



TRINITY VALLEY
CONSULTING ENGINEERS, INC

Joshua T. McKnight CE 60687



ROADWAY EVALUATION

RIVER ACCESS ROAD
WILLOW CREEK, CALIFORNIA
APN: 523-026-003

CLIENT:

Dahlia Ranch LLC
Coon Creek Road
Willow Creek CA 95573

July 2018
Josh McKnight, P.E.
Job #441.06



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- ATTACHMENT 1: LOCATION MAP
- ATTACHMENT 2: SITE MAP
- ATTACHMENT 3: WATER RESOURCE PROTECTION PLAN

Introduction

Trinity Valley Consulting Engineers was contracted by Dahlia Ranch LLC (owner) to perform an evaluation of the access roadways leading to and throughout the above referenced property. This evaluation is in response to the roadway certification required by the County of Humboldt in association with a cannabis cultivation license application. The following is a summary of the findings, conclusions, and recommendations.

Project Description

The project at this location is the evaluation of existing roadways used to access the subject parcel. The purpose of this evaluation is to determine whether the roadways are adequate for the intended use. Descriptions of the roadways and their uses are as follows:

Access Roadways (off property): These roadways provide access from Horse Linto Road (USFS Road) to the subject property. The roadways have been in place for some time, and were originally constructed and utilized to access timber resources in this area. The property is accessed from one location off of River Road.

Access Roadways (on property): Developments within the property are accessed by single lane access roads which appear to have originally been utilized to facilitate logging operations.

Roadway Inspections

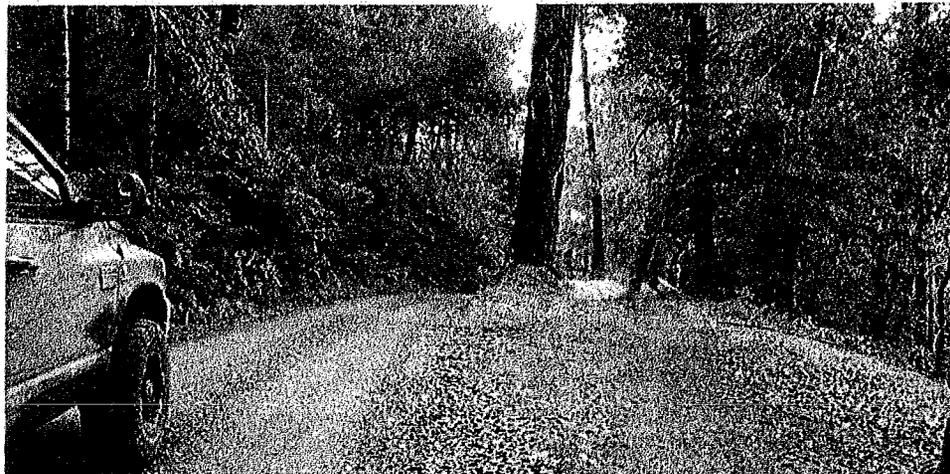
The following is a summary of the observations derived from onsite inspections of these roadways:

Access Roadways (off property): Inspection showed these roadways to exhibit the following characteristics:

Roadway Width:	12'-14'
Shoulder Width:	2'
Surface:	Gravel
Slope:	5% to 27%
Drainage:	Rolling dips at approximately every 300'
Watercourse Crossings:	Yes

Much of this access roadway is on US Forest Service property, with a roadway designation of Forest Route # 7N02. These roadways were inspected and appear to be generally in good shape. Some minor rutting was observed along with one area of limited width. One gate is present along the roadway. While there is not an adequate turnaround area below at the gate, an existing turnaround is observed approximately one hundred fifty feet downslope of the gate. Adequate turnaround area exists above the gate.





Typical Roadway

Access Roadways (on property): Access to this roadway is commenced via River Road through a locked gate. Sufficient space was available such that the gate can be unlocked without impacting traffic on Forest Route # 7N02. Inspection showed these roadways to exhibit the following characteristics:

Roadway Width:	10'-12'
Shoulder Width:	1'
Surface:	Gravel
Slope:	5% to 30%
Drainage:	Rolling dips at approximately every 300'
Watercourse Crossings:	Yes



Property Access

HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS
ROAD EVALUATION REPORT

PART A: Part A may be completed by the applicant

Applicant Name: Dahlia Ranch LLC APN: 523-026-003

Planning & Building Department Case/File No.: _____

Road Name: Horse Linto Road (complete a separate form for each road)

From Road (Cross street): Patterson Lane

To Road (Cross street): River Access Road / FS #7N02

Length of road segment: .9 miles Date Inspected: _____

Road is maintained by: County Other US Forest Service
(State, Forest Service, National Park, State Park, BLM, Private, Tribal, etc)

Check one of the following:

Box 1 The entire road segment is developed to Category 4 road standards (20 feet wide) or better. If checked, then the road is adequate for the proposed use without further review by the applicant.

Box 2 The entire road segment is developed to the equivalent of a road category 4 standard. If checked, then the road is adequate for the proposed use without further review by the applicant.

An equivalent road category 4 standard is defined as a roadway that is generally 20 feet in width, but has pinch points which narrow the road. Pinch points include, but are not limited to, one-lane bridges, trees, large rock outcroppings, culverts, etc. Pinch points must provide visibility where a driver can see oncoming vehicles through the pinch point which allows the oncoming vehicle to stop and wait in a 20 foot wide section of the road for the other vehicle to pass.

Box 3 The entire road segment is not developed to the equivalent of road category 4 or better. The road may or may not be able to accommodate the proposed use and further evaluation is necessary. Part B is to be completed by a Civil Engineer licensed by the State of California.

The statements in PART A are true and correct and have been made by me after personally inspecting and measuring the road.

Signature _____ Date _____

Name Printed _____

Important: Read the instructions before using this form. If you have questions, please call the Dept. of Public Works Land Use Division at 707.445.7205.

PART B: Only complete Part B if Box 3 is checked in Part A. Part B is to be completed by a Civil Engineer licensed by the State of California. Complete a separate form for each road.

Road Name: _____ Date Inspected: _____ APN: _____
 From Road: _____ (Post Mile _____) Planning & Building
 To Road: _____ (Post Mile _____) Department Case/File No.:

1. What is the Average Daily Traffic (ADT) of the road (including other known cannabis projects)?
 Number of other known cannabis projects included in ADT calculations:
 (Contact the Planning & Building Department for information on other nearby projects.) _____

ADT: _____ Date(s) measured: _____

Method used to measure ADT: Counters Estimated using ITE Trip Generation Book

Is the ADT of the road less than 400? Yes No

If YES, then the road is considered very low volume and shall comply with the design standards outlined in the American Association of State Highway and Transportation Officials (AASHTO) *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤400)*. Complete sections 2 and 3 below.

If NO, then the road shall be reviewed per the applicable policies for the design of local roads and streets presented in AASHTO *A Policy on Geometric Design of Highways and Streets*, commonly known as the "Green Book". Complete section 3 below.

2. Identify site specific safety problems with the road that include, but are not limited to: (Refer to Chapter 3 in AASHTO *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤400)* for guidance.)

- A. Pattern of curve related crashes.
 Check one: No. Yes, see attached sheet for Post Mile (PM) locations.
- B. Physical evidence of curve problems such as skid marks, scarred trees, or scarred utility poles
 Check one: No. Yes, see attached sheet for PM locations.
- C. Substantial edge rutting or encroachment.
 Check one: No. Yes, see attached sheet for PM locations.
- D. History of complaints from residents or law enforcement.
 Check one: No. Yes (check if written documentation is attached)
- E. Measured or known speed substantially higher than the design speed of the road (20+ MPH higher)
 Check one: No. Yes.
- F. Need for turn-outs.
 Check one: No. Yes, see attached sheet for PM locations.

3. Conclusions/Recommendations per AASHTO. Check one:
- The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above.
 - The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above, if the recommendations on the attached report are done. (check if a *Neighborhood Traffic Management Plan* is also required and is attached.)
 - The roadway cannot accommodate increased traffic from the proposed use. It is not possible to address increased traffic.

A map showing the location and limits of the road being evaluated in PART B is attached. The statements in PART B are true and correct and have been made by me after personally evaluating the road.

Signature of Civil Engineer _____ Date _____

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HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS
ROAD EVALUATION REPORT

PART A: Part A may be completed by the applicant

Applicant Name: Dahlia Ranch LLC APN: 523-026-003

Planning & Building Department Case/File No.: _____

Road Name: River Access Road / FS # 7N02 (complete a separate form for each road)

From Road (Cross street): Horse Linto Road

To Road (Cross street): Access Driveway

Length of road segment: 1.1 miles Date Inspected: _____

Road is maintained by: County Other US Forest Service / Private
(State, Forest Service, National Park, State Park, BLM, Private, Tribal, etc)

Check one of the following:

Box 1 The entire road segment is developed to Category 4 road standards (20 feet wide) or better. If checked, then the road is adequate for the proposed use without further review by the applicant.

Box 2 The entire road segment is developed to the equivalent of a road category 4 standard. If checked, then the road is adequate for the proposed use without further review by the applicant.

An equivalent road category 4 standard is defined as a roadway that is generally 20 feet in width, but has pinch points which narrow the road. Pinch points include, but are not limited to, one-lane bridges, trees, large rock outcroppings, culverts, etc. Pinch points must provide visibility where a driver can see oncoming vehicles through the pinch point which allows the oncoming vehicle to stop and wait in a 20 foot wide section of the road for the other vehicle to pass.

Box 3 The entire road segment is not developed to the equivalent of road category 4 or better. The road may or may not be able to accommodate the proposed use and further evaluation is necessary. Part B is to be completed by a Civil Engineer licensed by the State of California.

The statements in PART A are true and correct and have been made by me after personally inspecting and measuring the road.

Signature _____

Date _____

Name Printed _____

Important: Read the instructions before using this form. If you have questions, please call the Dept. of Public Works Land Use Division at 707.445.7205.

PART B: Only complete Part B if Box 3 is checked in Part A. Part B is to be completed by a Civil Engineer licensed by the State of California. Complete a separate form for each road.

Road Name: River Access Rd / 7N02 Date Inspected: _____ APN: 523-026-003
 From Road: Horse Linto Road (Post Mile 0.9) Planning & Building
 To Road: Access Driveway (Post Mile 1.1) Department Case/File No.:

1. What is the Average Daily Traffic (ADT) of the road (including other known cannabis projects)?

Number of other known cannabis projects included in ADT calculations:
 (Contact the Planning & Building Department for information on other nearby projects.) 7

ADT: 85 Date(s) measured: _____

Method used to measure ADT: Counters Estimated using ITE Trip Generation Book

Is the ADT of the road less than 400? Yes No

If YES, then the road is considered very low volume and shall comply with the design standards outlined in the American Association of State Highway and Transportation Officials (AASHTO) *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)*. Complete sections 2 and 3 below.

If NO, then the road shall be reviewed per the applicable policies for the design of local roads and streets presented in AASHTO *A Policy on Geometric Design of Highways and Streets*, commonly known as the "Green Book". Complete section 3 below.

2. Identify site specific safety problems with the road that include, but are not limited to: (Refer to Chapter 3 in AASHTO *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)* for guidance.)

A. Pattern of curve related crashes.

Check one: No. Yes, see attached sheet for Post Mile (PM) locations.

B. Physical evidence of curve problems such as skid marks, scarred trees, or scarred utility poles

Check one: No. Yes, see attached sheet for PM locations.

C. Substantial edge rutting or encroachment.

Check one: No. Yes, see attached sheet for PM locations.

D. History of complaints from residents or law enforcement.

Check one: No. Yes (check if written documentation is attached)

E. Measured or known speed substantially higher than the design speed of the road (20+ MPH higher)

Check one: No. Yes.

F. Need for turn-outs.

Check one: No. Yes, see attached sheet for PM locations.

3. Conclusions/Recommendations per AASHTO. Check one:

The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above.

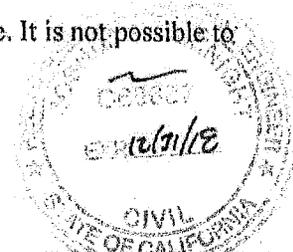
The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above, if the recommendations on the attached report are done. (check if a *Neighborhood Traffic Management Plan* is also required and is attached.)

The roadway cannot accommodate increased traffic from the proposed use. It is not possible to address increased traffic.

A map showing the location and limits of the road being evaluated in PART B is attached. The statements in PART B are true and correct and have been made by me after personally evaluating the road.

Signature of Civil Engineer

Date



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HUMBOLDT COUNTY DEPARTMENT OF PUBLIC WORKS
ROAD EVALUATION REPORT

PART A: Part A may be completed by the applicant

Applicant Name: Dahlia Ranch LLC APN: 523-026-003

Planning & Building Department Case/File No.: _____

Road Name: Access Driveway (complete a separate form for each road)

From Road (Cross street): River Access Road / FS # 7N02

To Road (Cross street): Project Site

Length of road segment: .6 miles Date Inspected: 3/14/18

Road is maintained by: County Other Private
(State, Forest Service, National Park, State Park, BLM, Private, Tribal, etc)

Check one of the following:

Box 1 The entire road segment is developed to Category 4 road standards (20 feet wide) or better. If checked, then the road is adequate for the proposed use without further review by the applicant.

Box 2 The entire road segment is developed to the equivalent of a road category 4 standard. If checked, then the road is adequate for the proposed use without further review by the applicant.

An equivalent road category 4 standard is defined as a roadway that is generally 20 feet in width, but has pinch points which narrow the road. Pinch points include, but are not limited to, one-lane bridges, trees, large rock outcroppings, culverts, etc. Pinch points must provide visibility where a driver can see oncoming vehicles through the pinch point which allows the oncoming vehicle to stop and wait in a 20 foot wide section of the road for the other vehicle to pass.

Box 3 The entire road segment is not developed to the equivalent of road category 4 or better. The road may or may not be able to accommodate the proposed use and further evaluation is necessary. Part B is to be completed by a Civil Engineer licensed by the State of California.

The statements in PART A are true and correct and have been made by me after personally inspecting and measuring the road.

Signature

Date

Name Printed

Important: Read the instructions before using this form. If you have questions, please call the Dept. of Public Works Land Use Division at 707-445-7205.

PART B: Only complete Part B if Box 3 is checked in Part A. Part B is to be completed by a Civil Engineer licensed by the State of California. Complete a separate form for each road.

Road Name: Access Driveway Date Inspected: 3/14/18 APN: 523-026-003
 From Road: River Access Rd / 7N02 (Post Mile 1.1) Planning & Building
 To Road: Project Site (Post Mile .6) Department Case/File No.:

1. What is the Average Daily Traffic (ADT) of the road (including other known cannabis projects)?
 Number of other known cannabis projects included in ADT calculations:
 (Contact the Planning & Building Department for information on other nearby projects.) 1

ADT: 8 Date(s) measured: 3/14/18
 Method used to measure ADT: Counters Estimated using ITE Trip Generation Book
 Is the ADT of the road less than 400? Yes No

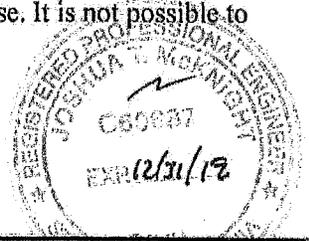
If YES, then the road is considered very low volume and shall comply with the design standards outlined in the American Association of State Highway and Transportation Officials (AASHTO) *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)*. Complete sections 2 and 3 below.
 If NO, then the road shall be reviewed per the applicable policies for the design of local roads and streets presented in AASHTO *A Policy on Geometric Design of Highways and Streets*, commonly known as the "Green Book". Complete section 3 below.

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- A. Pattern of curve related crashes.
 Check one: No. Yes, see attached sheet for Post Mile (PM) locations.
 - B. Physical evidence of curve problems such as skid marks, scarred trees, or scarred utility poles
 Check one: No. Yes, see attached sheet for PM locations.
 - C. Substantial edge rutting or encroachment.
 Check one: No. Yes, see attached sheet for PM locations.
 - D. History of complaints from residents or law enforcement.
 Check one: No. Yes (check if written documentation is attached)
 - E. Measured or known speed substantially higher than the design speed of the road (20+ MPH higher)
 Check one: No. Yes.
 - F. Need for turn-outs.
 Check one: No. Yes, see attached sheet for PM locations.

3. Conclusions/Recommendations per AASHTO. Check one:
- The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above.
 - The roadway can accommodate the cumulative increased traffic from this project and all known cannabis projects identified above, if the recommendations on the attached report are done. (check if a *Neighborhood Traffic Management Plan* is also required and is attached.)
 - The roadway cannot accommodate increased traffic from the proposed use. It is not possible to address increased traffic.

A map showing the location and limits of the road being evaluated in PART B is attached. The statements in PART B are true and correct and have been made by me after personally evaluating the road.

Signature of Civil Engineer _____ Date 3/21/18



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These roadways were inspected and are accessible, with some areas of rutting from vehicle traffic. One location exhibited a tight turning radius at an incline. This corner is also the location of a Tee intersection, providing adequate turnaround area. Two seasonal roadways branch off of the main access road for the parcel.



Tee Intersection

In addition to the field inspections, observations were made from the Water Resource Protection Plan (WRPP) developed for this property by *Timberland Resource Consultants, October 2016*. Notations in this report denote general roadway conditions, drainage conditions, and potential for discharge to an active watercourse from the roadway runoff.

Evaluation

The following is an evaluation of the above referenced roadways based on the noted observations:

Access Roadways (off property): These roadways are in generally good condition. Frequent rolling dips offers good drainage off of the roadway surface while also providing frequent areas for turnouts. Gravel surfacing is adequate with some areas that require minor repairs. While many portions of the roadway exceed grade standards, these areas are also have a straight alignment which can mitigate steep gradients.

Access Roadways (on property): These roadways are in adequate condition with areas in need of repairs and maintenance. Roadway widths appear adequate for the use, and steep gradients are on tangent sections of roadway as described above. The corner with the tight radius noted above is mitigated by the Tee intersection at the same location.

Drainage: In general all roadways have been constructed to provide adequate drainage. No deficiencies were observed.

Stormwater Runoff: Discharge points from the subject roadways do not have potential to enter or adversely affect any watercourses as described in the WRPP.

Roadway Standards: The roadways currently do not meet applicable standards due to the steep grades. However, these grades have been mitigated by placing them on tangent sections of roadway making accessibility possible.

Traffic: The main access roadway currently serves several parcels. A maximum Average Daily Traffic (ADT) of between 40 and 60 is estimated during peak usage. While this is significant, it is likely far less impact than the traffic impact previously experienced by logging trucks and equipment on this roadway.

Conclusion

The subject roadways are adequate for the intended uses on this property, and the estimated uses for the other properties which they will serve.

Recommendations

The following are recommendations for continued use of these roadways:

Access Roadways (off property): Use of these roadways will primarily be a function of continues maintenance. This should include regular grading, addition of rock surfacing when needed, and maintenance of drainage structures.

Access Roadways (on property): These roadways will require maintenance as described above as well as the following:

- Regarding roadway to remove ruts and rough areas as well as removal of the outboard berm to allow for sheet flow for roadway runoff.
- Add additional rock surfacing
- Remove vegetation in areas where roadway is potentially impacted
- Construction of new Rolling Dips as specified in the WRPP.

Limitations

This report, recommendations, and conclusions are solely intended for the site discussed above. The information contained in this report is only intended for use at the stated site using the stated uses. This report should not be used as justification for any other project or site, and only be used for information purposes if referenced and reviewed for other projects. TVCE recognize that the site is in a dynamically active area and conditions can and will change. TVCE has used the best professional judgment to assess the present and future risks and assist the landowner in proposing development that does not increase the risk to the resources present in the project area or subject the landowner to untenable hazards. If conditions different from those described in this report are encountered during construction, the project engineer/builder/owner should contact



this office to review the new conditions and evaluate their bearing on the validity of any recommendations provided herein.

The opinions presented herein have been developed using a degree of care and skill ordinarily exercised, under similar circumstances, by reputable civil engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The analyses and recommendations contained in this reports are based on the data obtained from subsurface exploration. The methods used indicate subsurface conditions only at the specific locations where soils were observed, and only to the depths penetrated, and cannot always be relied on to accurately reflect stratigraphic heterogeneity that commonly exist between sampling locations.

Do not apply any of this report's conclusions or recommendations if the nature, design, or location of the project changes. If changes are contemplated, the author of this report should be consulted to review the impact on the applicability of the recommendations in this report. The author of this report is not responsible for any claims, damages, or liability associated with any other party's interpretation or the subsurface data or reuse this report for other projects or at other locations without written consent.



References

Water Resource Protection Plan
Timberland Resource Consultants – October 2016

