# Appendix G

Transportation Study for San Miguelito Road
Strauss Wind Energy Project

# Transportation Study

*for*

# San Miguelito Road
# Strauss Wind Energy Project

Santa Barbara County, California

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Project No. 16-702

***Prepared for:***

#

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## 1.0 Introduction and Purpose of Study:

This Study has been prepared to determine the viability of transporting components and equipment for the Strauss Wind Energy Project, (hereinafter sometimes referred to as "Project"), over a 4-mile curvilinear segment of San Miguelito Road which runs south of Lompoc California, in Santa Barbara County.

This Study should be considered a supplement to a Transportation Study by the Transport company of St. Cloud, Minnesota, hereinafter referred to as "ATS". The Study by ATS investigated the feasibility and requirements to transport the Project's wind energy components from the City of Bakersfield to the City of Lompoc, California. Said ATS Study entitled "Strauss Wind Project Review", dated February 24, 2017, indicated that the presence of tree canopy on aerial photos prohibited a precise analysis of the 4-mile segment of San Miguelito Road which runs south of the City of Lompoc to a proposed Project "laydown" area at the intersection of Sudden Road. Therefore an "on-site" field evaluation was needed, to confirm the existing conditions of the subject segment of San Miguelito Road. For this Study, it is noted that ATS personnel assisted in the on-site field analysis of San Miguelito Road and provided the capabilities of transport equipment that would be used for the Strauss Wind Energy Project. ATS will also likely supervise the transport of Project components to the site.

## 1.1 Description of Strauss Wind Energy Project

The Strauss Wind Energy Project is a renewable energy project consisting of 30 wind energy turbines to be erected in existing ranching lands generally southwest of the City of Lompoc in Santa Barbara County. The project will be "sited" within private lands lying southwest of the City of Lompoc and bordering Vandenburg Air Force Base. The Project site is approximately 2,988 acres and comprises 11 parcels in the County of Santa Barbara (APN's 083-100-008, 083-250-011, 083-250-016, 083-250-019, 083-090-001, 083-090-002, 083-090-003, 083-080-004, 083-100-007, 083-100-004 and 083-090-004).

Exhibit "A", in Appendix B herein, is a small-scale drawing of the entire limits of the Project and its vicinity, including the City of Lompoc, and San Miguelito Road.

## 1.2 Scope of Study:

This report is a study of the feasibility of transporting wind turbine components over a 4 mile segment of San Miguelito Road running from the south City limits of Lompoc, to a proposed "Laydown" site at the intersection of Sudden Road. This study is an evaluation of roadway geometrics, both horizontal and vertical, to accommodate the turning movement of trucks that will haul in Project components. This Study does not evaluate the structural integrity of the road or any anticipated pavement degradation from the Project. This Study provides a general description of modifications to the geometrics and cross-section of San Miguelito Road that will

be needed to allow transport of wind turbine components. As discussed in further detail later, these generally include shaving back of "cut-slopes", brush removal, limited tree removal, tree trimming, temporary removal of roadside panels, and possible modifications to the roadway profile at select locations. Shaving of cut slopes and removal of obstacles generally occur along the inside radii of road curves. In addition, this report provides estimates of earthwork and removal of larger trees along the route.

This Study is not intended to be used as the final engineered Plan for modifications to San Miguelito Road. Although the data herein will be used as the basis for preparation of the final Plans. It is assumed that during Project "design", engineered Plans will be prepared which will be reviewed by all appropriate agencies.

### 1.3 Description of San Miguelito Road

Within the limits of the Study, San Miguelito Road is a rural road, at approximately 16 to 30-feet in width, provides access to ranching and farming property south of the City of Lompoc. San Miguelito Road also provides access to Vandenburg Air Force Base (VAFB) facilities, and ultimately terminates at the property line for VAFB.

Although no vehicle counts were performed for this Study, San Miguelito Road has very minimal traffic generally consisting of ranching traffic, government vehicles accessing VAFB gates, City of Lompoc maintenance crews, and some recreational users to the park site. During the course of field analysis during the month of October 2017, there were no heavy loads or truck traffic observed.

San Miguelito Road has a curvilinear alignment through hilly terrain that roughly parallels the San Miguelito Creek watercourse. Much of the road is cut into the hill side slope with brush on either side and a tree canopy. San Miguelito Road is paved with asphalt concrete of unknown depth and unknown structural section.

There are numerous culverts under the roadway that drain into San Miguelito Creek. These are relatively small corrugated metal pipe culvert with the largest being about 42-inches in diameter. All culverts seem to be maintained and functioning well. Some of these culverts have less than desirable cover, especially at the upstream end.

Exhibit "B", included in Appendix B herein, includes an aerial photo of San Miguelito Road showing the limits of analysis. In addition, Exhibit "B" validates that much of the road cannot be seen from an aerial photo due to the presence of a tree canopy.

Again, this study does not evaluate the structural integrity of the road. Generally; however, San Miguelito Road appears stable, with very little evidence of failing base, or sliding. Locations that show alligator cracking, suggesting base failure, are very few in number and have well defined

limits. Similarly, there some isolated areas that exhibit some movement of the road base. However, the City of Lompoc has not neglected maintenance on this roadway as crews were observed inspecting and maintaining culverts, down-drains, and AC dikes during the field review for this report. In addition, there is evidence of frequent crack-sealing with liquid asphalt. Both efforts help extend the life of the asphalt concrete pavement. However, the pavement of San Miguelito Road, due to its age, has become brittle and cracked, with exposed aggregate. The road is in need of some sort of overlay such as a chip seal or 0.12 foot or more overlay of new asphalt concrete. A seal coat of an asphaltic emulsion or rejuvenating agent would help temporarily.

Likely due to the age of the road, comprehensive as-built plans showing the current state of improvements, including geometrics, could not be located within City of Lompoc or County of Santa Barbara archives. Both agencies expended a considerable effort to locate old plans with very limited success. Incomplete sets of plans dated November 19, 1954 and April 1971 were located by the County of Santa Barbara. To fill the voids of missing information, LAV field survey crews collected topographical data of the existing roadway.

Ground-level photos included in Appendix "A" herein provide typical views of San Miguelito Road within the Study limits.

### 1.4 Equipment and Material to be Transported

The turbine blade, at 60 meters, or 213 feet, is the critical component which is used to determines the feasibility of using San Miguelito Road as a transport route; and is the basis for any modification to said route.

## 2.0 Method of Analysis

In limited detail, a step by step of the methods of analysis for San Miguelito Road, as follows:

A. As stated, the presence of a tree canopy and the lack of comprehensive as-built plans has prevented an analysis of San Miguelito geometrics from record data or photos. Therefore, as part of this Study, LAV Consulting survey crews were dispatched to perform a topographical survey of the San Miguelito Road alignment. The topographical survey performed for this Study is based on the North American Datum of 1983 California State Plane Coordinate System – Zone 5, (CC5). Said survey crews determined both horizontal location and elevation of points along the pavement edges of San Miguelito Road.

   The field data collected by the LAV survey crews provided sufficient points such that a map of San Miguelito Road was prepared with accurate geometrics. In addition to horizontal geometrics, the existing vertical profile was determined and plotted.

Exhibit "B" herein shows a very small-scale drawing of the horizontal alignment as well as vertical profile of San Miguelito Road. Again, an electronic file in both AutoCAD and PDF format is included as part of this report.

B. Using AutoTURN Software for Autodesk, the horizontal geometrics of San Miguelito Road were analyzed for the ability to accommodate the turning movements of a tractor truck and trailer transporting a 65-meter turbine blade.

   AutoTURN Software for Autodesk provides vehicle swept path analysis and turning simulations for standard trucks and trailers combinations. The required wheel path for said transporting trucks and trailers necessary to negotiate the horizontal alignment of San Miguelito Road were plotting and superimposed on the actual "field-verified" geometry of San Miguelito Road.

   An electronic file in both AutoCAD and PDF format have been included in Appendix C herein, which show the result of the AutoTURN analysis over the subject 4 miles of San Miguelito Road. In addition, Exhibit D, included in Appendix B, show several worst-case locations for San Miguelito Road.

C. As problematic sections of San Miguelito Road become evident during the analysis, remediation such as modification of geometrics, removal or trimming of trees and brush, and temporary removal of other roadside obstructions are determined.

D. Although AutoTURN software is state of the art turning simulation software, it does not model a tractor pulling a trailer with independently steerable rear axles. As indicated, ATS will likely transport Wind Turbine Components, and their representative has indicated their transport trailers have steerable rear axles that are controlled remotely by the rear pilot car driver. Obviously, this system with skilled operators can better negotiate obstacles and much smaller radii turns than conventional transport truck with trailer or semi-trailer.

E. Given the limitation of turning movement simulation software, a "boots on the ground" survey was conducted for the subject segment of San Miguelito Road. This survey was supervised by a representative of ATS, and utilized personnel to stretch a tape of approximately 200 feet, walking through critical turns to represent a truck hauling a 65-meter blade on a trailer. In this case the trailer length is just shy of 184 feet, but the end of the blade will extend 29 feet and 7 inches beyond the back of the trailer. In this case, the blade will vertically clear a 5 foot high obstacle. As discussed in the following Section, the findings and proposed modifications to San Miguelito Road to allow passage of said critical rig, have been identified.

   Exhibit "C", included in Appendix B herein, shows the dimensions of a truck and trailer hauling the 65-meter turbine blade. Any transport route with the horizontal and vertical

geometrics to accommodate this combination of truck, trailer, and payload, will be satisfactory for any other turbine component.

F. Finally, during the field survey for turning movements, vertical clearance and removal of any objections or tree trimming was identified to assure a vertical clearance of 16 feet once inch.

Again, the "findings" from the analysis is presented in the following Section.

## 3.0 Findings

Again, Exhibit "B" shows both the actual horizontal and vertical geometrics for San Miguelito Road. Again, this data is based on a field survey. Centerline curve radii for the subject segment of San Miguelito Road range from 127 to 650 feet. There are numerous broken back curves, and reverse curves with no intervening tangents. A computed design speed, based on available sight distance does not exceed 25 miles per hour.

The legal road right-of-way for San Miguelito is variable and a precise survey of this right-of-way was beyond the scope of this Study. The San Miguelito Road alignment appears to "float" within the legal right of way.

Exhibit "D" shows the wheel path for a typical tractor and semi-trailer turning movement through several representative curves of San Miguelito. This Exhibit indicates much of the Study Segment of San Miguelito could not be negotiated by a typical tractor & semi-trailer, without substantial modification to the Road. Again, however, the transport company, ATS, will provide trailers with independent rear axles that are electronically and remotely steered. With this rig, it has been determined that San Miguelito Road can be negotiated with some modifications. The following Table 1 provide locations and limits where modifications along San Miguelito are needed. Table 1 provides a description of the proposed modification, and quantities for any earthwork or mature trees that need to be removed. In addition, Table 1 references extensive photos for each work location, that have been included in Appendix A.

## Table 1: Modifications to San Miguelito Road - See also Photolog of Work in Appendix "A"

| Modification # | Station Limits of Work | | Recommendations for Work to be Performed | Quantities | | | | | | Reference Photo No.'s | Old points from transportation meeting | | Location (pt. # corresponding to KMZ file) | | Tree Inventory | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Earthwork Quantities | | Removals, Plating & Misc. Items | | | | | | | | | | | | | | |
| | From | To | | Cut (cys) | Fill/Base (cys) | Trees (ea) | "Brush" (sf) | Paddle Markers (ea) | Steel Plates over Culvert Crossings (ea) | | From | To | From | To | Tree # | Latitude | Longitude | Species by Common Name | Est. Height (feet) | Tree DBH (inches) |
| 1 | 16+75 | 19+25 | Photo 1: Modification #1 – Photo faces "up-station" (Northeast) from reference point No. 1/**Station 17+00**. Between **Stations 16+75 and 19+25, right side**, remove 250 linear feet of fencing along the southeast side of roadway; place and compact one foot of native material fill to extend the width of the road 12 feet at mid-chord location – (lesser at curve BC and EC). Replace barb wire fencing in-kind to accommodate modified alignment. | | 74 | | | | | 1 & 2 | 1 | 2 | 1 | 2 | | | | | | |
| 2 | | | Intentionally Left Blank | | | | | | | | 5 | 5 | | | | | | | | |
| 3 | 36+25 | 36+25 | Photo 3: Modification #3: Photo was taken at reference point No. 5/ **Station 36+25:** Work includes removal of the paddle marker and metal tee bar along southeast edge of pavement (right side facing "up-station"). | | | | | 2 | | 3 | 6 | 7 | 5 | 5 | | | | | | |
| 4 | 35+75 | 38+25 | Photo 4: Modification #4: Photo was taken at reference point No. 6/**Station 37+30** facing "up-station". Between **Stations 35+75 and 38+25, right side**, clear brush within 8 feet from edge of pavement and place roughly an 8-inch depth of base material to raise low shoulder. | | 50 | | 2000 | | | 4 | | | 6 | 6 | | | | | | |
| 5 | 40+50 | 40+50 | Photo 5: Modification #5: Photo was taken at reference point No. 7/**Station 40+50**, facing "up-station". At this location furnish and install steel plates over the existing culvert to disperse wheel loads. Culvert has minimal cover at inlet side. Temporarily remove the existing paddle at the culvert. | | | | | 1 | 2 | 5 | | | 7 | 7 | | | | | | |
| 6 | 42+00 | 43+50 | Photo 6: Modification #6: Photo was taken at reference point No. 8/**Station 42+50** and faces "up-station". Between **Stations 42+00 and 43+50,** cut into the slope 8 feet (horizontal from inside edge of pavement) for a longitudinal distance of 150 feet. Excavate material and slope to "daylight" at 1-1/2 Horizontal to 1 Vertical. | 900 | | | | | | 6 | 9 | 10 | 8 | 9 | | | | | | |
| 7 | 40+00 | 43+00 | Photo 7: Modification #7: Photo was taken at reference point No. 10/**Station 42+00**, and faces "up-station". Between **Stations 40+00 and 43+00,** clear brush on the "left" side for width of 6 feet. | | | | 1800 | | | 7 | | | 10 | 10 | | | | | | |
| 8 | 45+70 | 48+70 | Photo 8: Modification #8: Photo was taken at reference point No. 12/**Station 47+25** and faces "down-station". Between **Stations 45+70 and 48+70,** clear an 8-foot width of brush along "left" side of roadway for 300 linear feet. Perform minor grading within limit to remove some material to create smooth shoulder. Remove the paddle and underground conduit markers. | 45 | | | 2400 | 3 | | 8 | 12 | 12 | 11 | 12 | | | | | | |
| 9 | 46+00 | 49+30 | Photo 9: Modification #9: Photo was taken at reference point No. 13/**Station 48+00** and faces "down-station". Between **Stations 46+00 and 49+30,** (330 linear feet), remove the "hump" in the roadway profile – roughly located at "X" in pavement. Re-pave limits of removal with asphalt concrete upon completion of the profile modification. | 500 | 122 | | | | | 9 | 13 | 13 | 13 | 13 | | | | | | |
| 10 | 58+50 | 60+00 | Photo 10: Modification #10: Photo was taken at reference point No. 15/**Station 59+25** and faces generally "up-station". Although difficult to see in the photo, a swale exists along the "left" side of the roadway. Between **Stations 58+50 and 60+00**, work includes the import and placement of native material to fill in a swale.Tree count starting from Station 58+50 and 62+00. | | 45 | | | | | 10 | 15 | 15 | 15 | 16 | 417<br>418<br>419<br>420<br>454<br>456 | 34.57555008<br>34.57557678<br>34.57556915<br>34.57556915<br>34.57561111<br>34.57583237 | -120.5021362<br>-120.502182<br>-120.5022202<br>-120.5022202<br>-120.5020676<br>-120.5025864 | coast live oak | 26.2<br>26.2<br>26.2<br>32.8<br>18.0<br>13.1 | 11.8<br>29.7<br>24.2<br>27.6<br>15.8 + 16.2<br>4.4 + 8.8 + 9.5 |
| 11 | 62+45 | 63+95 | Photo 11: Modification #11: Photo faces "up-station" at reference point No. 17/**Station 62+45**: Between **Stations 62+45 and 63+95**, this work includes widening the "left" side shoulder by cutting the slope back an additional horizontal distance of 8 feet from the existing toe of slope. Excavate material and slope at 1-1/2 Horizontal to 1 Vertical to daylight. Grade new shoulder and place base if necessary for stability. | 180 | 15 | | | | | 11 | 16 | 18 | 17 | 18 | | | | | | |
| 12 | 68+00 | 73+25 | Photo 12: Modification #12. Photo was taken facing "down-station" at reference point No. 20/**Station 73+25**. Between **Stations 68+00 and 73+25,** work includes clearing a 10-foot swath of brush along the left side or inside edge of pavement, grading to create a smooth shoulder, importing and placement a maximum of 6-inch depth of aggregate base to stabilize soft shoulder. | | 100 | | 5250 | | | 12 | | | 19 | 20 | | | | | | |
| 13 | 73+25 | 76+00 | Photo 13: Modification #13. Photo was taken facing "up-station" at reference point No. 21/**Station 73+75**. Between **Stations 73+25 and 76+00,** work includes cutting the slope back for a horizontal distance of 8 feet measured from the existing edge of road. Excavate material and slope at 1-1/2 Horizontal to 1 Vertical to daylight. | 655 | | | | | | 13 | 21 | 22 | 21 | 22 | | | | | | |
| 14 | 76+00 | 78+50 | Photo 14: Modification #14. Photo was taken facing "down-station" at reference point No. 2**Station 77+75**. Between **Stations 76+00 and 78+50,** work includes removal of a paddle marker and minor brush trimming. | | | | 1500 | 1 | | 14 | | | 23 | 23 | 416 | 34.575195 | -120.49717 | coast live oak | 39.4 | 33.8 |
| 15 | 78+00 | 80+00 | Photo 15: Modification #15: Photo was taken facing "up-station" at reference point No. 24/**Station 78+50**. Between **Stations 78+00 and 80+00,** work includes cutting the slope back to a horizontal distance of 7 feet from the existing edge of road. Excavate material and slope at 1-1/2 Horizontal to 1 Vertical to daylight. | 415 | | | | | | 15 | 23 | 24 | 24 | 25 | 414<br>415<br>436 | 34.575706<br>34.575645<br>34.575546 | -120.49646<br>-120.496513<br>-120.496803 | coast live oak | 19.7<br>26.2<br>29.5 | 11.3<br>21.9<br>19.7 |
| 16 | 80+00 | 81+50 | Photo 16: Modification #16: Photo was taken facing "up-station" at reference point No. 26/**Station 80+60**. Between **Stations 80+00 and 81+50,** work includes modifying roadway profile to remove "dip". A transverse cold-planed joint will be cut at limits of profile modification, and existing pavement will be overlain with new asphalt concrete to span and remove the "dip". | 195 | 60 | | | | | 16 | 25 | 25 | 26 | 28 | 413<br>434<br>435 | 34.575787<br>34.575649<br>34.575581 | -120.496002<br>-120.496117<br>-120.496277 | coast live oak | 19.7<br>29.5<br>9.8 | 12.5<br>33.5<br>6.9 |

| Modification # | Station Limits of Work | | Recommendations for Work to be Performed | Quantities | | | | | | Reference Photo No.'s | Old points from transportation meeting | | Location (pt. # corresponding to KMZ file) | | Tree Inventory | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Earthwork Quantities | | Removals, Plating & Misc. Items | | | | | | | | | | | | | | |
| | From | To | | Cut (cys) | Fill/Base (cys) | Trees (ea) | "Brush" (sf) | Paddle Markers (ea) | Steel Plates over Culvert Crossings (ea) | | From | To | From | To | Tree # | Latitude | Longitude | Species by Common Name | Est. Height (feet) | Tree DBH (inches) |
| 17 | 81+40 | 81+40 | Photo 17: Modification #17. Photo was taken at reference point No. 27/**Station 81+40** facing a tree to be removed on the "left" side of the road, within the inside radius of curve. | | | 1 | | | | 17 | | | 27 | 27 | 412<br>413<br>433 | 34.575699<br>34.575787<br>34.575672 | -120.495834<br>-120.496002<br>-120.495789 | coast live oak | 19.7<br>19.7<br>14.8 | 11.7<br>12.5<br>12 |
| 18 | 84+95 | 84+95 | Photo 18: Modification #18: Photo was taken at reference point No. 30/**Station 84+95** facing the tree on inside radius of curve that may need to be removed. It is possible removal may be avoided with substantial trimming of overhanging limbs (See Photo 20). Although, not shown in this photo, two other similar and adjacent trees may also need to be removed in this vicinity (for a total of (3) trees to be removed). | | | 3 | | | | 18 | 27 | 27 | 30 | 31 | | | | | | |
| 19 | 83+30 | 87+00 | Photo 19: Modification #19: Photo was taken facing "down-station" at reference point No. 32/**Station 85+50**. Between **Stations 83+30 and 87+00** work at this location includes modification of roadway to lower the profile a maximum of 4-feet (at the crest of the vertical curve). Total length of the modified profile section of roadway will be re-paved after completion of profile modification. In addition, work at this location includes cutting the slope back 2 feet into the outer radius (right side – when facing "up-station") of the road. | 1120 | | | | | | 19 | 27 | 27 | 32 | 32 | 407<br>408<br>409<br>410<br>447<br>448<br>449 | 34.57634<br>34.576294<br>34.576164<br>34.57608<br>34.576706<br>34.576706<br>34.576706 | -120.495026<br>-120.495079<br>-120.494904<br>-120.495056<br>-120.494728<br>-120.494728<br>-120.494728 | coast live oak | 36.1<br>39.4<br>36.1<br>26.2<br>32.8<br>32.8<br>32.8 | 35.1<br>41.4<br>30.5<br>10<br>12.5<br>12.5<br>12.5 |
| 20 | 86+00 | 86+00 | Photo 20: Modification #20. Photo was taken facing "up-station" at reference point No. 33/**Station 86+00**. In lieu of complete tree removal, (as described in Photo 18/**Station 84+95**), removal of large overhanging limbs may be an option. | | | | | | | 20 | | | 33 | 33 | | | | | | |
| 21 | 89+50 | 94+00 | Photo 21: Modification #21: Photo was taken facing "down-station" at reference point No. 34/**Station 89+65**. Between **Stations 89+50 and 94+00** work includes removal of brush for a width of 8 feet along both the inside and outside radius of the curve. Tree count starting from Station 88+00. | | | | 7200 | | | 21 & 22 | | | 34 | 34 | 430<br>431<br>458 | 34.576893<br>34.576996<br>34.576885 | -120.494675<br>-120.494766<br>-120.494873 | coast live oak | 32.8<br>39.4<br>39.4 | 23.8<br>15<br>15.0 + 15.0 + 15.0 |
| 22 | 90+50 | 90+50 | Photo 23: Modification #22. Photo was taken facing "up-station" at reference point No. 35/**Station 90+50**. Work includes removal of culvert paddle markers. In addition, steel plates should be placed to protect culvert pipe with very little cover and failing pavement. | | | | | 2 | 2 | 23 | 40 | 40 | 35 | 36 | | | | | | |
| 23 | | | Intentionally Left Blank | | | | | | | | 44 | 44 | 37 | 38 | | | | | | |
| 24 | 93+00 | 93+00 | Photo 24: Modification #24. Photo was taken facing "down-station" at reference point No. 39/**Station 93+00**. Work includes trimming overhead trees to provide vertical clearance of 16.1 feet. Tree removal is not needed. | | | | | | | 24 | | | 39 | 39 | | | | | | |
| 25 | 92+25 | 93+75 | Photo 25: Modification #25. Photo was taken generally facing "up-station" at reference point No. 40/**Station 93+25**. Between **Stations 92+25 and 94+00,** work includes cutting the slope back 3 feet, (measured horizontally from the existing toe of slope). Excavate excess material and slope to daylight at 1-1/2 Horizontal and 1 Vertical. Excavation will require the removal of 3 mature trees. (Tree clumps have been considered one tree). Tree around Station 96+00. | 235 | | 3 | | | | 25 | 45 | 45 | 40 | 40 | 432 | 34.578907 | -120.493996 | coast live oak | 32.8 | 12.5 |
| 26 | 99+00 | 100+00 | Photo 26: Modification #26: Photo was taken generally facing "down-station" at reference point No. 41/**Station 99+50**. Between **Stations 99+00 and 100+00,** work includes removing the existing willow tree (in the foreground), and removal of brush for a distance of 50 feet either side of tree. Additional work at this location includes placement of steel plates over the existing culvert pipe, and grading to create a 4 foot wide shoulder along the limit of brush removal. | 15 | | 1 | 400 | | 2 | 26 | 51 | 51 | 41 | 41 | | | | | | |
| 27 | 104+00 | 106+00 | Photo 27: Modification #27: Photo was taken generally facing "up-station" at reference point No. 42/**Station 105+00**. Between **Stations 104+00 and 106+00,** work includes cutting the slope back 8 feet measured from the inside/right side edge of pavement (also toe of slope). Excavate slope at 1-1/2 Horizontal to 1 Vertical to daylight Tree count starting from Station 102+00. | 415 | | | | | | 27 | 52 | 54 | 42 | 43 | 429<br>438<br>439<br>440<br>441<br>442<br>443<br>444<br>445<br>446<br>452<br>453<br>457 | 34.581581<br>34.581341<br>34.581169<br>34.581097<br>34.581036<br>34.581017<br>34.581032<br>34.580963<br>34.580883<br>34.580688<br>34.581287<br>34.580841<br>34.580841 | -120.494225<br>-120.494026<br>-120.493912<br>-120.49382<br>-120.493881<br>-120.493912<br>-120.493835<br>-120.493881<br>-120.493828<br>-120.493828<br>-120.49398<br>-120.49382<br>-120.493942 | coast live oak 12<br>box elder 1 | 32.8<br>26.2<br>29.5<br>32.8<br>26.2<br>26.2<br>26.2<br>16.4<br>26.2<br>19.7<br>29.5<br>26.2<br>19.7 | 15<br>18.8<br>26.3<br>27.6<br>11.3<br>18.8<br>15<br>12.5<br>20.1<br>28.8<br>21.9 + 11.3<br>13.8 + 14.4<br>8.8 + 12.5 + 11.9 |
| 28 | 106+50 | 109+00 | Photo 28: Modification #28: Photo was taken facing "down-station" at reference point No. 44/**Station 107+55**. Between **Stations 106+50 and 109+00,** work includes removal of an underground cable marker, two mature trees, brush along the "left" side (or inside radius of curve) and minor grading to smooth and extend shoulder. | 140 | | 2 | 2500 | 1 | | 28 & 29 | 55 | 55 | 44 | 47 | | | | | | |
| 29 | 107+50 | 108+50 | Photo 30: Modification #29: Photo was taken facing "up-station" at reference point No. 48/**Station 108+00**. Between **Stations 107+50 and 108+50,** work includes removing 2 trees on the inner radius of the road (left side); and a 6-foot width of brush removal. | | | 2 | 600 | | | 30 | | | 48 | 49 | | | | | | |
| 30 | 108+50 | 110+90 | Photo 31: Modification #30: Photo was taken facing "up-station" at reference point No. 51/**Station 109+15**. Between **Stations 108+50 and 110+90,** work includes cutting the slope back 5 feet from the inside radius of the curve (right side), measured horizontally from the existing toe of slope. Excavate material and slope cut at 1-1/2 Horizontal to 1 Vertical to daylight. | 890 | | | | | | 31 | 60 | 61 | 51 | 53 | | | | | | |
| 31 | 110+00 | 111+50 | Photo 32: Modification #31: Photo was taken facing "down-station" at reference point No. 52/**Station 111+00**. Between **Stations 110+00 and 111+50,** work includes removing brush on the outer radius of the road (left side) and adding 8 feet of road base to the shoulder. | | 360 | | 1200 | | | 32 | 62 | 62 | 50 | 53 | | | | | | |

| Modification # | Station Limits of Work | | Recommendations for Work to be Performed | Quantities | | | | | | Reference Photo No.'s | Old points from transportation meeting | | Location (pt. # corresponding to KMZ file) | | Tree Inventory | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Earthwork Quantities | | Removals, Plating & Misc. Items | | | | | | | | | | | | | | |
| | From | To | | Cut (cys) | Fill/Base (cys) | Trees (ea) | "Brush" (sf) | Paddle Markers (ea) | Steel Plates over Culvert Crossings (ea) | | From | To | From | To | Tree # | Latitude | Longitude | Species by Common Name | Est. Height (feet) | Tree DBH (inches) |
| 32 | | | Intentionally Left Blank | | | | | | | | | | | | | | | | | |
| 33 | 111+90 | 114+10 | Photo 33: Modification #33: Photo was taken facing "down-station" at reference point No. 54/**Station 113+50**. Between **Stations 111+90 and 114+10,** work requires removal of the "hump" in the roadway profile – roughly located at the yellow arrow. Pavement to be removed and roadway re-graded within said limits. Roadway section to be re-paved with asphalt concrete upon completion of profile revision. | 205 | 85 | | | | | 33 | 63 | 63 | 54 | 54 | | | | | | |
| 34 | 114+75 | 116+00 | Photo 34: Modification #34: Photo was taken generally facing "down-station" at reference point No. 55/**Station 115+75**. Between **Stations 114+75 and 116+00**, work includes placement of a 3 to 4-inch depth of aggregate base to the "left" shoulder (left side) to provide a width of 8 feet. | | 15 | | | | | 34 | 64 | 64 | 55 | 55 | | | | | | |
| 35 | 116+00 | 116+00 | Photo 35: Modification #35: Photo was taken facing "down-station" at reference point No. 56/**Station 116+00**. Work includes removing a tree on the outer radius of the road (left side). | | | 1 | | | | 35 | | | 56 | 56 | | | | | | |
| 36 | 116+35 | 117+50 | Photo 36: Modification #36: Photo was taken generally facing "up-station" at reference point No. 57/**Station 116+35**. Between **Stations 116+35 and 117+50,** work includes removing a rock on the inner radius of the road and trimming back brush and trees on inside radius (right side) to provide 8 more feet of clear area. | | | 3 | 920 | | | 36 | | | 57 | 57 | | | | | | |
| 37 | 118+00 | 121+00 | Photo 37: Modification #37: Photo was taken facing "up-station" at reference point No. 58/**Station 118+00**. Between **Stations 118+00 and 121+00,** the near vertical cut slope needs to be cut back another 8 feet from the existing toe of slope. It has been assumed that the vertical angle of the proposed cut slope can be as steep as the existing condition. It is anticipated the proposed excavation will require the removal of 9 trees at the top of the existing slope. In addition, the paddle marker shown on the left side of the road will be removed temporarily. | 1800 | | 9 | | 1 | | 37 | 67 | 67 | 58 | 59 | | | | | | |
| 38 | 122+00 | 124+00 | Photo 38: Modification #38: Photo was taken generally facing "down-station" at reference point No. 60/**Station 123+00**. Between **Stations 122+00 and 124+00,** work includes removing a paddle marker and cutting the slope 6 feet back from the inside radius of the road, and daylighting at a 1 Horizontal to 1Vertical slope. Excavation will require the removal of 4 trees located at the top of the existing slope. | 445 | | 4 | | | | 38 | 68 | 68 | 60 | 60 | | | | | | |
| 39 | 124+15 | 124+15 | Photo 39: Modification #39: Photo was taken generally facing "down-station" at reference point No. 63/**Station 124+15**. The canopied trees need to be trimmed to provide 16.1 feet of vertical clearance. | | | | | | | 39 | | | 63 | 63 | | | | | | |
| 40 | 125+00 | 125+00 | Photo 40: Modification #40: Photo was taken general facing "down-station" at reference point No. 64/**Station 125+00**. Work includes plating the culvert and removing a paddle marker. | | | | | 1 | 2 | 40 | | | 64 | 64 | | | | | | |
| 41 | 124+50 | 126+30 | Photo 41: Modification #41: Photo was taken generally facing "up-station" at reference point No. 65/**Station 125+75**. Between **Stations 124+50 and 126+30**, work includes removing a 6-foot width of brush from the inner radius (right side) of San Miguelito Road. Tree count starting from Station 124+00 to 128+00. | | | | 1080 | | | 41 | | | 65 | 65 | 425<br>426<br>427<br>428<br>437<br>450<br>451<br>455 | 34.587154<br>34.587116<br>34.587074<br>34.586422<br>34.58688<br>34.586426<br>34.587116<br>34.586849 | -120.49353<br>-120.493568<br>-120.493599<br>-120.493607<br>-120.493622<br>-120.493614<br>-120.493553<br>-120.493591 | coast live oak | 26.2<br>26.2<br>26.2<br>32.8<br>32.8<br>32.8<br>32.8<br>32.8 | 11.3<br>12.8<br>19.4<br>12.5<br>22.7<br>9.4 + 10.7<br>13.5 + 10.8<br>27.1 + 27.1 |
| 42 | 130+50 | 130+50 | Photo 42: Modification #42: This Google Earth photo was taken generally facing "up-station" at reference point No. 66/**Station 130+50**. Between **Stations 130+00 and 131+00** work includes removing three mature trees on the left side of the road. In addition, remove miscellaneous brush within the limits of the tree removal.Tree count starting from Station 129+00 to 132+00. | | | 3 | 600 | | | 42 | | | 66 | 66 | 423<br>424<br>459 | 34.587833<br>34.587921<br>34.587742 | -120.492905<br>-120.492752<br>-120.493073 | coast live oak 2<br>arroyo willow 1 | 32.8<br>19.7<br>9.8 | 31.5<br>22.1<br>5.6 + 8.8 + 6.5 + 6.5 |
| 43 | 131+30 | 136+00 | Photo 43: Modification #43: Photo was taken generally facing "up-station" at reference point No. 67/**Station 131+65**. Between **Stations 131+30 and Station 136+00**, cut back slope such that the face of cut is a minimum of 10-feet from existing edge of pavement. Given the rocky nature, a steep cut slope of 1 Horizontal to 1 Vertical may be possible. Although not visible in the photo, there are 10 trees that need to be removed at the top of the slope.Tree around Station 132+00. | 5000 | | 10 | | | | 43, 44, & 45 | 72 | 75 | 67 | 69 | 422 | 34.588421 | -120.492737 | coast live oak | 32.8 | 24.6 |
| 44 | 134+65 | 134+65 | Photo 46: Modification #44: The photo was taken facing "up-station" at reference point No. 68/**Station 134+65**. Consideration was given to raising utility line, or completely removing pole. However, it was decided that no work would be done at this location. Photo was included for reference only. | | | | | | | 46 | | | 68 | 68 | | | | | | |
| 45 | | | Intentionally Left Blank | | | | | | | | | | | | | | | | | |
| 46 | 136+00 | 136+00 | Photo 47: Modification #46: Photo faces "down-station" at reference point No. 70/**Station 136+00**. Work includes trimming the tree on the right side of the road to provide vertical clearance of 16.7 feet. | | | | | | | 47 | | | 70 | 70 | 421 | 34.588791 | -120.491516 | coast live oak | 26.2 | 26.6 |
| 47 | 139+50 | 142+50 | Photo 48: Modification #47: Photo taken using Google Earth and faces "up-station" at reference point No. 71/**Station 139+90**. Between **Stations 139+50 and 142+50** includes cutting back existing brush on the left side of the road a roughly of 8 feet from the edge of pavement. Additional work will include, removing reflector signs (left and right side of the road), and plating the open exposed culvert (left side). | | | | 2400 | 2 | 2 | 48 | | | 71 | 71 | | | | | | |
| 48 | 189+00 | 189+00 | Photo 49: Modification #48: Photo was taken from Google Earth and faces "up-station" at reference point No. 72/**Station 189+00**. Work includes trimming the indicated tree on the left side of the road. Additionally, any brush encroaching into the plane of the edge of pavement should be cut back. | | | | | | | 49 | | | 72 | 72 | | | | | | |

| Modification # | Station Limits of Work | | Recommendations for Work to be Performed | Quantities | | | | | | Reference Photo No.'s | Old points from transportation meeting | | Location (pt. # corresponding to KMZ file) | | Tree Inventory | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Earthwork Quantities | | Removals, Plating & Misc. Items | | | | | | | | | | | | | | |
| | From | To | | Cut (cys) | Fill/Base (cys) | Trees (ea) | "Brush" (sf) | Paddle Markers (ea) | Steel Plates over Culvert Crossings (ea) | | From | To | From | To | Tree # | Latitude | Longitude | Species by Common Name | Est. Height (feet) | Tree DBH (inches) |
| 49 | 205+25 | 205+25 | Photo 50: Modification #49: Photo was taken from Google Earth and faces "up-station" at reference point No. 7 **Station 205+30**. Work includes trimming the trees along the on the left side of the road. | | | | | | | 50 | | | 73 | 73 | | | | | | |
| | | | **Total** | 13155 | 926 | 42 | 29850 | 14 | 10 | | | | | | 54 | | | | | |

## 4.0 Conclusions and Recommendations:

This Study should not be used in place of engineered plans for the modification of San Miguelito Road. However, most of the data provided herein, including the topographical survey, should be the basis of final design for recommended modifications.

Engineered Plans should include a precise survey or verification of the road right-of-way, as well as the following components: a geotechnical evaluation of roadway cuts steeper than 2 horizontal to vertical, traffic control plan, plan and profile of any vertical modifications, storm water erosion control measures or Best Management Practices (BMP's).

With implementation of the modifications identified in Table 1, the analysis herein has shown that San Miguelito Road within the subject Study limits can successfully be used to transport the Project's wind turbine components, including the 65-meter blades, from the south City limit of Lompoc to the location of the proposed "laydown yard" at the intersection of Sudden Road.

# APPENDIX “A”:
# **Site Photos and Work Descriptions**

Photo 1: Modification #1 – Photo faces "up-station" (Northeast) from reference point No. 1/**Station 17+00**. Between **Stations 16+75 and 19+25, right side**, remove 250 linear feet of fencing along the southeast side of roadway; place and compact one foot of native material fill to extend the width of the road 12 feet at mid-chord location – (lesser at curve BC and EC). Replace barb wire fencing in-kind to accommodate modified alignment.

Photo 2: Modification #1: Photo faces "down-station" at reference point No. 2 – Approximate **Station 19+00**. Photo provide for information.

Modification #2: Intentionally left blank.

Photo 3: Modification #3: Photo was taken at reference point No. 5/ **Station 36+25:** Work includes removal of the paddle marker and metal tee bar along southeast edge of pavement (right side facing "up-station").

Photo 4: Modification #4: Photo was taken at reference point No. 6/**Station 37+30** facing "up-station". Between **Stations 35+75 and 38+25, right side**, clear brush within 8 feet from edge of pavement and place roughly an 8-inch depth of base material to raise low shoulder.

Photo 5: Modification #5: Photo was taken at reference point No. 7/**Station 40+50**, facing "up-station". At this location furnish and install steel plates over the existing culvert to disperse wheel loads. Culvert has minimal cover at inlet side. Temporarily remove the existing paddle at the culvert.

Photo 6: Modification #6: Photo was taken at reference point No. 8/**Station 42+50** and faces "up-station". Between **Stations 42+00 and 43+50,** cut into the slope 8 feet (horizontal from inside edge of pavement) for a longitudinal distance of 150 feet. Excavate material and slope to "daylight" at 1-1/2 Horizontal to 1 Vertical.

Photo 7: Modification #7: Photo was taken at reference point No. 10/**Station 42+00**, and faces "up-station". Between **Stations 40+00 and 43+00,** clear the brush on the "left" side for a width of 6 feet.

Photo 8: Modification #8: Photo was taken at reference point No. 12/**Station 47+25** and faces "down-station". Between **Stations 45+70 and 48+70,** clear an 8-foot width of brush along "left" side of roadway for 300 linear feet. Perform minor grading within limit to remove some material to create smooth shoulder. Remove the paddle and underground conduit markers.

Photo 9: Modification #9: Photo was taken at reference point No. 13/**Station 48+00** and faces "down-station". Between **Stations 46+00 and 49+30,** (330 linear feet), remove the "hump" in the roadway profile – roughly located at "X" in pavement. Re-pave limits of removal with asphalt concrete upon completion of the profile modification.

Photo 10: Modification #10: Photo was taken at reference point No. 15/**Station 59+25** and faces generally "up-station". Although difficult to see in the photo, a swale exists along the "left" side of the roadway. Between **Stations 58+50 and 60+00**, work includes the import and placement of native material to fill in a swale.

Photo 11: Modification #11: Photo faces "up-station" at reference point No. 17/**Station 62+45**: Between **Stations 62+45 and 63+95**, this work includes widening the "left" side shoulder by cutting the slope back an additional horizontal distance of 8 feet from the existing toe of slope. Excavate material and slope at 1-1/2 Horizontal to 1 Vertical to daylight. Grade new shoulder and place base if necessary for stability.

Photo 12: Modification #12. Photo was taken facing "down-station" at reference point No. 20/**Station 73+25**. Between **Stations 68+00 and 73+25,** work includes clearing a 10-foot swath of brush along the left side or inside edge of pavement, grading to create a smooth shoulder, importing and placement a maximum of 6-inch depth of aggregate base to stabilize soft shoulder.

Photo 13: Modification #13. Photo was taken facing "up-station" at reference point No. 21/**Station 73+75**. Between **Stations 73+25 and 76+00,** work includes cutting the slope back for a horizontal distance of 8 feet measured from the existing edge of road. Excavate material and slope at 1-1/2 Horizontal to 1 Vertical to daylight.

Photo 14: Modification #14. Photo was taken facing "down-station" at reference point No. 23/**Station 77+75**. Between **Stations 76+00 and 78+50,** work includes removal of a paddle marker and minor brush trimming.

Photo 15: Modification #15: Photo was taken facing "up-station" at reference point No. 24/**Station 78+50**. Between **Stations 78+00 and 80+00,** work includes cutting the slope back to a horizontal distance of 7 feet from the existing edge of road. Excavate material and slope at 1-1/2 Horizontal to 1 Vertical to daylight.

Photo 16: Modification #16: Photo was taken facing "up-station" at reference point No. 26/**Station 80+60**. Between **Stations 80+00 and 81+50,** work includes modifying roadway profile to remove "dip". A transverse cold-planed joint will be cut at limits of profile modification, and existing pavement will be overlain with new asphalt concrete to span and remove the "dip".

Photo 17: Modification #17. Photo was taken at reference point No. 27/**Station 81+40** facing a tree to be removed on the "left" side of the road, within the inside radius of curve.

Photo 18: Modification #18: Photo was taken at reference point No. 30/**Station 84+95** facing the tree on inside radius of curve that may need to be removed. It is possible removal may be avoided with substantial trimming of overhanging limbs (See Photo 20). Although, not shown in this photo, two other similar and adjacent trees may also need to be removed in this vicinity (for a total of (3) trees to be removed).

Photo 19: Modification #19: Photo was taken facing "down-station" at reference point No. 32/**Station 85+50**. Between **Stations 83+30 and 87+00** work at this location includes modification of roadway to lower the profile a maximum of 4-feet (at the crest of the vertical curve). Total length of the modified profile section of roadway will be re-paved after completion of profile modification. In addition, work at this location includes cutting the slope back 2 feet into the outer radius (right side – when facing "up-station") of the road.

Photo 20: Modification #20. Photo was taken facing "up-station" at reference point No. 33/**Station 86+00**. In lieu of complete tree removal, (as described in Photo 18/**Station 84+95**), removal of large overhanging limbs may be an option.

Photo 21: Modification #21: Photo was taken facing "down-station" at reference point No. 34/**Station 89+65**. Between **Stations 89+50 and 94+00** work includes removal of brush for a width of 8 feet along both the inside and outside radius of the curve.

Photo 22: Modification #21. Photo was taken facing "down-station" at reference point No. 38/**Station 92+00**. Work includes brush removal as described in Photo 21. Paddle markers will also be temporarily removed.

Photo 23: Modification #22. Photo was taken facing "up-station" at reference point No. 35/**Station 90+50**. Work includes removal of culvert paddle markers. In addition, steel plates should be placed to protect culvert pipe with very little cover and failing pavement.

Modification #23: Intentionally left blank.

Photo 24: Modification #24. Photo was taken facing "down-station" at reference point No. 39/**Station 93+00**. Work includes trimming overhead trees to provide vertical clearance of 16.1 feet. Tree removal is not needed.

Photo 25: Modification #25. Photo was taken generally facing "up-station" at reference point No. 40/**Station 93+25**. Between **Stations 92+25 and 94+00,** work includes cutting the slope back 3 feet, (measured horizontally from the existing toe of slope). Excavate excess material and slope to daylight at 1-1/2 Horizontal and 1 Vertical. Excavation will require the removal of 3 mature trees. (Tree clumps have been considered one tree).

Photo 26: Modification #26: Photo was taken generally facing "down-station" at reference point No. 41/**Station 99+50**. Between **Stations 99+00 and 100+00,** work includes removing the existing willow tree (in the foreground), and removal of brush for a distance of 50 feet either side of tree. Additional work at this location includes placement of steel plates over the existing culvert pipe, and grading to create a 4 foot wide shoulder along the limit of brush removal.

Photo 27: Modification #27: Photo was taken generally facing "up-station" at reference point No. 42/**Station 105+00**. Between **Stations 104+00 and 106+00,** work includes cutting the slope back 8 feet measured from the inside/right side edge of pavement (also toe of slope). Excavate slope at 1-1/2 Horizontal to 1 Vertical to daylight.

Photo 28: Modification #28: Photo was taken facing "down-station" at reference point No. 46/**Station 107+55**. Between **Stations 106+50 and 109+00,** work includes removal of an underground cable marker, two mature trees, brush along the "left" side (or inside radius of curve) and minor grading to smooth and extend shoulder.

Photo 29: Modification #28: Photo was taken facing "up-station" at **Station 106+50**. Photo provided for information (see Photo 28 for work description).

Photo 30: Modification #29: Photo was taken facing "up-station" at reference point No. 48/**Station 108+00**. Between **Stations 107+50 and 108+50,** work includes removing 2 trees on the inner radius of the road (left side); and a 6-foot width of brush removal.

Photo 31: Modification #30: Photo was taken facing "up-station" at reference point No. 51/**Station 109+15**. Between **Stations 108+50 and 110+90,** work includes cutting the slope back 5 feet from the inside radius of the curve (right side), measured horizontally from the existing toe of slope. Excavate material and slope cut at 1-1/2 Horizontal to 1 Vertical to daylight.

Photo 32: Modification #31: Photo was taken facing "down-station" at reference point No. 52/**Station 111+00**. Between **Stations 110+00 and 111+50,** work includes removing brush on the outer radius of the road (left side) and adding 8 feet of road base to the shoulder.

Modification #32: Intentionally left blank.

Photo 33: Modification #33: Photo was taken facing "down-station" at reference point No. 54/**Station 113+50**. Between **Stations 111+90 and 114+10,** work requires removal of the "hump" in the roadway profile – roughly located at the yellow arrow. Pavement to be removed and roadway re-graded within said limits. Roadway section to be re-paved with asphalt concrete upon completion of profile revision.

Photo 34: Modification #34: Photo was taken generally facing "down-station" at reference point No. 55/**Station 115+75**. Between **Stations 114+75 and 116+00**, work includes placement of a 3 to 4-inch depth of aggregate base to the "left" shoulder (left side) to provide a width of 8 feet.

Photo 35: Modification #35: Photo was taken facing "down-station" at reference point No. 56/**Station 116+00**. Work includes removing a tree on the outer radius of the road (left side).

Photo 36: Modification #36: Photo was taken generally facing "up-station" at reference point No. 57/**Station 116+35**. Between **Stations 116+35 and 117+50,** work includes removing a rock on the inner radius of the road and trimming back brush and trees on inside radius (right side) to provide 8 more feet of clear area.

Photo 37: Modification #37: Photo was taken facing "up-station" at reference point No. 58/**Station 118+00**. Between **Stations 118+00 and 121+00,** the near vertical cut slope needs to be cut back another 8 feet from the existing toe of slope. It has been assumed that the vertical angle of the proposed cut slope can be as steep as the existing condition. It is anticipated the proposed excavation will require the removal of 9 trees at the top of the existing slope. In addition, the paddle marker shown on the left side of the road will be removed temporarily.

Photo 38: Modification #38: Photo was taken generally facing "down-station" at reference point No. 60/**Station 123+00**. Between **Stations 122+00 and 124+00,** work includes removing a paddle marker and cutting the slope 6 feet back from the inside radius of the road, and daylighting at a 1 Horizontal to 1Vertical slope. Excavation will require the removal of 4 trees located at the top of the existing slope.

Photo 39: Modification #39: Photo was taken generally facing "down-station" at reference point No. 63/**Station 124+15**. The canopied trees need to be trimmed to provide 16.1 feet of vertical clearance.

Photo 40: Modification #40: Photo was taken general facing "down-station" at reference point No. 64/**Station 125+00**. Work includes plating the culvert and removing a paddle marker.

Photo 41: Modification #41: Photo was taken generally facing "up-station" at reference point No. 65/**Station 125+75**. Between **Stations 124+50 and 126+30**, work includes removing a 6-foot width of brush from the inner radius (right side) of San Miguelito Road.

Photo 42: Modification #42: This Google Earth photo was taken generally facing "up-station" at reference point No. 66/**Station 130+50**. Between **Stations 130+00 and 131+00** work includes removing three mature trees on the left side of the road. In addition, remove miscellaneous brush within the limits of the tree removal.

Photo 43: Modification #43: Photo was taken generally facing "up-station" at reference point No. 67/**Station 131+65**. Between **Stations 131+30 and Station 136+00**, cut back slope such that the face of cut is a minimum of 10-feet from existing edge of pavement. Given the rocky nature, a steep cut slope of 1 Horizontal to 1 Vertical may be possible. Although not visible in the photo, there are 10 trees that need to be removed at the top of the slope.

Photo 44: Modification #43: Photo was taken generally facing "up-station" at **Station 134+00**. This photo is for information only (see Photo 43 for description of work).

Photo 45: Modification #43: Photo was taken generally facing "up-station" at **Station 134+00**. This photo is for information only (see Photo 43 for description of work).

Photo 46: Modification #44: The photo was taken facing "up-station" at reference point No. 68/**Station 134+65**. Consideration was given to raising utility line, or completely removing pole. However, it was decided that no work would be done at this location. Photo was included for reference only.

Modification #45: Intentionally left blank.

Photo 47: Modification #46: Photo faces "down-station" at reference point No. 70/**Station 136+00**. Work includes trimming the tree on the right side of the road to provide vertical clearance of 16.7 feet.

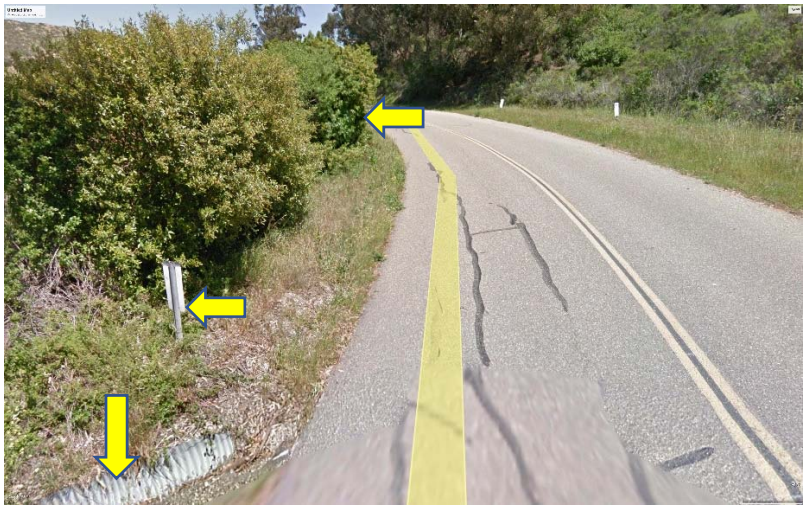
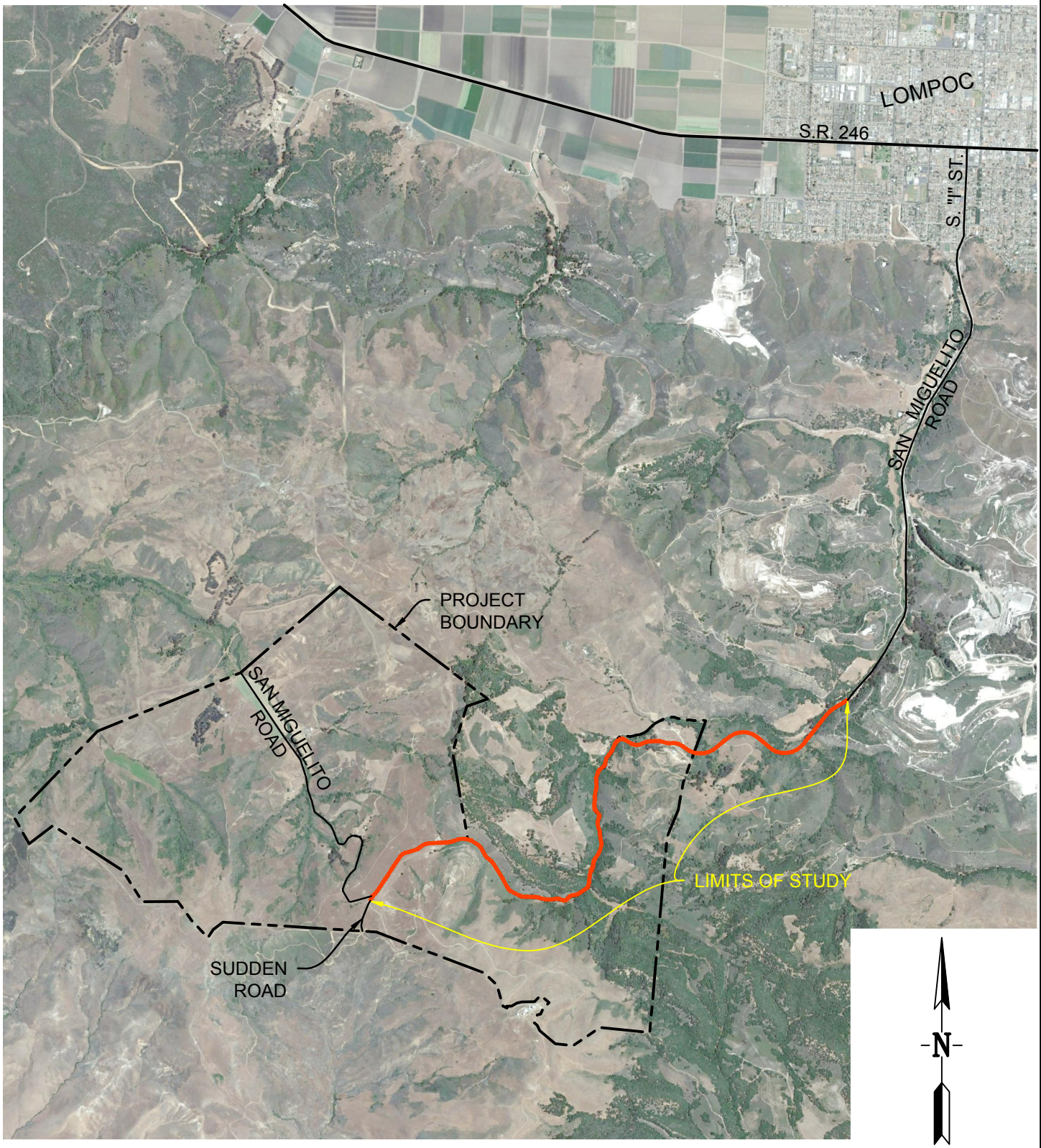


Photo 48: Modification #47: Photo taken using Google Earth and faces "up-station" at reference point No. 71/**Station 139+90**. Between **Stations 139+50 and 142+50** includes cutting back existing brush on the left side of the road a roughly of 8 feet from the edge of pavement. Additional work will include, removing reflector signs (left and right side of the road), and plating the open exposed culvert (left side).

Photo 49: Modification #48: Photo was taken from Google Earth and faces "up-station" at reference point No. 72/**Station 189+00**. Work includes trimming the indicated tree on the left side of the road. Additionally, any brush encroaching into the plane of the edge of pavement should be cut back.

Photo 50: Modification #49: Photo was taken from Google Earth and faces "up-station" at reference point No. 73/**Station 205+30**. Work includes trimming the trees along the on the left side of the road.

# APPENDIX “B”:
# **Exhibits**

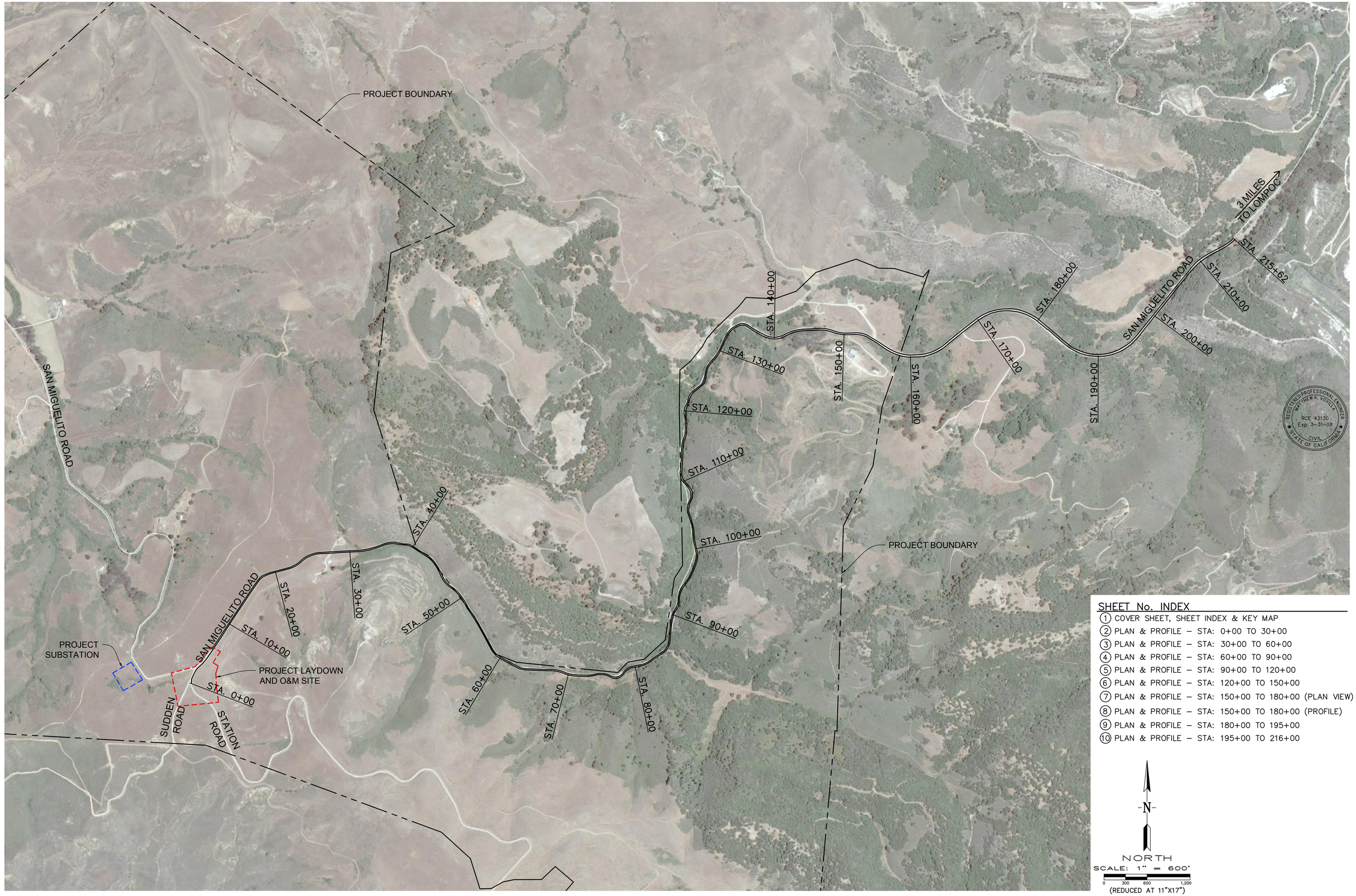



LAV// Pinnacle Engineering
5401 Business Park South, Suite 204, Bakersfield, CA 93309
Phone: (661) 869-0184 Fax: (661) 377-0076

JOB No.: 17-797 DATE: 11/21/17

# EXHIBIT "A" - VICINITY MAP
# TRANSPORTATION STUDY
# FOR SAN MIGUELITO ROAD
# STRAUSS WIND ENERGY PROJECT

# EXHIBIT "B"
# TRANSPORTATION STUDY FOR
# SAN MIGUELITO ROAD




## SHEET No. INDEX


1. COVER SHEET, SHEET INDEX & KEY MAP
2. PLAN & PROFILE – STA: 0+00 TO 30+00
3. PLAN & PROFILE – STA: 30+00 TO 60+00
4. PLAN & PROFILE – STA: 60+00 TO 90+00
5. PLAN & PROFILE – STA: 90+00 TO 120+00
6. PLAN & PROFILE – STA: 120+00 TO 150+00
7. PLAN & PROFILE – STA: 150+00 TO 180+00 (PLAN VIEW)
8. PLAN & PROFILE – STA: 150+00 TO 180+00 (PROFILE)
9. PLAN & PROFILE – STA: 180+00 TO 195+00
10. PLAN & PROFILE – STA: 195+00 TO 216+00


N

NORTH

SCALE: 1" = 600'

0 300 600 1,200

(REDUCED AT 11"X17")


LAV//Pinnacle Engineering
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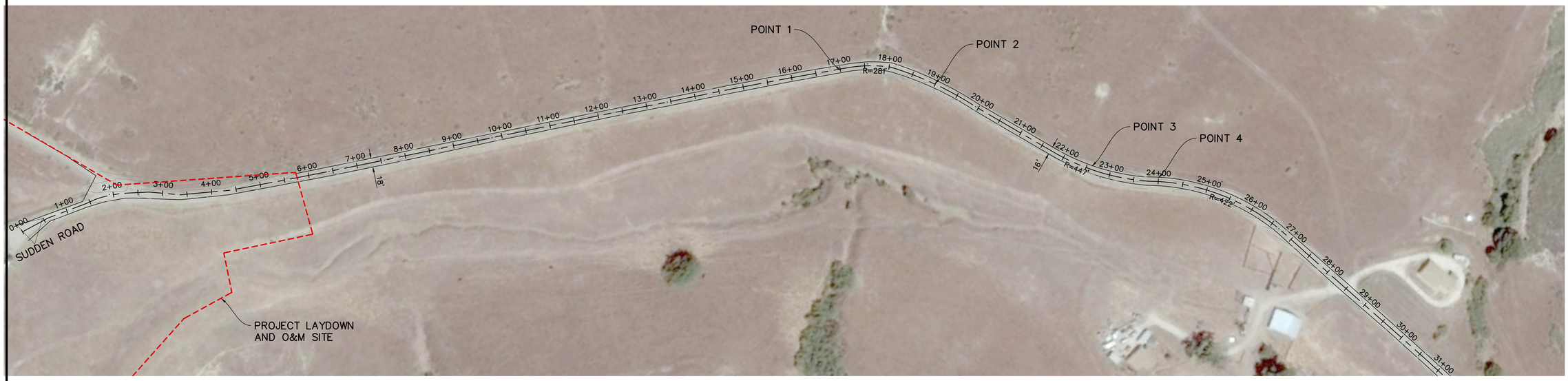
11-30-17
RCE 43130 EXP. 3/31/18
MATTHEW K. VOVILLA

| REVISIONS | DATE |
|---|---|
| . | . |
| . | . |
| . | . |
| . | . |

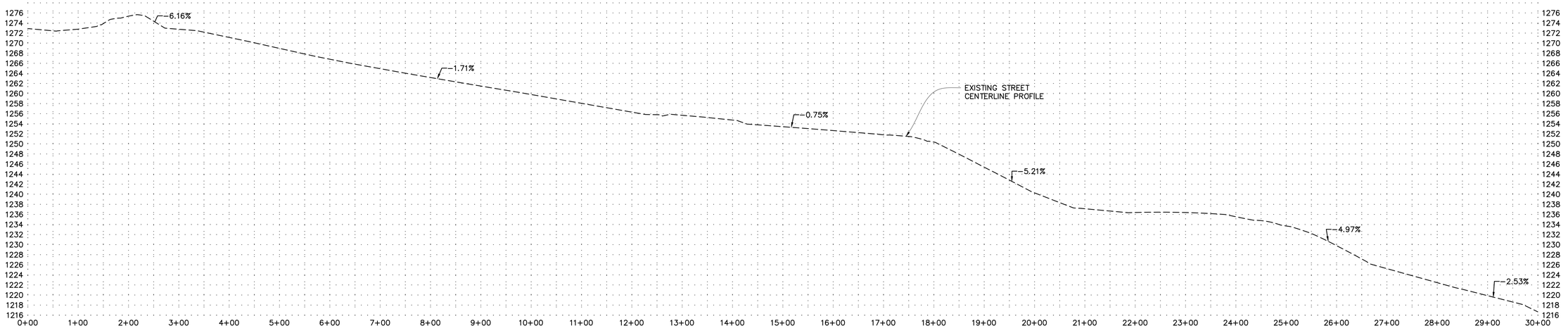
EXHIBIT "B" - SAN MIGUELITO ROAD
TRANSPORTATION STUDY
STRAUSS WIND ENERGY PROJECT
SANA BARBARA COUNTY, CALIFORNIA

| | |
|---|---|
| JOB No.: | 17-797 |
| DWG NO.: | MIGUELITO |
| DATE: | 11/30/2017 |
| DRAWN BY: | ADA |
| CHECKED BY: | MKV |
| SHEET | 1 |
| | OF 10 SHEETS |




# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")




EXISTING ROAD CENTERLINE PROFILE

REGISTERED PROFESSIONAL ENGINEER
MATTHEW K. VOVILLA
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Exp. 3-31-18
CIVIL
STATE OF CALIFORNIA

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11-30-17
RCE 43130 EXP. 3/31/18
MATTHEW K. VOVILLA

| REVISIONS | DATE |
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EXHIBIT "B" - SAN MIGUELITO ROAD
TRANSPORTATION STUDY
STRAUSS WIND ENERGY PROJECT
SANA BARBARA COUNTY, CALIFORNIA

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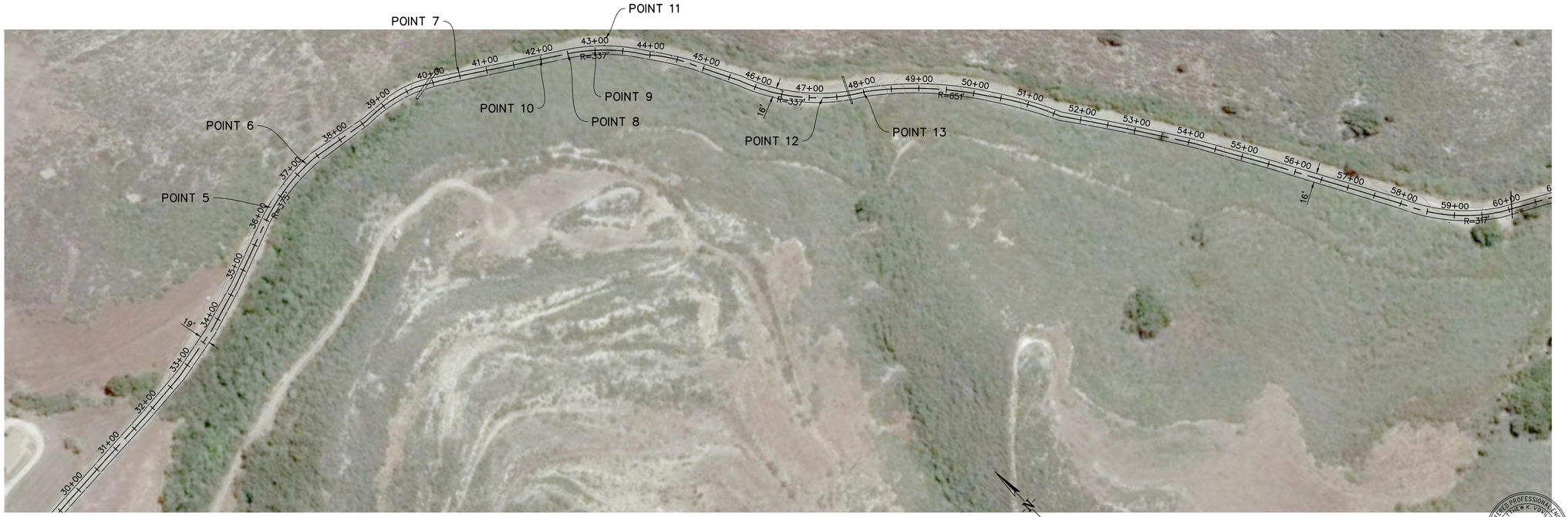
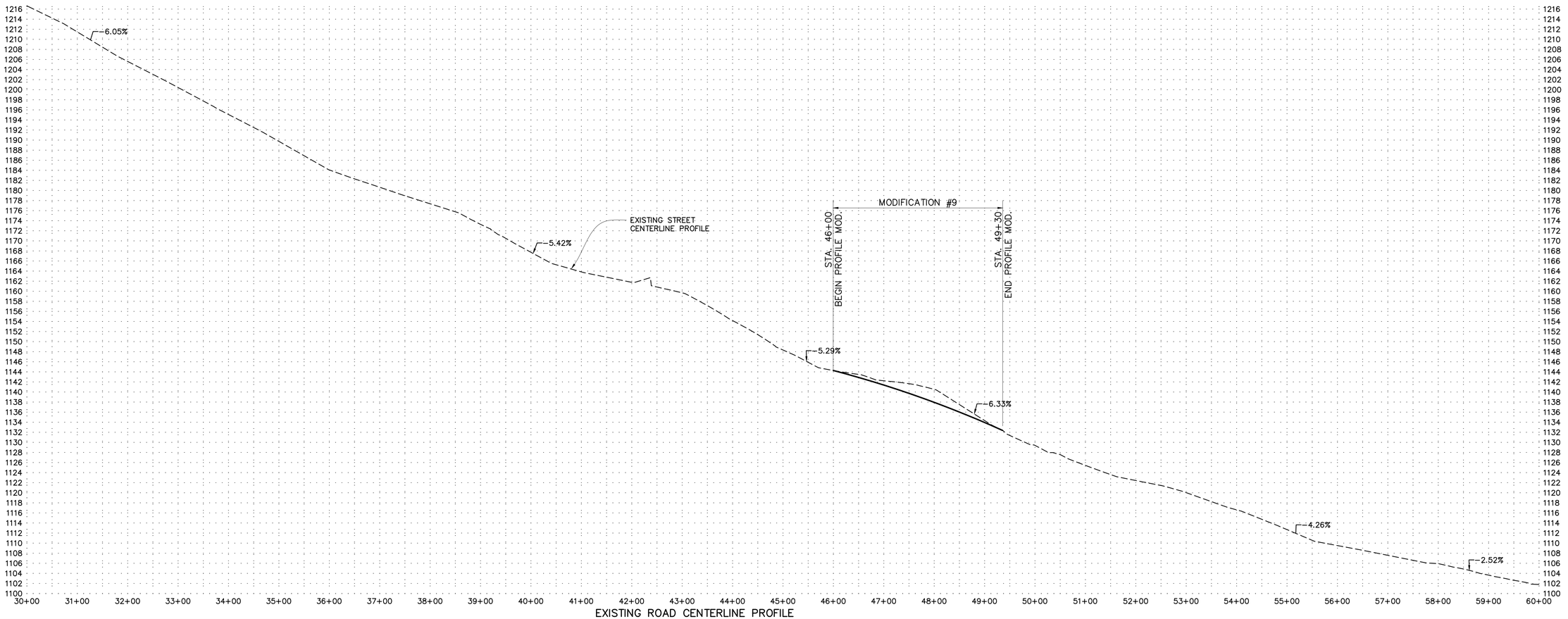
|---|---|
| JOB No.: | 17-797 |
| DWG NO.: | MIGUELITO |
| DATE: | 11/30/2017 |
| DRAWN BY: | ADA |
| CHECKED BY: | MKV |
| SHEET | 2 |
| | OF 10 SHEETS |




# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")

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SANA BARBARA COUNTY, CALIFORNIA

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| DWG NO.: | MIGUELITO |
| DATE: | 11/30/2017 |
| DRAWN BY: | ADA |
| CHECKED BY: | MKV |
| SHEET | 3 |
| OF X | SHEETS |

# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")

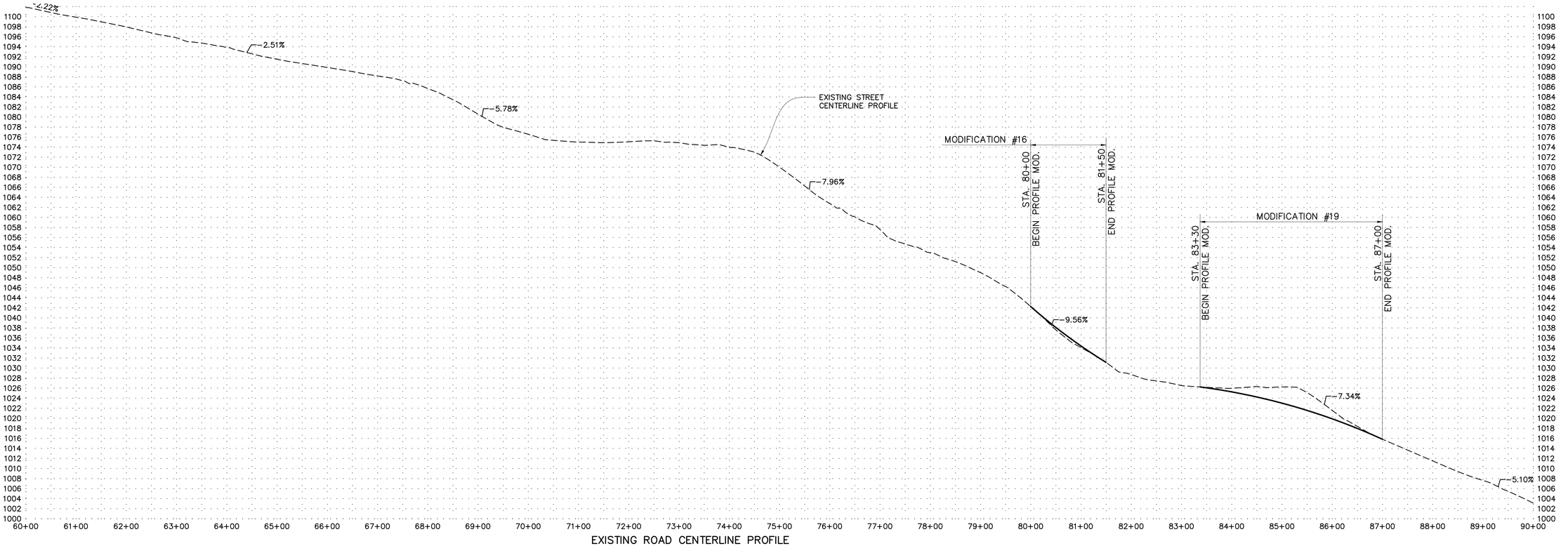


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EXHIBIT "B" - SAN MIGUELITO ROAD
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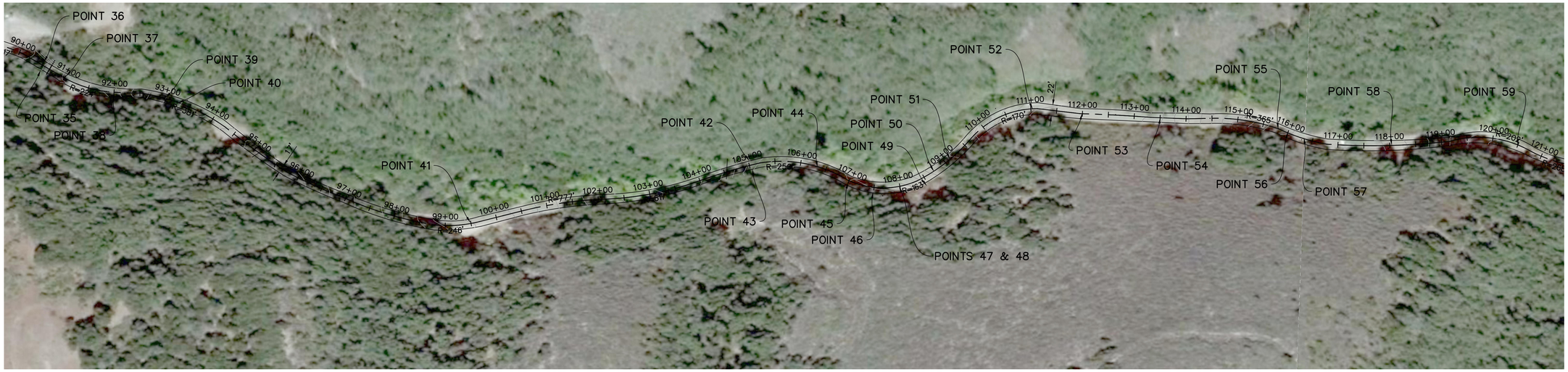
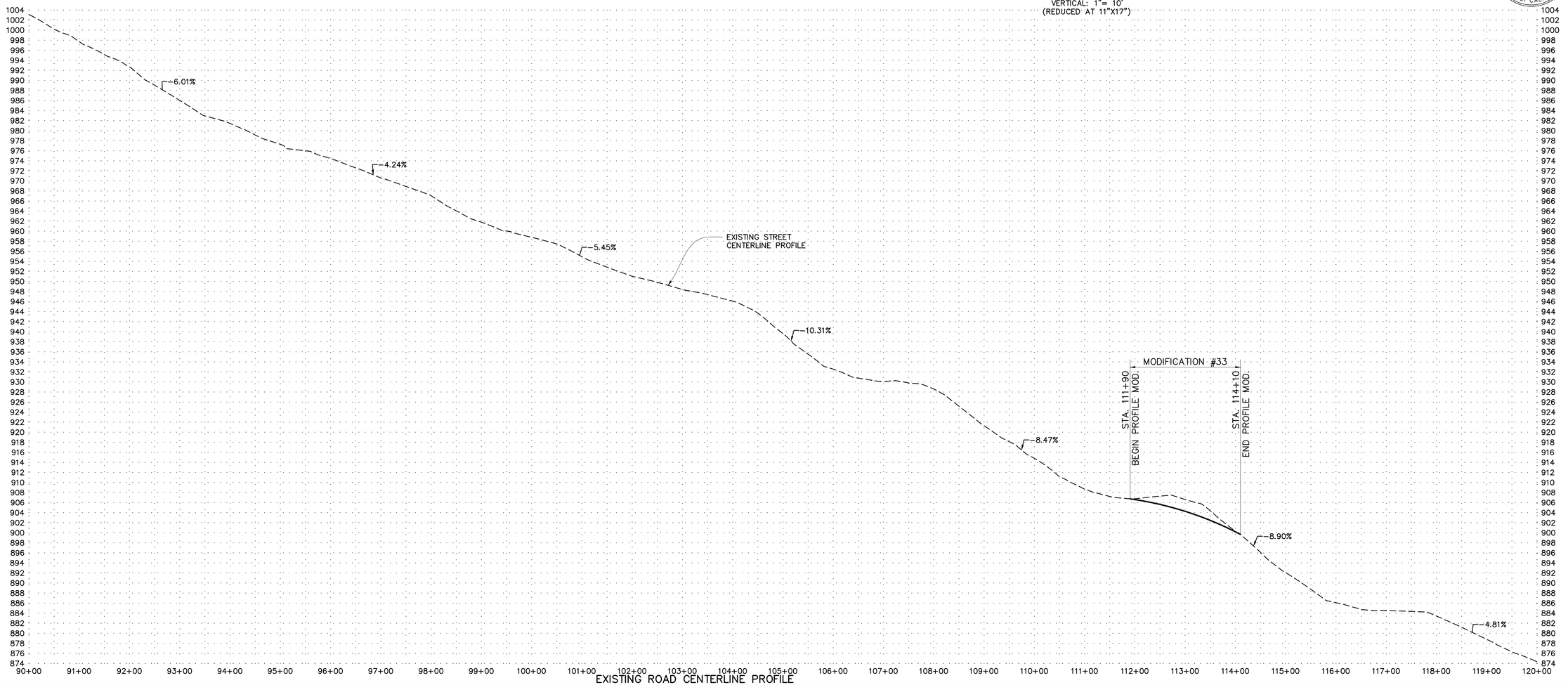
| JOB No.: | 17-797 |
| DWG NO.: | MIGUELITO |
| DATE: | 11/30/2017 |
| DRAWN BY: | ADA |
| CHECKED BY: | MKV |
| SHEET | 4 |
| OF | 10 SHEETS |




# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")

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SANA BARBARA COUNTY, CALIFORNIA

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| JOB No.: | 17-797 |
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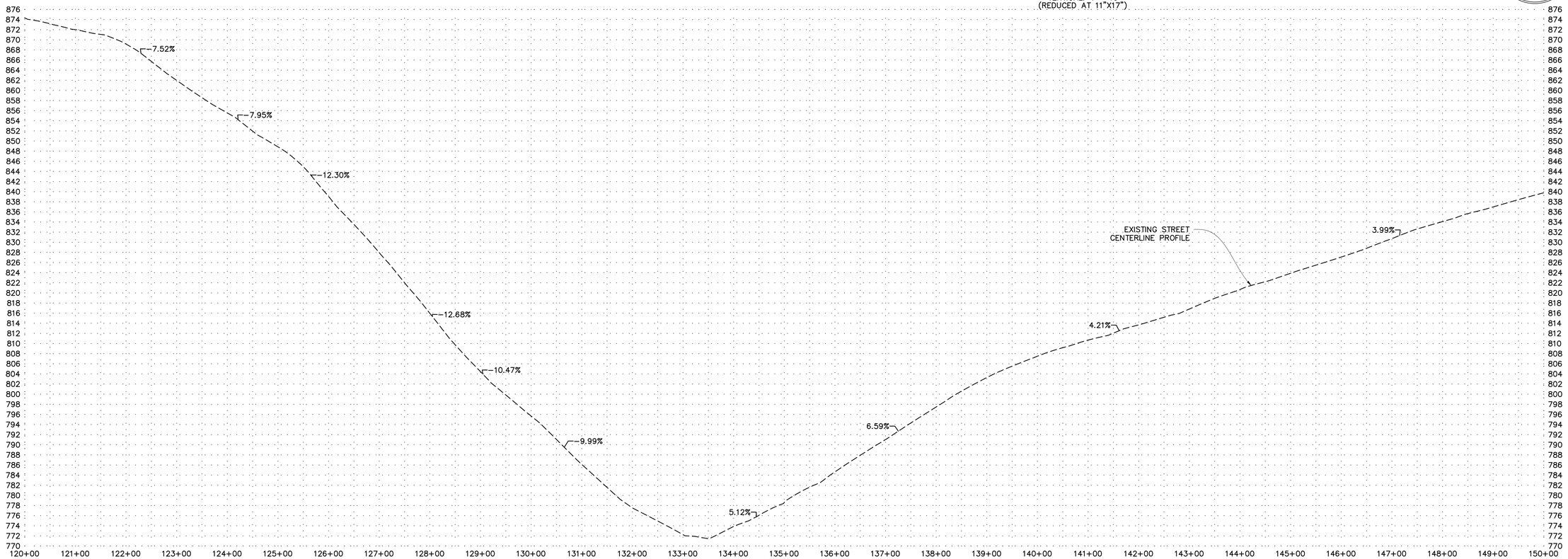
| DATE: | 11/30/2017 |
| DRAWN BY: | ADA |
| CHECKED BY: | MKV |
| SHEET | 5 |
| | OF 10 SHEETS |

# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")




EXISTING ROAD CENTERLINE PROFILE

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EXHIBIT "B" - SAN MIGUELITO ROAD
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SANA BARBARA COUNTY, CALIFORNIA

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| JOB No.: | 17-797 |
| DWG NO.: | MIGUELITO |
| DATE: | 11/30/2017 |
| DRAWN BY: | ADA |
| CHECKED BY: | MKV |
| SHEET | 6 |
| OF 10 | SHEETS |

# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")

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EXHIBIT "B" - SAN MIGUELITO ROAD
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| DRAWN BY: | ADA |
| CHECKED BY: | MKV |
| SHEET | 7 |
| | OF 10 SHEETS |

# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
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EXHIBIT "B" - SAN MIGUELITO ROAD
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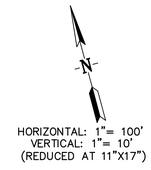
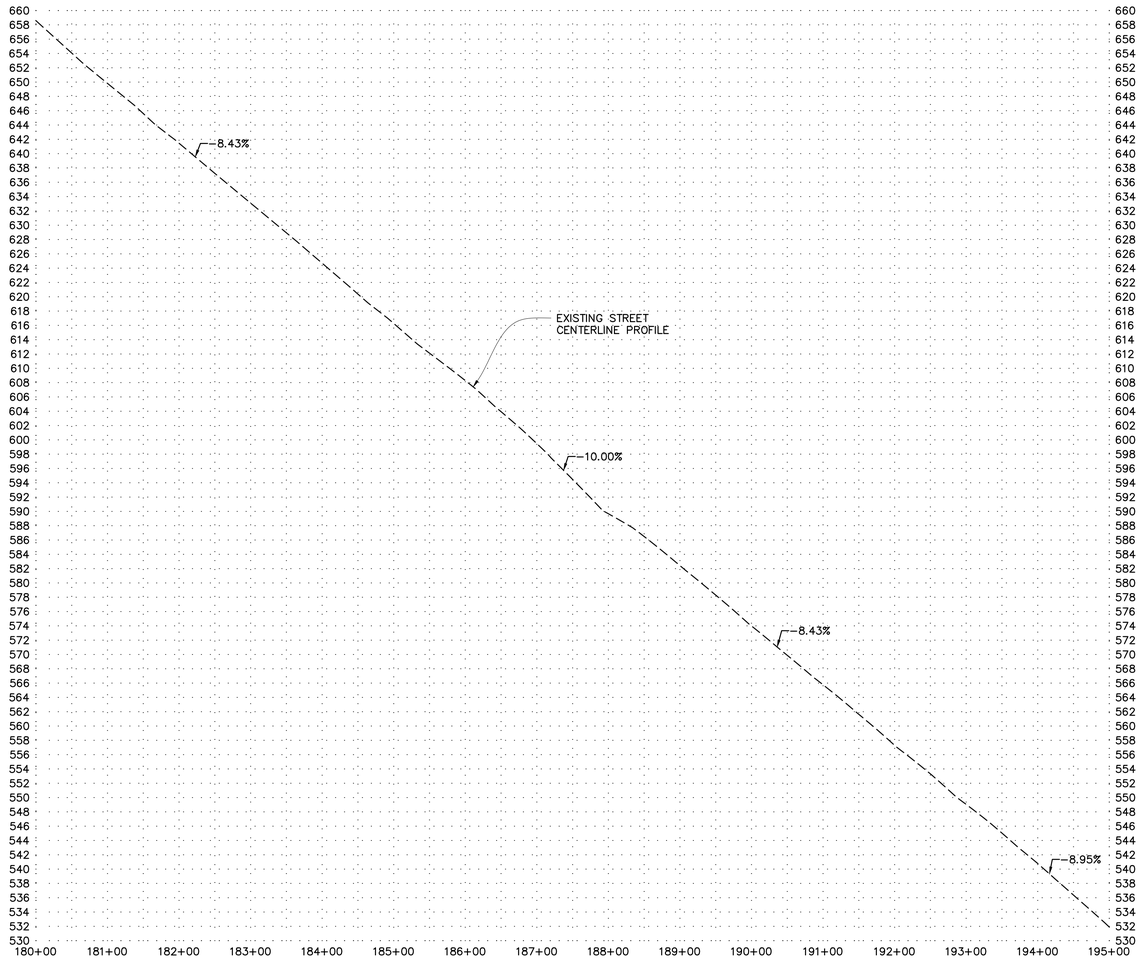
| | OF 10 SHEETS |

# SAN MIGUELITO ROAD




HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")

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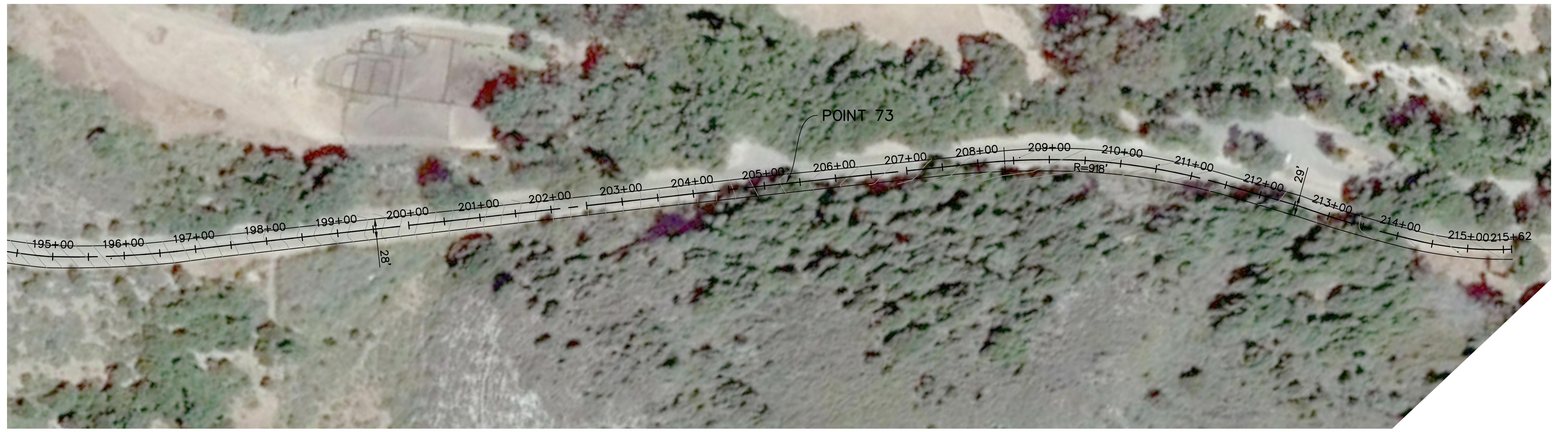
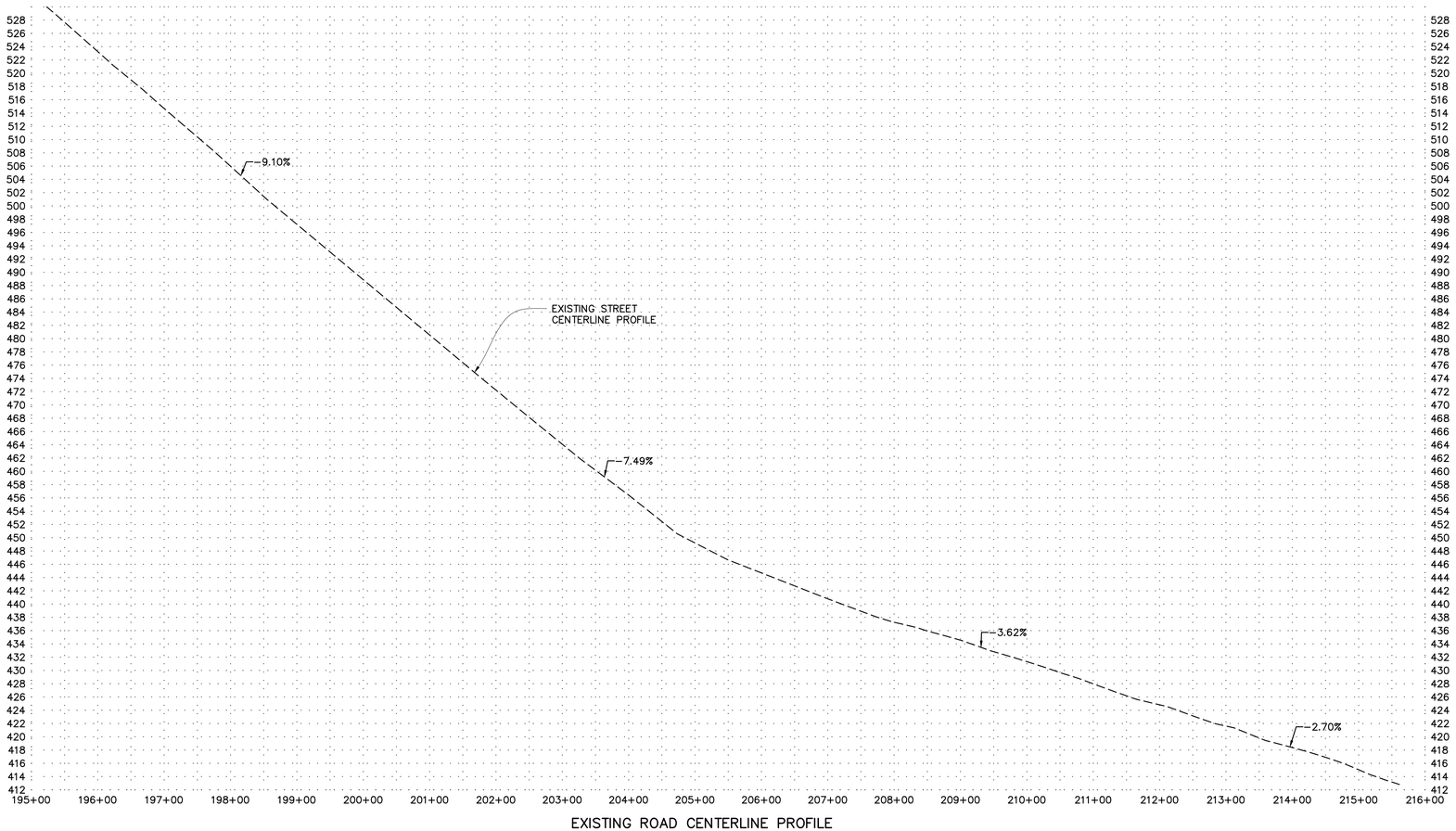
| SHEET | 9 |
| | OF 10 SHEETS |




# SAN MIGUELITO ROAD

HORIZONTAL: 1"= 100'
VERTICAL: 1"= 10'
(REDUCED AT 11"X17")

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SANA BARBARA COUNTY, CALIFORNIA

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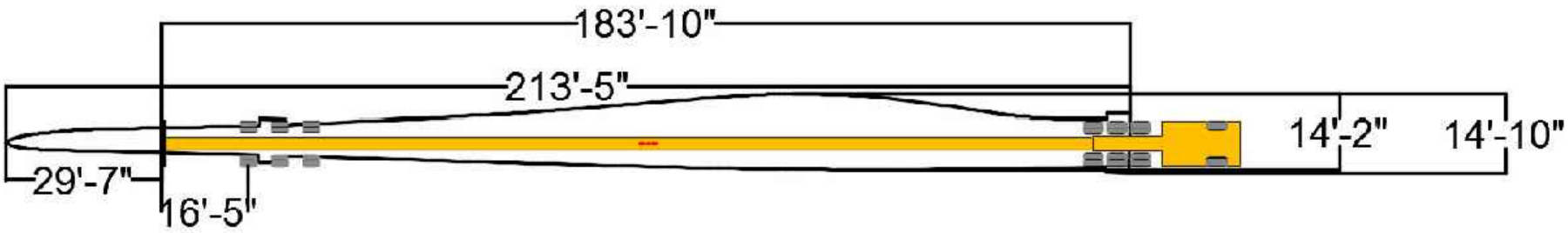
| OF | 10 SHEETS |

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# EXHIBIT "C" - TURBINE BLADE TRANSPORTATION STUDY FOR SAN MIGUELITO ROAD STRAUSS WIND ENERGY PROJECT

N

SCALE: 1" = 100'

0 50 100



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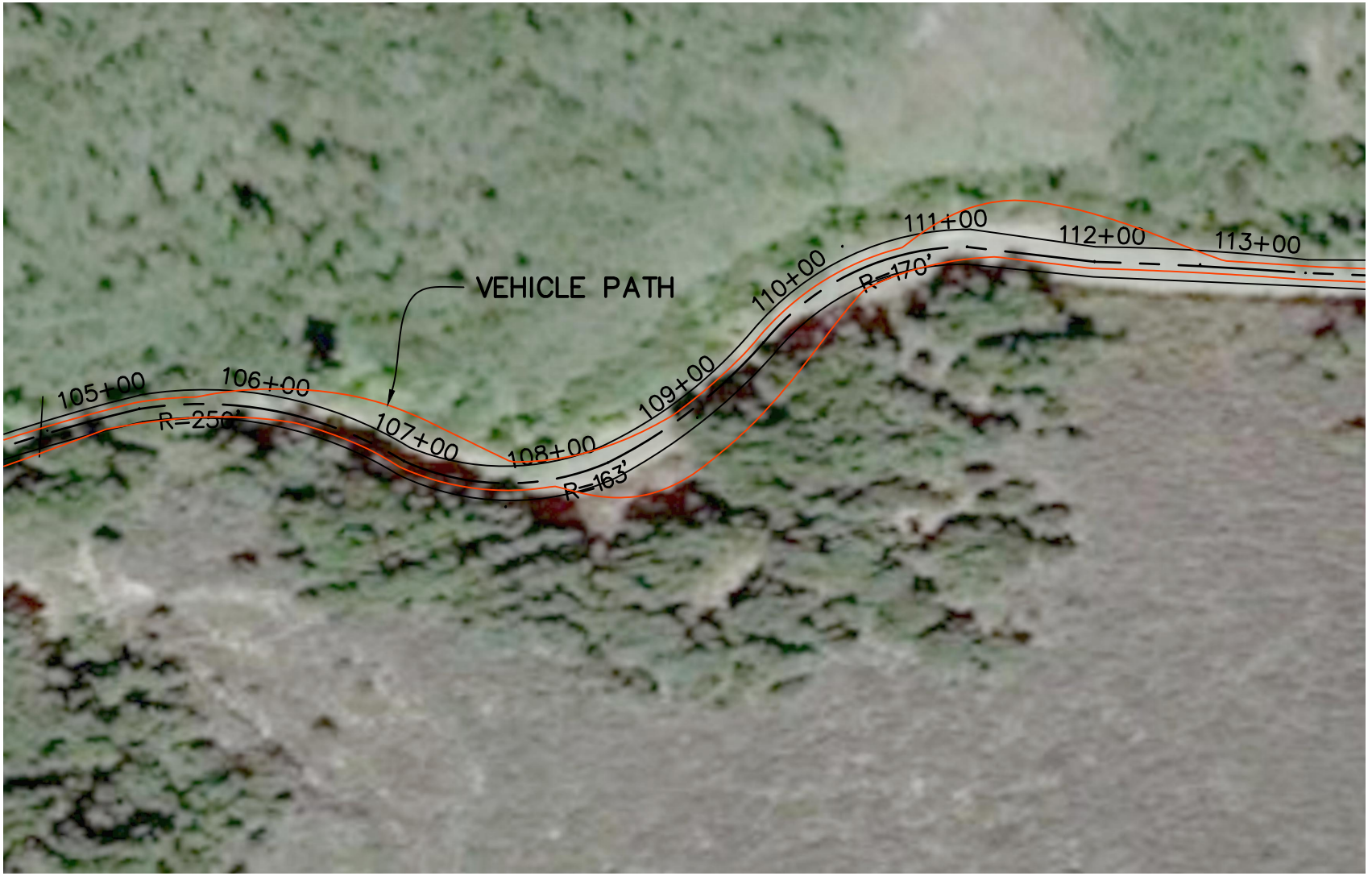
# EXHIBIT "D" - VEHICLE TURN ANALYSIS
# TRANSPORTATION STUDY
# FOR SAN MIGUELITO ROAD
# STRAUSS WIND ENERGY PROJECT




N

SCALE: 1" = 100'

0 50 100



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# EXHIBIT "D" - VEHICLE TURN ANALYSIS
# TRANSPORTATION STUDY
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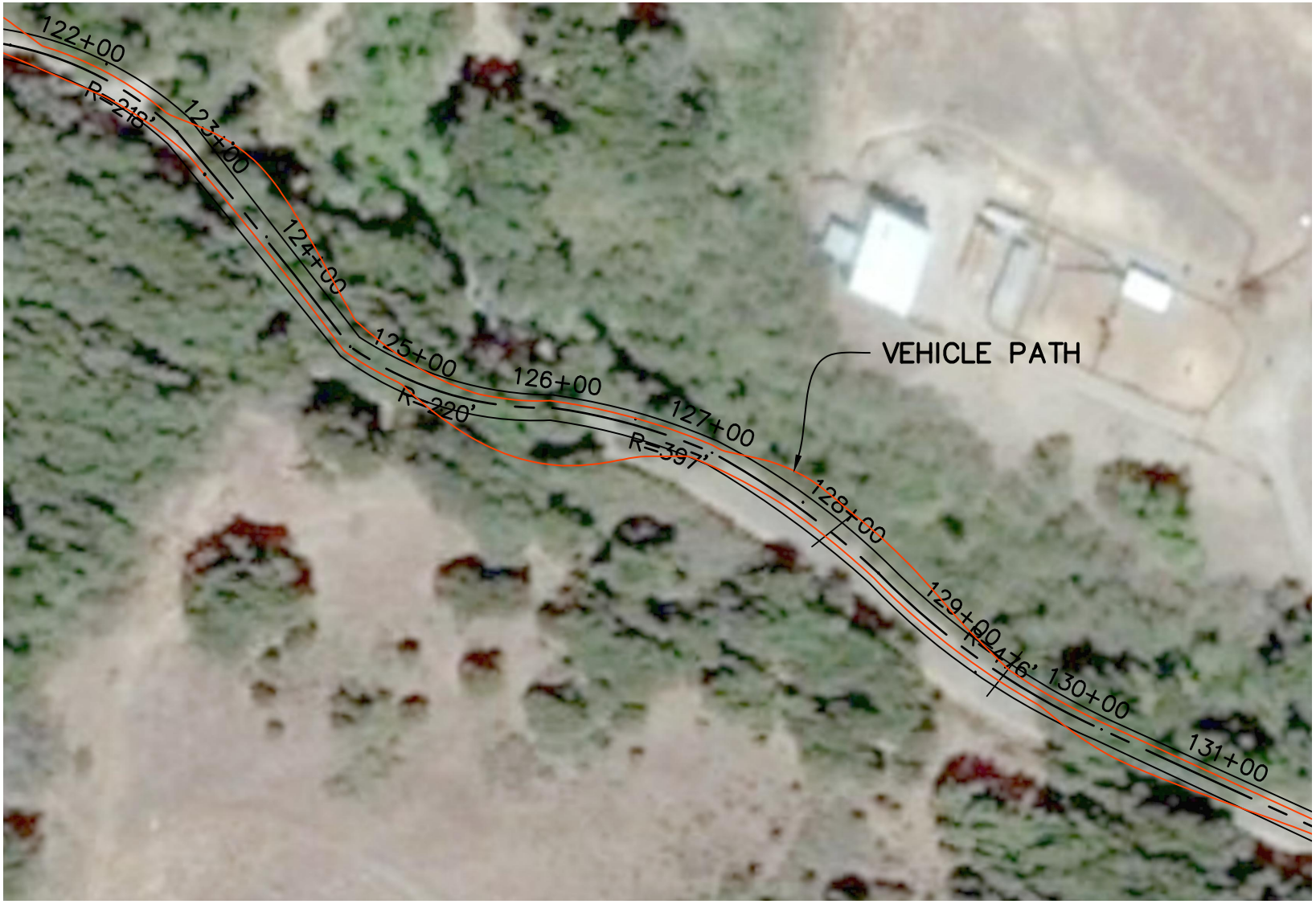
# STRAUSS WIND ENERGY PROJECT




N

SCALE: 1" = 100'

0 50 100



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# TRANSPORTATION STUDY
# FOR SAN MIGUELITO ROAD
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# APPENDIX “C”:
# **Electronic Files**