



## Road Evaluation Report

Prepared For:

Rocky Costa

APN: 516-211-025

A handwritten signature in blue ink, appearing to be "M. U.", written over a horizontal line.

Signature of Civil Engineer

The date "12/9/19" handwritten in blue ink over a horizontal line.

Date



Seal

## Table of Contents

Introduction .....	2
Background .....	2
Methods .....	2
Results .....	5
Road Images .....	6
Standard 1 – Dead End Road Length .....	13
Standard 2 – Functional Capacity .....	18
Standard 3 – Protection for Water Quality and Biological Resources on Internal Private Road Systems .....	19
Conclusion .....	16

## Abbreviations

<b>AASHTO</b>	<b>American Association of State Highway and Transportation Officials</b>
<b>ADT</b>	<b>Average Daily Traffic</b>
<b>SMP</b>	<b>Safety Management Plan</b>
<b>PM</b>	<b>Post Mile</b>
<b>SWRCB</b>	<b>State Water Resources Control Board</b>
<b>WRPP</b>	<b>Water Resources Protection Plan</b>

## Introduction:

Green Road Consulting performed a road evaluation study to determine whether commercial cannabis cultivation activities will impact the current road systems on APN 516-211-025. This parcel is accessed 1.8 miles off of West End Road down Warren Creek Road just east of Arcata, CA. Warren Creek road is county maintained and paved for the first 0.9 miles, while the second 0.9 miles is privately maintained. West End Road has been classified as meeting or exceeding category 4 standards up to the intersection with Warren Creek Road (see attached category 4 road standards list for Humboldt County cannabis projects prepared by Kimley-Horn. While the 1.8 miles of Warren Creek road that are used to access APN 516-211-025 would not be classified as a class 4 standard road due to a number of pinch points, the entire length should be considered category 4 equivalent as adequately sized and spaced turnouts as well as undisrupted views of oncoming traffic alleviate any heightened risk of accidents from increased traffic. An assessment of road design and conditions concluded that any anticipated traffic increases from a combination of the proposed farm on APN 516-211-025 and the proposed cannabis nursery on APN 516-241-024 should not have any deleterious effect on road safety, environmental impact, or congestion. Only a single point, a pothole near the property entrance, was identified as requiring basic maintenance.

## Background:

On May 6, 2018, the Humboldt County Board of Supervisors passed Ordinance No. 2599 defining the rules and regulations of commercial cultivation, processing, manufacturing, distribution, testing and sale of cannabis for medicinal or adult use outside the coastal zone. Section 55.4.12 of the ordinance describes the performance standards related to all commercial cannabis activities at cultivation sites that must be met for the applicant to be eligible for a commercial cannabis cultivation permit issued by Humboldt County. As defined in Section 55.4.12.1.8, roads must conform to the following three (3) standards:

Standard 1: Dead-End Road Length,

Standard 2: Functional Capacity,

Standard 3: Protection for Water Quality and biological Resources on Private Road Systems.

Humboldt County has also deemed it necessary that a road maintenance association be formed for all road systems providing access to three or more parcels seeking a Commercial Cannabis license. Warren Creek road currently has two active cannabis project applications, the proposed cultivation on APN 516-211-025 by Mr. Costa and a 5,000 square foot commercial cannabis nursery operated by a Ms. Avila on APN 516-241-024. If a special permit regarding the functional capacity is required, Humboldt County mandates that all property owners utilizing the same road system be sent notice of the project, in addition to all parcels within 300 feet of the project parcel boundaries.

## Methods:

All road systems related to commercial cannabis cultivation must comply with the standards set forth in Section 55.4.12.1.8 of Humboldt County Ordinance No. 2599. These standards include roads being located less than 2-miles from the nearest intersection with a Category 4 road (Standard 1), roads providing access to the parcel(s) must meet or exceed the Category 4 road standard (Standard 2), and all private road systems and driveways providing access to parcel(s) shall be designed, maintained, or retrofitted in accordance with "A Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds" (Standard 3). Where road standards are not met, a special permit is required.

A NanoCount 1000 totalizing vehicle counter was used to determine the Average Daily Traffic (ADT) on the private access road leading to the parcel. The 24-hour study was initiated at 12 PM on Thursday November 20, 2019 and concluded at 1 PM on Friday November 21, 2019. The NanoCount 1000 uses a single-channel receiver connected to flexible surgical tubing to accurately count the number of vehicles (or axles) by sensing changes in pressure when a vehicle tire runs over the hollow tubing.

A GPS unit (2 to 4-meter accuracy) was used to mark locations where the NanoCount 1000 was installed for the study. The GPS unit also tracks the location of the user by marking a point every 15 seconds used to determine the dead-end road length. The location tracks obtained with the GPS unit were used in conjunction with Humboldt County Web GIS and ESRI ArcMap to determine accurate measurements of road segments (Figure 1).

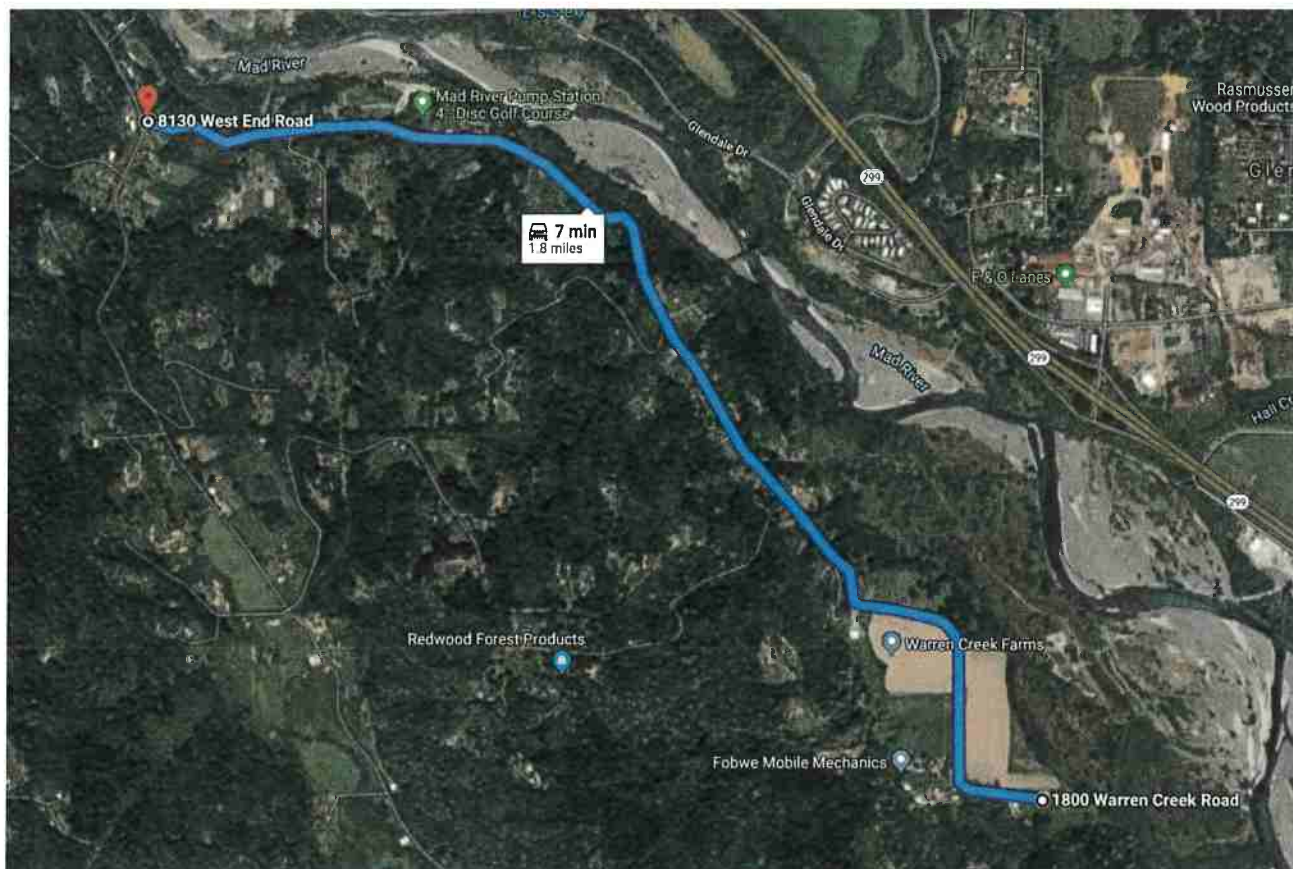


Figure 1: Overview of access road route (Google Maps)



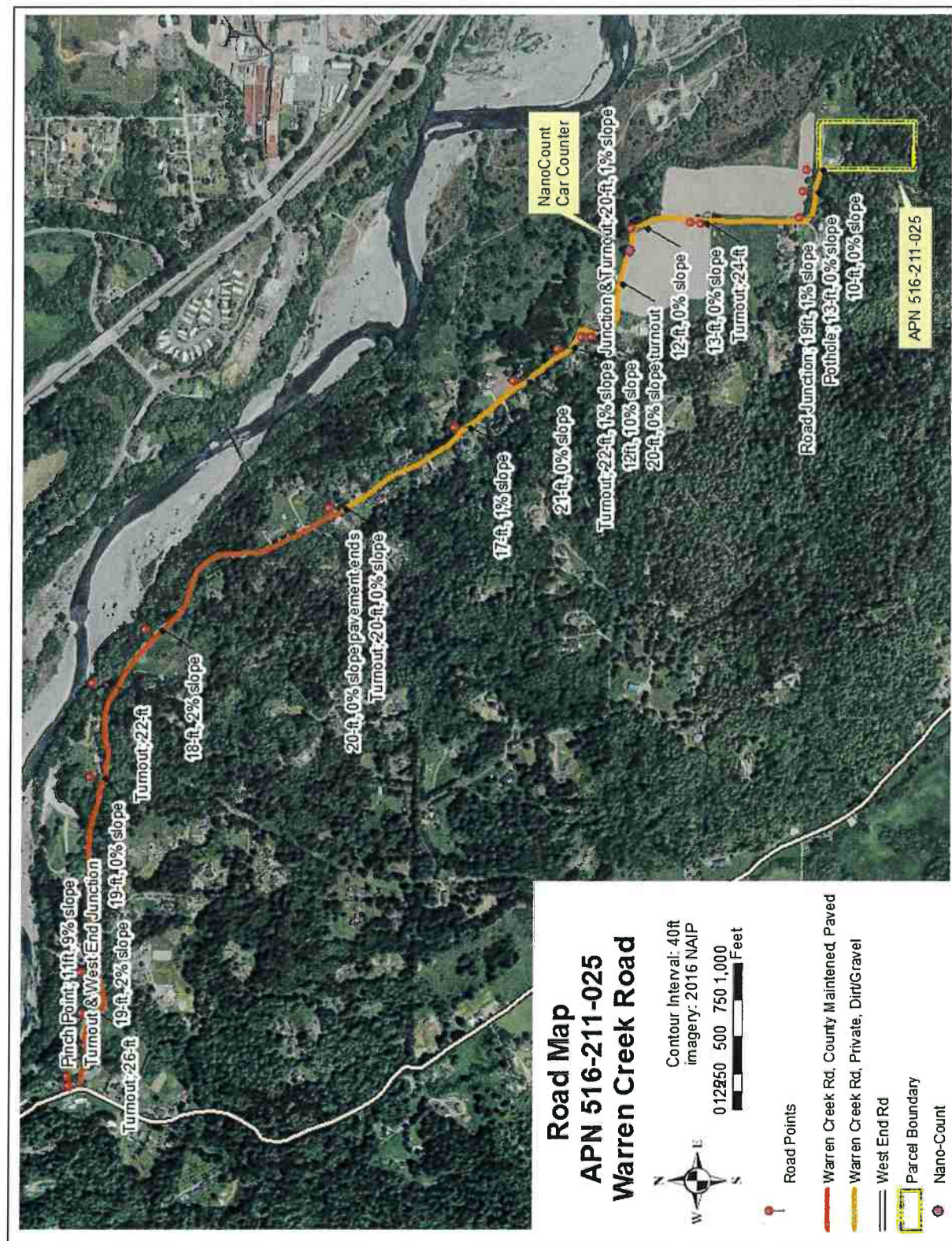


Figure 2: Road evaluation segment showing road-points and turnouts from parcel entrance to the intersection of West End Road.

Rocky Costa

APN: 516-211-025

<40.8893, -124.0225>

**Results:**

Summary of Road Characteristics throughout private road system:

*Table 1: Summary of road characteristics throughout Public and Private road system (Warren Creek Road) from West End Road to site*

<b>Distance (mi)</b>	<b>Slope (%)</b>	<b>Width (ft)</b>	<b>Surface Material</b>	<b>Pinch Points and Narrow Section</b>	<b>Turnout for Passing</b>	<b>Notes</b>
0.00			Pavement			Junction with West End Road
0.01	9	11	Pavement	Narrow Section		
0.01		22	Pavement		Turnout	
0.10		26	Pavement		Turnout	
0.16		17	Pavement	Pinch Point		Historical Railroad overpass
0.17		26	Pavement		Turnout	
0.26	2	19	Pavement			
0.42	0	19	Pavement			
0.54		22	Pavement		Turnout	
0.63	2	18	Pavement			
0.93	0	20	Pavement		Turnout	Pavement Ends
1.03	1	17	Dirt/Gravel			
1.10	0	21	Dirt/Gravel			
1.22	1	20	Dirt/Gravel		Turnout	
1.34	10	12	Dirt/Gravel	Narrow Section		Steep section
1.35	1	22	Dirt/Gravel		Turnout	
1.42	0	20	Dirt/Gravel		Turnout	
1.51	0	12	Dirt/Gravel	Narrow Section		
1.59		24	Dirt/Gravel		Turnout	
1.60	0	13	Dirt/Gravel	Narrow Section		
1.73	1	19	Dirt/Gravel		Turnout	Road Junction
1.76	0	13	Dirt/Gravel	Narrow Section		Pothole
1.79	0	10	Dirt/Gravel			
1.80						Site Entrance

Table 1 outlines the road conditions that were identified at the time of the site inspection. Road features such as slope and width were measured at roughly 0.1-mile intervals for 1.8 miles (Figure 2) on the public and private access road from the parcel entrance to West End Road (a county-maintained Category 4 road). The first half of the access road is a privately maintained dirt/gravel road and the second half is a county maintained paved road. The 0.9-mile county maintained section is in excellent condition with room for two way traffic. This section is pinched at two points where the road passes under the wooden trellis of a historical elevated railroad track and a narrow section just before the junction with West End Road. Both of these pinch points are immediately followed with ample turnouts for passing. The second 0.9 miles of privately maintained dirt/gravel road is in good condition, with one steep section (approximately 10% grade). The rest of the road is roughly flat. Four sections of this road are too narrow for two vehicles to pass, but visibility is unimpeded and five wide areas are available as turnouts for passing.



As outlined in the AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads (American Association of State Highway and Transportation Officials 2001), “evidence of site-specific safety problems may be: a pattern of curve-related crashes; physical evidence of curve problems such as skid roads, scarring on trees or utility poles, substantial edge rutting or encroachments; a history of complaints from neighbors and/ or local police; or measured or known speeds higher than the current operational speed of the road system.” No significant safety problems were identified at the time of the site inspection.

#### Road Images:



*Figure 3: Junction of West End Road and Warren Creek Road*



*Figure 4: Narrow section at Mile 0.01 just off West End Road*

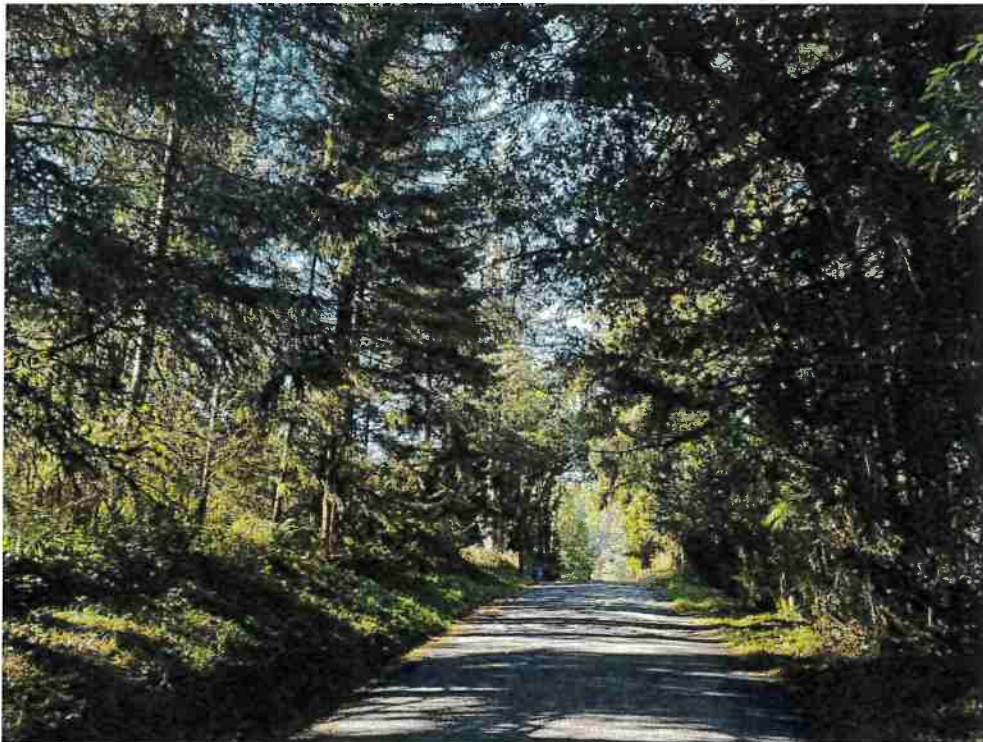


*Figure 5: Turnout immediately before pinch point at Mile 0.1*





*Figure 6: Pinch point under railroad trellis with turnout in foreground*



*Figure 7: Paved road section around Mile 0.2*





*Figure 8: Paved Section around Mile 0.42*



*Figure 9: Turnout at Mile 0.54*



*Figure 10: Paved road with turnout at Mile 0.63*



*Figure 11: Mile 0.93, where pavement and county maintenance ends*





*Figure 12: Gravel road surface at Mile 1.03*



*Figure 13: Wide gravel road at Mile 1.1*





*Figure 14: Road Junction and turnout at Mile 1.22*



*Figure 15: Steep section (one-way traffic) at Mile 1.34*



*Figure 16: Turnout at bottom of hill at Mile 1.35*



*Figure 17: Turnout at Mile 1.42*





*Figure 18: Narrow section at Mile 1.51*



*Figure 19: Turnout at Mile 1.59 with good visibility of narrow section ahead*





*Figure 20: Gravel road at Mile 1.6*



*Figure 21: Road junction and turnout at Mile 1.73*





*Figure 22: Pothole on dirt road at Mile 1.76*



*Figure 23: Just before Parcel entrance at Mile 1.79*



### Standard 1 – Dead End Road Length

Using online satellite measurement tools (Humboldt County WebGIS, Google Earth Pro) and GPS tracks collected in the field, the length of road from the nearest Category 4 road (West End Road) was determined to be approximately 1.8 miles. This is less than the 2.0 miles required by Humboldt County (Figure 2).

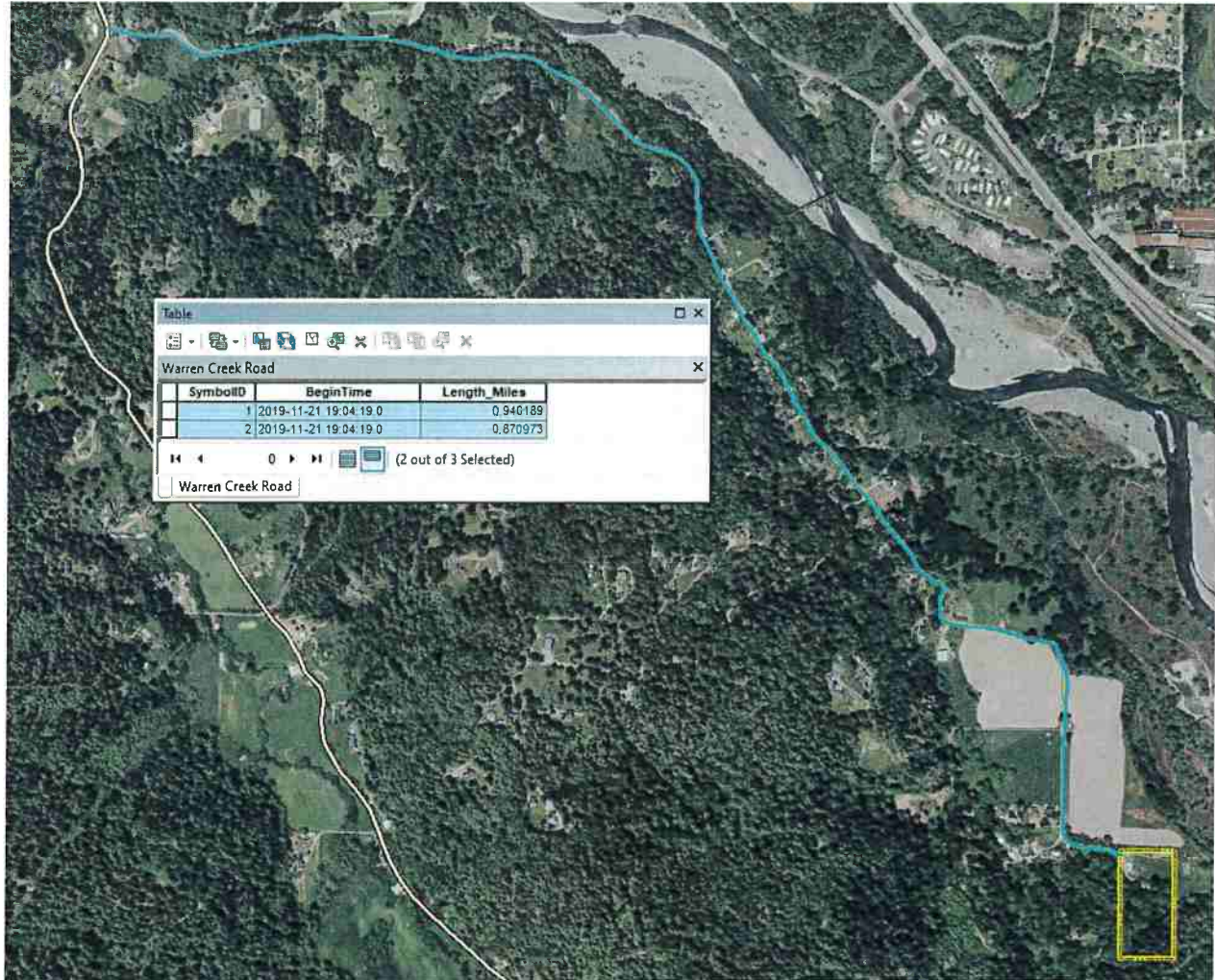


Figure 24: Snapshot from Arcmap showing field GPS measured track over NAIP 2016 satellite basemap, used to determine the distance traveled to reach the applicants parcel from West End Road (1.8 Miles).

## Standard 2 – Functional Capacity

The Average Daily Traffic (ADT) was used to determine the functional capacity of the private access road, from County maintained West End Road to the parcel entrance. The Average Daily Traffic (ADT) for the private section of Warren Creek Road was 26 vehicles, summarized in Table 2. This value defines the privately maintained portion of Warren Creek Road from where the pavement ends as a very low-volume local road according to the AASHTO design manuals.

Table 2: Summary of data collected over the 24-hour road study.

Segment	Length (miles)	Count (vehicles)
Warren Creek Road from West End Road to Parcel	1.8	26



Figure 25: Nanocount 1000 used for 24-hour road study on Warren Creek Road at <124°1'30.689"W 40°53'37.41"N> from 11/20/2019 to 11/21/2019, showing final reading of 26 vehicles

Anticipated road use for the Proposed 10,000 square foot mixed Light cultivation license on APN 516-211-025 does not exceed 2 vehicle trips per day (not including domestic vehicle travel from this parcel which is preexisting) on average. The small commercial cannabis nursery proposed on APN 516-241-024 will likely not require more than 2 vehicle trips per day for employees, and should not exceed 7 vehicle trips per day during peak season when customers are visiting the site. Therefore, a compilation of the recent ADT from domestic use on Warren Creek Road along with anticipated commercial cannabis related traffic should not exceed 40-50 vehicle trips per day. Based on the physical conditions and design of Warren Creek Road along the entire 1.8-mile route between West End Road and parcel 516-211-025, it was determined that the functional capacity of the road can easily accommodate any increased traffic from commercial cannabis activities at the proposed scale without major upgrades and at a negligible increase to routine road maintenance efforts.

### Standard 3 – Protection for Water Quality and Biological Resources on Internal Private Road Systems

Evaluation of the design, functionality, and performance conditions of all segments of private roadways was conducted by a licensed engineer. This includes design measures to minimize impacts from point source and non-point source pollution, sediment delivery, runoff velocity. Drainage features were evaluated to ensure adequate design, functionality, and performance of culverts and other discrete drainage systems and developed conclusions regarding compliance and conformance with best management practices for the defined road system.

The entirety of Warren Creek Road up to the parcel entrance was flat, well drained, properly maintained, and poses extremely low if any risk to water quality in the surrounding Mad River watershed, with one exception. A pothole located just outside of the Parcel entrance (at Mile Mark 1.76 from the start of Warren Creek Road) will continue to hold water and erode at the edges if not treated. This pothole should be filled in and slightly mounded with >3/4-inch crushed rock with more rock added as necessary. Until filled, this pothole represents a small risk of increased turbidity in stormwater as it flows through a nearby swale. Solution of this issue can be obtained at minimal expense and effort and should not inhibit the approval of cultivation applications on parcel 516-211-025.

Furthermore, in order to comply with the California Water Code Section 13260 (a), “which requires that any person discharging waste or proposing to discharge waste within any region that could affect the water quality of the waters of the state, other than into a community sewer system, shall file with the appropriate regional water board a Report of Waste Discharge (ROWD) containing such information and data as may be required by the Regional Water Board.”, a Site Management Plan will be prepared for this proposed cannabis cultivation operation, to be submitted to and reviewed by the North Coast Regional Water Quality Control Board. The SMP will in part discuss specific issues and solutions for water quality issues including those related to road maintenance and upgrades.

*Table 3: Summary of current conditions, problems, remediation measures as they relate to water quality/environmental issues on Warren Creek Road*

<b>Topic</b>	<b>Issue</b>	<b>Remediation Measure</b>	<b>Expected Completion Date</b>
Erosion control measures	A pothole near the property entrance increases erosion risk of road surface	Fill in and slightly mound with >3/4-inch crushed rock with more rock added as necessary	September 2020



### Conclusion:

Three road standards must be met for the applicant to be in compliance with Humboldt County Ordinance No. 2599: Dead End Road Length, Functional Capacity, and Protection for Water Quality and Biological Resources on Private Road Systems. Green Road Consulting performed a road evaluation study to determine whether commercial cannabis cultivation activities will impact the current road systems on APN 516-211-025. A summary of the results can be found below:

- The Dead-End Road Length from the nearest Category 4 road (West End Road) to the parcel entrance is approximately 1.8 miles.
- Over a 24-hour car counting study, a total of twenty-six (26) vehicles utilized the road system accessing the applicants parcel (Table 2), defining the segment of road as very low-volume according to the AASHTO design manuals.
- The condition of these roads is adequate to support commercial cultivation operations on this parcel as well as the unrelated commercial cannabis nursery on Warren Creek Road in addition to the current regular non-commercial use.
- The project shall meet all road system safety standards applicable to a very low-volume road once the pothole at Mile 1.76 is filled.
- No significant safety problems were identified at the time of the site inspection, such as low-visibility pinch points, tree scarring, overhanging vegetation, eroding road edges, etc..

It is recommended that bet management methods continue to be implemented on the private road leading to the parcel entrance for the environmental remediation conditions to be addressed.

A Road Evaluation Report provided by the Humboldt County Department of Public Works has been completed by a licensed civil engineer.



**COUNTY OF HUMBOLDT**  
**PLANNING AND BUILDING DEPARTMENT**  
**CANNABIS SERVICES DIVISION**

3015 H Street Eureka CA 95501  
Fax: (707) 268-3792 Phone: (707) 445-7541

**Applicant:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**APPS#:** \_\_\_\_\_

**PLANNER:** \_\_\_\_\_

**STAFF REPORT CHECKLIST**

Please ensure the following items are complete prior to submitting a staff report to review to the Senior or Supervising Planner. Please submit this checklist along with your project for confirmation:

- ☐ Check 2018 or 2019 aerial imagery for expansion, false start, timber removal or new structures
- ☐ Respond to CDFW comments
- ☐ Draft staff report, including CEQA document (e.g. addendum or Notice of Exemption). Assemble staff report as stated in the table of contents.
- ☐ Draft notice and notice order (Special or Conditional Use Permits only)
- ☐ Prepare haul route map (as applicable, Special or Conditional Use Permits only)
- ☐ Draft compliance agreement
- ☐ Update record in Accela, including:
  - ☐ Project Description
  - ☐ Tab 5 – Cannabis
  - ☐ Task log/time entry updated
- ☐ Request invoice (currently - Mallory: [messex@co.humboldt.ca.us](mailto:messex@co.humboldt.ca.us)) to bring account current prior to noticing
- ☐ Contact Applicant re: confirm project description, provide invoice and conditions of approval, and discuss hearing details (e.g. time, location, procedures). (For ZCCs – provide compliance agreement, invoice, RRR documents (as applicable) and discuss approval timeline).
- ☐ Update GTL