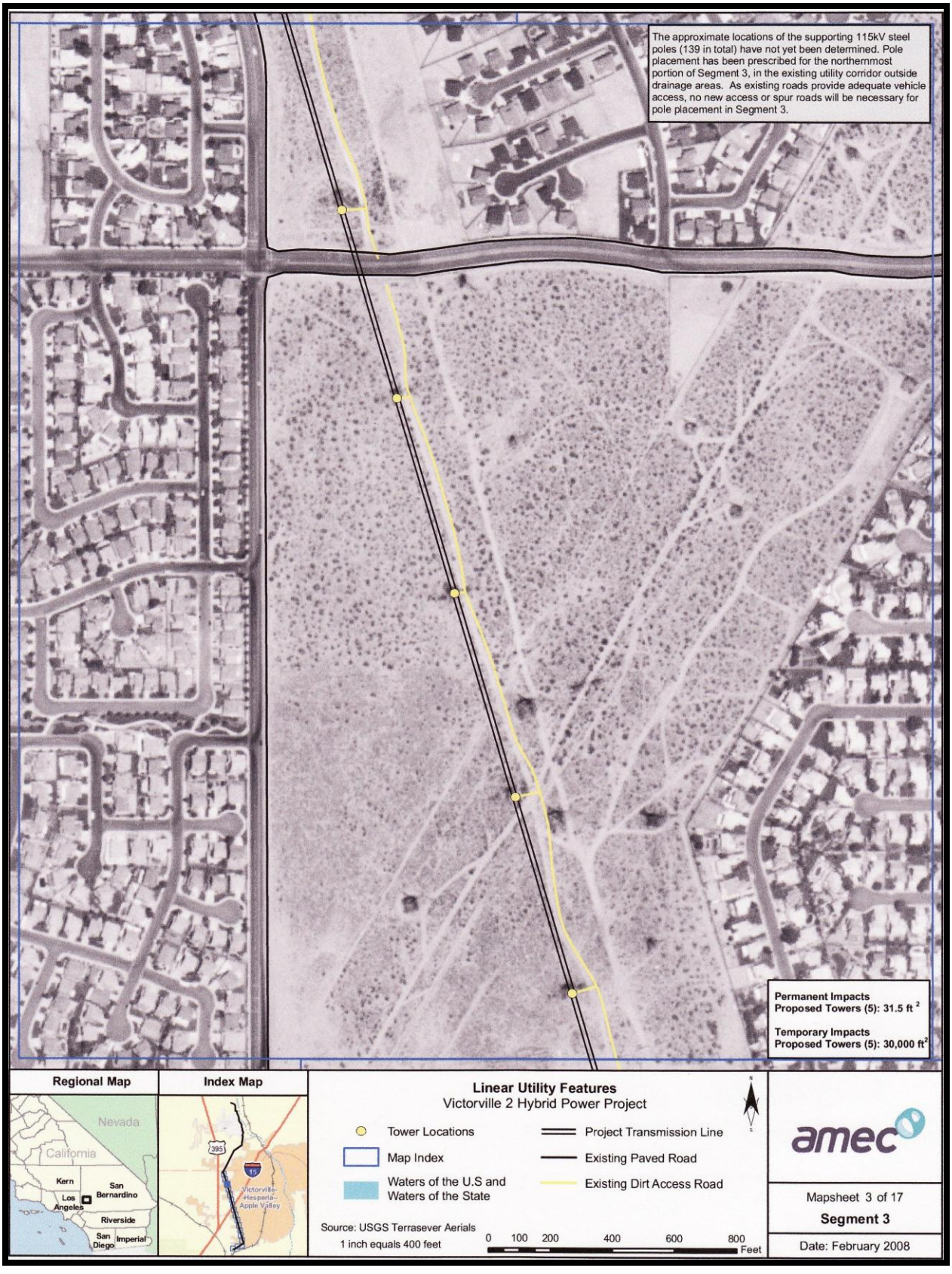
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800
Feet
amec
Mapsheet 2 of 17
Segment 3
Date: February 2008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Permanent Impacts
Proposed Towers (5): 31.5 ft 2
Temporary Impacts
Proposed Towers (5): 30,000 ft2
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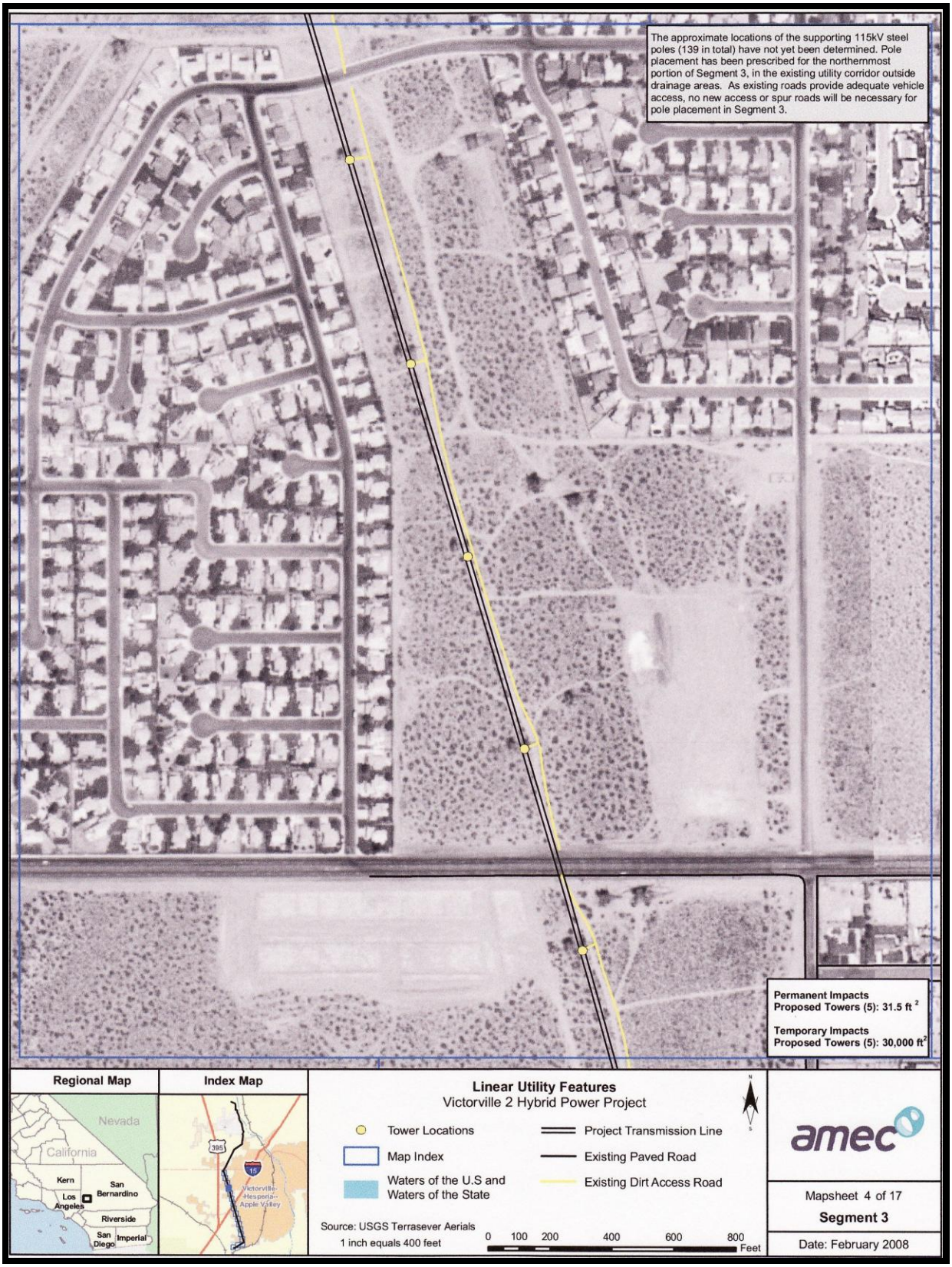
Existing Dirt Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800
Feet
Mapsheet 3 of 17
Segment 3
Date: February 2008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Permanent Impacts
Proposed Towers (5): 31.5 ft 2
Temporary Impacts
Proposed Towers (5): 30,000 ft2
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Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800
Feet
Mapsheet 4 of 17
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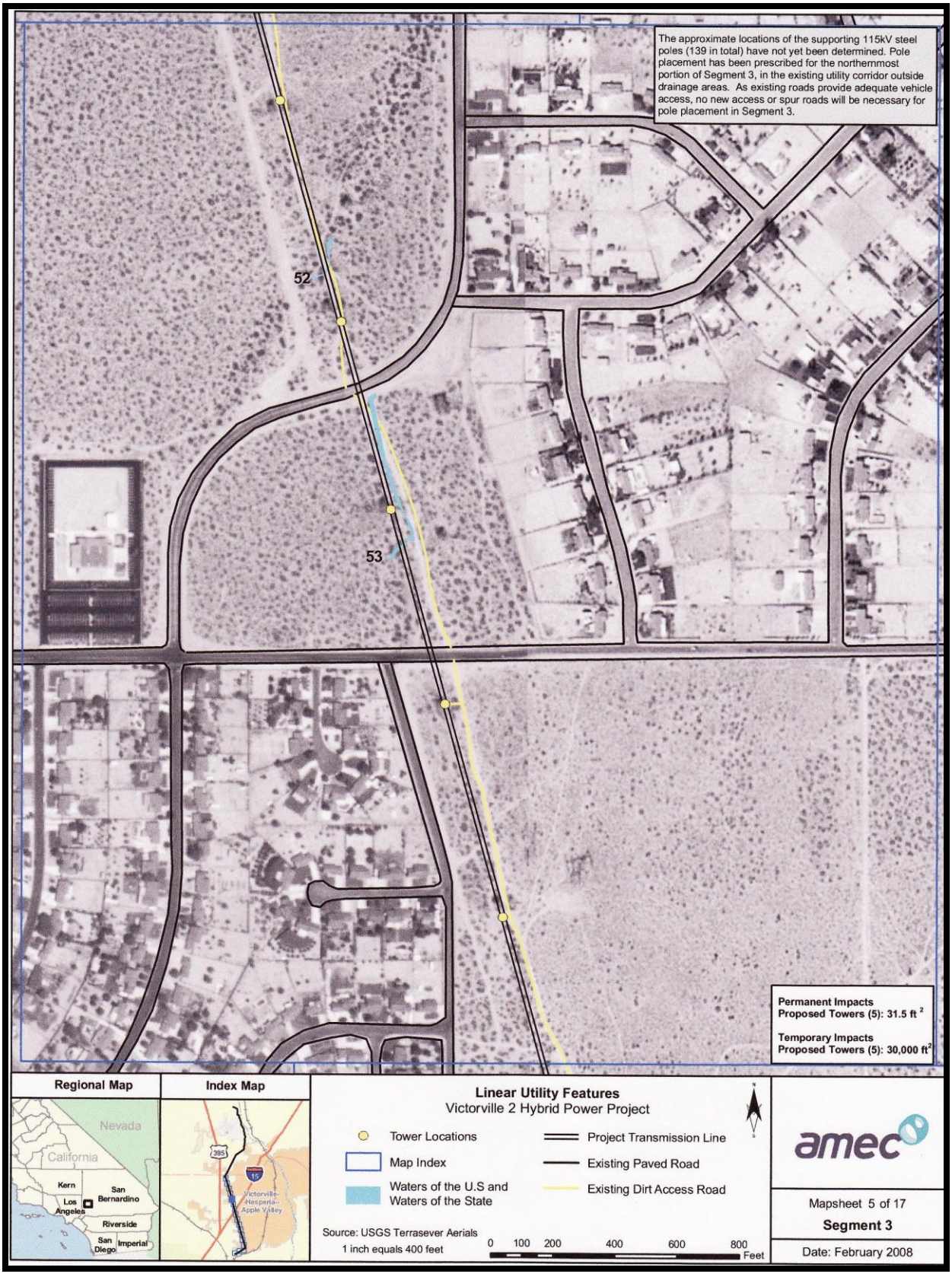
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Permanent Impacts
Proposed Towers (5): 31.5 ft 2
Temporary Impacts
Proposed Towers (5): 30,000 ft2
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Source: USGS Terrasever Aerials
1 inch equals 400 feet
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Feet
amec
Mapsheet 5 of 17
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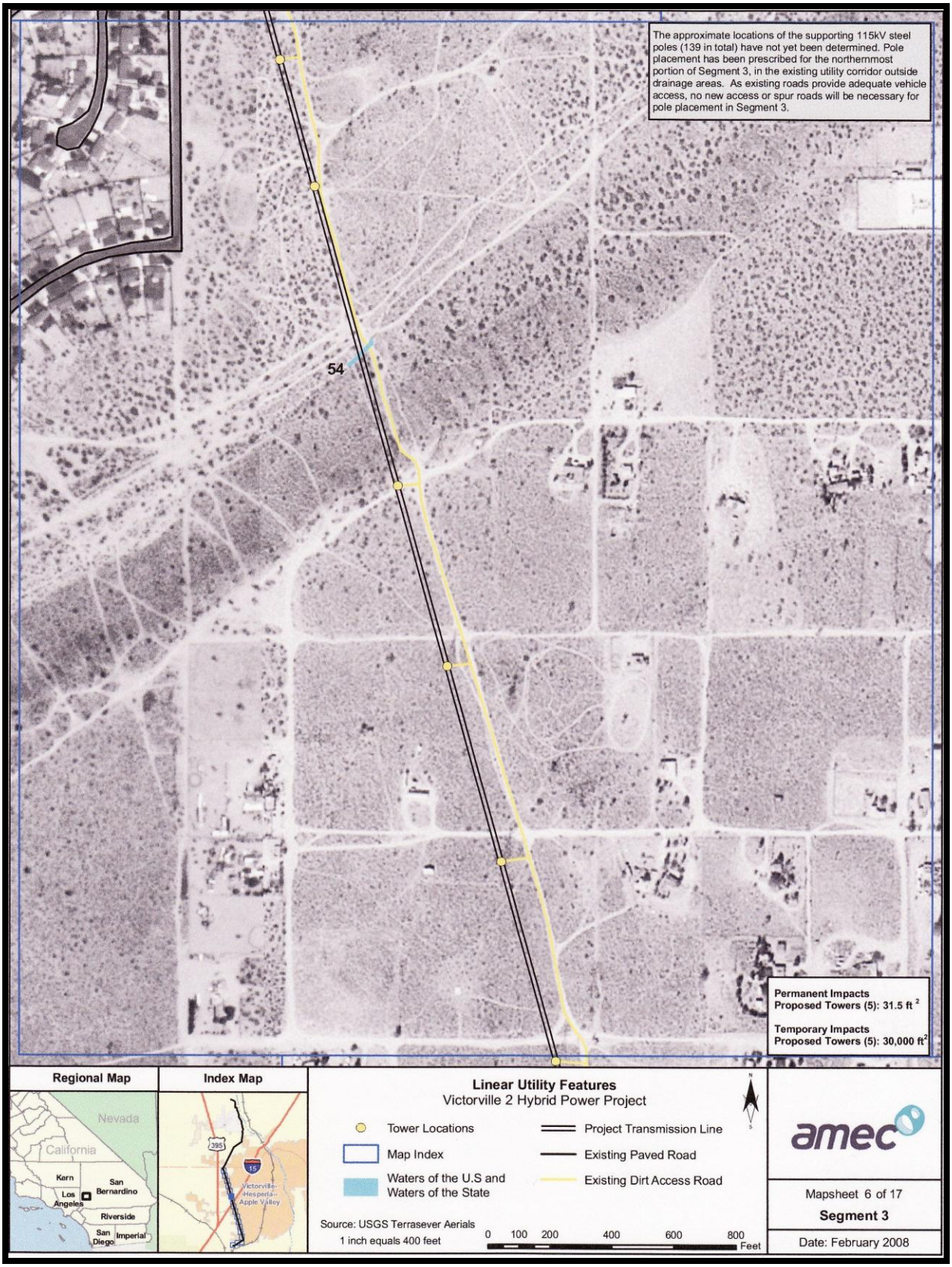
Date: February 2008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Permanent Impacts
Proposed Towers (5): 31.5 ft 2
Temporary Impacts
Proposed Towers (5): 30,000 ft2
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Existing Dirt Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
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Mapsheet 6 of 17
Segment 3
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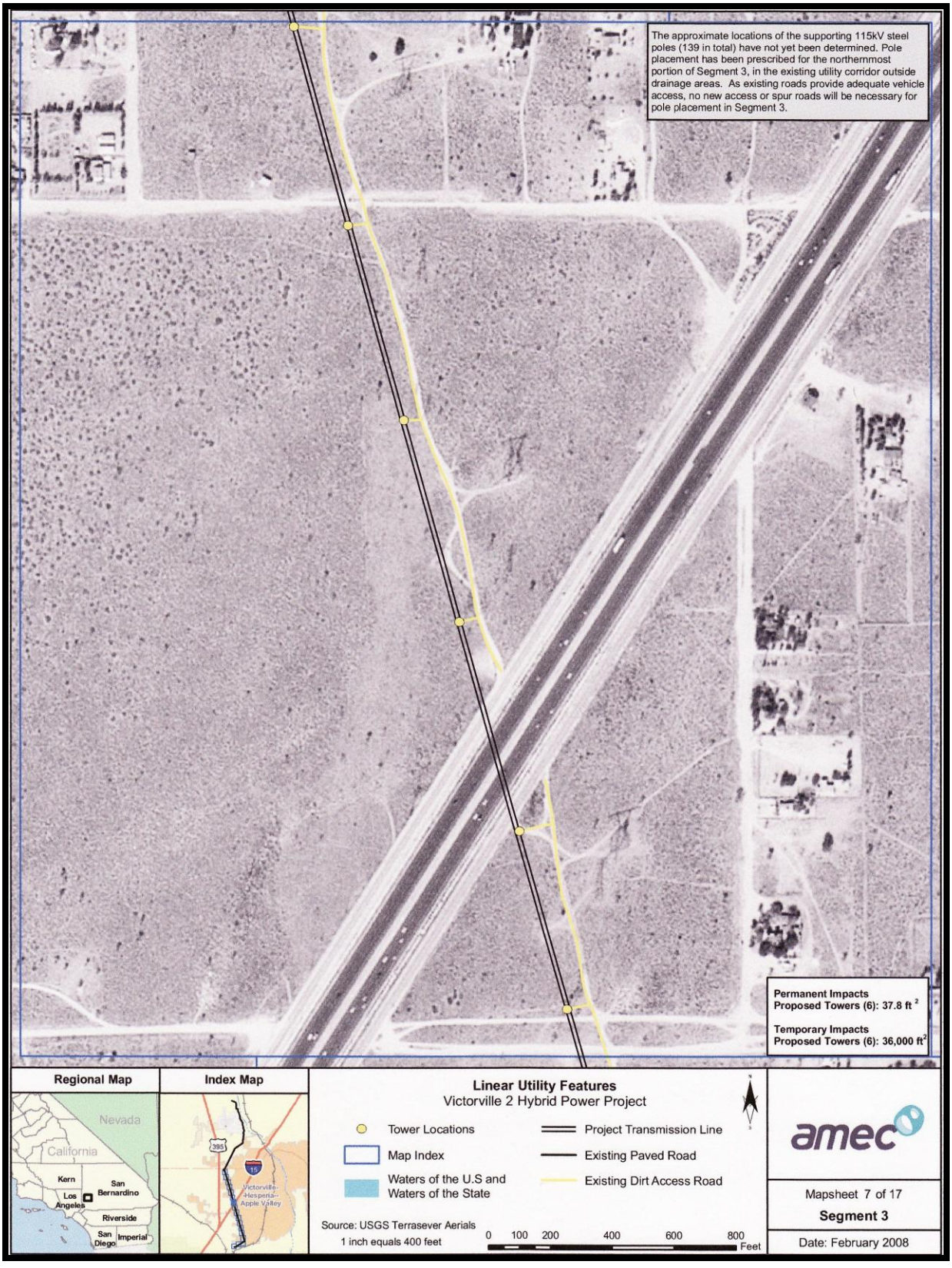
Exhibit A3b.

Victorville 2 Hybrid Power Project
Linear Utility Segment 3 Continued


The approximate locations of the supporting 115kV steel poles (139 in total) have not yet been determined. Pole placement has been prescribed for the northernmost portion of Segment 3, in the existing utility corridor outside drainage areas. As existing roads provide adequate vehicle access, no new access or spur roads will be necessary for pole placement in Segment 3.
Permanent Impacts
Proposed Towers (6): 37.8 ft 2
Temporary Impacts
Proposed Towers (6): 36,000 ft2
Regional Map
Nevada
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Kern
San Bernardino
Los Angeles
Riverside
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Source: USGS Terrasever Aerials
1 inch equals 400 feet
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Feet
amec
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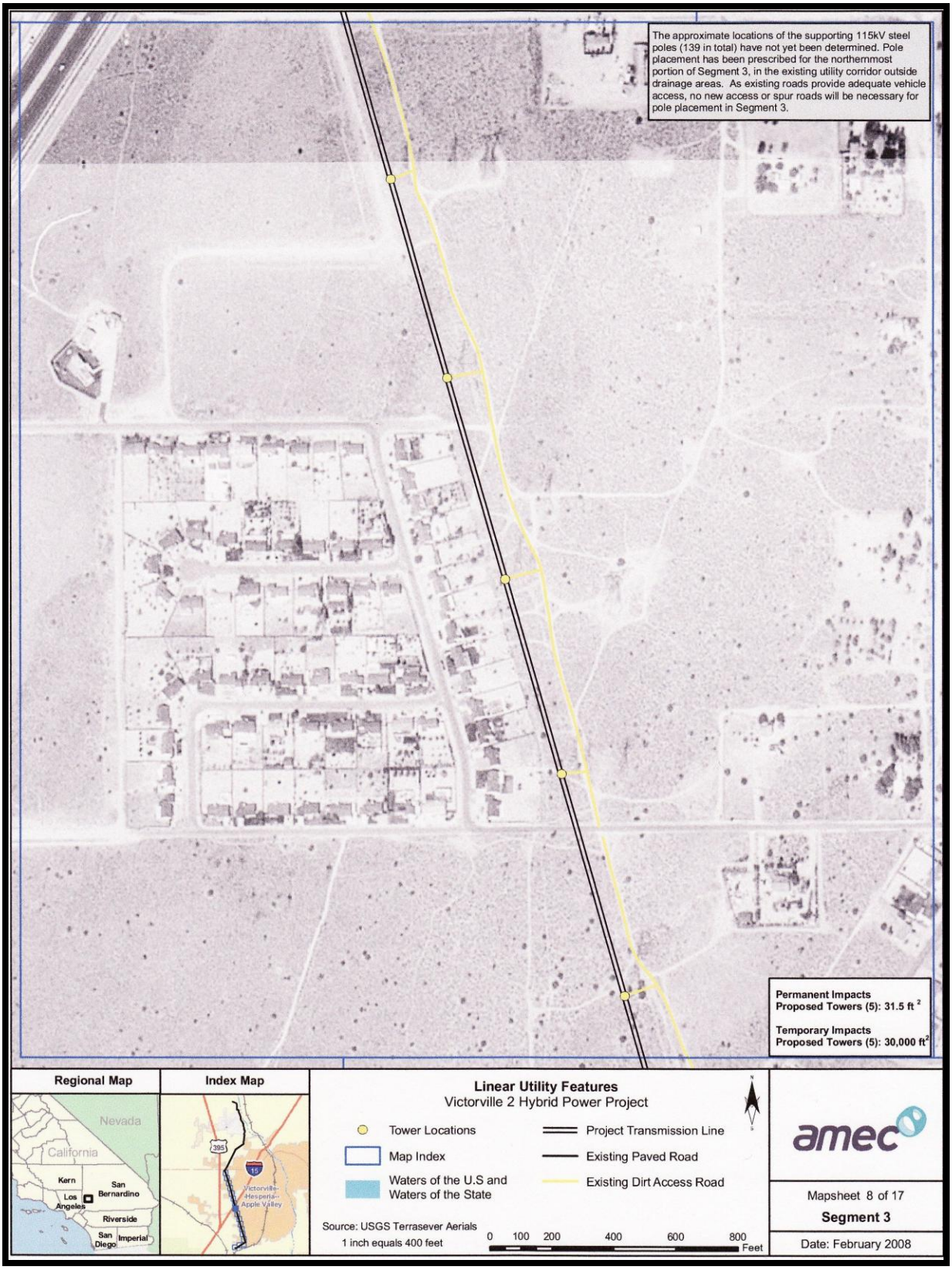
Date: February 2008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Permanent Impacts
Proposed Towers (5): 31.5 ft 2
Temporary Impacts
Proposed Towers (5): 30,000 ft2
Regional Map
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Source: USGS Terrasever Aerials
1 inch equals 400 feet
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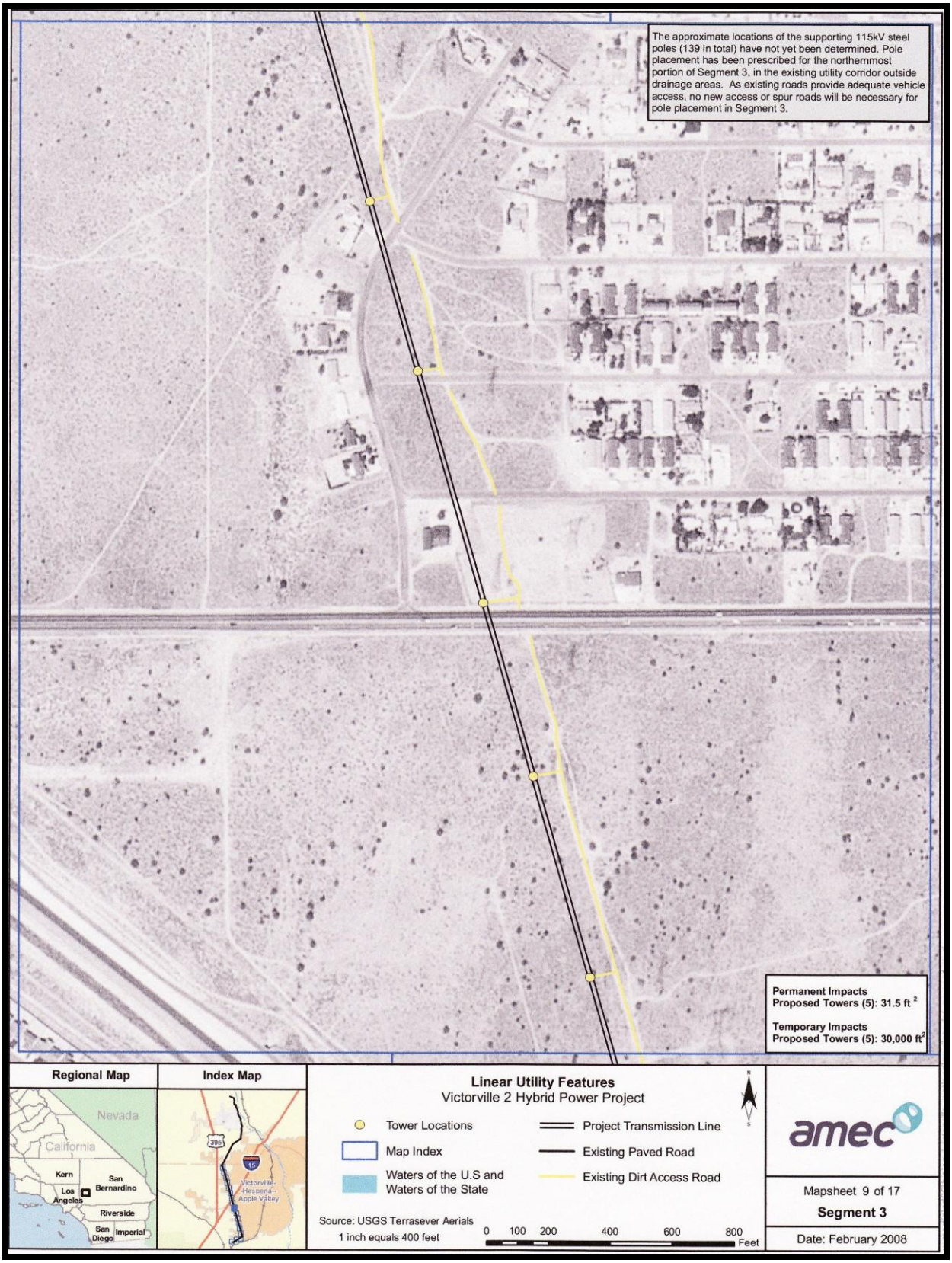
The approximate locations of the supporting 115kV steel poles (139 in total) have not yet been determined. Pole placement has been prescribed for the northernmost portion of Segment 3, in the existing utility corridor outside drainage areas. As existing roads provide adequate vehicle access, no new access or spur roads will be necessary for pole placement in Segment 3.
Permanent Impacts
Proposed Towers (5): 31.5 ft 2
Temporary Impacts
Proposed Towers (5): 30,000 ft2
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Source: USGS Terrasever Aerials
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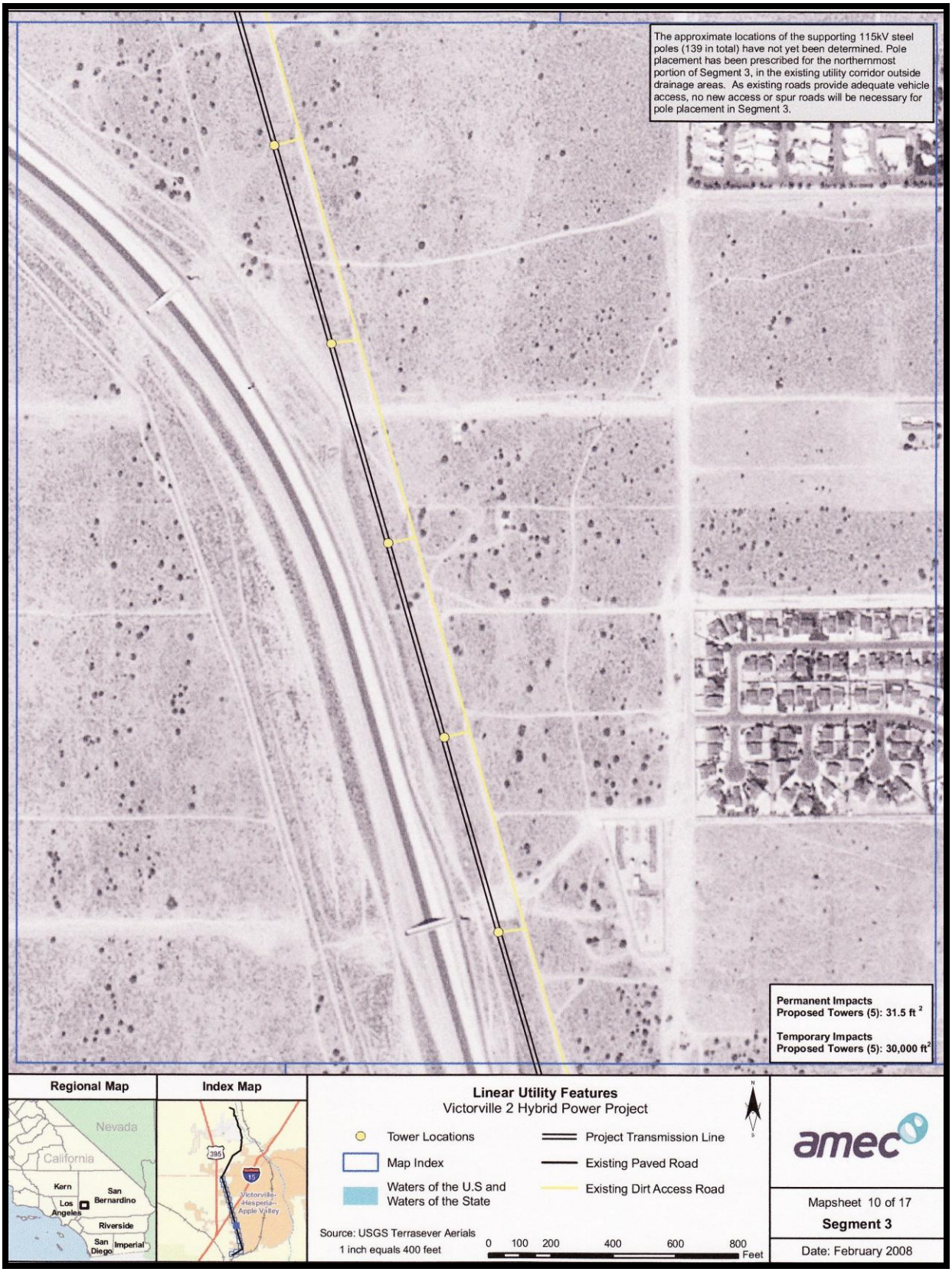
The approximate locations of the supporting 115kV steel poles (139 in total) have not yet been determined. Pole placement has been prescribed for the northernmost portion of Segment 3, in the existing utility corridor outside drainage areas. As existing roads provide adequate vehicle access, no new access or spur roads will be necessary for pole placement in Segment 3.
Permanent Impacts
Proposed Towers (5): 31.5 ft 2
Temporary Impacts
Proposed Towers (5): 30,000 ft2
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Source: USGS Terrasever Aerials
1 inch equals 400 feet
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Feet
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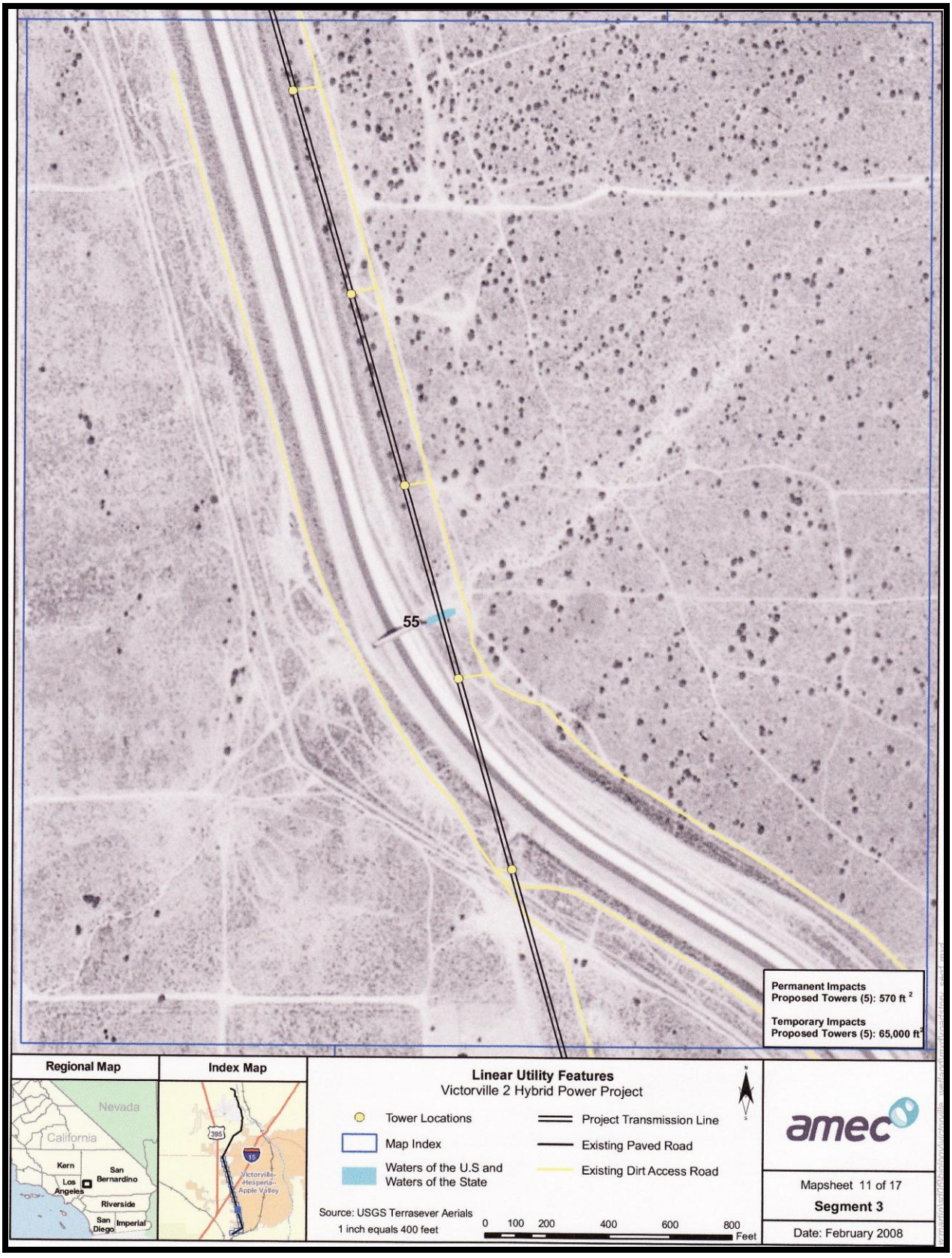
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Permanent Impacts
Proposed Towers (5): 570 ft 2
Temporary Impacts
Proposed Towers (5): 65,000 ft2
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Source: USGS Terrasever Aerials
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Feet
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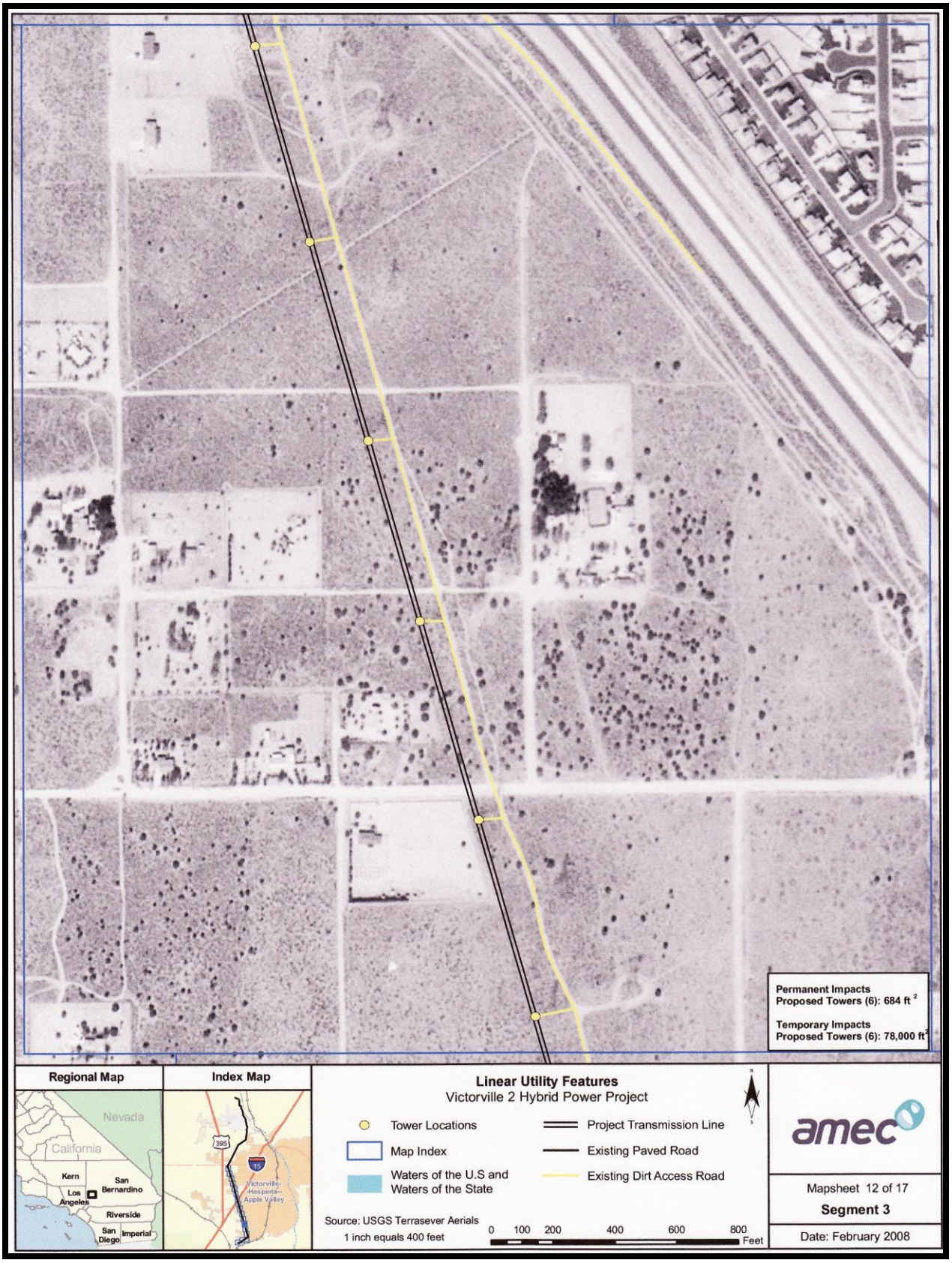
Permanent Impacts
Proposed Towers (6): 684 ft 2
Temporary Impacts
Proposed Towers (6): 78,000 ft 2
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1 inch equals 400 feet
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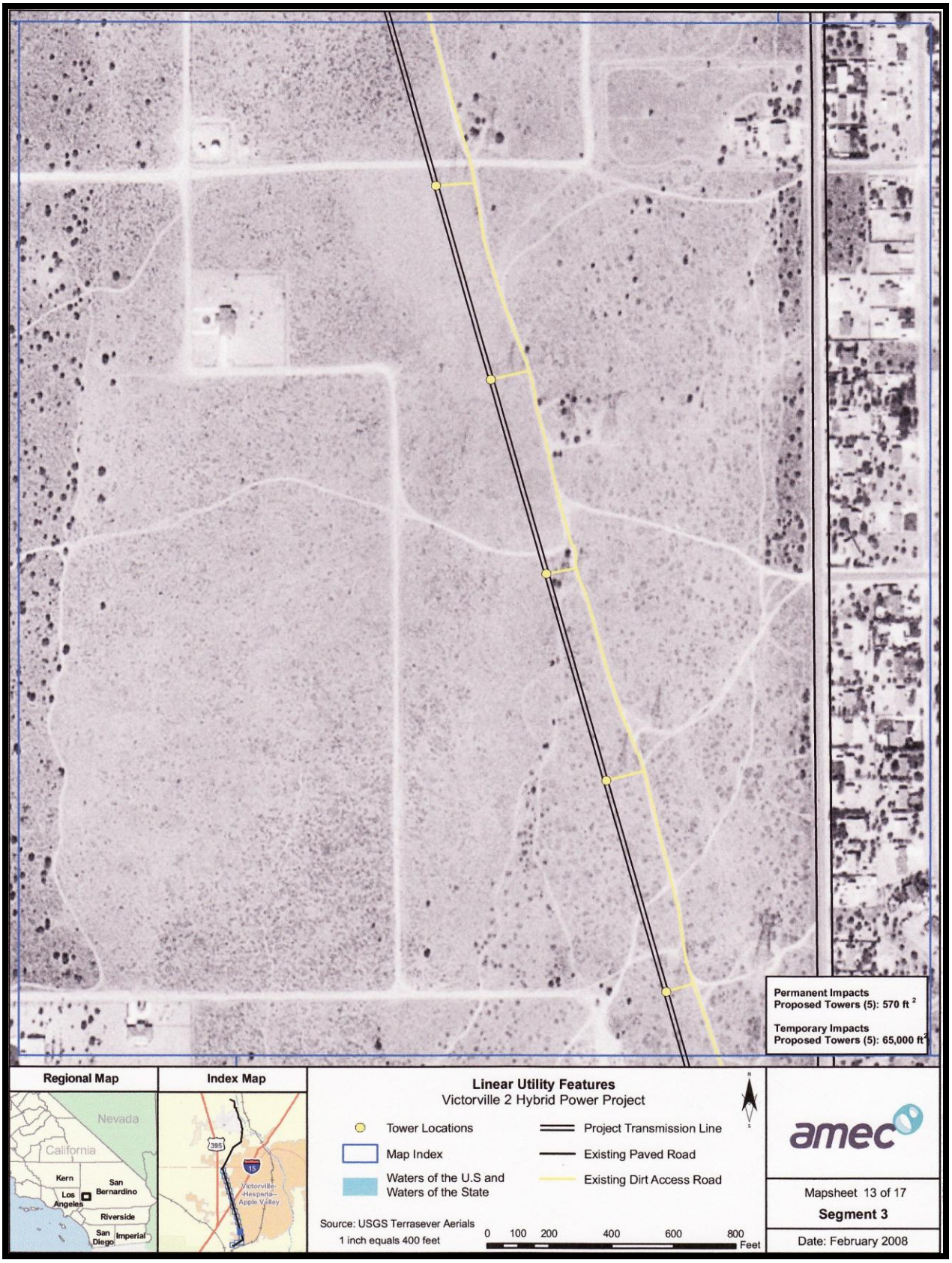
Exhibit A3c.

Victorville 2 Hybrid Power Project
Linear Utility Segment 3 Continued


Permanent Impacts
Proposed Towers (5): 570 ft 2
Temporary Impacts
Proposed Towers (5): 65,000 ft 2
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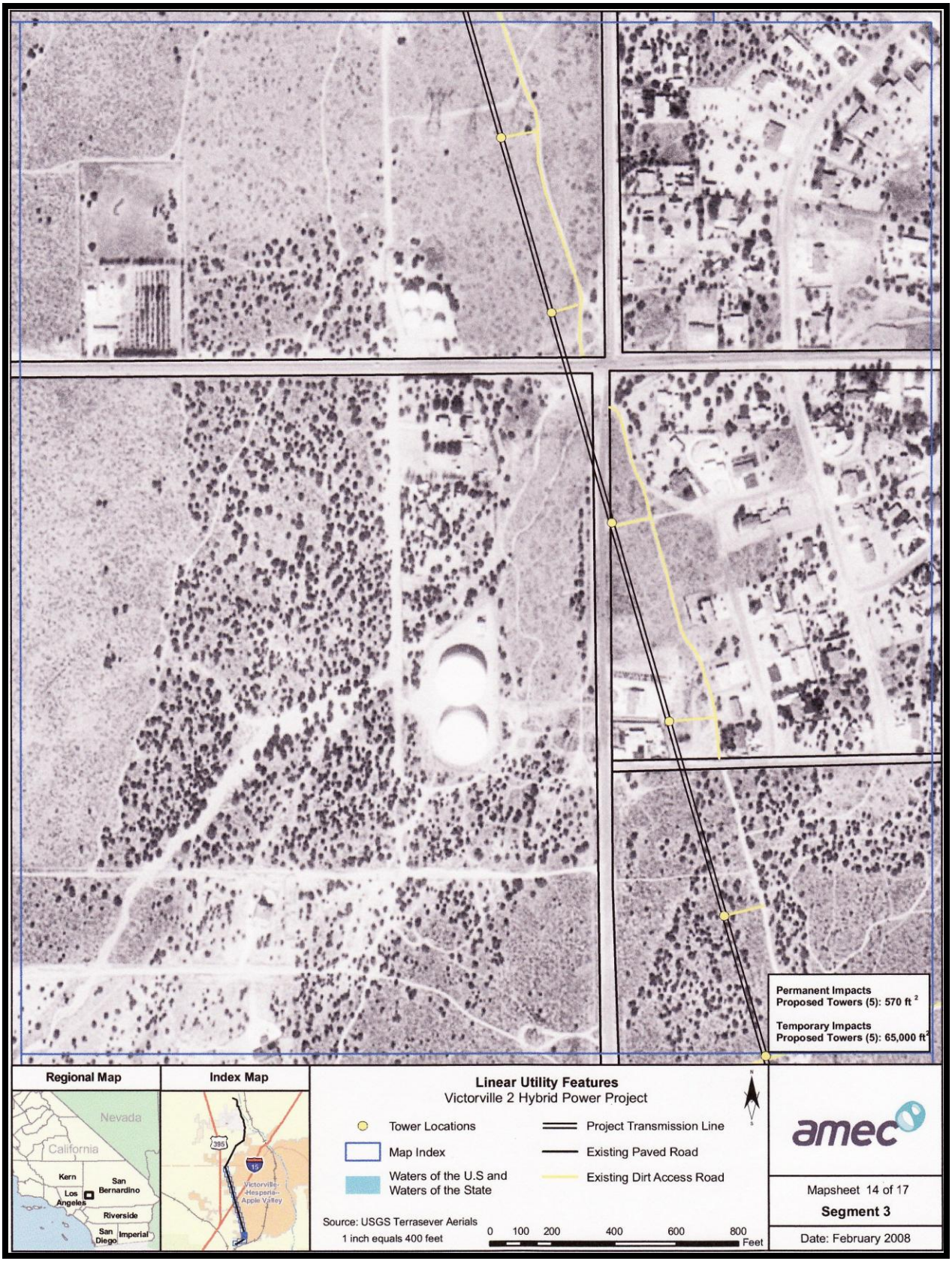
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Proposed Towers (5): 570 ft 2
Temporary Impacts
Proposed Towers (5): 65,000 ft 2
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Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800 Feet
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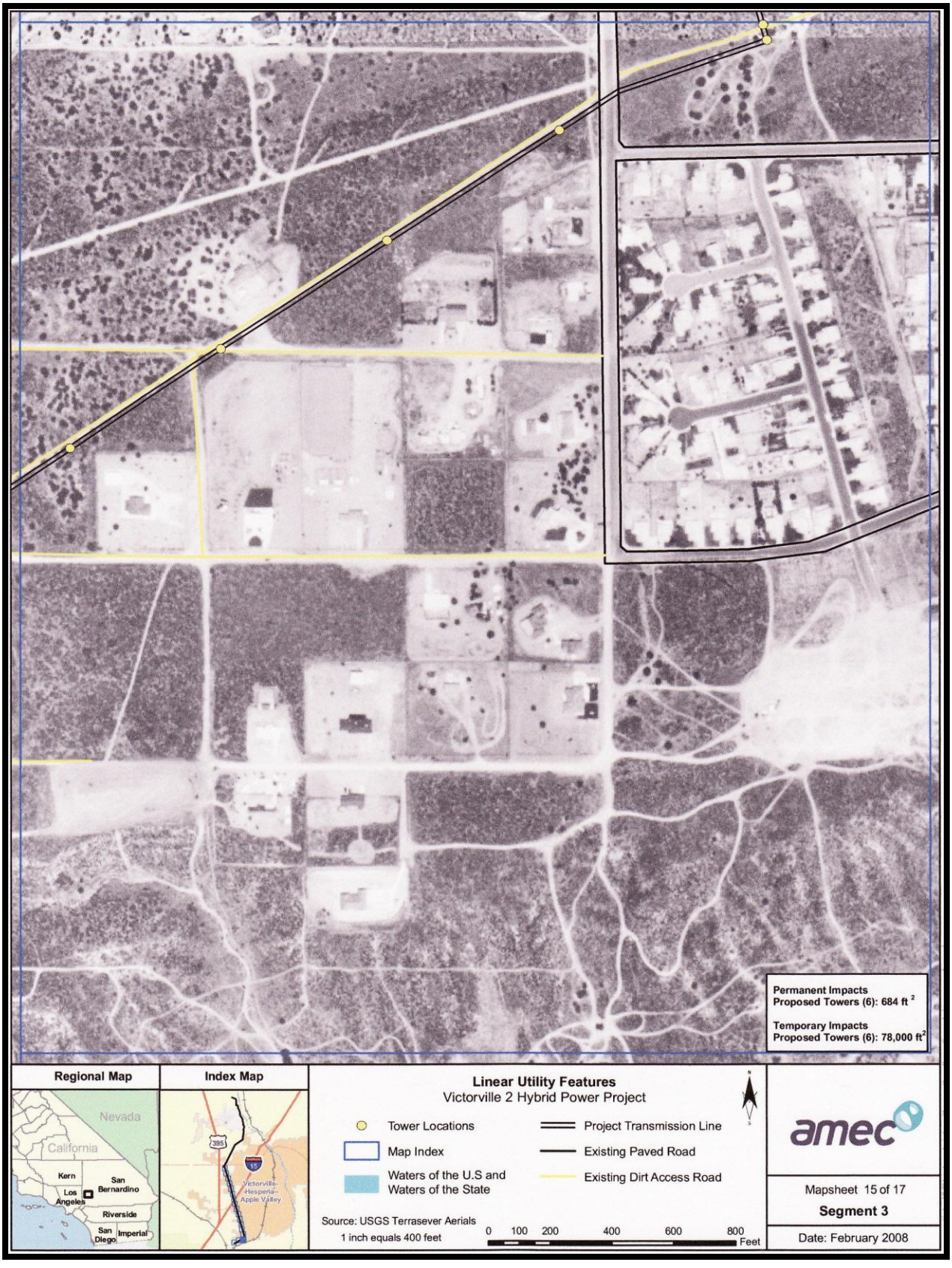
Permanent Impacts
Proposed Towers (6): 684 ft 2
Temporary Impacts
Proposed Towers (6): 78,000 ft2
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Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800
Feet
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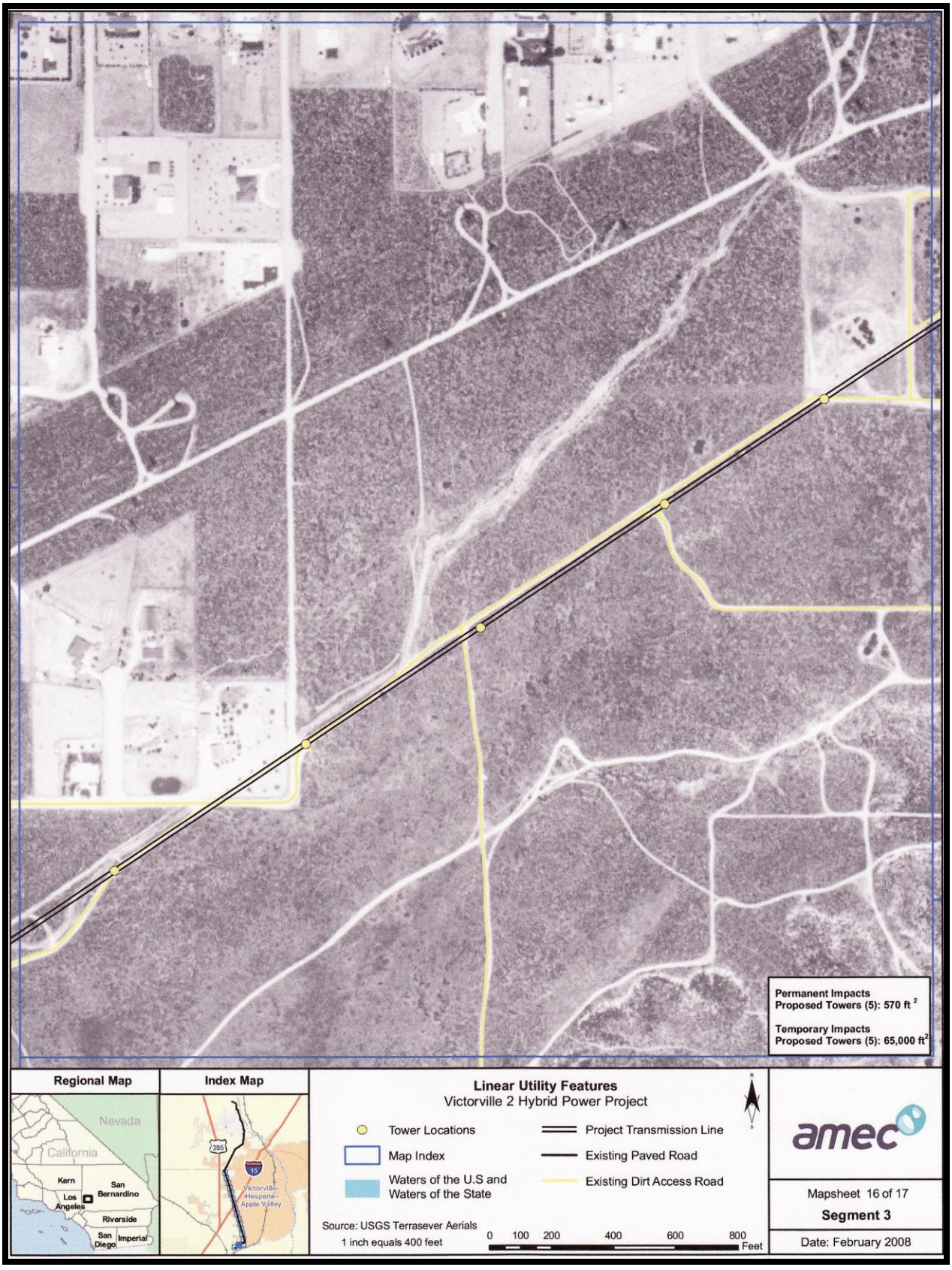
Segment 3
Date: February 2008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Temporary Impacts
Proposed Towers (5): 65,000 ft2
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California
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Riverside
San Diego
Imperial
Index Map
395
15
Victorville-Hesperia-Apple Valley
Linear Utility Features
Victorville 2 Hybrid Power Project
Tower Locations
Map Index
Waters of the U.S and Waters of the State
Project Transmission Line
Existing Paved Road
Existing Dirt Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800 Feet
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Mapsheet 16 of 17
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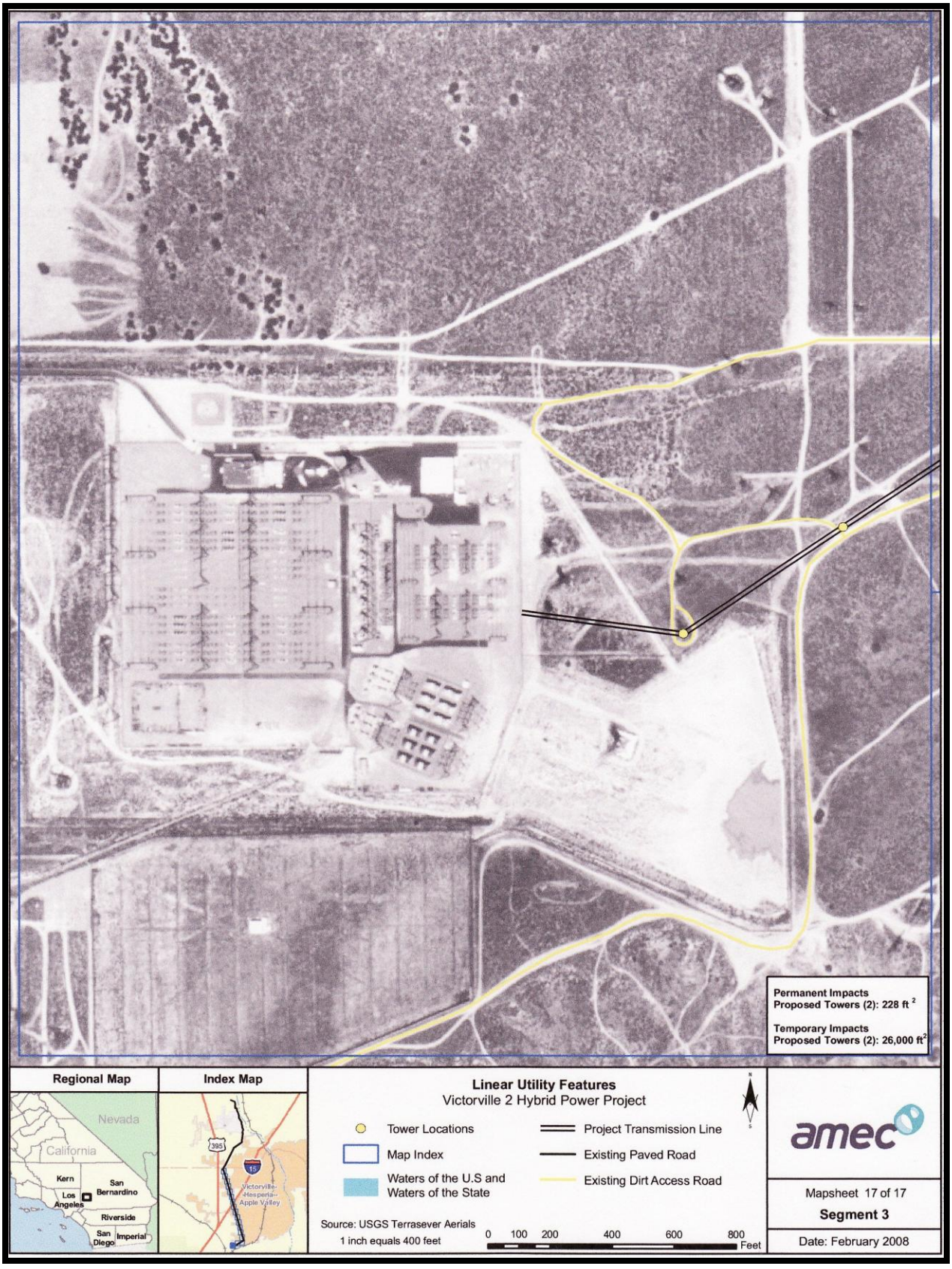
Permanent Impacts
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Temporary Impacts
Proposed Towers (2): 26,000 ft2
Regional Map
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0 100 200 400 600 800
Feet
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EXHIBIT B

Analysis of Potential Vegetation Impacts Due to Salt Deposition from Victorville 2 Hybrid Power Project Cooling Tower Drift

In order to assess the impact of salts that will be present in the mist, or air drift, that is released from the Project cooling tower, the air quality impact assessment performed for the VV2 Project was reviewed. This VV2 Project impact assessment included dispersion modeling of the emission sources with the AERMOD Program, which involved modeling the total dissolved solids (TDS) anticipated to be emitted from the cooling tower. Reclaimed water will be used in the Project's cooling tower, and a portion of the dissolved solids in this water will include salts. Based on a review of the 2004 and 2005 data from the Victor Valley Wastewater Reclamation Authority (VVWRA), salts (sodium, chloride, sulfate and nitrate) emitted from the cooling tower may be on the order of 70 percent of the TDS.

The Project's maximum 24-hour total particulate impact was estimated to be 6 micrograms per cubic meter ($\mu g/m^3$). Approximately 5 $\mu g/m^3$ of the total particulates amount is expected due to the use of combustion equipment, which will not contain salt emissions; and approximately 1 $\mu g/m^3$ due to use of the cooling tower. As stated above, approximately 70 percent of the TDS emissions from the Project's cooling tower could be salts, and thus a maximum 0.7 $\mu g/m^3$ concentration of salts would be expected as a cooling tower emission.

Dispersion modeling showed that the maximum emission impact would occur at the Project fence line, near the facility's combustion sources, and that this impact would drop off very quickly with increasing distance from the combustion sources. Impact is anticipated to be negligible (0.09 $\mu g/m^3$) at the Mojave River riparian communities located closest to the Project.

At southwestern flycatcher critical habitat situated 3.5 miles to the southeast of the power plant, the emission impact would be undetectable (<0.01 $\mu g/m^3$). Similarly, the emission impact at locations situated four miles to the northeast, proximal to designated desert tortoise critical habitat, would be undetectable (<0.01 $\mu g/m^3$).

The maximum salt deposition amounts resulting from the cooling tower are expected to occur at the VV2 Project fence line. On an annual average basis, this maximum salt deposition amount has been estimated to be 0.07 $\mu g/m^3$.This salt contribution is anticipated to drop to a tenth as much (<0.01 $\mu g/m^3$) along the Mojave River.

There is no specific air quality standard for salt emissions, but the EPA has set "secondary" ambient air quality standards that are meant to protect public welfare, including impacts to crops and plants. The 24-hour Particulate Matter of 10 microns or less (PM10) secondary standard that has been established is 150 $\mu g/m^3$. The Project is anticipated to contribute considerably less than this amount, with the maximum amount deposited at the Project's fence line.

Occasional salt buildup on vegetation is a fairly natural occurrence in arid environments such as the Mojave Desert. Due to the extremely low salt concentrations emitted from the VV2 Project and vegetative adaptations of plants occurring in the Project vicinity, no adverse impact to upland or riparian plant communities as a result of the Project would be anticipated.

EXHIBIT C

Analysis of Potential Vegetation Impacts Due to Nitrogen Deposition from Victorville 2 Hybrid Power Project Combustion Source Emissions

Nitrogen deposition on proximal soils is expected to occur over time as a result of VV2 Project operations. While nitrogen deposition may benefit non-native annual grasses occurring in the immediate vicinity of the Project to a small degree, this deposition is not expected to substantially benefit non-native growth to the detriment of native plant species occurring in the area.

Project emissions will contain nitrogen, mostly in the form of nitric oxide (NO). The NO will react in the air to form other compounds such as nitrogen dioxide (NO_2), and nitrate (NO_3) compounds. Similar to the cooling tower drift discussion in Exhibit A, the Project was assessed for its potential nitrogen deposition impacts in the area.

The combustion turbine generators and other combustion equipment associated with the Project have been estimated to emit up to 108 tons per year of NOx emissions, due to the combustion of natural gas and diesel fuels. Of the total NOx emissions, 32.9 tons of nitrogen per year would be the maximum amount of nitrogen deposited on soils situated near the Project site.

Project nitrogen oxides (NO_X) emissions estimated for the VV2 Project have been modeled with the CALPUFF Program to estimate the potential nitrogen deposition in the vicinity of the Project. The CALPUFF model, which was used for the Project to assess potential Class I area impacts, incorporates the required atmospheric chemistry and chemical transformations necessary to compute nitrogen deposition. The total modeled nitrogen deposition rates are based on the sum of wet and dry fluxes of NO_3 (as NH_4NO_3) and HNO_3 in addition to dry deposition of NO_X (assumed to be NO_2).

The CALPUFF model provides results in units of kilograms per hectare per year (kg/ha/yr). Nitrogen deposition rates were modeled at receptor grids which included the Project fence line and three nearby habitat areas of concern: riparian plant communities along the Mojave River, southwestern willow flycatcher critical habitat, and desert tortoise critical habitat (Fremont-Kramer Desert Wildlife Management Area).

The maximum annual deposition rate of 0.083 kg/ha/yr was modeled to occur along the fence line to the northeast of the facility, consistent with the predominant winds which blow most frequently from the south and south-southwest. The maximum concentrations at the three habitat areas of concern were 0.033, 0.002, and 0.003 kg/ha/yr, respectively.

In general, nitrogen deposition acts as a plant nutrient. This can be beneficial to some plant species, but can also be detrimental where it benefits non-native plants competing with native vegetation important to herbivores like the tortoise.

The estimated nitrogen amount corresponding to the annual modeled nitrogen deposition rates for several areas in the Project region are as follows:

- VV2 Power Plant fence line = 0.017 lbs / 10,000 ft^2
- Riparian plant communities along the Mojave River = 0.007 lbs / 10,000 ft^2
- Southwestern willow flycatcher critical habitat = 0.0004 lbs / 10,000 ft^2
- Desert tortoise critical habitat = 0.0006 lbs / 10,000 ft^2

The maximum of 0.017 lbs per 10,000 ft^2 estimated for the VV2 Project plant fence line is equivalent to approximately 1.2 ounces of nitrogen per acre, with smaller amounts of nitrogen expected in areas located at a distance from the Project fence line. Such nitrogen deposition rates are considered negligible as a plant growth influence. Based on these results, nitrogen deposition associated with the VV2 Project's air emissions is expected to have a negligible impact on plants growing in the Project vicinity.

EXHIBIT D

Victorville 2 Hybrid Power Project
Desert Tortoise (*Gopherus agassizii*) Translocation Plan

VICTORVILLE 2 HYBRID POWER PROJECT

DESERT TORTOISE (Gopherus agassizii) TRANSLOCATION PLAN

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February 2008

VICTORVILLE 2 HYBRID POWER PROJECT
DESERT TORTOISE (Gopherus agassizii) TRANSLOCATION PLAN

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February 2008

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Appendix 2. Guidelines for Desert Tortoise Translocation (USFWS 1994)

VICTORVILLE 2 HYBRID POWER PROJECT
DESERT TORTOISE (*Gopherus agassizii*)
TRANSLOCATION PLAN

1.0 INTRODUCTION

The Victorville 2 Hybrid Power Project (VV2 or Project) has been proposed by the City of Victorville for private land location in the western portion of California's Mojave Desert (Figure 1). This hybrid electrical power-generation facility will utilize several parabolic solar collector arrays and will be situated north of the Southern California Logistics Airport and west of the Mojave River (Figure 2). Linear utility features (Appendix 1) will connect to an existing gas pipeline, electrical transmission line, water distribution system and water treatment facility (AMEC 2007, 2008).

Project construction is scheduled to begin in summer 2008. These activities have the potential to adversely affect the desert tortoise (*Gopherus agassizii*), a state and federally listed threatened species. Site fencing following facility installation will preclude post-construction use of some habitat by this species. "Incidental take" permitting under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) has been initiated. Translocation of desert tortoises from permanently impacted Project acreage to suitable offsite lands, and temporary removal of all at-risk animals during Project construction, have been identified as key mitigation measures.

Two adult desert tortoises have been observed within the Project's proposed permanent disturbance footprint, with an additional four adult animals observed in the adjacent zone of influence. Hatchling, juvenile or other adult tortoises, and perhaps even viable tortoise eggs (though unlikely), may also be discovered during clearance surveys of the Project site. The translocation of two or more desert tortoises therefore is anticipated from the Project's proposed permanent disturbance area, with the potential removal of four or more animals out of harm's way in temporary disturbance areas.

Specific direction for desert tortoise translocation and removal of at-risk animals is discussed in this document. This direction and a selected translocation destination area will be subject to regulatory agency approvals prior to implementation.

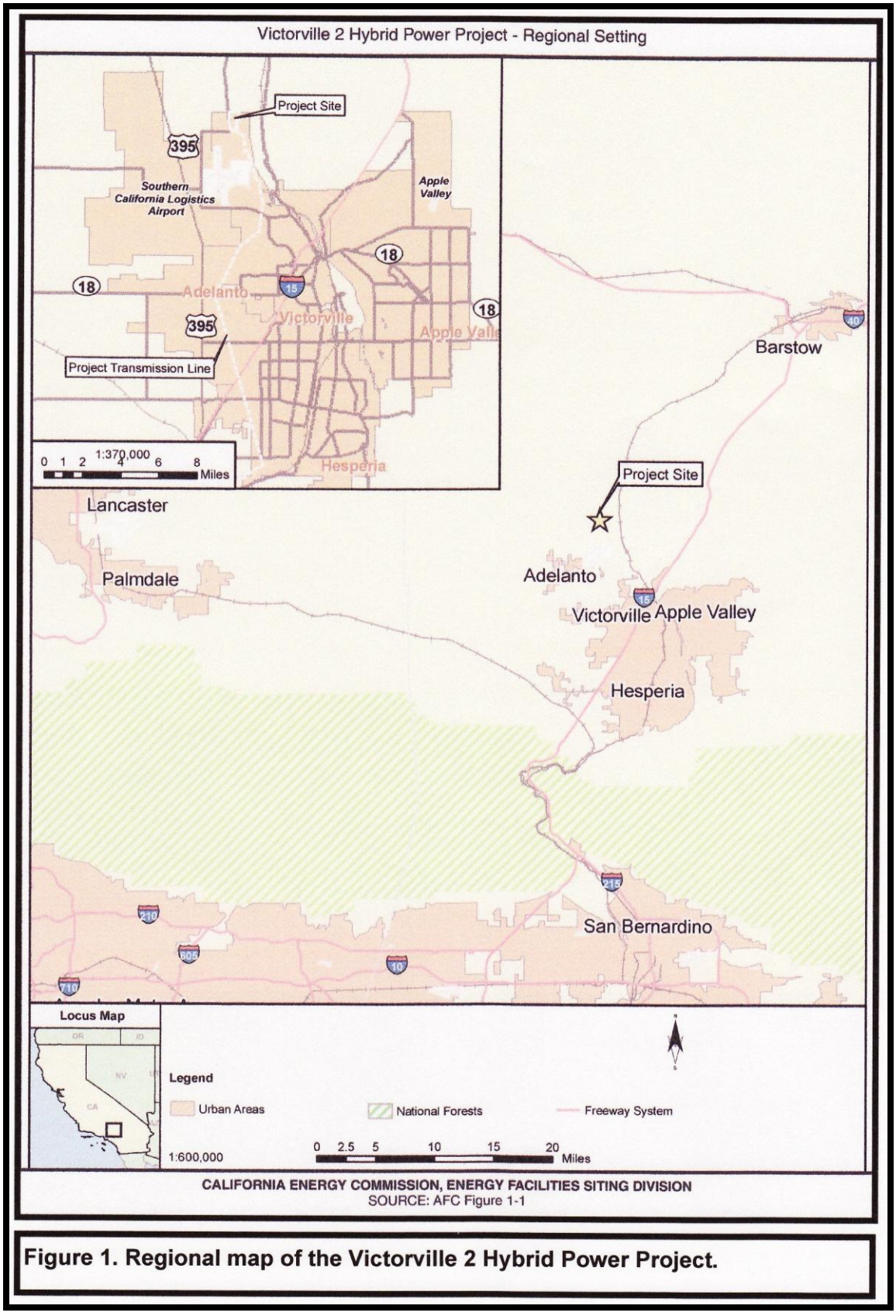

Figure 1. Regional map of the Victorville 2 Hybrid Power Project.

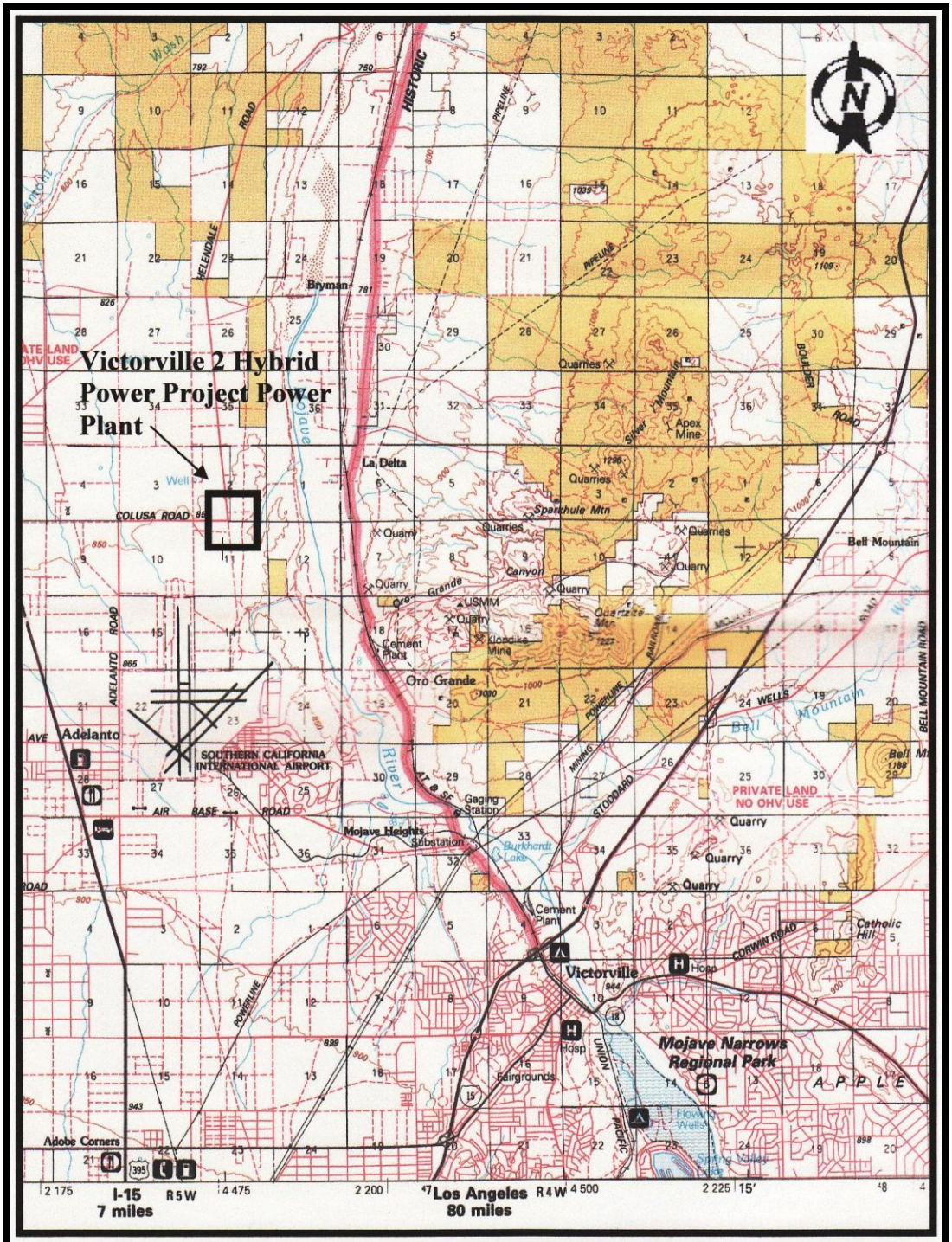

Figure 2. Land status of the Victorville 2 Hybrid Power Project plant proposed for private land location north of the Southern California Logistics Airport. Private lands are depicted in white and public lands are depicted in yellow; modified from the Bureau of Land Management (BLM) California Desert District's Victorville Desert Access Guide (1998).

2.0 BACKGROUND

Desert tortoise translocation in wildland habitats is a relatively new and incompletely-studied field. This technique is becoming increasingly necessary to mitigate incidental take of this species where urban growth is occurring. Research on desert tortoise translocation and the removal of at-risk animals from urban development areas have been recommended by the U.S. Fish and Wildlife Service (USFWS) in the "*Desert Tortoise (Mojave Population) Recovery Plan*" (1994). Several broad guidelines for translocation also have been recommended (Appendix 2).

Translocation of desert tortoises can have beneficial effects on population growth of the species (FWS 2004). One measure of success for translocated animals is the degree which desert tortoises establish home ranges and enter into existing desert tortoise social structure (Berry 1986). However, a more commonly used measure of translocation success is tortoise survival.

Tortoises are known to have survived for at least 24 months when excluded from a portion of their home range (e.g., Stewart and Baxter 1987, TRW 1998). Tortoises are also well known for their survival when placed into suitable, captive environments (St. Amant and Hoover 1978) and when rehabilitated captive tortoises have been released (Cook 1983). Stewart (1993) observed that survival rates and average movements did not differ between translocated tortoises and resident animals during an 18 month period. Mullen and Ross (1997) similarly observed no difference between resident and relocated tortoise survival, which involved an analysis of late spring animal releases.

Translocation mortality within one year of release has been found in one instance to be substantially correlated with a period of drought (Saethre et al. 2003]. Other stressors and various anthropogenic influences (Lovich and Bainbridge 1999) undoubtedly affect the survival of individual translocated animals.

Although relatively few studies have been conducted, there appears to be no adverse effects on resident tortoise populations into which translocated tortoises are moved (Nussear 2004).

Two large translocation efforts are currently being implemented in the Mojave Desert as part of the Fort Irwin National Training Center Expansion (Esque et al. 2005) and the Hyundai Test Track project in California City (Karl 2003). Data collected from the considerably smaller VV2 Project Translocation Program in an urban interface area could serve to augment knowledge generated by larger translocation efforts.

The studies completed to date suggest that desert tortoise translocation, if conducted appropriately and during periods of forage availability, can result in high survivorship (Nussear et al. 2000, Karl 2007). The season of translocated animal release appears to have a substantial impact on tortoise mortality. Cook's (1983) study illustrated this point, where six of the eight known translocated animal deaths recorded in one such effort occurred when animals were released during the summer. Late winter (Field et al. 2003), fall or early spring months (pers. comm. Dr. Alice Karl, 2007) appear to be conducive to high translocation survival rates.

Additional considerations can factor into long-term survival potentials following even successful translocations. Desert tortoises "*have complex social behaviors and intimate familiarity with their home ranges, which can be quite large*" (USFWS 1994). Those translocation efforts incorporating a portion of a tortoise's original home range may facilitate an animal's ability to locate suitable forage in dry years and/or successfully avoid predation over the long term.

However, translocation of a tortoise into non-impacted portions of a home range is not always an option in rapidly developing areas. For all translocation efforts, whether tortoises are moved only short distances or away from their home range, care must be taken to ensure the translocated animals are not placed into sub-optimal habitat or at-risk areas.

Translocation should be considered as part of a "tool box" for conserving at-risk desert tortoises, according to Management Goal F of the California Statewide Desert Tortoise Management Policy (BLM and CDFG 1992). A carefully implemented translocation program can contribute to conservation of the species and also has the potential to provide useful data for future translocation efforts (Karl 2003, Field et al. 2007).

3.0 GOALS

Three overall goals have been identified for the VV2 Project Translocation Plan. These overall goals include:

(1) Successful translocation of at-risk desert tortoises from the VV2 power plant site to a selected translocation area and careful relocation of at-risk tortoises in the Project's connected linear utility features during construction to suitable habitat located adjacent to the active work area;

(2) Minimization of the impacts of translocation on recipient desert tortoise populations; and

(3) Collection of monitoring data to contribute to the collective knowledge of translocation as a viable conservation technique.

4.0 TRANSLOCATION PLAN

All at-risk desert tortoises must be translocated from the permanent surface disturbance area of the VV2 Project's power plant site to a suitable offsite habitat, following issuance of incidental take approvals from state and federal regulatory agencies.

Desert tortoise exclusion fencing will be installed around the perimeter of the power plant site (permanent fencing) and two staging areas (temporary fencing) to prevent subsequent tortoise movement into the active work area. At-risk tortoises found in temporary surface disturbance areas associated with the staging areas and linear utility features, and which cannot be avoided, will be moved to an adjacent unrestricted location within the Project right-of-way, or to adjacent lands where approved by the respective landowner.

All activities described in this Translocation Plan will be consistent with the ESA Biological Opinion and the CESA Section 2081 incidental take permit issued for this Project, as affirmed in Section 4.1 below.

Pre-construction clearance surveys will be necessary in all Project site construction areas and material storage/equipment staging areas, as detailed in Section 4.2. Desert tortoise handling and transport, as explained in Section 4.3, will be necessary following initial Project site biological clearance surveys.

Animal health considerations to be evaluated in all desert tortoise handling endeavors of the VV2 Project are discussed in Section 4.4 of this plan. Public and private land options for desert tortoise translocation sites to be considered for this effort are presented in Section 4.5. Translocation site preparation needs and management are briefly outlined in Section 4.6. Lastly, Section 4.7 describes the monitoring and reporting tasks believed beneficial for this translocation effort.

4.1 Consistency with Recovery Plan and Incidental Take Permits

The techniques and translocation destination sites selected for use in this plan are based foremost upon ecological considerations, as well as upon information gleaned from previous desert tortoise translocations, offsite habitat availability and consistency with the Translocation Guidelines (Appendix 2) specified in the Desert Tortoise Recovery Plan (USFWS 1994).

Techniques identified in this document are consistent with the Desert Tortoise Recovery Plan to the degree feasible and will adhere to the ESA and CESA incidental take permits issued for the Project. No actions requiring tortoise handling, or that could result in incidental take, will occur until these permits are issued.

4.2 Occupied Habitat Clearance Surveys

Clearance surveys of occupied tortoise habitat in the Project's power plant and staging areas will be conducted in the September to October, 2008 timeframe. Permanent desert tortoise exclusion fencing (Figure 3) will be installed around the perimeter of occupied tortoise habitat prior to conducting these clearance surveys (Karl and Resource Design Technology 2006). Fence installation will be overseen by qualified biological monitors.

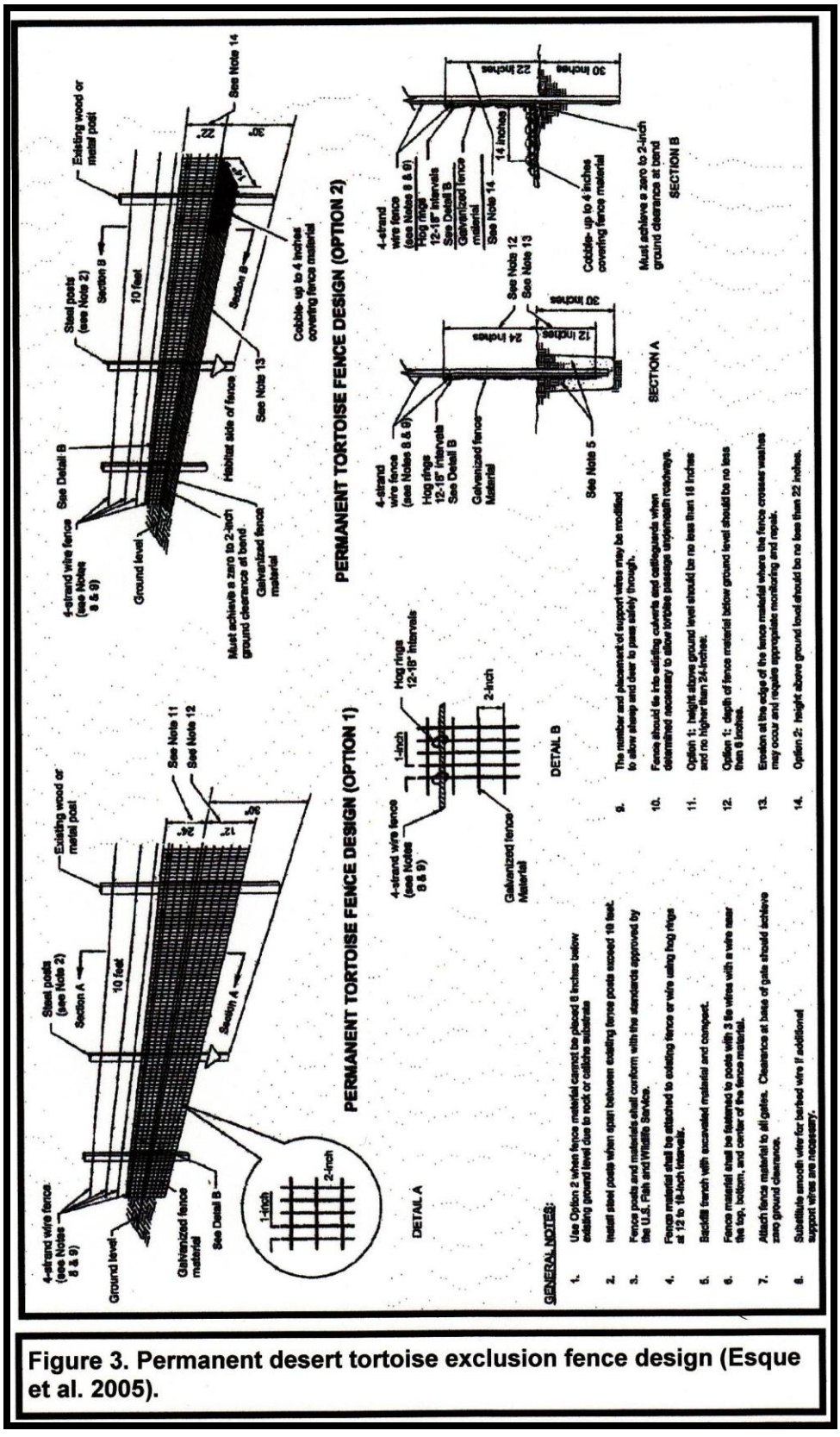

Figure 3. Permanent desert tortoise exclusion fence design (Esque et al. 2005).

Until site clearances have been completed, any temporary parking areas used by Project personnel will be first surveyed to ensure that no fresh tortoise burrows are present, then fenced using a temporary fence design, and re-surveyed to ensure that no tortoises have entered the enclosure. Temporary tortoise exclusion fencing will also be installed around the two primary equipment staging areas situated adjacent to the power plant site. Three-foot-wide, 1 by 2 inch mesh hardware cloth will be used as temporary fencing material, situated at 24" above ground, with the remaining material buried (http://www.fws.gov/ventura/sppinfo/protocols/DT Exclusion-Fence 2005.pdf.). Rebar will be used to secure this material every 4-5 feet and T-stakes will be placed every 8-10 feet along this fencing, or there will be a comparable design to ensure fence integrity. All installed fences will be monitored at least monthly, as well as during storms, with all necessary repairs made immediately.

Following site fencing, experienced biological monitors will perform a clearance survey of the Project site and staging areas. All clearances will occur when air temperatures at 5 cm above the ground surface are below 35°C, in accordance with established protocols (http://www.fws.gov/ventura/sppinfo/protocols/DT). Transect spacing between monitors will be appropriate for the vegetation present in the clearance area.

All burrows that could potentially host a tortoise are to be excavated with hand tools per the method prescribed by the Desert Tortoise Council's "*Guidelines for Handling Desert Tortoises during Construction Projects*" (1994, rev. 1999). At least three clearance passes should be made to consider the area effectively cleared of desert tortoises; with two of these clearance surveys coinciding with temperatures conducive to tortoise activity (Karl and Resource Design Technology 2006).

Where exclusion fencing is not installed for construction zones, such as along the linear utility features, surveys should be conducted immediately prior to construction taking place. Tortoises and burrows encountered should be mapped for further monitoring. Construction in these unfenced areas would be continually monitored by biologists who would remove tortoises out of harm's way to nearby suitable habitat (i.e., in the animals' home ranges). Those tortoises and the construction zone would continue to be monitored to ensure that the tortoises are not injured.

4.3 Desert Tortoise Handling and Transport

A biologist experienced with desert tortoise ecology and the principles of conservation biology will direct the VV2 construction monitoring and translocation efforts. Only persons permitted by USFWS and CDFG through the auspices of issued incidental take permits will handle desert tortoises. Handling will only be done using approved techniques (e.g., Desert Tortoise Council, 1994) that incorporate the most recent, pertinent research data (e.g., Brown 2003).

Animal gender, carapace length, mass, overall condition, capture site location and description will be recorded for all animals handled. All tortoises handled will also be photographed and closely examined for clinical signs of animal disease (discussed further in Section 4.4) at the time of capture. Each adult tortoise will then be fitted with a light-weight radio transmitter having a battery life of at least one year (e.g., Holohil model AI-2F).

While no tortoises or burrows are currently known to occur within the linear utility feature construction zones, clearance surveys will be conducted in these areas prior to surface disturbance to ensure no animals would be placed at-risk by Project work. Any tortoises discovered in proximity to linear utility areas during construction work will be closely monitored to ensure these animals do not enter into harm's way. These animals will not be moved unless found to be at-risk, and then will be moved to an unrestricted location within the Project right-of-way, or to adjacent lands where approved by the respective landowner; thereby allowing these animals to remain within their established home range. The use of temporary exclusion fence installation will be considered where necessary in linear utility areas to prevent tortoise entry into active construction areas.

Those tortoises identified during clearance surveys that are to be translocated, i.e., those residing within the main VV2 power plant site and associated staging areas, will be examined, measured and assigned a unique number upon capture. Conditional to incidental take permit approvals anticipated for May, 2008 issuance, desert tortoises will be marked using small epoxy number placement on the animal's shell. Blood samples of each tortoise to be translocated will also be acquired for use in animal health assessment.

Transmitter attachment (Boarman et al. 1998) will allow tortoises to be kept in place at the point of capture during blood testing and facilitate animal relocation following acquisition of blood testing results. Tortoises fitted with transmitters, if any, should be monitored at least monthly and batteries replaced as necessary. Following translocation and a planned telemetry monitoring period of approximately six months, transmitters would be removed according to regulatory agency-approved procedures.

Those tortoises found healthy and disease-free would be moved to the selected translocation site. Tortoises assessed as clinically ill or diseased (see Section 4.4) will be transported separately from healthy tortoises to an approved adoption entity or research facility, according to regulatory agency direction.

Transport of desert tortoises to the selected translocation site should only occur when ground temperatures consistently do not exceed 42°C, so that animals can safely find refuge in potentially unfamiliar areas without the added constraints of warmer temperatures.

Tortoises moved to the selected translocation destination area will be transported via individual, sterilized tubs with taped, sterilized lids. Upon arrival at the selected translocation destination site, transported animals should be placed at artificial burrow entrances.

However, as artificial burrows are infrequently used by a tortoise readily, animals should only be moved when there is sufficient time and at an ambient temperature for the tortoise to either accept an artificial burrow or create/find another initial shelter site. All tortoises moved to the translocation destination site will be monitored to ensure shelter is acquired by the animal before being left on their own.

Juvenile tortoises discovered during clearance surveys that are to be translocated, if any, will be placed in a protective fenced enclosure at the selected translocation site. After a two-week acclimation period in the final translocation area, this protective enclosure will be modified (Morafka et al. 1997) to allow for animal departure. Following translocated animal departure, enclosure materials would be removed.

Desert tortoise nests identified during Project site clearance survey burrow excavation after April 15 will be moved to a microsite (e.g., shrub cover, soil type, substrate cover, direction relative to nearest shrub, if relevant) as similar to the locality found as possible (e.g., same degree of vegetative cover, plant species, soil substrate, aspect) in the selected translocation area, using standard techniques (e.g., Desert Tortoise Council, 1994). Any desert tortoise nests found between November and April are unlikely to be viable (Karl and Resource Design Technology 2006) and will not be moved during clearance surveys. Desert tortoise nests translocated, if any, will be protected according to the standard techniques cited above for facilitating optimum hatching success and carefully monitored.

Monitoring reports (Section 4.7) will be prepared by a designated biologist monthly for the duration of Project construction work. Project progress and mitigation measure implementation [see Table 1: Implementation Schedule] will be recorded; including the capture and release locations of all tortoises found, animal measurements, and other relevant data. A final mitigation report will also be prepared at the conclusion of Project construction, following translocation program completion, summarizing monitoring data.

4.4 Animal Health Considerations

Several diseases have been documented in wild desert tortoise populations in the Mojave Desert. These include an upper respiratory tract disease (URTD) commonly associated with *Mycoplasma agassizii* (Rostal and Lance 2003); as well as a similar disease complex connected to *Mycoplasma testudinium* and proliferative pneumonia (Jacobson and Berry 2004); a cutaneous dyskeratosis shell disease (Christopher et al. 2002, 2003), and a herpes virus (Origgi et al. 2002).

Upper respiratory tract disease and similar complexes are likely exacerbated by stress (M. Brown, pers. comm. to Tracy et al. 2004), which can be imposed on desert tortoises by drought, habitat degradation, poor nutrition and/or animal density (Saethre et al. 2003). It is also likely that certain levels of stress predispose desert tortoises to acquiring one or more of these diseases.

It is conceivable that the stress of translocation may either exacerbate existing disease or immunocompromise an animal to contract disease more easily. Other diseased animals must, however, be in the translocation area for healthy translocated tortoises to become infected. The current rate of infection in wild tortoise populations throughout the western Mojave Desert is unknown, but has been observed to be approximately 3-5 % in three sites located several miles northwest of the site (A. Karl, field notes).

Mycoplasma agassizii transmission involves direct contact with an infected tortoise (Brown *et al.* 2003). Desert tortoises are believed to be contagious during periods of acute phases, when they have clinical signs (Brown *et al.* 2003). Such signs include a mucous nasal discharge, wheezing, conjunctivitis, and lethargy.

According to Schumacher et al. (1997) positive clinical signs statistically correlate with positive serology (i.e., exposure to *M. agassizii*). A mucous nasal discharge was the clinical sign that was the most reliable predictor (93% of tortoises with a mucous nasal discharge were seropositive), although it could be caused by other pathogens. Positive serology [i.e., *M. agassizii*-specific antibodies detectable by an enzyme-linked immunosorbent assay (ELISA)] is indicative that a tortoise has been exposed to *M. agassizii* (Schumacher *et al*. 1993). While positive serology does not necessarily indicate an active infection by *M. agassizii,* it has generally been observed that seropositive tortoises are infected with *M. agassizii* (Drs. Lori Wendland and Mary Brown, University of Florida Mycoplasma Research Lab, pers. comm. Dr. Alice Karl, 2004).

All tortoises handled as part of this Translocation Plan will be examined for clinical signs of URTD symptoms, visible signs of herpes lesions and cutaneous dyskeratosis (Berry and Christopher 2001), with resulting data recorded for each animal. Blood sampling and ELISA tests for exposure to *M. agassizii* will be performed on all tortoises identified for translocation. Following initial blood sampling, tortoises will be fitted with transmitters and not moved until ELISA test results have been acquired, as described in Section 4.3 above. Verified ill tortoises will not be placed in situations where contagion can spread to healthy tortoises. Seropositive tortoises can survive in controlled environments where care is provided (Rostal and Lance 2003), and any such animals identified as part of this Translocation Plan will be placed in appropriate adoption or research facilities.

4.5 Translocation Scheduling

Project permits and approvals are currently anticipated to be finalized in May 2008. After careful consideration of planned Project work timetables and tortoise translocation temperature constraints, the following translocation schedule (Table 1) has been identified that would allow for a July 1, 2008 surface disturbance initiation date:

Phasing initial power plant/staging area surface disturbance to avoid all tortoise burrows and use areas during late spring and summer months, with final tortoise translocation completed in the cooler temperatures of late September or early October, 2008. Tortoise surveys involving a single pass would be conducted in April 2008 to ascertain a July through early September work zone excluding tortoise burrows and use areas. While this scheduling would not allow for active work throughout the entire construction footprint during late spring and summer months, it would allow for some construction activity to begin as scheduled in a manner not requiring the concurrent translocation of affected tortoises.

Accordingly, temporary tortoise exclusion fencing separating the active work area from occupied tortoise habitat would be installed following permit issuance in May, 2008. Similar fencing would be installed along the access route, in a manner not requiring tortoise handling/burrow excavation. The temporary fence-enclosed area would then be re-surveyed with two passes prior to work activities, to ensure that no tortoises are in the area. Fencing of remaining tortoise burrow/use areas would occur in late September or early October 2008, when ambient temperatures would be suitable for tortoise translocation. This fencing would be followed by two tortoise clearance survey passes and subsequent tortoise translocation.

Environmental protection and incidental take permit measures identified for the Project would be applied throughout all fencing and translocation work efforts. A 40 to 50 acre, fenced temporary holding area on a portion of the Project area, as described in Section 4.6, would be used for translocation needs should the final translocation area not be secured by late September, 2008.

Table 1. Implementation Schedule (2008-09) for the VV2 Translocation Program.

Task	Year 2008 Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Select translocation site option. Finalize private land transfer & management; or secure public land use approvals.												
Survey Project area. Determine initial work zones at power plant/staging areas avoiding tortoise burrows/use areas.												
Install fencing around initial work zones and along access road. Re-survey enclosures for tortoises prior to construction work.												
Soil disturbance in initial work zones.												
Install remaining tortoise exclusion fencing at power plant/staging areas and re-survey for tortoises.												
Conduct clearance surveys of power plant/staging area. Mark tortoises, affix transmitters, sample blood & complete ELISA testing. Healthy tortoises translocated & seropositive tortoises adopted.												
Monitor translocated tortoises.												
Construction work throughout entire Project area.												

Table 1 Continued. Implementation Schedule (2008-09) for the VV2 Translocation Program.

Task	Year 2008 Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Closely monitor work in linear utility areas. Move at-risk tortoises to approved location.					▨	▨	▨	▨	▨	▨	▨	▨
Monitor and maintain exclusion fences.					▨	▨	▨	▨	▨	▨	▨	▨
Monthly reporting.					▨	▨	▨	▨	▨	▨	▨	▨

Task	Year 2009 Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Construction work[1].	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	
Closely monitor work in linear utility areas. Move at-risk tortoises to approved location.	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	
Monitor and maintain exclusion fences.	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	
Remove temporary fencing & revegetate temporary impacts.											▨	
Monitor translocated tortoises.	▨	▨	▨									
Assess translocated tortoise health & remove transmitters.				▨								
Monthly reporting.	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	

[1] Power plant construction work within permanently fenced Project area.

4.6 Translocation Area Options and Considerations

Three translocation areas (Figure 4; modified from BLM 2005) have also been identified for healthy, disease-free tortoises translocated from the VV2 Project, where tortoises would remain as individuals of a wild population. These translocation area options include private or public lands situated proximal to, or at a distance from, the VV2 Project area. An onsite holding area contingency option has also been identified for considered use of these options, should securing the final translocation area not be completed by September, 2008. This short-term holding area would encompass 40-50 acres of suitable habitat in the immediate power plant vicinity and would be enclosed with temporary fencing to ensure translocated tortoise protection.

Health-compromised or seropositive tortoises, as explained previously in this document, would be translocated to captive locations associated with conservation, educational or research endeavors, or made available for adoption by approved entities. A 10-acre fenced "head-starting" natural area currently under construction at Edwards Air Force Base (Mark Hagan, pers. comm. 2008), with agency approval, could be considered for conservation, research and educational purposes.

Several factors must be considered in selecting an appropriate translocation area. Primary considerations include habitat suitability, parcel size and land availability in the western Mojave Desert. Location away from recreational/residential impact areas and outside desert tortoise critical habitat, or "Desert Wildlife Management Areas" (Figure 5, BLM 2005) in accordance with translocation guidelines for the species (Appendix 2), is desirable. The selected translocation area should be situated adjacent to large blocks of native habitat unlikely to be developed in the near future and must be protected.

Ideal translocation lands would include suitable habitat that encompasses the home range of tortoises affected by the Project. Public lands situated proximal to the Project are subject to disposal under a Land Tenure Adjustment (LTA) program (Figure 6; modified from BLM 2005). Private lands situated in proximity face considerable future development pressure (Figure 7). Lands located within Mohave ground squirrel (*Spermophilus mohavensis*) historic range (Figure 8; modified from BLM 2005) are also desirable, as compensatory habitat for this species may be required for the VV2 Project.

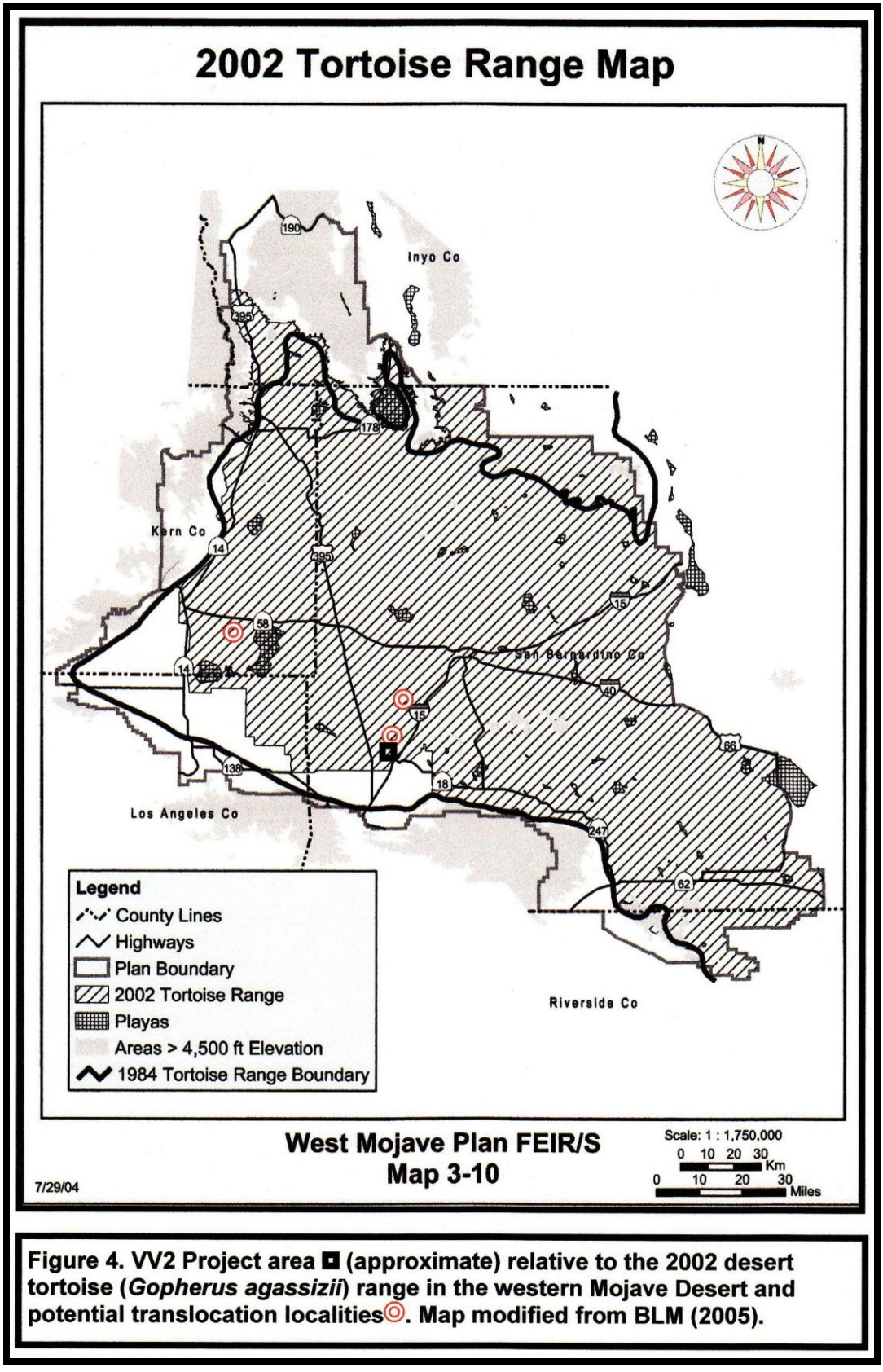

Figure 4. VV2 Project area ■ (approximate) relative to the 2002 desert tortoise (*Gopherus agassizii*) range in the western Mojave Desert and potential translocation localities◎. Map modified from BLM (2005).

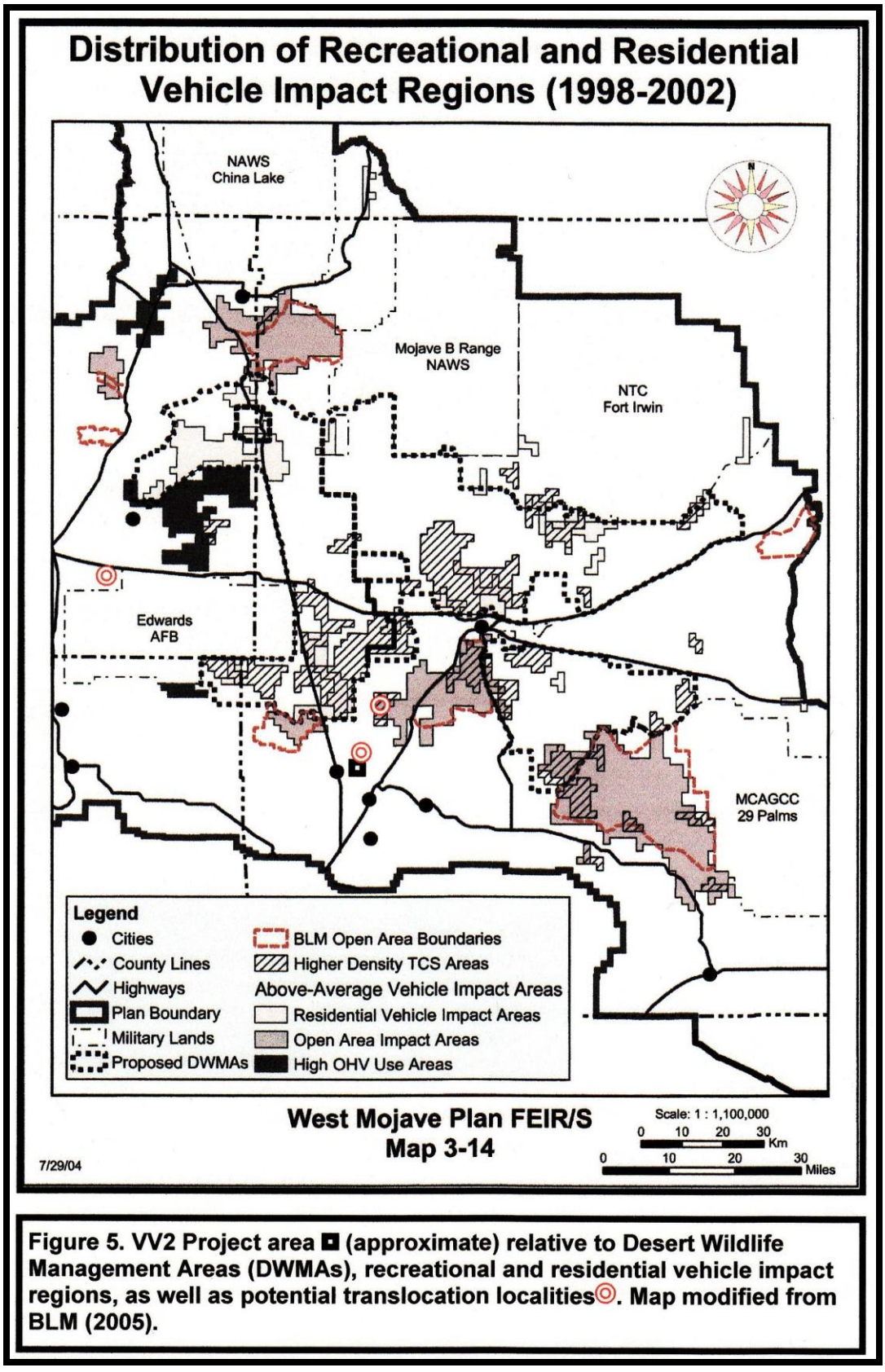

Figure 5. VV2 Project area ◘ (approximate) relative to Desert Wildlife Management Areas (DWMAs), recreational and residential vehicle impact regions, as well as potential translocation localities◎. Map modified from BLM (2005).

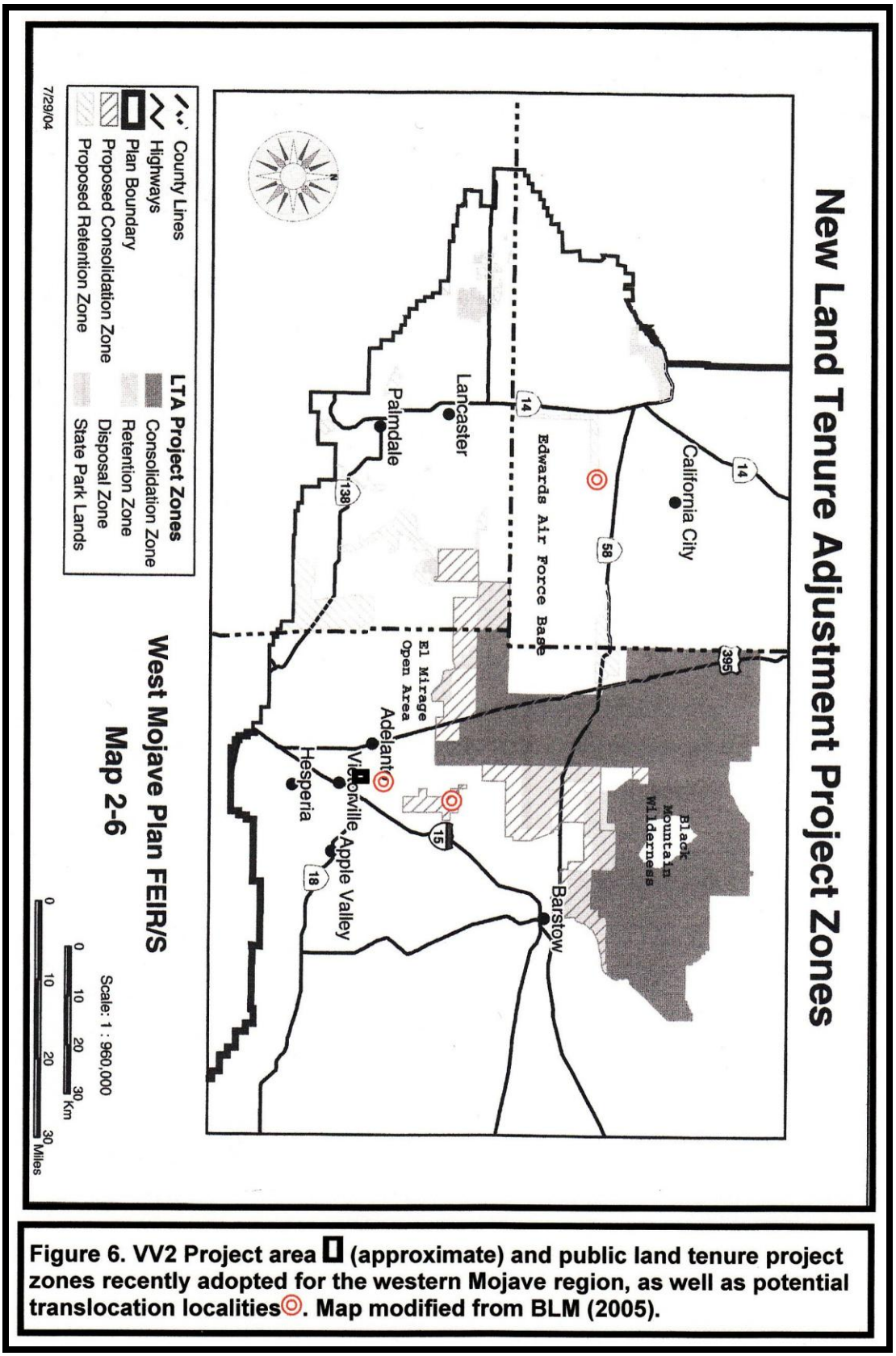

Figure 6. VV2 Project area ▯ (approximate) and public land tenure project zones recently adopted for the western Mojave region, as well as potential translocation localities◎. Map modified from BLM (2005).

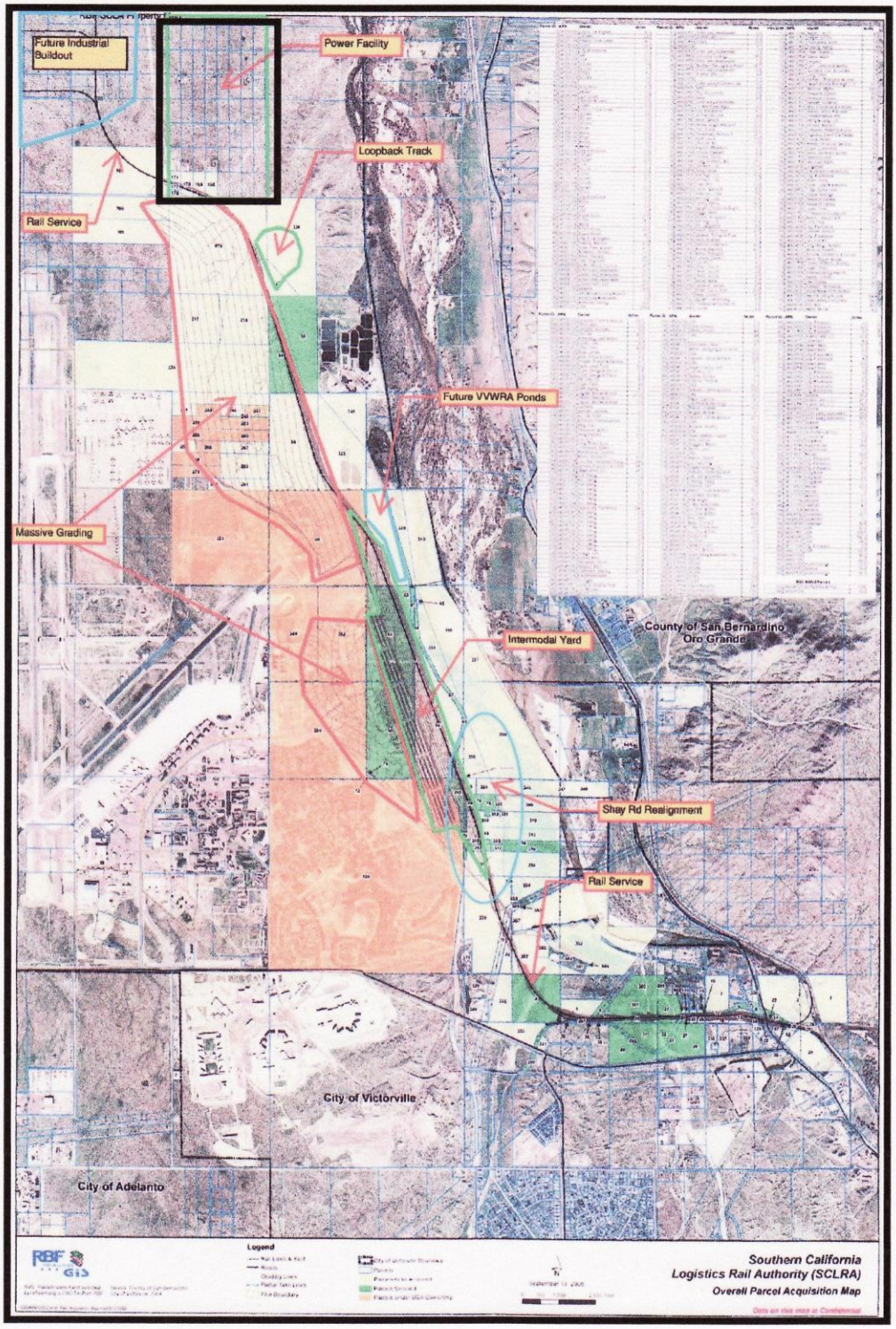

Figure 7. VV2 Project area ▯ (approximate) and proximal private land development planned. Map modified from RBF Consulting (2004).

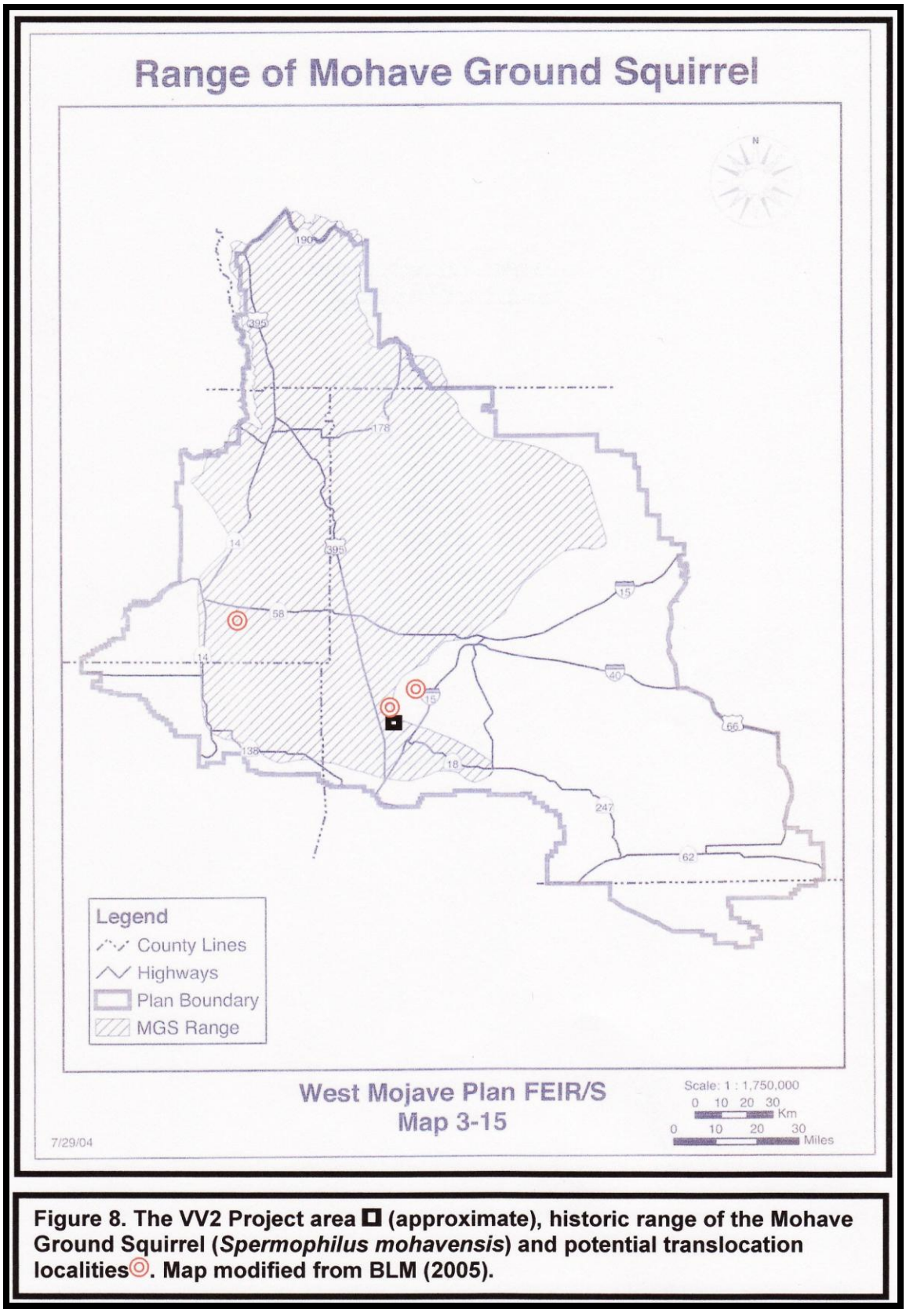

Figure 8. The VV2 Project area ◘ (approximate), historic range of the Mohave Ground Squirrel (*Spermophilus mohavensis*) and potential translocation localities◎. Map modified from BLM (2005).

Considerations in selecting a private land translocation site involve the time necessary to secure title to lands and the relative complexity of this task. Similarly, the time needed to fulfill BLM permitting requirements associated with the potential use of public land for translocation purposes or coordination tasks necessary for use of military lands are factors to be considered in selecting one of the translocation site options. The time and complexity of acquiring title to private lands, completing management agreements, and coordinating with various agencies can be considerable. Lands selected for translocation purposes must also be acquired and prepared prior to September, 2008.

Most importantly, the selected translocation area must support sufficient habitat to support the number of translocated tortoises that will use it. This consideration is dependent on the characteristics of the recipient tortoise population, the number and sex of animals to be translocated and the habitat quality of the translocation area.

Recent two-year telemetry studies in the western Mojave Desert (Harless et al. 2007) using the minimum convex polygon and fixed kernel (i.e., a statistical approach to measuring home range size) home range estimators have estimated the average home range for males at 45 ha (111 acres) and at 16 ha (39 acres) for females [N = 35; 20 males and 15 females]. Another similar telemetry study (Berry et al. 2007) using a kernel estimator (95% mean size) estimated the average home range for males at 39.8 ha (98 acres) [SD=28.3 ha (70 acres)] and at 9.4 ha (23 acres) [SD=6.6 ha (16 acres)] for females [N = 27; 16 males and 11 females]. Only small portions of home ranges for some alpha males overlapped and core portions of their ranges were found to be isolated from each other. This study also found female tortoise core areas to be separated from each other; and core areas for both sexes to vary by season (Berry et al. 2007).

As the translocation of two or more desert tortoises is anticipated from the VV2 Project's permanent disturbance area, access to 100 acres or more may be preferable in providing an optimum home range habitat base for one male tortoise and perhaps a secondary female or male tortoise. A smaller acreage base however, may very well provide adequate habitat for a small number of translocated tortoises, especially if these lands contain high quality habitat and are situated adjacent to other suitable habitat.

Summarily, the amount and quality of habitat in an available land parcel and its configuration relative to other habitat can be a limiting factor in translocation site selection. Public or private ownership also has bearing on what approvals, land preparation tasks, and management funding may be required to secure such lands.

On the basis of these considerations, the three translocation areas identified to date which retain translocated tortoises in a wild status can be summarized as:

1. **Private lands located in proximity to the Project area (Figure 9).** With this option, proximal private land would be acquired and managed long-term for translocated tortoises by the CDFG, or by an entity approved by CDFG and commissioned by the VV2 Project to manage the land. Potential future development impacts (Figures 6-7) would have to be carefully considered with this option.

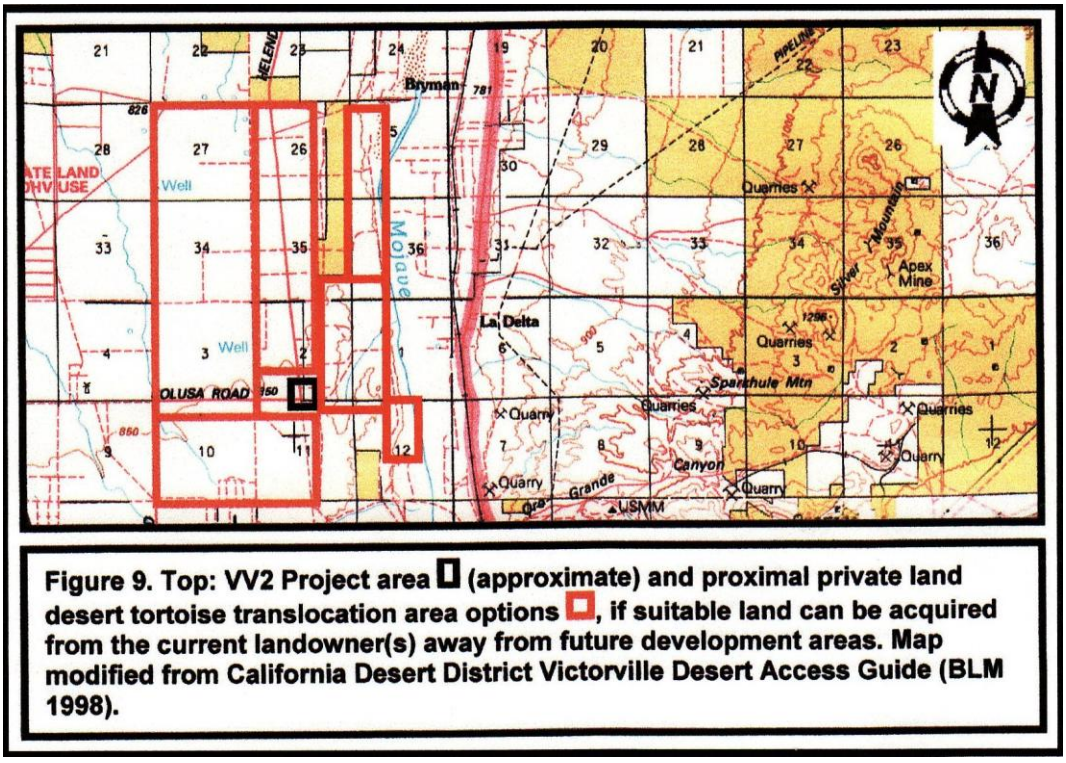

Figure 9. Top: VV2 Project area ▯ (approximate) and proximal private land desert tortoise translocation area options ▯, if suitable land can be acquired from the current landowner(s) away from future development areas. Map modified from California Desert District Victorville Desert Access Guide (BLM 1998).

If a suitable property could be acquired in this project-proximal locality, a conservation easement agreement or property title transfer could be finalized that defines the legal status of such land, subject to regulatory agency approvals.

This option would require a viable land management entity, an approved long-term management plan for acquired lands and the provision of a long-term property management endowment. An approved conservation easement or alternatively, a title transfer to CDFG, may also be required with this option.

Many private lands situated proximal to the Project that provide suitable desert tortoise habitat similarly provide habitat for the Mohave ground squirrel (MGS). If acquired translocation lands in the vicinity were managed according to management guidelines specified by CDFG, such translocation acreage would count towards fulfilling any MGS compensation habitat requirements associated with the Project.

2. **Private lands located in the western Mojave Desert, away from the Project area (Figure 10).** With this option, non-proximal private land would be acquired in the western Mojave Desert by the VV2 Project or by an entity approved by CDFG and commissioned by the VV2 Project to manage the land. Those considerations, management requirements and agency approvals described for translocation area option 1 above would similarly apply. Lands used for this purpose would have to be capable of supporting a small number of translocated tortoises.

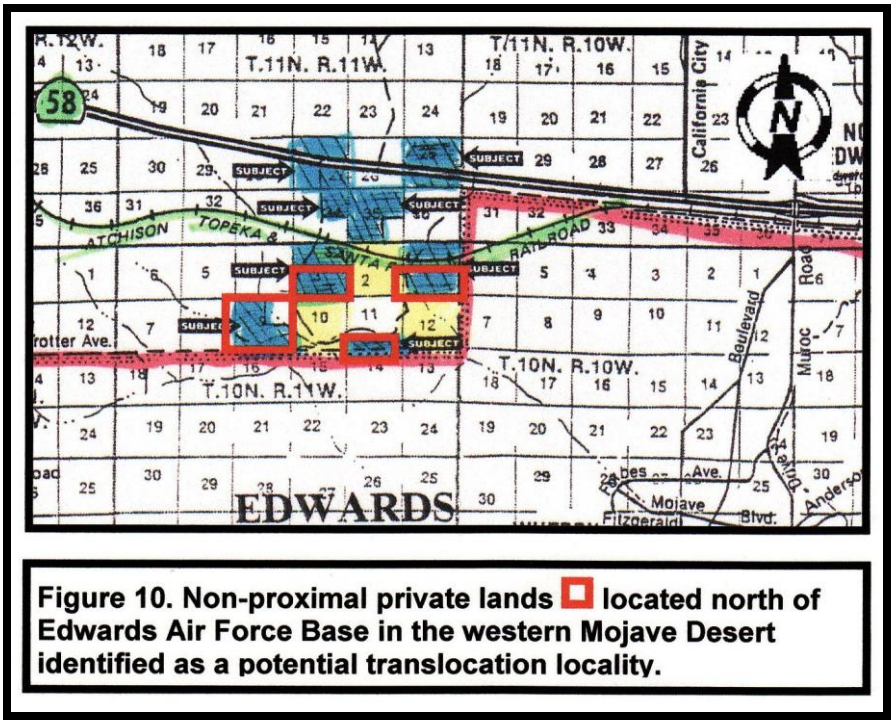

Figure 10. Non-proximal private lands ☐ located north of Edwards Air Force Base in the western Mojave Desert identified as a potential translocation locality.

Similar to option 1 above, a management endowment would be required in the use of a non-proximal private land translocation area. Should suitable MGS habitat be present on these lands, acquired acreage would count towards fulfilling any MGS compensation requirements. Organizations approved by regulatory agencies to provide mitigation banking services, including acquisition and management of private lands for conservation purposes, are known in the region.

3. **Public lands located in the vicinity of the VV2 Project area (Figure 11).** An agreement with the BLM's Barstow Field Office for use of public lands would be required for this option. Few large blocks of public land are located in the immediate VV2 Project area, although there are some smaller properties that may be adequate for the translocation of a few tortoises. Public lands in proximity are unclassified properties identified for disposal under the BLM's LTA Program or are limited use class public lands designated as desert tortoise critical habitat (Figure 6).

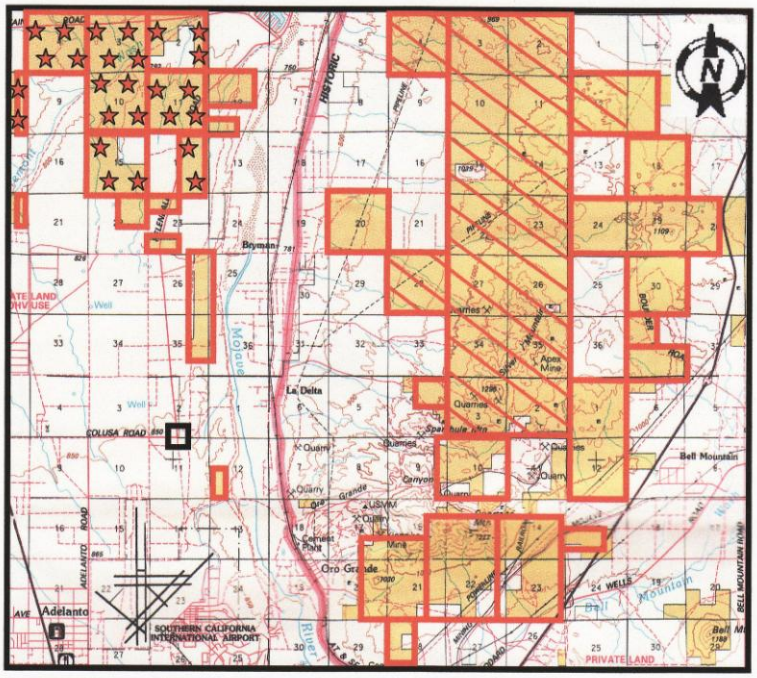

Figure 11. The VV2 Project area (approximate) and potential public land locality translocation options. Public lands (in yellow) both outside of desert tortoise critical habitat and designated for parcel retention per the current Land Tenure Adjustment Program (BLM 2005), are situated northeast of the Project. Map modified from California Desert District Victorville Desert Access Guide (BLM 1998).

Other limited use class public lands not designated as tortoise critical habitat do exist east of the Mojave River, as depicted in Figure 6. These lands could potentially serve as a viable desert tortoise translocation site, although they are situated outside currently recognized MGS habitat and in a high recreational use area (Figure 5).

A land tenure adjustment for those public lands situated proximal to the Project currently identified for LTA disposal may be needed to allay land disposition concerns, if these lands are considered for tortoise translocation. Realty processing fees, translocation area fencing and minimal monitoring costs would likely apply with use of any public land option, although habitat management endowment fees are seldom required for public lands relative to desert tortoises. Public lands also are seldom accepted by CDFG to satisfy MGS compensation acreage requirements.

In considering private land identified as potentially suitable for translocation of desert tortoises in the VV2 Project vicinity (Figure 9), it is important to note that varying development pressure is anticipated in the region (Figures 5-7). Private property located closest to the Project (Township 6 North, Range 5 West, Sections 1-3, 10-12; Township 7 North, Range 5 West, Sections 34, 35) which supports both MGS and tortoise habitat, is anticipated to face a high degree of adjacent land development pressure (BLM 2006). The use of these private lands as a permanent desert tortoise translocation area should be carefully considered in the context of this potential future development.

Private land located north of Edwards Air Force Base at Township 10 North, Range 11 West, Sections 1, 3, 9, 11; and Township 11 North, Range 11 West, Sections 25, 27, 34, 35 (Figure 10), which supports both MGS and tortoise habitat, is the preferred area for acquisition of compensation land and is unlikely to experience adjacent development pressure. However, some of these lands are situated near a portion of Highway 58 not currently fenced to exclude tortoises. Some of these potential translocation parcels are also bisected by an active railroad not currently fenced to exclude tortoises. Private properties located next to the Edwards Air Force Base boundary, away from both Highway 58 and the railroad, are preferred if this area is considered for translocation, to avoid potential sources of tortoise mortality.

Only a very few public land parcels are located in the immediate VV2 Project area and these are situated within designated desert tortoise critical habitat or in BLM's LTA disposal area (Township 7 North, Range 5 West, in Sections 26 and 35; and Township 6 North, Range 5 West, Section 12) , as depicted in Figure 11. A larger block of public lands is located east of the Mojave River, north of Silver Mountain and south of Brisbane Valley (Figure 12), that contains acreage identified for retention outside desert tortoise critical habitat (Township 7 North, Range 4 West, Sections 2, 3, 10-12, 14, 15, 22-24).

The above public lands are outside the range of MGS. Recreational use in this area is high, but suitable tortoise habitat is known to occur. BLM has identified this locality to potentially meet VV2 Project translocation needs (pers. comm. Dr. Larry LaPre, BLM, 2007).

Completion of a formal conservation easement or property title transfer to CDFG is usually required for use of private land translocation area. This generally entails the preparation of habitat characterization and hazardous material survey reports, as well as the provision of title processing fees (averaging $3,000/title deed). Real estate transfers or conservation easements for such purposes also necessitate the preparation of a property management plan and assignment of a commissioned entity to carry out plan prescriptions.

In addition, short-term habitat enhancements are sometimes needed for private lands to prepare conservation easement or transferred conservation properties for translocation and/or conservation management purposes. CDFG currently requires a fee $250/acre for short-term habitat endowment purposes. Third party mitigation banking entities often calculate such costs on a case-by-case basis.

The long-term management of any conservation easement or transferred property also entails various costs that require funding. CDFG currently requires a fee of $1,300/acre endowment for long-term habitat management of private/state land for desert tortoise and MGS. Third party mitigation banking entities generally require their own long-term habitat management endowment fee. However, the long-term endowment fee currently required by CDFG could conceivably be used for this purpose, with agency approval.

4.7 Translocation Site Management

Completion of a public land lease per BLM realty provisions and/or development of a Memorandum of Understanding with a local BLM field office would be necessary to utilize public lands for translocation purposes. Approval by BLM's California State Office is also required for any public land wildlife translocation.

Site-specific National Environmental Policy Act (NEPA) documentation would be required and any such lands must be managed per the agency's multiple-use mandate. BLM's West Mojave Plan (2005) has outlined long-term conservation objectives relative to the desert tortoise and MGS for lands to be retained in public ownership.

Acclimation to the selected translocation area by translocated tortoises would be facilitated if property habitat elements were similar to those found at the VV2 Project area. Any translocation area considered for the VV2 Project should be assessed on the ground for habitat suitability and potential long-term management constraints prior to a final selection being made.

4.8 Translocation Site Preparation

Once the translocation area is approved and acquired, a site characterization should be completed prior to moving tortoises onto the property. All tortoise sign occurring onsite and in the immediate (0.25 mile) zone of influence should be mapped and fully described. Fencing needs and other potential anthropogenic impact considerations should also be assessed at this time.

Two artificially-created burrows of approximately four to six feet-length should be prepared at the selected translocation site for each desert tortoise to be moved, using a gas-powered auger, prior to animal relocation. Concurrent with tortoise capture at the VV2 clearance area, surface soil and scat from each individual tortoise's capture burrow should be placed in the artificial burrow to which a tortoise will be introduced, to assist with acclimation (Karl and Resource Design Technology 2006).

Juvenile tortoises are more subject to depredation than are adults and should be provided with extended protection from predators if any are moved as part of the VV2 Project. Optimal protection can be facilitated through installation of a predator-proof enclosure. The size of the enclosure will depend on the number of tortoises found, but could start at 20 feet in diameter and be extended to approximately 50 feet if more than three juvenile tortoises are contained.

After these juvenile tortoises, if any, have become familiar with the site's odors and landmarks for two weeks, escape holes in the lower edge of the enclosure can be constructed (Morafka et al. 1997). Following juvenile tortoise departure, all enclosure material would be removed from the translocation site.

Closely monitoring tortoise movements immediately after translocation may facilitate the identification of potential problems at the selected site. Any management issues identified through this initial monitoring should be addressed in a timely fashion. Once tortoises have acclimated and established a home range at the translocation site, movement away from this use area is anticipated to be minimal. At the Hyundai Motor America Desert Tortoise Translocation Study Site, two of 14 translocated tortoises moved approximately 400 meters away from the fenced translocation site within 16 months following removal of the tortoise fencing (Karl 2007). At a second study site, two of 12 translocated tortoises subsequently moved offsite within approximately eight months following fence removal (Karl, field notes).

4.9 Translocation Animal Monitoring and Reporting

Monitoring of translocated tortoises will provide useful information for future translocation actions. Translocated desert tortoises would be monitored by qualified personnel using telemetry and casual observation for five days/month during September, October and November, 2008 as well as in March-April 2009. The focus of this monitoring effort would be to observe how translocated animals respond to their new habitat. Another primary emphasis of monitoring would be to ensure translocation site management issues are identified and rectified quickly. Monitoring observations would be reported to state and federal regulatory agencies on a monthly basis.

Information on animal movements, habitat use, behavioral interactions and survival of translocated tortoises would be recorded throughout the course of this monitoring effort. Overall health and movements of translocated tortoises would be tracked over a six month telemetry period, in comparison with health indices assessed at the point of capture. Survival over the monitoring period would be recorded.

While collected monitoring information would be considered anecdotal in nature, such data would be analyzed in a manner designed to formulate prescriptions for future translocations involving small numbers of tortoises.

Monthly reports would include an analysis of all pertinent desert tortoise health and habitat use observations, data on animal movements recorded from telemetry study, as well as any issues encountered in translocation property management. The Project's final translocation monitoring report would include recommendations on how to improve techniques and conservation property management to enhance translocation program success.

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STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 07-AFC-1
	)	
Application for Certification, for the VICTORVILLE 2 HYBRID POWER PROJECT by the City of Victorville	)	**ELECTRONIC PROOF OF SERVICE LIST**
	)	
	)	**(revised September 6, 2007)**
	)	
	)	

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DECLARATION OF SERVICE

I, Paul Kihm, declare that on March 17, 2008, I deposited a copy of the attached:

BIOLOGICAL ASSESSMENT SECOND ADDENDUM

with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the California Energy Commission. I further declare that transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service List above.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 17, 2008, at Costa Mesa, California.

Paul Kihm