### 9.3.3 Green Diamond Resources Company

All alternatives, except for F, will travel through GDRC property. Currently the land is used for timber harvesting, and construction of a highway including right-of-way will necessitate acquisition of property from GDRC. This will require negotiations with Green Diamond Resource Company to find a suitable solution for all parties.

# 10. RESULTS

The Feasibility Study is not intended to formulate a recommendation for a preferred alternative; however, alternatives were compared against each other based on many factors including, but not limited to: cost, natural resource and cultural landscape impacts, time of construction and quantity of excavation. The intent of reducing the number of alternatives is to study only the alternatives most likely to move forward. Technical experts within each of the Partner organization evaluated each alternative. By including the Partners and their technical expertise, the team was able to minimize and/or avoid impacts. By evaluating the preliminary feasibility of an alternative for this study, a basis for alternative exclusion was developed to remove alternatives from further study.

## 10.1 BASIS FOR ALTERNATIVE EXCLUSION

The criteria used for alternative exclusion includes geotechnical, environmental, engineering, and planning as a baseline used to evaluate alternatives. An essential question answered in this process is whether an alternative provides a unique advantage over other alternatives being proposed. For this Feasibility Study, the primary impacts to avoid are natural resources and cultural landscape. As discussed previously, Last Chance Grade exists in a unique, sensitive environment. The alternatives eliminated from further consideration section outlines some of the challenges with past alternatives studied prior to this Feasibility Study. Old-growth redwoods are of particular concern due to their scarcity. Cultural landscape in the study area are also of particular concern. Impacts to both old-growth redwood forests and cultural landscapes are very difficult and costly to mitigate, and are considered carefully by the Partners. Impacts to fisheries in the Wilson and Mill Creek watersheds are also of concern. Alternatives that both travel through the watershed with stream crossings and have larger construction footprints will potentially lead to increased impacts. Wildlife connectivity impacts increase with the length and width of new highway, and alternatives with longer lengths were considered less favorable. Both watershed and wildlife connectivity impacts can be mitigated, and are not valued as highly as old-growth redwood forests and cultural landscapes.

The alternatives proposed in this Feasibility Study are considered feasible based upon the preliminary information available during the evaluation process; however, Alternatives B1, B2, D3, D4, D5, E3, E4, and E5 are not recommended for further study. Reducing the number of alternatives studied will allow project teams moving forward to focus their studies and analysis and develop better data, which can be used to evaluate further potential solutions at Last Chance Grade. These alternatives when compared to other similar alternatives provide no unique advantage to necessitate further study.

### 10.1.1 Exclusion of Alternatives B1 and B2 from Further Study

The A and B Alternatives share segments 1 and 2 and are the easiest options to compare. When comparing Alternatives B1 and B2 with A1 and A2, B1 and B2 impact about 15% more habitat area and cultural landscape because of a larger construction footprint. Alternatives B1 and B2 are projected to cost around $20 million more than Alternatives A1 and A2. The two B alternatives will require an additional 3 million cubic yards of soil to be moved compared to the two A alternatives. These additional impacts, without any added value, eliminate the need to continue to study Alternatives B1 and B2.

### 10.1.2 Exclusion of Alternatives D3, D4, and D5 from Further Study

The C and D alternatives are very similar with the exception of the starting point of each set of alternatives. Comparing Alternatives C3, C4, and C5 with D3, D4, and D5; the D alternatives have a greater potential impact on habitat area and cultural landscape because of the larger construction footprint. All three options are more expensive by $20 to $30 million compared to the C alternatives. Since Alternatives D3, D4, and D5 do not present unique value and do not provide equal benefit to C3, C4, and C5, they are eliminated from further study.

### 10.1.3 Exclusion of Alternatives E3, E4, and E5 from Further Study

The E alternatives are easiest to compare to the C and D alternatives. The E alternatives are the only alternatives to start south of Wilson creek. Alternatives E3, E4, and E5 have the largest construction footprint that would impact over 300 acres of existing habitat and cultural landscape with a cost between 1 and 1.3 billion dollars. The E Alternatives provide no advantage over the D Alternatives, which are less favorable to the C alternatives. The E Alternatives appear to avoid more landslides, but there is concern that this area east of Last Chance Grade has received less focus in previous geologic studies. The E alternatives add additional five or more minutes of travel time to the route between Crescent City and Klamath and have the greatest potential barrier to wildlife connectivity and watershed integrity. The increased travel time and construction footprint will have the second largest increase to greenhouse gas emissions of all alternatives considered.

Cost, construction, and added length are also important in determining the feasibility of alternatives. As stewards of the State Highway System, Caltrans must make sure the public receives a cost effective highway within a reasonable construction period, and that these impacts are considered appropriately.

# 11. RECOMMENDED ALTERNATIVES

Using all of the available resources and input from Partners, stakeholders, and the public alike, Caltrans has recommended the following alternatives to be retained for further study in a Project Study Report:

**Alternative - Maintain Existing Roadway:** This alternative is retained to be used as a baseline to compare other alternatives. This alternative would have unknown and unquantifiable impacts to cultural landscapes or natural resources, and will not avoid long-term issues with the Last Chance Grade slide. This alternative has the potential to have the greatest impact to environmental resources. A major landslide could initiate the fastest solution to getting the road open for drivers. Some potential options closest to the existing alignment include a retreat upslope that could require taking more than 100 old-growth trees. There are some estimates in the 1993 Project Report (Appendix A).

**Alternative A1:** This alternative is recommended for further study. Alternative A1 is one of the shortest and least expensive options, and has a smaller potential impact on cultural landscapes and natural resources relative to other alternatives. By leaving the highway north of Wilson Creek, A1 avoids both watershed impacts and cultural landscape impacts. However, A1 does have the potential to remove up to one acre of old-growth redwood forest.

**Alternative A2:** This alternative is recommended for further study. Alternative A2 is the least expensive option and among the shortest, however it has greater potential impacts to old-growth forest relative to other alternatives. This alternative has the potential to remove up to three acres of old-growth redwood forest.

**Alternative C3:** This alternative is recommended for further study. This alternative has the potential for the least impact to old-growth redwood forest and State and National Park land. However, C3 does have an increased length and an increase in potential impacts to both Wilson and Mill Creek watersheds. This alternative is also among the more costly routes.