

INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

OLD RAILROAD GRADE

TRAIL UPGRADE PROJECT

Prepared for
Marin County Open Space District
July 2015



Prepared by
Amy Skewes-Cox, AICP

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In conjunction with
NATALIE MACRIS
BASELINE ENVIRONMENTAL CONSULTING
ENVIRONMENTAL COLLABORATIVE
TOM CAMARA GRAPHICS
WORDSMITH WORDPROCESSING

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CHAPTER 1

PROJECT DESCRIPTION

1. Project Title: Old Railroad Grade Trail Upgrade Project

2. Lead Agency Name and Address

Marin County Open Space District
3501 Civic Center Drive, Suite 260
San Rafael, California 94903

3. Contact Person and Phone Number

James Raives
(415) 473-3745 or JRaives@marincounty.org

4. Project Location

Loma Alta Open Space Preserve, Fairfax, California

5. Project Sponsor's Name and Address

Marin County Open Space District
3501 Civic Center Drive, Suite 260
San Rafael, California 94903

6. General Plan Designation

Assessor Parcel Number (APN) 174-060-31¹: Open Space (OS)
APN 174-070-58: OS; Planned Residential (PR), one unit per 1 to 10 acres
APN 174-230-02: PR, one unit per 1 to 10 acres

7. Zoning

APN 174-060-31: Open Area (OA)
APN 174-070-58: OA, and Residential Multiple Planned (RMP)-0.44
APN 174-230-02: RMP-0.44

¹ This first parcel includes the project site. Other parcels listed here are part of the overall Loma Alta Open Space Preserve, which includes the project site.

INTRODUCTION

This Initial Study tiers from the Road and Trail Management Plan (RTMP) Recirculated Tiered Program Environmental Impact Report (Program EIR) (State Clearinghouse Number 2011012080) that was certified as meeting the requirements of the California Environmental Quality Act (CEQA) on December 16, 2014 by the Marin County Open Space District (MCOSD) Board of Directors (MCOSD, 2014a and 2014b). The RTMP Program EIR addressed the environmental impacts of the entire MCOSD RTMP, of which the project site is a part. The RTMP consists of a comprehensive management plan for the maintenance and construction of existing and new roads and trails, and for the management of uses within the MCOSD's road and trail network. The original RTMP Program EIR was recirculated because the MCOSD staff made changes to the RTMP in response to issues and concerns resulting from the comments on the original Program EIR.

The RTMP covers six regions within Marin County, with a total of 34 MCOSD preserves. Region 2, of which the project site is a part, includes the following open space preserves:

- French Ranch
- Maurice Thorner Memorial
- Roy's Redwoods
- Gary Giacomini
- Loma Alta
- White Hill
- Cascade Canyon

The project site, part of the Loma Alta Open Space Preserve located northwest of the town of Fairfax, includes the location of the proposed new trail (addressed in this Initial Study), the existing trail, and the immediate vicinity. The Loma Alta Open Space Preserve consists of 509 acres. Region 2 contains approximately 69 miles of roads and trails, more than in any of the other regions of the RTMP. **Figure 1-1** shows the Loma Alta Open Space Preserve in relation to other nearby preserves.

The RTMP includes a number of best management practices (BMPs) intended to reduce potential environmental impacts of implementing the RTMP. This Initial Study incorporates the appropriate BMPs relevant to the proposed project. These BMPs are listed in **Appendix A** of this Initial Study.

PROPOSED PROJECT

The MCOSD has proposed relocating a 1,100-foot-long segment of the Old Railroad Grade Trail located within the Loma Alta Open Space Preserve. As noted above, this preserve is located northwest of the town of Fairfax, in an unincorporated portion of central Marin County (see Figure 1-1). The nearest development is the residential (single-family-home) subdivision of Baywood Canyon Estates, the lot line of which is located about 100 feet west of the proposed trail improvements.

The proposed project includes the following components (see **Figure 1-2**):

- Building 1,100 feet of new trail bypassing the existing trail following the historic railroad grade, thus creating a less steep gradient;

- Constructing a new 30-foot-long trail bridge across an ephemeral stream;
- Installing a 30-inch-diameter culvert at another ephemeral stream crossing for a distance of about 20 feet; and
- Restoring and revegetating 975 feet of existing trail that would be abandoned.
- Trail use would be open to pedestrians, equestrians, and bicyclists.

Project and Regional Location Figure 1-1



Figure 1-1

SOURCE: Google Maps, 2015; MCOSD, 2015

REGIONAL AND PROJECT LOCATION

Figure 1-2 Project Site Plan

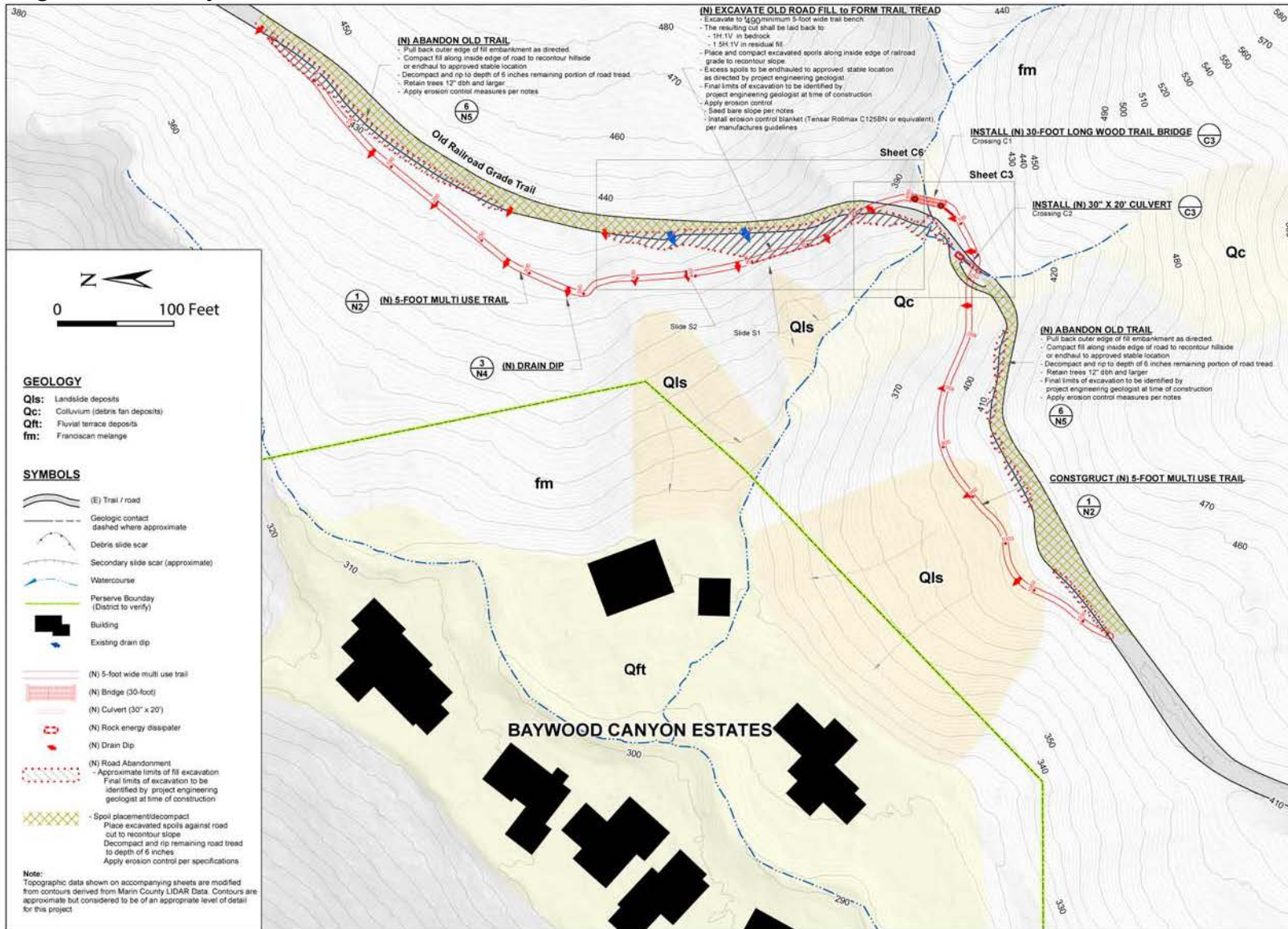


Figure 1-2

PROJECT SITE PLAN

SOURCE: Marin County Open Space District, 2014



AMY SKEWES-COX
ENVIRONMENTAL PLANNING

New Trail

The new trail would be located in an area where the existing trail is quite steep, with 20- to 30-percent grades through two ephemeral drainages. Because of the steepness, there have been problems with erosion and the trail is deeply rutted, resulting in increased sedimentation downstream. The steepness of the trail also impedes pedestrian and bicycle access in this portion of the Old Railroad Grade Trail.

Installation of the new trail would entail removal of existing shrubbery and tree vegetation. The trail corridor would extend 3 feet on either side of the 5-foot-wide trail bed. All vegetation would be cleared, including trees and logs less than 6 inches diameter breast height (DBH). The MCOSD would remove any trees greater than 6 inches DBH only if absolutely necessary to construct the project. Branches that extend into the new trail alignment would be trimmed to leave an 8-foot minimum to 12-foot maximum height vertical clearance (Best, 2015). Existing vegetation would not be covered with any debris created by vegetation clearance.

The trail alignment would be excavated to form a minimum 5-foot-wide trail bench with a 1:1² cut bank in bedrock and a 1.5:1 cut bank in areas of residual fill. Proposed cuts would generally be less than 7 feet high. Any cuts greater than 7 feet in height are recommended to be inclined no steeper than 0.75:1 in colluvial soils and 0.5:1 in bedrock. Excavated spoils would be placed and compacted on the inside edge of the railroad grade to recontour the slope. Excess spoils would be end-hauled to an approved stable location as directed by the project engineering geologist.³ There are three places where different types of fill would be used. Residual spoils would be spread to a depth of less than 8 inches. Some fill would be used to construct the stream crossing; this fill would be structural fill with a 1.5:1 slope. The rest of the fill would be non-structural and would be spread to the inside slope of the existing trail (for abandoning it), at an incline of 1.5:1. To allow efficient vegetation re-growth, this last fill may not be compacted. The project engineering geologist would identify the final limits of excavation at the time of construction. Erosion control measures such as seeding bare slopes and installing erosion control blankets (or equivalent) would be applied during construction.⁴ **Figure 1-3** show a cross-section of the proposed new trail and abandoned old trail.

The new trail would be generally located at elevations of 390 feet to 430 feet above mean sea level (msl). It would begin and end at locations of the existing trail, and would veer away from the existing trail to lower elevations up to about 50 to 60 feet below the existing alignment.

Drainage would be managed through outsloping with recontouring of the hillside and installation of frequent drain dips where it would not be possible to recontour the hillside. Upslope drainage problems would be corrected on the upslope railroad grade to reduce the potential for fill instability.

² 1:1 refers to horizontal/vertical distances; thus, for every 1 foot in horizontal cut, there would be 1 foot in vertical cut.

³ End-hauling refers to the practice of removing excavated soil by hauling it with wheelbarrows or other equipment to a site that is suitable for it to be disposed. For example, soil excavated within certain distances of stream crossings cannot be sidecast, and so must be end-hauled to a safe area.

⁴ Erosion control blankets are jute or other weed-free material woven blankets that serve to stabilize a slope until native or other planted vegetation can regrow to otherwise stabilize it.

Drain dips⁵ would generally be installed at 50- to 125-foot intervals to minimize concentrated trail runoff. The MCOSD's geotechnical analysis recommends the application of seed, straw blankets, and straw rolls to minimize erosion of bare ground above the proposed trail when fill is removed with the abandonment of the old railroad grade (Best, 2015).⁶ The removal of the fill of the old rail line is recommended to reduce the driving forces acting on the slope, thereby lowering the risk for slope failure and hazards presented to Baywood Canyon Estates below the proposed project.

⁵ Drain dips refer to refer to either standard reverse-grade dips or knicks meant to naturally dewater the trail without concentrating flow.

⁶ The MCOSD does not plan to reseed the area but rather to plant native plantings and transplants.

Figure 1-3 Trail Cross-Section

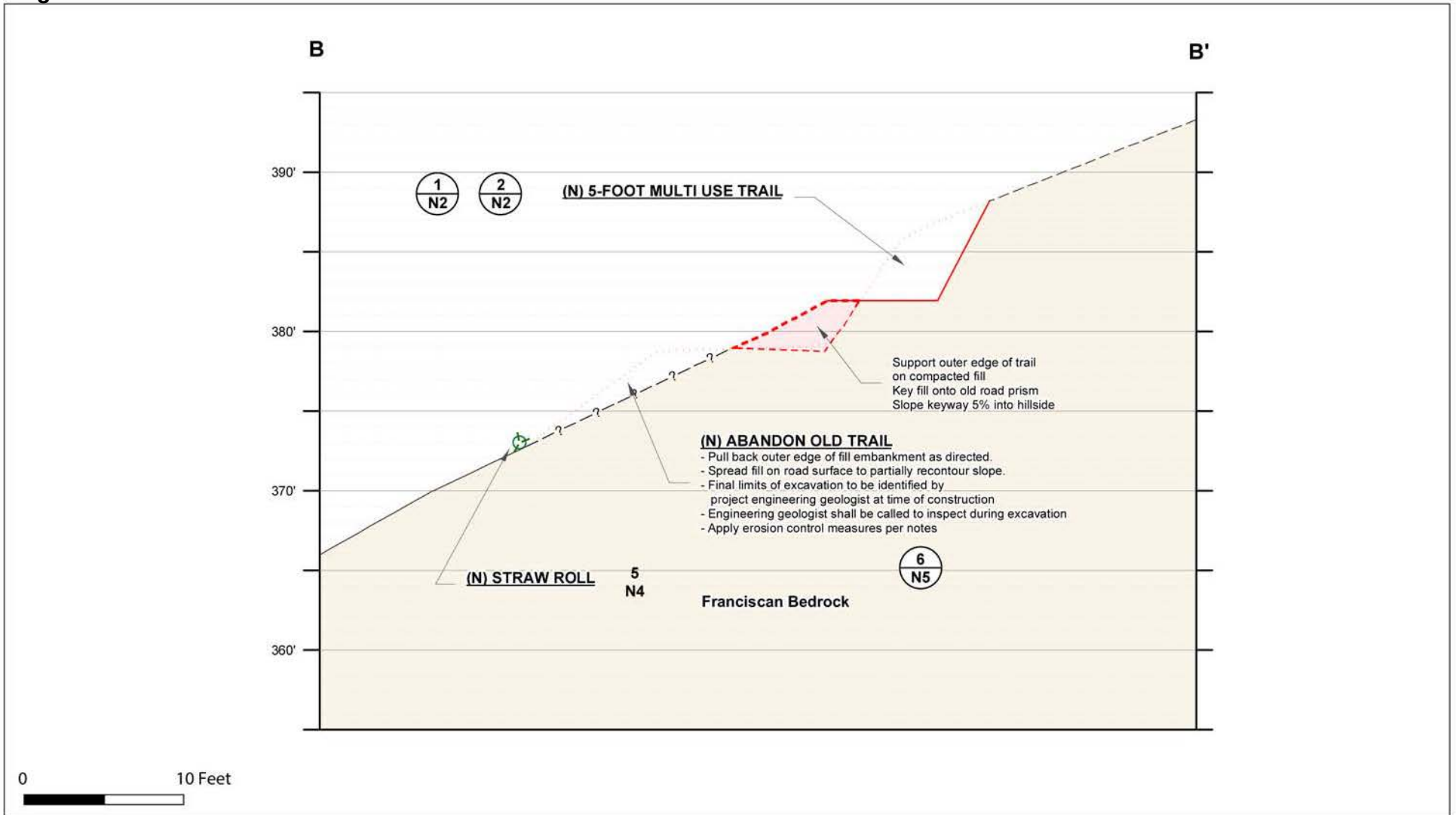


Figure 1-3

TRAIL CROSS SECTION

SOURCE: Marin County Open Space District, 2015



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ENVIRONMENTAL PLANNING

New Trail Bridge

A new 30-foot-long, 6-foot-wide wooden trail bridge would be installed over the ephemeral stream as shown in Figure 1-2. This bridge would be located at an elevation of about 380 feet above msl and near the halfway point of the entire trail reconstruction project. The new bridge would be located about 20 feet upslope of the existing trail grade. A cross-section of the new bridge is shown in **Figure 1-4**. The bridge would include horizontal wooden slats on both sides and a guardrail cap.

The new bridge would be made of structural elements that would be brought to the site via truck. An 8-foot-long, 2-foot-high retaining wall made of wood or rock buttresses would be built at the southwest end of the new bridge to hold the slope where it adjoins the bridge. The 5-foot-wide trail would connect to either end of the new wooden bridge.

Bridge footings would be concrete and would be imbedded a minimum of 3 feet into firm native soils. An engineering geologist would be called to inspect during excavation and before the concrete pour.

New Culvert

A new 30-inch-diameter-by-20-foot-long culvert would be placed in the second ephemeral drainage on the site (see Figure 1-2). This culvert would be placed beneath the new trail in a location that crosses the old trail alignment. The culvert bottom would be embedded 6 inches below the native channel grade. A rock energy dissipator would include 3 cubic yards of 12-inch rock extending about 6 feet downstream of the pipe outlet as shown in the cross-section (see **Figure 1-5**).

Below the new culvert, road fill would be excavated to the native channel grade, resulting in a stream channel having a minimum 4-foot-wide flat channel bottom. Channel banks would be laid back no steeper than 2:1. End-haul spoils would be taken to a stable location or compacted against the adjacent road cut to recontour the slope. Straw rolls would be placed along the base of excavation to reduce any potential for erosion.

Abandonment of Old Trail Segment

The existing old trail would be abandoned in the vicinity of the new trail. The fill embankment would have the outer edge pulled back, and fill would be spread on the existing trail surface to partially recontour the slope. The final limits of excavation would be identified by the engineering geologist at the time of construction. Erosion control measures would be installed as needed. Much of the abandoned old trail would be used for disposal of spoils, and the slope would be recontoured. The remaining trail tread would be ripped to a depth of 6 inches and erosion control measures would be applied as stated in contract specifications.

Revegetation of the abandoned trail would include allowing native and non-native seed in the soil bank to reestablish, and augmenting this native seed with some plantings of California sage, sticky monkey-flower, and coast live oak seedlings. The MCOSD would not apply hydroseed to the project area or import other native plant seeds, consistent with resource management practices of the MCOSD. Invasive species in the project area, particularly French broom, would be treated or hand-pulled for up to 5 years after project completion.

Figure 1-4 Bridge Cross-Section

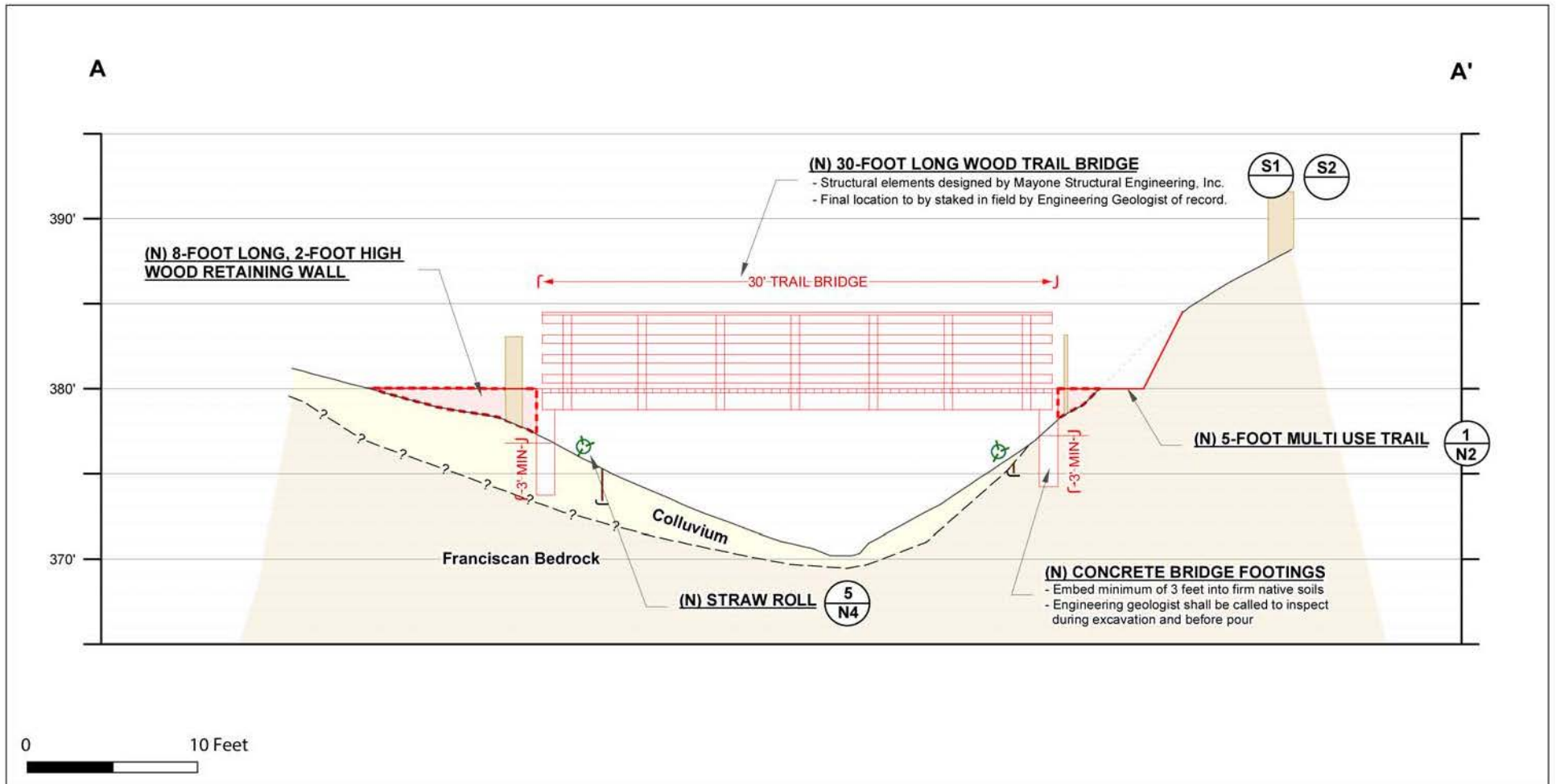


Figure 1-4

BRIDGE CROSS SECTION

SOURCE: Marin County Open Space District, 2015



AMY SKEWES-COX
 ENVIRONMENTAL PLANNING

Figure 1-5 Cross-Section of New Culvert

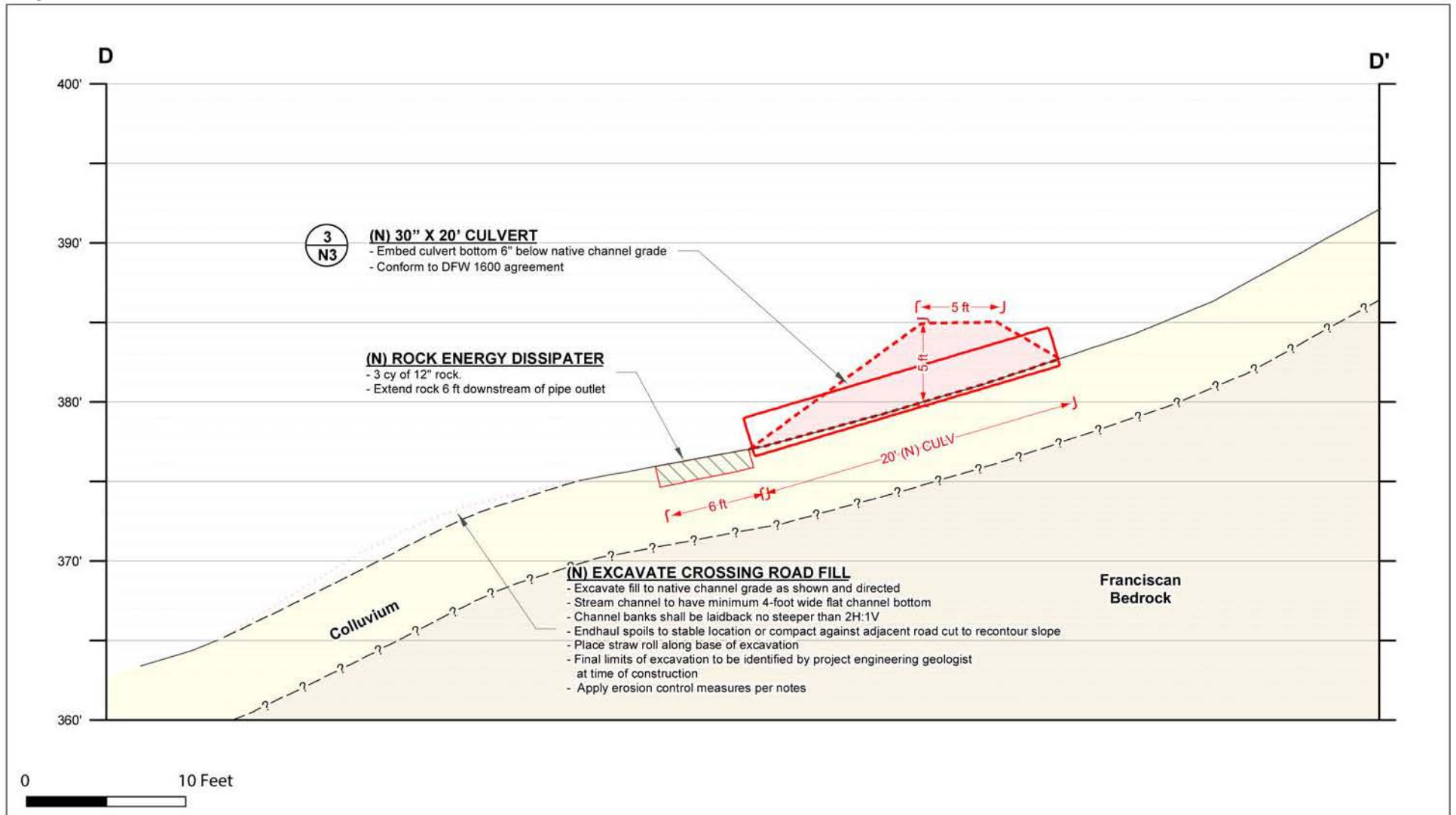


Figure 1-5

CROSS SECTION OF NEW CULVERT

SOURCE: Marin County Open Space District, 2015

Project Staging and Construction Timing

Construction staging areas would be restricted to existing MCOSD roads and trails or other areas that would avoid any significant impacts on sensitive natural resources, as required by BMPs described in the MCOSD's Road and Trail Management Plan. Access to the project site for construction vehicles and equipment would be from Sir Francis Drake Boulevard. Construction would occur Monday through Thursday, from 7:00 AM to 4:00 PM. It is estimated that construction would take about 6 weeks. During construction, the MCOSD would limit trail access for safety purposes and would install signs at preserve entrances to warn trail users. Hikers and equestrians may bypass the construction site by using the Baywood Stables Access trail (see inset in Figure 1-1), which would route them to the south and east of the project area before rejoining the Old Railroad Grade.

SURROUNDING LAND USES AND SETTING

The project site is located in unincorporated Marin County in the Loma Alta Open Space Preserve, northwest of the town of Fairfax. The proposed project is a bypass of a portion of the Old Railroad Grade Trail and is used by mountain bikers, equestrians, and hikers. This route is popular among mountain bikers who wish to travel from Fairfax south to Camp Tamarancho, one of the most popular biking destinations in the county, via the Bay Area Ridge Trail. Adjoining land uses west of the project site include Baywood Canyon Estates, a small subdivision of homes; and the Baywood Stables, a private equestrian facility.

REQUIRED APPROVALS

The project may require regulatory permits from:

- California Department of Fish and Wildlife (CDFW)
- Regional Water Quality Control Board (RWQCB)
- U.S. Army Corps of Engineers (Corps)

REFERENCES

Best, Timothy C., CEG, 2015. *Draft Engineering Geologic Review: Old Railroad Grade Trail Upgrade Project*, prepared for Marin County Open Space District), February 11.

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Draft Tiered Program Environmental Impact Report*, August.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014c. *Road and Trail Management Plan*, December.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture & Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology, Soils, & Seismicity |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology & Water Quality |
| <input type="checkbox"/> Land Use & Land Use Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population & Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation & Traffic | <input type="checkbox"/> Utilities & Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

PROJECT SPONSOR'S INCORPORATION OF MITIGATION MEASURES

Acting on behalf of Marin County Open Space District, I (undersigned) have reviewed the Initial Study for the Old Railroad Trail Upgrade Project and have particularly reviewed the mitigation measures and monitoring programs identified herein. As this is a public project, all mitigation measures are included in the project.

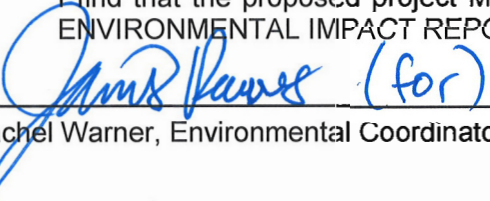
Ronald Miska
Acting General Manager
Marin County Open Space District

Date

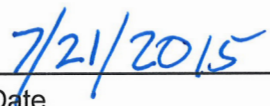
DETERMINATION

Pursuant to Sections 15081 and 15070 of the State CEQA Guidelines, the following Initial Study evaluation, and the entire administrative record for the project: (Completed by Marin County Environmental Coordinator)

- I find that the project has been adequately addressed by the Tiered Program EIR on the Marin County Open Space District's Road and Trails Management Plan and no further CEQA review is required.
- I find that the proposed project WILL NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

 (for)

Rachel Warner, Environmental Coordinator, County of Marin



Date

CHAPTER II ENVIRONMENTAL CHECKLIST

INTRODUCTION

As stated earlier, this Initial Study tiers from the Road and Trail Management Plan (RTMP) Recirculated Tiered Program Environmental Impact Report (Program EIR) (State Clearinghouse Number 2011012080) that was certified as meeting the requirements of the California Environmental Quality Act (CEQA) on December 16, 2014 by the Marin County Open Space District (MCOSD) Board of Directors (MCOSD, 2014a and 2014b). The RTMP Program EIR addressed the environmental impacts of the entire MCOSD RTMP, of which the project site is a part.

The RTMP includes a number of best management practices (BMPs) intended to reduce potential environmental impacts of implementing the RTMP. This Initial Study incorporates the appropriate BMPs relevant to the proposed project (see Appendix A).

REFERENCES

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
i.	AESTHETICS. Would the project:				
a)	Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the project have a substantial adverse effect on a scenic vista?*

Less-than-Significant Impact. The project site is located within a densely wooded portion of the Loma Alta Open Space Preserve. The project site does not have vistas of other scenic areas, nor does it contain a scenic area visible from other locations. The Old Railroad Grade Trail is largely hidden from view from nearby hills and trails by existing bay, oak, and madrone trees that make up the site environment. The project site is not located near a ridgeline and is not designated in the Marin Countywide Plan (Marin County, 2007) as a scenic vista.

b) *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?*

No Impact. The project site is not located within a State scenic highway. No State or locally designated scenic highways are located within Marin County (MCOSD, 2014).

c) *Would the project substantially degrade the existing visual character or quality of the site and its surroundings?*

Less-than-Significant Impact. A total of about 7 oak trees, 13 bay trees, and 1 buckeye would be removed⁷ to allow construction of the new trail. New trees would be planted in the alignment of the existing trail that would be abandoned. While the visual character of the site would be altered by the removal of these trees, these impacts would not be significant because the MCOSD is proposing to plant new trees to replace the removed vegetation and the existing heavy forest cover would screen the trail from off-site locations.

There are no aesthetically significant views in the vicinity of the site. As described above, the wooded nature of the site would block views of the new trail from other areas, including Sir Francis Drake Boulevard, a heavily traveled two-lane road located to the west of the project site across Baywood Canyon. Additionally, the project would not be visible to residences located immediately west of the project, because of the topographic variability and the heavy tree cover. Therefore, the project would

⁷ Trees include those that have a trunk diameter of 4 inches or greater, measured at breast height.

be screened from view and would not result in a significant degradation of the visual quality of the site or surroundings.

d) *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

No Impact. The proposed project does not include the installation of any new lighting for construction or use of the trail.

REFERENCES

Marin County, 2007. *Marin Countywide Plan*, November.

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>II. AGRICULTURAL AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</p>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland of Statewide Importance to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) *Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non-agricultural use?*

No Impact. The project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation, 2012). The site is shown as “Other Land” on the State’s Farmland Mapping and Monitoring Program maps for Marin County Important Farmlands. The Marin Countywide Plan (Marin County, 2007) shows the site as “Public Lands” on the figure entitled “Protected Agricultural Lands” (Map 2-20). Thus, the project would have no impact related to conversion of farmland.

- b) *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

No Impact. The project site is zoned for open space use, and the project would not conflict with zoning for agricultural use or a Williamson Act contract.

- c) *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*

No Impact. The project site is not designated as forest land or timberland in the Marin Countywide Plan or in the County’s Development Code.

- d) *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

No Impact. While the project site is generally composed of California bay-coast live oak woodland, it is designated as public open space and owned by the MCOSD. No forest/timber use has taken place since the MCOSD took over ownership, and no such use is proposed. See also (c) above.

- e) *Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?*

No Impact. No such conversion of farmland or forest land would occur with the proposed trail improvement project.

REFERENCES

California Department of Conservation, 2012. Website: <ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2012/mar12.pdf>, accessed March 30, 2015.

Marin County, 2007. *Marin Countywide Plan*, November.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</p>				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

No Impact. The project site is located within the boundaries of the Bay Area Air Quality Management District (BAAQMD). The Program EIR on the RTMP states that implementation of the RTMP (which covers the proposed trail project) would not conflict with the goals of the 2010 Bay Area Clean Air Plan (CAP) because the RTMP adopts all appropriate measures contained within the 2010 CAP. Also, the proposed project would not result in any new growth beyond that already addressed by the 2010 CAP.

In accordance with BAAQMD recommended guidance, determination of consistency with the CAP is based on an evaluation of the projected increase in population and vehicle miles traveled (VMT) due to the project, as well as consistency with control measures identified in the 2010 CAP. The proposed trail upgrade project would result in neither increased population nor increased VMT. Also, if a project is consistent with the land use designation of the applicable general plan, the project is also consistent with the applicable air quality plans and policies. The proposed trail upgrade project is consistent with the land use designations of the Marin Countywide Plan, and no general plan amendment is proposed. The project is also consistent with the zoning for the project site. Therefore, the project would not conflict with or obstruct implementation of the 2010 CAP.

b) *Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Less-than-Significant Impact. In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were posted on BAAQMD's website and included in BAAQMD's updated CEQA Guidelines (updated May 2011).

BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in *California Building Industry Association (CBIA) v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The order requires BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. However, this litigation remains pending as the California Supreme Court recently accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds. The specific portion of the argument to be considered is in regard to whether CEQA requires consideration of the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment). In the absence of a final determination, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project.

The BAAQMD CEQA Air Quality Guidelines (BAAQMD, 2011) state that projects would have a less-than-significant impact with respect to carbon monoxide concentrations if project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. The proposed trail upgrade project would not increase traffic volumes at all, as trail use would continue unchanged.

The 2011 BAAQMD CEQA Air Quality Guidelines do not have specific screening criteria for a project identical to the proposed project. However, Table 3-1 entitled "Criteria Air Pollutants and Precursors and Greenhouse Gas (GHG) Screening Level Sizes" shows that, for a "city park," the operational criteria for pollutant screening size would be 2,613 acres, the operational GHG screening size would be 600 acres, and the construction criteria for pollutant screening size would be 67 acres for particulate matter with particles having a diameter of 10 micrometers or less (PM₁₀). The trail upgrade project would entail disturbance of no more than about 0.28 acre for the new trail construction and about the same acreage for decommissioning the existing trail. Thus, in total, the project would disturb about 0.55 acre.⁸ The project would be below the screening criteria identified for work within a city park.

The BMPs identified in the RTMP include Air Quality-1, 2, 3, and 4, which seek to minimize dust emissions during construction and include dust control measures. These measures would be implemented for the proposed project, and range from watering active construction areas to covering trucks that haul soils and replanting disturbed areas as quickly as possible. The BMPs are included in **Appendix A** of this Initial Study. With these BMPs, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

- c) *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air*

⁸ As stated in Chapter I, the project proposes upgrades to a 1,100-foot-long trail segment. Assuming 1,100 linear feet and a width of 11 feet, the proposed construction of the new (relocated) trail would disturb about 0.28 acre, and the decommissioning of the existing trail would disturb a similar acreage. The total disturbed area would therefore be about 0.55 acre.

quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less-than-Significant Impact. As discussed under (b) above, the project’s emissions would be less than the BAAQMD screening size for evaluating impacts related to ozone, particulate matter, carbon monoxide, and other emissions. Localized particulate matter emissions would be mitigated to a less-than-significant level with implementation of the RTMP BMPs Air Quality 1, 2, 3, and 4. Therefore, the project would not contribute substantially to existing or projected violations of those standards.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. The nearest residences to the project site are within the Baywood Canyon Estates development. Two of these homes are about 200 feet from the proposed new trail site. The project would not expose these homes to substantial pollutant concentrations; refer to the discussion under (b) above. Also, the project would not result in exposure of sensitive receptors to toxic air contaminants (TACs) such as diesel emissions due to the location of the project and the types of nearby activities. The only emissions of concern would be particulate matter generated during construction; with implementation of the RTMP BMPs Air Quality-1, 2, 3, and 4 (see Appendix A), no significant impacts would result.

e) Would the project create objectionable odors affecting a substantial number of people?

Less-than-Significant Impact. The project would generate localized emissions of diesel exhaust during construction equipment operation. These emissions may be noticeable from time to time by adjacent receptors and nearby residents. However, the emissions would be localized and are not likely to adversely affect surrounding uses to such an extent that people would file odor complaints. After construction, the project would not include any sources of significant odors that would cause complaints from surrounding uses. The project’s odor impact would therefore be less than significant.

REFERENCES

Bay Area Air Quality Management District (BAAQMD), 2011. *Bay Area Air Quality District CEQA Air Quality Guidelines*, May.

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IV.	BIOLOGICAL RESOURCES. Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The assessment of potential impacts on biological resources is based on an independent review by consulting biologist Jim Martin, Principal of Environmental Collaborative. This was accomplished through a review of available background information, including assessments prepared for the site by the MCOSD's consulting biologists and botanist, together with a field reconnaissance of the site to verify existing habitat conditions and conclusions made by the MCOSD's consultants. Documents prepared by the MCOSD'S consultants consist of a Habitat Assessment (Wildlife Research Associates and Jane Valerius Environmental Consulting, 2015), follow-up habitat assessment and survey for special-status bat species (Wildlife Research Associates, 2015) and a special-status plant species (Jane Valerius Environmental Consulting, 2015a), and a preliminary wetland assessment (Jane Valerius Environmental Consulting, 2015b). The Habitat Assessment (HA) and follow-up assessments, which contain detailed descriptions of existing conditions and conclusions regarding presence or absence of sensitive biological resources, are available for review at the offices of the MCOSD. The field reconnaissance survey to confirm conditions described in the HA was conducted by Mr. Martin on April 28, 2015.

As summarized in the HA and confirmed during the field reconnaissance by the Initial Study biologist, the Old Railroad Grade Trail alignment passes through a mosaic of California bay (*Umbellularia californica*)-coast live oak (*Quercus agrifolia*) woodland, coyote brush (*Bacchairs pilularis*)-mixed scrub/grass brushland, and small stands of non-native and native purple needle grass (*Nasella pulchra*) grassland. Characteristic plant species in the woodlands include California bay, coast live oak, and California buckeye (*Aesculus californica*), with generally a sparse understory of poison oak (*Toxicodendron diversilobum*), hazelnut (*Corylus cornuta*), California coffee berry (*Frangula californica*), Inland Douglas iris (*Iris douglasiana*), and other understory species tolerant of high shade levels. Brushlands are characterized by thickets of shrubs and vines such as coyote brush, coffee berry, California sagebrush (*Artemisia californica*), poison oak, sticky monkey-flower (*Mimulus aurantiacus*), and California blackberry (*Rubus ursinus*), among others. Scattered pockets of grassland cover are characterized by a mixture of native and non-native annuals and perennial grasses and forbs such as wild oats (*Avena barbata*), bromes (*Bromus spp.*), large quaking grass

(*Briza maxima*), yarrow (*Achillea millefolium*), blue wildrye (*Elymus glaucus*), and purple needle grass, among others.

Highly invasive non-native French broom (*Genista monspessulana*) has become established in some locations along the trail segment, replacing grassland cover, spreading into brushlands, and invading the understory of woodlands.

The following provides an analysis of potential impacts on biological resources.

- a) *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less-than-Significant Impact. Special-status species⁹ are plants and animals that are legally protected under the state and/or federal Endangered Species Acts¹⁰ or other regulations. Also included are other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Species with legal protection under the state and federal endangered species laws often represent major constraints to development; particularly when they are wide ranging or highly sensitive to habitat disturbance and where proposed development would result in a "take" of these species.

The HA provides a review of the potential for occurrence of special-status species along the trail alignment. A total of 40 special-status plant species and 44 special-status animal species were evaluated for possible occurrence on the project site, based on data reviewed from the California Natural Diversity Data Base (CNDDDB) of the California Department of Fish and Wildlife (CDFW), a list obtained from the U.S. Fish and Wildlife Service (USFWS), and the electronic inventory of rare and endangered vascular plants of California maintained by the California Native Plant Society (CNPS), among other information sources. Of particular concern was a determination on the potential for occurrence of the federally listed threatened California red-legged frog (*Rana aurora draytonii*) in the project vicinity given its legal protected status and potential for dispersal, and the HA included a detailed site assessment for this species. The federally listed threatened northern spotted owl (*Strix occidentalis caurina*) is known to use nearby forest habitat but was not specifically addressed in the HA because the MCOSD monitors this species in coordination with other agencies and organizations,

⁹ Special-status species include designated rare, threatened, or endangered and candidate species for listing by the California Department of Fish and Wildlife (CDFW); designated threatened or endangered and candidate species for listing by the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NOAA Fisheries); species considered rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as those plant species identified on lists 1A, 1B, and 2 in the Inventory of Rare and Endangered Plants of California; and possibly other species that are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on list 3 in the California Native Plant Society Inventory or identified as California Species of Special Concern (SSC) by CDFW.

¹⁰ The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

and established nesting activity centers are not found in Loma Alta Open Space Preserve (Point Blue Conservation Science, 2015).

The HA concluded that only one special-status plant species, Koch's cord moss (*Entosthodon kochii*), had a remote potential for occurrence along the trail alignment. Extensive plant surveys for other special-status plant species had been conducted along the trail alignment by the Marin Chapter of CNPS, and none have been encountered. However, the surveys apparently did not consider the possible occurrences of Koch's cord moss. This species has no formal listing status under the state or federal Endangered Species Acts but is maintained on list 1B of the CNPS Inventory of Rare and Endangered Terrestrial Plant Species and therefore qualifies as a special-status species under Section 15380(d) of the CEQA Guidelines. A subsequent field survey was conducted and determined that this species was absent along the trail alignment, and that no potential impacts on this or other special-status plant species are anticipated as a result of implementing the proposed project (Jane Valerius Environmental Consulting, 2015a).

The HA concluded that essential habitat for most species-status animal species known from the central Marin County vicinity was absent from the project site. Of the 43 special-status animal species evaluated for possible presence on the project site in the HA, only six were considered to have some potential for occurrence in the project site vicinity. These consist of four species of birds and two species of bats, as summarized below. The site assessment for California red-legged frog concluded that this species is not known from the surrounding watershed, that suitable breeding habitat is absent along the ephemeral drainages, and that although suitable conditions for upland refugia and dispersal are present in the project site vicinity, the species is unlikely to be present and no adverse impacts on this species are anticipated. Similarly, there are no known nest activity centers for northern spotted owl in proximity to the project site, and although individuals may occasionally forage through the area, no adverse impacts are anticipated.

Nesting Birds

The HA concluded that there remains a possibility that four special-status bird species may nest in the vicinity of the project site, and that other raptors and passerines could also nest in the vicinity. Bird species of concern considered in the HA to have some potential for nesting in the vicinity of the project site consisted of Cooper's hawk (*Accipiter cooperi*), sharp-shinned hawk (*Accipiter striatus*), red-shouldered hawk (*Buteo lineatus*) and Pacific-slope flycatcher (*Empidonax difficilis*). Bird nests in active use are protected under the federal Migratory Bird Treaty Act and State Fish and Game Code. Although evidence of nesting was not observed along the immediate trail alignment during the field reconnaissance by the Initial Study biologist, new nests could be established in advance of construction or could have been located some distance from the trail but still within a close enough distance that tree removal and other construction activities could disturb established nests, if present. Tree and vegetation removal could result in an inadvertent loss of the nest, eggs, or young if initiated during the active nesting season, which would be a violation of the Migratory Bird Treaty Act and Fish and Game Code, and would be considered a significant impact.

Recommendation 5 in the HA calls for restricting grading and tree removal outside the bird nesting season or conducting preconstruction surveys and appropriate restrictions if any nests are encountered in proximity to trail improvements where construction could result in nest abandonment. BMP Special-Status Wildlife-3 (Seasonal Restrictions During Bird Nesting Season) from the RTMP calls for restricting construction during the non-nesting season (February 1 through August 31), or

conducting preconstruction surveys and implementing appropriate restrictions if any active nests are found. BMP Special-Status Wildlife-3 is actually more comprehensive and restrictive than the measures called for in the HA, and would serve to fully address any potential adverse impacts on nesting birds, if present in the vicinity of proposed project. As a result, no adverse impacts on possible nesting birds would occur and no additional mitigation is considered necessary.

Roosting Bats

The HA concluded that two species of special-status bats have a potential for occurrence in the woodland habitat along the trail alignment and, if present, could be inadvertently lost as a result of tree removal. These are pallid bat (*Antrozous pallidus*) and western red bat (*Lasiurus blossevillii*), both of which are considered Species of Special Concern by CDFW. Pallid bat is known to establish day roosts in rock outcrops, mines, caves, building, bridges, and cavities in a variety of tree species. Western red bat typically has solitary roosts in foliage and under bark, and is known from the edges of woodland, forest, and riparian habitats. A number of trees along the proposed trail alignment contained cavities and other conditions that could provide suitable roosting habitat for these two bat species, and unless careful controls are implemented as part of the project, tree removal could result in the inadvertent loss of individual bats, if present. As the bats are Species of Special Concern, the loss of individual bats and established roosts would be a potentially significant impact of the project.

The supplemental bat tree habitat assessment and survey (SBS) focused on the southern portion of the trail alignment up to the proposed drainage crossings. None of the trees proposed for removal inspected as part of the SBS contained suitable potential roost features for colonial bat species, and no individual bats were observed during the SBS (Wildlife Research Associates, 2015). The SBS determined that four trees in close proximity to proposed tree removal and construction contained suitable conditions (i.e., potential cavities and exfoliating bark) that may support colonial bats, and that foliage in the trees along the trail corridor was generally dense enough to serve as possible roost habitat for pallid bat and western red bat, should they move into the area in the future. In addition, several trees along the northern portion of the trail alignment were determined in the SBS to contain suitable potential roost habitat features.

The HA and SBS contain a number of recommendations to avoid direct mortality of any pallid or western bats if present along the proposed trail alignment. Recommendation 6a of the HA calls for conducting a supplemental bat habitat assessment to more accurately determine the potential for possible roost locations along the trail alignment and to refine strategies to ensure avoidance of any inadvertent take, which was largely accomplished as part of the SBS for the southern portion of the trail alignment. Recommendation 6B of the HA calls for avoidance of any roost trees during the maternity season (April 15 through August 31) when young are unable to fly and disperse and would presumably be lost if the roost tree is removed. Tree removal would be delayed until young are able to disperse as part of phased removal. Recommendation 6C of the HA calls for phased removal of trees to ensure that any bats that may be present outside the maternity season are able to safely disperse during construction. This is accomplished by scheduling tree removal when bats are active and no rain is forecast, conducting appropriate surveys where possible tree cavities and crevices that could be used for roosting are present, and using a two-stage process for physically removing the tree. The two-stage process involves removing branches with no cavities on the first day, thus encouraging bats to disperse as a result of the construction noise and vibrations, and cutting down the rest of the tree on the second day.

- BMP Special-Status Wildlife-2 (Preconstruction Surveys) from the RTMP calls for conducting preconstruction surveys by a qualified biologist when special-status wildlife species may be present, and if located, performing the activity in a way that avoids the species, if present. Although the RTMP does not contain any BMPs specifically related to special-status bat species, the recommendations in the HA and the SBS would serve to fulfill the intent of BMP Special-Status Wildlife-2. Implementing appropriate preconstruction surveys and careful construction methods would serve to fully address any potential adverse impacts on roosting bats, if present in the vicinity of proposed project. As a result, no adverse impacts on possible roosting bats would occur and no additional mitigation is considered necessary.

b) *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less-than-Significant Impact. Sensitive natural communities are natural community types of limited distribution statewide or within a county or region, and are considered to have a high inventory priority with the CNDDDB because of their rarity. The most current version of the CDFW *List of California Terrestrial Natural Communities*, which was last updated in 2010, indicates which natural communities have a high inventory priority and are therefore considered sensitive. CDFW ranks natural communities (also referred to by CDFW as alliances) based on rarity rank, using a system derived from NatureServe, an established network of biological inventories. In this ranking system, an alliance is given both a global (“G”) and a state-level (“S”) rank of 1 to 5 (1 = critically imperiled, 2 = imperiled, 3 = vulnerable, 4 = apparently secure, 5 = secure). CDFW considers alliances ranked 1, 2, or 3 at the state level to be sensitive. Those alliances ranked 4 and 5 at the state level are considered common enough to not be of concern. A question mark (?) denotes an inexact numeric rank due to insufficient samples over the full expected range of the alliance type, but existing information points to the indicated rank.

The HA indicates that the California bay-coast live oak woodland and stands of native purple needle grass along the trail alignment are sensitive natural community types. According to the CDFW *List of California Terrestrial Natural Communities*, the alliance of California bay-coast live oak has a high inventory priority and is ranked G4S3, confirming its status as a sensitive natural community type. Proposed trail improvements would require the removal of a number of California bay and coast live oak trees along the alignment, as discussed further under (e) below. However, the decommissioned trail segments would eventually return to primarily California bay-coast live oak woodland, and natural tree regeneration would serve to address any short-term impacts associated with tree removal in this natural community type. Potential impacts on the California bay-coast live oak alliance would be less than significant.

Purple needle grass grasslands also have a high inventory priority with CDFW and are ranked G4S3. However, none of the stands in the vicinity of the trail alignment are large enough to be considered a distinct sensitive natural community, but instead are part of a mosaic of the woodlands and more common brushlands that dominate the project trail alignment. Proposed improvements would generally avoid the scattered stands of purple needle grass along the trail alignment. As indicated in the HA under Recommendation 2B, the project staging area would be located in a stand of grassland dominated by purple needle grass, but rubber mats would be temporarily installed as part of the project over the stand of grassland to ensure that the root integrity is protected and the seed bank is preserved. In addition, removal of coyote brush vegetation to accommodate the staging area may

improve conditions for the purple needle grass in this location where it is being shaded out by the brushlands. Potential impacts on the purple needle grass alliance would be less than significant.

- c) *Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) Through direct removal, filling, hydrological interruption, or other means?*

Less-than-Significant Impact. Wetlands are generally considered to be areas that are periodically or permanently inundated by surface or groundwater, and support vegetation adapted life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. The U.S. Army Corps of Engineers (Corps), CDFW, and Regional Water Quality Control Board (RWQCB) have jurisdiction over modification to river banks, lakes, streams channels, and other wetland features. Section 404 of the federal Clean Water Act provides the Corps with authority to regulate the discharge of dredged or fill material waters of the United States. The RWQCB jurisdiction is established through Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Act. Sections 1600-1607 of the State Fish and Game Code provide CDFW authority to regulate the disruption of the natural flow or alterations of the channel, bed, or bank of any lake, river, or stream.

The proposed project focuses on improving trail conditions and minimizing on-going erosion and sedimentation issues associated with two ephemeral drainages, which converge right at the existing trail crossing location. The two drainages are only a foot or two wide, with the smaller drainage actually flowing within the active trail corridor and fanning out to several feet in width for a distance of about 55 feet before converging with the larger drainage. As concluded in the HA, both of the ephemeral drainages are most likely jurisdictional features regulated by the Corps, RWQCB, and CDFW. However, they are located under the dense woodland canopy where understory vegetation is largely absent. No wetland vegetation occurs along the segments of the ephemeral drainages where the bridge and culvert crossings are proposed, probably because of the ephemeral nature of the drainages and lack of sunlight.

Construction of the proposed drainage crossings has the potential for short-term increases in erosion and sedimentation. However, the project has been designed in accordance with the RTMP requirements, and would include the use of BMPs to minimize disturbance within the limits of jurisdictional waters and control the potential for erosion and sedimentation. Ultimately, the project would improve conditions associated with each drainage. A detailed discussion of the measures incorporated into project plans and relevant BMPs that would serve to minimize any short- or long-term effects on water quality is provided in Section IX, Hydrology and Water Quality. These measures include BMP General-3 (limiting work area footprints in sensitive resource areas), BMP General-6 (preventing or reducing potential for pollution), BMP General-7 (including standard procedures in construction contracts related to minimizing erosion and sedimentation), BMP Water Quality-2 (temporary erosion and sediment control), BMP Water Quality-3 (erosion control measures), BMP Water Quality-5 (road and trail inspections), BMP Water Quality-6 (grading windows), BMP Water Quality-7 (culvert inspection), and BMP Water Quality-8 (proper disposal of excess materials).

The proposed project would include installation of a 30-foot-long bridge crossing over the larger drainage and a 20-foot-long segment of a 30-inch-diameter culvert with about 5 feet of rock energy dissipater at the culvert outfall within the smaller drainage. The MCOSD proposes to modify the

remaining 45 to 50 feet of the smaller drainage, which now follows the existing trail, and about 10 feet of the larger drainage to provide for a more defined watercourse in the vicinity of the trail. Collectively, an estimated 85 linear feet of channel would be modified by the new crossings, decommissioning of the old crossings, and other stream channel improvements. However, the work would serve to reduce the long-term potential for erosion and sedimentation, would restore the existing crossing locations, and ultimately would improve habitat conditions along this segment of the trail. Although about 25 feet of the smaller drainage would be replaced with a culvert and rock outfall, the degraded condition of about 60 linear feet of ephemeral channel would be greatly improved, resulting in a net improvement ratio of over 2:1. The constant trampling and disturbance at the existing trail crossings have eliminated any habitat values in these segments of the drainages. By providing a better defined pathway at the drainage crossings, the MCOSD would improve degraded stream conditions, which would allow for natural restoration along the creeks.

As called for in BMP General-2 (Modify Construction-Related Vegetation Management Methods in and near Wetlands, Riparian Vegetation) of the RTMP, construction work has been designed to minimize disturbance within the regulated waters of the ephemeral drainages but still provide for improvements to the degraded condition that has resulted from trail use at the existing crossings. Consistent with BMP General-2, since work within the limits of jurisdictional waters cannot be completely avoided, the MCOSD would consult with the appropriate state and federal agencies to secure required authorizations. These agencies would include the Corps, RWQCB, and CDFW. Recommendation 3 from the HA calls for preparing a formal delineation and securing appropriate authorizations from state and federal resource agencies. A formal draft jurisdictional delineation (Jane Valerius Environmental Consulting, 2015b) has been completed. If necessary, the Corps will review the jurisdictional delineation as part of the permit application process under Section 404 of the Clean Water Act.

Adherence to BMP General-2 and other BMPs and trail standards from the RTMP, and compliance with any conditions required by regulatory agencies as part of their authorizations, would serve to fully mitigate potential adverse impacts on jurisdictional waters to a less-than-significant level. In terms of potential impacts and any required compensatory mitigation under CEQA, the project is self-mitigating and no additional measures are considered necessary to address impacts on regulated waters, beyond adherence with applicable BMPs and trail standards from the RTMP and compliance with any conditions from the regulatory agencies.

The implementation of relevant BMPs from the RTMP and the legal requirements of state and federal law would reduce this potential impact to a less-than-significant level.

- d) *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Less-than-Significant Impact. In general, the proposed project would not have any significant adverse impacts on wildlife movement opportunities or adversely affect native wildlife nursery sites. Wildlife in the vicinity of the project site has already acclimated to human activity along the trail alignment, and construction-related disturbance would not cause any significant impacts on wildlife movement activity in the surrounding area. The existing foraging and possible bird nesting habitat associated with the trees and other vegetation to be removed would be lost with project implementation, but foraging opportunities would remain in the surrounding areas, and the

decommissioned trail segments would eventually provide replacement habitat of greater aerial extent than that converted to new trail use. Potential impacts on wildlife movement and use of wildlife nursery locations would be less than significant.

- e) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

Potentially Significant Impact Unless Mitigation Incorporated. In general, the proposed project would not conflict with any goals and policies of the 2007 Marin Countywide Plan or the MCOSD's RTMP related to the protection of biological resources. Measures discussed under (a) and (c) above would ensure avoidance of special-status bat species, if present along the trail improvements, and would minimize impacts and provide for enhancement of existing conditions associated with the jurisdictional waters on the project site as a result of project implementation. The following provides a review of the conformance of the proposed project with relevant aspects of the 2007 Marin Countywide Plan, the County's Native Tree Preservation and Protection Ordinance, and relevant aspects of the MCOSD's RTMP.

Stream Conservation Areas

Marin County designates stream conservation areas (SCAs) along perennial, intermittent, and some ephemeral streams to protect active channels, water quality, flood control functions, and fish and wildlife habitat values of these features. Two of the policies from the 2007 Marin Countywide Plan related to SCAs have been adopted by the MCOSD as governing policies directing the management of roads and trails on their preserves. As listed in the 2007 Marin Countywide Plan, these are BIO-4.14: Reduce Road Impacts in Stream Conservation Areas and BIO-5.f: Control Public Access. The project would serve to address the intent of both of these policies by reducing the on-going damage from the existing crossings of the ephemeral streams and by controlling public access to an improved, confined crossing location. Adherence to BMPs and other procedures of the RTMP and compliance with any conditions required by regulatory agencies as part of their authorizations would serve to fully mitigate potential adverse impacts on jurisdictional waters to a less-than-significant level, as discussed under (c) above, and would address any impacts within the SCAs along the ephemeral drainages on the project site.

Native Tree Protection

The Native Tree Preservation and Protection Ordinance (Chapter 22.27) of the Marin County Code establishes regulations for the preservation and protection of native trees in the non-agricultural unincorporated areas of the county by limiting tree removal in a manner that allows for reasonable use and enjoyment of private property. The purpose of the ordinance is to establish regulations for the preservation and protection of native trees. This ordinance applies only to "protected trees," generally prohibiting the removal of native trees between 6 and 10 inches in diameter (depending on species). Where trees are regulated, the county may require that tree removal be mitigated by replanting or that an in-lieu fee be paid where tree planting on the site is not feasible or appropriate. As a public agency, the MCOSD is exempt from this ordinance but it strives to meet its intent as part of its standard practices.

To accommodate the proposed trail improvements, the MCOSD estimates that it would remove nine trees and two limbs meeting regulation size, including the following: four coast live oaks with trunk

diameters ranging from 8 inches to 12 inches; two coast live oak limbs with an estimated diameter of 14 inches; and five California bay trees with trunk diameters ranging from 10 to 18 inches. . The RTMP contains policies and BMPs that address special status vegetation, which would include heritage trees. Policy SW-22 requires protection of high-value vegetation types and Table 6.4 of the RTMP identifies several BMPs to protect special-status plants, including avoidance measures (BMP Special-Status Plants – 2), revegetation measures (BMPs Special-Status Plants – 7 and – 12). Since the county’s Native Tree Preservation and Protection Ordinance does not apply to public agencies conducting routine management of public lands, it does not provide a legal basis for determining mitigation requirements. However, where trees meeting regulated size are to be removed the MCOSD generally relies on the ordinance to guide its mitigation requirements. This would include revegetation of the decommissioned trail segments and replacement plantings for native trees removed as part of the project.

Recommendation 2A from the HA calls for mitigating potential impacts on protected trees, in conformance with the County’s Native Tree Preservation and Protection Ordinance. Sufficient land area exists to accommodate replacement tree plantings along the decommissioned trail segments, and the MCOSD uses native vegetation as part of standard practices, as described in the RTMP. The decommissioned trail segments would be treated to allow for natural revegetation, including establishment of native oaks and bays, and would be routinely treated to prevent the further spread of French broom. Eventually, the decommissioned trail segments should support a far greater number of native trees as a result of natural revegetation than the estimated nine trees to be removed as part of the project. Given the overly dense distribution of trees in the woodland already, the small number of trees to be removed, and improvements to the decommissioned trail segment to create opportunities for natural regeneration of native woodland cover, planting and maintaining replacement trees at this location is not warranted to meet the intent of the Native Tree Preservation and Protection Ordinance, and no significant conflicts with local plans and policies are anticipated.

Invasive Species Management

Trail construction would involve equipment operation, grading, and disturbed conditions that could result in the further spread and establishment of French broom and other invasive species along the trail corridor, allowing these species to spread into adjacent natural habitat areas. French broom is already well established along some segments of the trail alignment, and seed could easily become lodged in the tires of equipment and boots of construction workers, and spread to the decommissioned trail segments or margins of the new trail alignment. The HA concludes that construction activities could contribute to the spread of these species along the trail alignment and throughout the Loma Alta Open Space Preserve, and recommends that the MCOSD implement a weed control site plan as part of the proposed project. This plan would include site-specific treatments such as hand pulls, mechanical, and chemical controls.

The RTMP contains a number of BMPs and other procedures related to invasive species management that would be applicable to the proposed project. Decommissioned road and trail areas are to be monitored for the presence of invasive plant species for 2 years following decommissioning to ensure that no infestations develop and, if invasive species are detected, appropriate corrective actions are taken. BMP General-7 (Include Standard Procedures in Construction Contracts) and BMP Construction Contracts-1 (Standard Procedures in Construction Contracts) of the RTMP include provisions related to invasive plants near project work areas and controls to prevent their spread through worker training, equipment inspection, and proper disposal. BMP General-11 (Management

of Sudden Oak Death) of the RTMP includes practices to prevent the spread of Sudden Oak Death on the MCOSD’s land, including proper cleaning of boots and equipment, proper disposal of cut trees and branches, restrictions on timing of field work in the wet season to minimize spread of spores, and controls on any nursery stock used in restoration. Other BMPs from the RTMP applicable to the proposed project related to invasive species management are contained in **Table 2-1**.

Table 2-1 Road and Trail Management Plan (RTMP) Best Management Practices (BMPs) Related to Invasive Plants

BMP	Title
Invasive Plants-3	Survey and Control of Invasive Plants in Project Footprint
Invasive Plants-4	Limited Soil Disturbance
Invasive Plants-5	Cleaning of Heavy Equipment, Maintenance Tools, and Fire Management Vehicles
Invasive Plants-6	Reducing Potential for Establishment of Invasive Plants on Disturbed Soil Surfaces
Invasive Plant Management-7	Monitor and Control of Invasive Plants in Road and Trail Management Work Areas
Invasive Plant Management-8	Protection of Streambanks and Water Quality During Invasive Plant Removal
Invasive Plant Management-9	Road and Trail Inspections
Invasive Plant Management-10	Monitoring Decommissioned Areas

Note: See Appendix A for full text of BMPs listed in this table. Source: MCOSD, 2014.

Implementation of the applicable BMPs from the RTMP would serve to address the risk of the project contributing to the spread and establishment of French broom and other invasive species along the trail alignment. However, a site-specific program detailing required controls, treatment and monitoring would be appropriate given the extent of existing infestations of French broom in the vicinity of the project site, and to ensure that appropriate measures are taken to adequately address this risk. The following measure is recommended to ensure that adequate controls and treatments are implemented as part of the project to address the risk of further spread of invasive species.

***Mitigation Measure BIO-1:** The Marin County Open Space District shall implement a site-specific treatment program to address the risks of spread and establishment of invasive species along the trail alignment and vicinity. The treatment program shall be developed in conformance with applicable Best Management Practices (BMPs) from the Road and Trail Management Plan (RTMP), detailing required controls, treatment methods, and monitoring, with particular focus on French broom in the vicinity of the project site. The treatment methods could include manual removal such as mowing and weed wrenching, mechanical removal for larger areas, and chemical treatments to control seedling regeneration and other risks. Monitoring shall be provided as necessary to achieve success criteria specified in the treatment program.*

The above measure would reduce this potential impact to a less-than-significant level.

- f) *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or State habitat conservation plan?*

No Impact. The proposed project would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved conservation plan. No such conservation plans have been adopted encompassing the project site vicinity, and therefore no impact is anticipated.

REFERENCES

Best, Timothy C., CEG, 2015a. *Draft Engineering Geologic Review: Old Railroad Grade Trail Upgrade Project*, February 11.

Best, Timothy C., CEG, 2015b. *Old Railroad Grade Trail Upgrade Project*, Construction Documents, Map Sheet N1, February 11.

Jane Valerius Environmental Consulting, 2015a. *Old Railroad Grade Trail Upgrade Project Moss Survey*, June 19.

Jane Valerius Environmental Consulting, 2015b. *Delineation of Waters of the United States for the Old Railroad Grade Trail Upgrade Project, Marin County, CA, June.*

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

Point Blue Conservation Science, 2015. *Northern Spotted Owl Annual Monitoring*. Personal communications with Renee Cormier, April 15 and May 15.

Wildlife Research Associates and Jane Valerius Environmental Consulting, 2015. *Habitat Assessment, Old Railroad Grade Trail Upgrade Project, Marin County, California*. Prepared for Marin County Open Space District (MCOSD), April 27.

Wildlife Research Associates, 2015. *Bat Tree Habitat Assessment and Survey – Old Railroad Grade Trail Upgrade Project, Marin County – Professional Services Contract Log #15-6300-64*, letter report to Matt Sagues, Senior Natural Resource Planner, Marin County Parks and Open Space District from Greg Tatarian. June 18.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
V.	CULTURAL RESOURCES. Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?*

No Impact. No historical resources are located on the project site. The original railroad trestle that crossed the on-site canyon burned many years ago, and all traces of the railroad have been removed. The existing grade is the one reminder of the railroad that passed through this location. Refer to the discussion under (b) below about the potential for discovery of unknown historic artifacts.

b) *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?*

Less-than-Significant Impact. In accordance with BMP Cultural Resources-2 of the RTMP (see Appendix A), the MCOSD requested a cultural resource evaluation to determine if any known archaeological resources are located near the project site (ARS, 2015). The findings of that search stated that “[t]here is a high potential for Native American archaeological resources and a low potential for historic-period archaeological resources to be within the project area” (ARS, 2015). Based on the recommendation of the Northwest Information Center of the California Historical Resources Information System, the MCOSD consulted with an archeologist to review the site-specific conditions. That archeologist concluded that:

The Old Railroad Grade Trail lies upon the right of way of the North Pacific Coast Railroad (NPCRR), which operated in this location from 1875 to 1904. All that remains of the historic railroad within the project boundaries is the gravel grade itself. A trestle, the rails, ties and all other traces of the railroad have been removed. ... Although the craftsmanship and feel of the railroad are long gone, the grade serves as a reminder that the NPCRR once passed through this location.

Only 3 out of 13 previous cultural resource studies within a mile of this project have identified any resources and all of the resources identified have dated from 1890-1950, with the exception of 1 isolated prehistoric projectile point. Surface reconnaissance of the project location did not observe any signs of Native American use of the area.

Based on this conclusion, the project is unlikely to have significant impacts on known cultural resources. However, any excavation project in this area runs the risk uncovering previously unknown historic or archaeological resources. To address this issue, the RTMP includes BMP Cultural Resources-6 related to discovery of unknown cultural resources during construction (see Appendix A). This BMP would adequately mitigate the discovery of an unknown resource during construction

of the new trail. The project's impact on archaeological resources would therefore be less than significant.

c) *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Less-than-Significant Impact. According to the Program EIR on the RTMP, a records search showed that no recorded fossil sites are located within Marin County, although there are multiple records of invertebrate and plant fossils assigned to the Holocene or Recent Epoch. The Franciscan Complex, widespread in coastal California, has produced only small collections of significant fossils, none of which were found in Marin County (MCOSD, 2014). All unique geological resources within preserves of the MCOSD are already protected within permanently protected open space. Thus, the potential for destruction of a unique paleontological resource or site or unique geologic feature, either directly or indirectly, is considered less than significant.

d) *Would the project disturb any human remains, including those interred outside of formal cemeteries?*

Less-than-Significant Impact. No known human remains are located on the project site. In the event that unknown human remains are encountered during project grading, the MCOSD would implement BMP Cultural Resources-7 (see Appendix A), which identifies protocols to follow should human remains be uncovered. With implementation of this BMP, project impacts would be less than significant.

REFERENCES

Archaeological Resource Service (ARS), 2015. *A Cultural Resources Evaluation of a Section of the Old Railroad Grade Trail*, Fairfax, Marin County, CA. Prepared for Marin County Open Space District, May.

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VI.	GEOLOGY AND SOILS. Would the project:				
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i)	Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii)	Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
iii)	Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv)	Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b)	Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less-than-Significant Impact. No portion of the project site is within an Alquist-Priolo Earthquake Fault Zone (A-PEFZ), and no active faults have been mapped on the project site by the United States Geological Survey (USGS) or the California Geological Survey (CGS) (USGS and CGS, 2006). The nearest known active earthquake fault to the project site is the San Andreas Fault, located approximately 6 miles to the southwest (Best, 2015). Surface fault ruptures typically occur along existing faults that have ruptured in the past. Since faults with known surface rupture have been mapped in California and none are known to occur at the project site, the potential for the proposed project to result in impacts due to fault rupture is less than significant.

ii) Strong seismic ground shaking?

Less-than-Significant Impact. Ground shaking is likely to occur within the life of the project as a result of future earthquakes on the San Andreas and other regional faults. The Working Group on California Earthquake Probabilities and the USGS have predicted a 21-percent probability of a 6.7 magnitude or greater earthquake on the San Andreas Fault system between 2007 and 2036 and a total probability of 63 percent that an earthquake of that magnitude will occur on one of the regional San Francisco Bay Area faults during that time (CGS, 2008).

Based on USGS data, the project site would be subject to “Very Strong” (Modified Mercalli Scale Severity VIII) shaking in the event of the maximum credible earthquake, a repeat of the 1906 magnitude 7.9 earthquake on the San Andreas Fault (ABAG, 2015a). Very strong shaking would be

expected to result in considerable damage to unreinforced masonry structures and cracks in wet ground and on steep slopes.

The RTMP includes BMPs to address the potential for seismic and geologic hazards during trail construction and operation. The measures that would apply to the project are listed in **Table 2-2**.

Table 2-2 Road and Trail Management Plan (RTMP) Best Management Practices (BMPs) Related to Seismic and Geologic Hazards

BMP	General Description
Geologic Hazards-1	Requires a geotechnical report for projects in areas with potential geologic hazards.
Geologic Hazards-2	Requires additional measures in areas where landslides and debris flow hazards are present.
Geologic Hazards-3	Requires additional measures in areas where erosion-prone and expansive soils are present.
General-10	Requires regular inspection and maintenance of roads and trails.

Note: See Appendix A for full text of BMPs listed in this table. Source: MCOSD, 2014.

No significant structures would be developed as part of the project. The trail and trail structures could be damaged by ground shaking during a significant earthquake, but the project geologic review concluded that geologic hazards would not result in significant harm to hikers and recreation users, provided that the trail and trail structures are routinely inspected and maintained as required (Best, 2015). Therefore, compliance with the RTMP BMP General-10 requiring inspection and maintenance of roads and trails would reduce the potential impacts from ground shaking to a less-than-significant level. No additional mitigation is required.

iii) Seismic-related ground failure, including liquefaction?

Less-than-Significant Impact. Liquefaction of soils can occur when ground shaking causes saturated soils to lose strength due to an increase in pore pressure. The Association of Bay Area Governments (ABAG) has identified the liquefaction hazard at the project site as “very low” based on CGS data (ABAG, 2015b). The project geologic review concluded that liquefaction could potentially occur as a result of an earthquake, but it would not result in significant harm to hikers and recreation users, provided that the trail and trail structures are routinely inspected and maintained as required (Best, 2015). Therefore, compliance with RTMP BMP General-10 requiring inspection and maintenance of roads and trails would reduce the potential impacts from seismic-related ground failure to a less-than-significant level. No additional mitigation is required.

iv) Landslides?

Less-than-Significant Impact. The project site is located in a landslide-prone area. The project site contains steep terrain with slopes ranging from 30 percent to greater than 75 percent, and large storms (the most recent in 1978, 1982, 1986, and 1996) have resulted in shallow flow debris landslides in the project vicinity (Best, 2015). Two deep-seated landslides were detected using LiDAR imagery along the new trail alignment during the geologic review, though no evidence of historic slope displacement was identified during field work, indicating that these deep-seated slides would be

considered dormant or inactive (Best, 2015). However, based on the performance of slope cuts made during the historic rail construction, which have remained stable since they were completed in the 1870s, the geologic review concluded that the cuts proposed for the project would have a level of stability consistent with recreational trail use (Best, 2015).

Therefore, although there may be a potential for landslides to occur in the project vicinity that could affect the project site, the geologic review concluded that the project would not increase that risk (Best, 2015). The geologic review concluded that, as with other geologic hazards at the site, landslides would not result in significant harm to hikers and recreation users, provided that the trail and trail structures are routinely inspected and maintained as required (Best, 2015).

Implementation of RTMP BMPs such as Geologic Hazards-2, which requires that roadway and trail construction take into account potential slope stability hazards, and General-10, which requires routine inspection and maintenance of the trail, would reduce project impacts from potential landslides to a less-than-significant level.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. Grading and earthmoving during project construction has the potential to result in erosion and loss of topsoil. Approximately 0.1 acre of fill material along the existing trail would be exposed during construction and could be subject to erosion until revegetation takes place (Best, 2015).

Plans for the project include provisions to address erosion, including requiring the treatment of all disturbed areas with erosion control measures. As described in Section IX, Hydrology and Water Quality, of this Initial Study, silt fences, erosion control blankets, and mulch would be used to prevent significant erosion during and after construction. RTMP BMP Geologic Hazards-3 and BMP Water Quality-3 require measures to be taken to prevent significant erosion during construction and operation of trail projects. These measures would reduce potential impacts from soil erosion and the loss of topsoil to a less-than-significant level.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. Soils at the site consist of colluvium (soil formed from weathered rock) overlying weathered Central Belt Franciscan mélange bedrock (Best, 2015). The colluvium consists of unconsolidated loam to gravelly loam of the Tacaloma-Saurin soil complex (Best, 2015). Some areas of non-engineered fill from previous construction and landslide mass from historic landslides are present along the existing trail alignment (Best, 2015). The potential for landslides and seismic-related liquefaction are discussed under (a) above. The geologic review did not identify any potentially unstable geologic unit or soil that would result in lateral spreading, subsidence, liquefaction, or collapse. The impact would be less than significant, and no mitigation is required.

d) *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?*

Less-than-Significant Impact. Expansive soils expand and contract in response to changes in soil moisture, most notably when near-surface soils change from saturated to dry and back again. Generally, the expansiveness is related to clay content in the soil. No expansive soils were identified at the project site in the geologic review (Best, 2015). Potential impact from expansive soils would be less than significant, and no mitigation is required.

e) *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*

No Impact. No septic tanks or alternative wastewater disposal systems are proposed for the project site.

REFERENCES

Association of Bay Area Governments (ABAG), 2015a. Earthquake Shaking Hazard Maps. Website: <http://quake.abag.ca.gov/earthquakes/>, accessed April 15.

Association of Bay Area Governments (ABAG), 2015b. Liquefaction Hazard Maps. Website: <http://quake.abag.ca.gov/earthquakes/>, accessed April 15.

Best, Timothy C., CEG, 2015. *Draft Engineering Geologic Review: Old Railroad Grade Trail Upgrade Project*, prepared for Marin County Open Space District, February 11.

California Geological Survey (CGS), 2008. The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF), USGS Open File Report 2007-1437, CGS Special Report 203, SCEC Contribution #1138, Version 1.1.

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

United States Geological Survey (USGS) and CGS, 2006. Quaternary fault and fold database for the United States. Website: <http://earthquakes.usgs.gov/regional/qfaults/>, accessed April 15, 2014.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VII.	GREENHOUSE GAS EMISSIONS. Would the project:				
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Less-than-Significant Impact. The 2011 BAAQMD CEQA Guidelines do not have specific screening criteria for a project identical to the proposed project (BAAQMD, 2011). However, Table 3-1 entitled “Criteria Air Pollutants and Precursors and Greenhouse Gas (GHG) Screening Level Sizes” shows that, for a “city park,” the operational criteria for pollutant screening size would be 2,613 acres, the operational GHG screening size would be 600 acres, and the construction criteria for pollutant screening size would be 67 acres for particulate matter with particles having a diameter of 10 micrometers or less (PM₁₀). The trail upgrade project would entail disturbance of no more than about 0.28 acre for the new trail construction and about the same acreage for decommissioning the existing trail. Thus, in total, the project would disturb about 0.55 acre.¹¹ The project would be below the screening criteria identified for work within a city park and would not generate greenhouse gas (GHG) emissions that would, either directly or indirectly, have a significant impact on the environment. Therefore, emissions would be below the BAAQMD significance threshold of 1,100 metric tons of carbon dioxide equivalent (CO₂e) annually, and the impact would be less than significant. In addition, RTMP BMP Air Quality-2 and BMP Air Quality-3 (see Appendix A) would help to reduce overall construction-related emissions, which would have the added benefit of reducing construction-related GHG emissions.

b) *Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Less-than-Significant Impact. The project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. As a trail improvement project, the project itself would promote alternatives to the automobile by improving access for pedestrians, bicyclists, and equestrians. Thus, the project could indirectly lead to reductions in GHG emissions.

REFERENCES

Bay Area Air Quality Management District (BAAQMD), 2011. *Bay Area Air Quality District CEQA Air Quality Guidelines*, May.

¹¹ As stated in Chapter I, the project proposes upgrades to a 1,100-foot-long trail segment. Assuming 1,100 linear feet and a width of 11 feet, the proposed construction of the new (relocated) trail would disturb about 0.28 acre, and the decommissioning of the existing trail would disturb a similar acreage. The total disturbed area would therefore be about 0.55 acre.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HAZARDS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Less-than-Significant Impact. During construction of the project, hazardous materials such as fuel, lubricants, and other similar construction materials would be transported and used at the project site. There may be potential for releases to occur during construction that could potentially affect construction workers, recreational users, and the environment. During operation of the project, hazardous materials use at the project site would not be frequent, though maintenance activities involving heavy equipment may have the potential to result in releases of the same types of hazardous materials used during construction.

The RTMP includes BMPs for hazardous materials use for road and trail projects within the MCOSD. BMPs related to public health and safety are listed below in **Table 2-3**.

Compliance with BMP General-6 and BMP Water Quality-4 would reduce potential impacts from routine transportation, use, or disposal of hazardous materials to a less-than-significant level. These BMPs include worker training; restrictions on refueling, equipment maintenance, and other activities using hazardous materials; and requirements for contractors to carry emergency spill equipment.

Table 2-3 Road and Trail Management Plan (RTMP) Best Management Practices (BMPs) Related to Public Health and Safety

BMP	General Description
Hazardous Materials	
General-6	Restrict fueling, vehicle maintenance, and other activities involving hazardous materials during construction activities.
Water Quality-4	Train staff and restrict fueling, vehicle maintenance, and other activities involving hazardous materials by contractors.
Wildland Fires	
Construction Contracts-1	Equip all vehicles with a suitable fire extinguisher.

Note: See Appendix A for full text of BMPs listed in this table. Source: MCOSD, 2014.

b) *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Less-than-Significant Impact. The project is located in an area that is largely undeveloped. The MCOSD would use small amounts of hazardous materials during project construction and maintenance activities, on rare occasions. The amounts used at the project site would be less than the State of California Hazardous Materials Business Plan (Business Plan) program reportable quantities of 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases (California Health and Safety Code Sections 25500 to 25519). The Business Plan reportable quantities are established, in part, to let fire departments and other first responders know of hazardous materials present in quantities that could create health risks or other complications during a fire or hazardous materials incident. Since the project would not require the use of significant amounts of hazardous materials, and since there is no record of any significant use of hazardous materials at or near the project site, impacts from foreseeable upset and accident conditions would be less than significant.

c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact. The project site is not located within ¼ mile of an existing or proposed school.

d) *Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact. No hazardous materials sites are located at or near the project site (SWRCB, 2015; DTSC, 2015).

- e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The nearest public use airport is Gness Field in Novato, approximately 9 miles north of the project site. No aviation safety hazards would result from development or operation of the project.

- f) *For a project located within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The nearest private airstrip is located on Smith Ranch Road, on the north side of San Rafael, approximately 4.5 miles east of the project site. No aviation safety hazards would result from development or operation of the project.

- g) *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Less-than-Significant Impact. The project site is located in an undeveloped, open space area with no adopted emergency response or evacuation plans. The project would not change or disrupt vehicular or pedestrian traffic in the site vicinity in a way that would have the potential to interfere with emergency response or evacuation. RTMP Systemwide Policies SW.19, SW.20, and SW.21 require consultation with fire agencies to ensure that necessary emergency access for use in firefighting is retained throughout open space preserves. The impact would be less than significant. (See also discussion of emergency access in Section XVI, Transportation/Traffic, of this Initial Study.)

- h) *Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

Less-than-Significant Impact. In accordance with California Public Resource Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, the California Department of Forestry and Fire Protection (CALFIRE) has mapped areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. Fire Hazard Severity Zones mapped by CAL FIRE for state and local responsibility areas are classified as either "Medium," "High," or "Very High" based on fire hazards.

The project site is located in an area mapped as having Moderate Wildfire Hazard (CALFIRE, 2007). Fire protection for the project would be provided by the Marin County Fire Department, and areas to the east and south have fire protection services from the Ross Valley Fire Department.

Although operation of the project would not introduce new ignition sources to the project site, sparks that could be generated by equipment during construction or maintenance activities could temporarily increase fire risk. The RTMP contains policies and BMPs to reduce wildfire risk. RTMP Systemwide Policy SW.26 allows the MCOSD to temporarily or permanently close preserves or restrict uses in preserves to reduce fire risk during periods of high fire danger. In addition, RTMP BMP Construction Contracts-1 requires that all construction contracts be written to require the installation of fire extinguishers on all construction vehicles to allow the construction contractor to extinguish small fires ignited by construction activities before a problem develops.

Implementation of RTMP system-wide policies and BMPs would reduce potential impacts from wildfire hazards to a less-than-significant level.

REFERENCES

California Department of Forestry and Fire Protection (CALFIRE), 2007. Fire Hazard Severity Zones in SRA, Marin County, adopted November 7.

California Department of Toxic Substances Control (DTSC), 2015. Envirostor environmental database. Website: <http://envirostor.dtsc.ca.gov/>, accessed April 15.

California State Water Resources Control Board (SWRCB), 2015. Geotracker environmental database. Website: <http://geotracker.waterboards.ca.gov/>, accessed April 15.

Marin County Open Space District (MCOSED), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSED), 2014b. Road and Trail Management Plan, December.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IX.	HYDROLOGY AND WATER QUALITY. Would the project:				
a)	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f)	Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding of as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the project violate any water quality standards or waste discharge requirements?*

Less-than-Significant Impact. The project site is located within the Ross Valley watershed, which includes 44 miles of stream channels and has an area of 24.7 square miles (Marin Valley Watershed Program, 2015). Stormwater from the project site runs off via sheet flow to ephemeral drainages, which drain to larger creeks, including Corte Madera Creek, and ultimately to San Pablo Bay. Corte Madera Creek has been listed as an impaired water body pursuant to Section 303(d) of the Federal Clean Water Act due to the pesticide Diazinon; any discharges to the creek, including upstream discharges such as those from the project site, are subject to requirements of a Total Maximum Daily Load (TMDL) program to address that contaminant.

Construction along new and existing trail alignments as part of the project could adversely affect water quality from sedimentation and the possible release of other contaminants. However, construction of the proposed project would be subject to the MCOSD's RTMP, which implements existing federal, state, and county water quality regulations and addresses potential water quality impacts. One of the primary objectives of the RTMP is to reduce the environmental impact of roads and trails on sensitive resources, habitats, riparian areas, and native and special-status plant and animal species. The long-term effect of implementation of the RTMP would be to improve water quality over existing conditions (MCOSD, 2014).

The RTMP includes construction standards for road and trail dips and water bars, ditch relief culverts and outlets, and performance standards for slope stability. The RTMP also includes rigorous BMPs to reduce potential water quality impacts during construction and operation of roads and trails. BMPs from the RTMP that would apply to the project are listed in **Table-4**.

Preliminary project plans have been designed in accordance with the RTMP requirements. Frequent drain dips, installed at 50- to 125-foot intervals, are proposed for the new trail to minimize concentrated trail surface water runoff. The project also incorporates the following measures to prevent potential impacts on water quality (Best, 2015b):

1. During project construction, the MCOSD shall be responsible for implementing appropriate and necessary erosion control measures to minimize stormwater runoff from the construction site, pursuant to applicable regulations and permits. The project includes the following strategies to avoid that stormwater pollution impacts:
 - Minimize erosion and sedimentation during construction.
 - Eliminate pollution of storm runoff from chemicals and materials used in the construction process.

Table 2-4 Road and Trail Management Plan (RTMP) Best Management Practices (BMPs) Related to Water Quality

BMP	General Description
General-3	Minimizing potential for erosion (including limiting work area footprint in sensitive resource areas).
General-6	Preventing or reducing potential for pollution.
General-7	Including standard procedures (including Storm Water Pollution Prevention Plans and erosion control provisions) in construction contracts.
General-10	Road and trail inspections (to protect sensitive/special-status natural resources).
Water Quality-2	Temporary erosion and sediment control.
Water Quality-3	Erosion control measures.
Water Quality-5	Road and trail inspections (to protection water quality or other resources).
Water Quality-6	Grading windows.
Water Quality-7	Culvert inspection.
Water Quality-8	Proper disposal of excess materials.

Note: See Appendix A for full text of BMPs listed in this table. Source: Marin County Open Space District (MCOSD), 2014.

- All temporary erosion and sediment controls shall be in place prior to the commencement of construction and at the end of each work day. At a minimum, silt fences, or equivalent apparatus, shall be installed at the perimeter of the construction site to prevent construction related runoff and/or sediment from entering into the watercourses.
 - The MCOSD will monitor weather forecasts and take appropriate precautions in advance of storm events.
2. The project will include mulching of exposed mineral soils (outside of the trail running surface) that are greater than 50 square feet, have an exposed slope distance exceeding 10 feet, and have natural vegetation coverage of less than 80 percent.

Mulching

- Use native mulch where feasible.
 - Where native mulch is unavailable and/or as directed by the engineering geologist, mulch using 1½ to 2 inches of approved certified weed-free straw mulch.
 - Exposed slopes greater than 2:1 shall be covered with approved erosion control blanket (Tensar Rollmax C125BN or equivalent) in accordance with the manufacturer's recommendations and as directed by the engineering geologist.
3. Unnecessary grading and disturbance of soil shall be avoided.
4. All erosion control measures shall be implemented by October 15 or prior to inclement weather, whichever comes first. Erosion control measures shall be installed and maintained continuously during construction.

5. The MCOSD will use good construction site housekeeping controls and procedures (e.g., clean up all leaks, drips, and other spills immediately; keep materials covered and out of the rain (including covering exposed piles of soil and wastes); dispose of all wastes properly, place trash receptacles on site for that purpose, cover open trash receptacles during wet weather, remove all construction debris from the site.

In addition, BMPs and other provisions of the RTMP would reduce potential water quality impacts from construction and operation of the proposed project, including potential violation of water quality standards, to a less-than-significant level. The impact would therefore be less than significant, and no mitigation is required.

- b) *Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Less-than-Significant Impact. No groundwater is proposed for use during development or operation of the proposed project. No evidence of shallow or perched groundwater was observed during a geotechnical field review of the project site (Best, 2015a). The project site does not contain any impervious surfaces, and the proposed project would not require the use of any paving. In addition, the proposed project would have a similar amount of compacted surfaces as are currently present within the site. Therefore, the project would not interfere with groundwater recharge.

- c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?*

Less-than-Significant Impact. Because the proposed trail is slightly longer than the existing route, the project would result in a minor increase in the area of compacted surfaces. However, this increase in compacted surface is necessary to reduce the running slope of the trail and decrease its erosion potential. In addition, the water quality protection measures described above under (a) and in Section VI, Geology and Soils, of this Initial Study would prevent significant impacts from substantial erosion or sedimentation.

- d) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

Less-than-Significant Impact. Although the project would change the location of compacted surfaces and drainage patterns at the project site, it would not significantly change the volume of surface water runoff, and it would reduce the velocity of runoff by decreasing the running slope of the trail. The proposed trail includes frequent drain dips, installed at 50- to 125-foot intervals to minimize concentrated trail surface water runoff. No significant flooding hazard on- or off-site would result from development of the project.

- e) *Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

Less-than-Significant Impact. No existing or planned stormwater drainage systems are present at the project site. Potential impacts related to runoff water quality are addressed under (a) above.

- f) *Would the project otherwise substantially degrade water quality?*

Less-than-Significant Impact. Water quality impacts of the project are addressed under (a) above. One of the purposes of the project is to reduce water quality impacts from the existing trail.

- g) *Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No Impact. The project does not include any housing and is not located within a 100-year flood hazard zone (FEMA, 2009).

- h) *Would the project place, within a 100-year flood hazard area, structures which would impede or redirect flood flows?*

No Impact. The project is not located within a 100-year flood hazard zone (FEMA, 2009).

- i) *Would the project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?*

No Impact. The project site is not located in a 100-year flood hazard zone (FEMA, 2009) or in an area subject to flooding due to dam inundation (Nichols-Berman, 2005).

- j) *Would the project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?*

Less-than-Significant Impact. The project site is not located near a large body of water that would be subject to seiches. The project site is located at an elevation of approximately 400 feet North American Vertical Datum (NAVD) and several miles away from areas subject to tsunamis. Mudflows would not be anticipated, based on the slope stability analysis described in Section VI, Geology and Soils, of this Initial Study.

REFERENCES

- Best, Timothy C., CEG, 2015a. *Draft Engineering Geologic Review: Old Railroad Grade Trail Upgrade Project*, prepared for Marin County Open Space District (MCOSD), February 11.
- Best, Timothy C., CEG, 2015b. *Old Railroad Grade Trail Upgrade Project, Construction Documents, Map Sheet N1*, prepared for Marin County Open Space District (MCOSD), February 11.
- Federal Emergency Management Agency (FEMA), 2009. *Flood Insurance Rate Map, Marin County California, Panel 288 of 531, Map Number 06041C0288D*, Effective May 4.

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

Marin County Watershed Program, 2015. *Ross Valley Watershed*. Website: http://www.marinwatersheds.org/ross_valley.html, accessed April 10.

Nichols-Berman, 2005. *Marin Countywide Plan Flooding Technical Background Report*, updated November.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
X.	LAND USE AND PLANNING. Would the project:				
a)	Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the project physically divide an established community?*

No Impact. The proposed trail upgrade project would not physically divide an established community. The new trail would be located just below an existing trail that would be decommissioned, and within an existing open space preserve.

b) *Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*

No Impact. The proposed trail upgrade project is located within the Loma Alta Open Space Preserve of the MCOSD, and the project would be consistent with the zoning and general plan designations that apply to the site. There are three Assessor Parcels that apply to the overall Loma Alta Open Space Preserve; Assessor Parcel Number 174-060-31 includes the project site, and this parcel is designated as Open Space (OS) by the Marin Countywide Plan. The zoning for this parcel is Open Area (OA). No specific plan, coastal program, or other plan other than the MCOSD RTMP apply to the site. This project is compatible with the RTMP. The project would therefore have no impact in relation to this criterion.

- c) *Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?*

No Impact. No habitat conservation plan or natural community conservation plan applies to the project site. The project would therefore have no impact in relation to this criterion.

REFERENCES

Marin County, 2015. Marin Map Data Viewer. Website;
<http://www.marinmap.org/Geocortex/Essentials/Marinmap/Web/Viewer.aspx?Site=MMDataViewer>, accessed April 1.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?*

No Impact. No known mineral resources are located at the project site. The only mineral resources within lands of the MCOSD are on Ring Mountain and at Mt. Burdell Open Space Preserve (MCOSD, 2014a).

- b) *Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

No Impact. Refer to (a) above.

REFERENCES

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Less-than-Significant Impact. As addressed in the RTMP Program EIR, major noise-generating construction and maintenance activities are grading and excavation, such as that required for the proposed trail upgrade. Construction equipment would likely include earth-moving equipment, mowers, and powered tools. During ground clearing activities, noise levels could reach 84 decibels on the A-weighted scale (dBA), and 89 dBA during excavation. The nearest two residences to the project site, which are as close as 200 feet, could experience noise levels of 70 to 85 dBA during construction.

Construction noise impacts would be short-term and would only occur Monday through Thursday from 7:00 AM to 4:00 PM, over a period of about 6 weeks. During this time, the MCOSD would comply with the BMPs found in the RTMP, which include BMP Noise-1 and BMP Noise-2 (see Appendix A of this Initial Study). BMP Noise-1 addresses compliance with Marin County Ordinance 3431, Construction Noise. This ordinance adds Sections 6.70.030(5) and 6.70.040 to the Marin County Code related to construction activities and related noise, and penalties for violations. For example, construction activities are limited to Monday through Friday from 7:00 AM to 6:00 PM, and Saturday from 9:00 AM to 5:00 PM. No construction is allowed on Sundays or holidays. BMP Noise-2 of the RTMP addresses noise control during construction within and adjacent to sensitive wildlife populations; it contains provisions to ensure that the best available noise-control techniques are used to prevent wildlife disturbances, and that construction (except for emergency projects) is prohibited during nighttime hours and during breeding seasons in areas adjacent to sensitive wildlife populations. Due to the potential for sensitive wildlife populations at the project site, BMP Noise-2 would apply to the site. Compliance with the BMPs would ensure that the impact would be less than significant, and no mitigation measures would be needed.

- b) *Would the project result in exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?*

Less-than-Significant Impact. No pile driving or blasting would be associated with the project. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Vibration levels from typical construction activities would be expected to be below the 0.3 inch per second (in/sec) particle velocity descriptor (PPV) significance threshold, which is the threshold at which there is a risk of damage to older residential structural features such as plaster walls or ceilings. For example, a large bulldozer located at a 25-foot distance could generate vibration of 0.089 in/sec PPV, a level that is below the significance threshold. The two nearest residences to the project site are about 200 feet from the proposed construction area; therefore, vibration levels would be below the significance threshold, and the residences would not be subject to a risk of damage from construction vibration.

The use of heavy equipment for grading at the project site could nonetheless result in short-term, temporary groundborne noise or vibration. However, the project would comply with BMP Noise-1, which imposes the construction noise restrictions of the Marin County Code. The construction noise and vibration impact on nearby residences would therefore be less than significant.

- c) *Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

No Impact. The nearest sensitive receptors are two residences located about 200 feet west and southwest of the project site. The trail upgrade project is not expected to result in significant increased use of the Old Railroad Grade Trail, since the project would merely replace a portion of the trail and would not significantly change the footprint or uses of the trail. Over time, use of the trail could increase either with or without the project, depending on the demand for hiking trails in this vicinity. With the project, some people who currently do not want to use the existing trail due to its steepness may decide to use the trail after the new bridge and new trail portions are completed. However, any changes in use of the trail would not significantly increase noise at the project site, and the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity, compared to existing conditions. In addition, excessive noise generated by recreational users of the open space preserves and special events within preserves is, and would continue to be, prohibited under the Marin County Code and the MCOSD Code as stated in the RTMP Program EIR (MCOSD, 2014).

- d) *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less-than-Significant Impact. Project construction could increase ambient noise levels temporarily in the project vicinity; however, this impact would be less than significant as discussed under (a) above.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The project site is not located within an airport land use plan area or within 2 miles of a public airport or public use airport. Therefore, the project would not expose people to excessive noise from aircraft activity.

f) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The project is not located within the vicinity of a private airstrip. Therefore, the project would not expose people to excessive noise from aircraft activity.

REFERENCES

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

No Impact. The proposed project would replace a small portion of the Old Railroad Grade Trail and would not increase the capacity of the trail. Thus, this project would not have any impact on population growth in the area.

b) *Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact. No existing housing would be displaced by the project.

- c) *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

No Impact. No people would be displaced by the project.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES.				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: Fire protection, police protection, schools, parks, other public facilities?*

No Impact. No new or altered fire, police, school, park, library, or other public facilities would be needed to serve the project, and no related environmental impacts of constructing such facilities would occur. The site would be served by existing emergency response personnel, and the project would not increase emergency response demands.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

Less-than-Significant Impact. During the estimated 6-week construction period, the project portion of the Old Railroad Grade Trail would be partially closed and rerouted as described in Chapter I of this Initial Study. Due to this closure, there may be some increased use of other trails in the general vicinity. However, this increased use is not expected to result in substantial physical deterioration of any nearby parks or recreational facilities. After completion of project construction, trail users would continue to use the Old Railroad Grade Trail.

- b) *Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

Less-than-Significant Impact. The project includes an upgrade of an existing recreational trail, the impacts of which are addressed throughout this Initial Study. With the implementation of BMPs found in the RTMP, no significant impacts would result.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI.	TRANSPORTATION/TRAFFIC. Would the project:				
a)	Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e)	Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) *Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the*

circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

No Impact. No significant transportation impacts on public roads would result from the project because it would not result in significant increased usage of the Old Railroad Grade Trail. The project would not increase capacity of the trail, but it would reduce the steepness of the trail in the vicinity of the proposed new bridge. For this reason, a limited number of visitors who may have been dissuaded from using the existing trail due to this steepness may decide to use the improved facility. The RTMP (which covers the project) incorporates the policies of the Marin Countywide Plan and the MCOSD Policy Review initiative. Thus, the project would not conflict with any applicable plans, ordinances, or policies related to the circulation system.

b) *Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?*

No Impact. As described under (a) above, the project would not result in a significant increase in traffic; thus, it would not conflict with Marin County's Congestion Management Program.

c) *Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

No Impact. No change in air traffic patterns would be associated with the project.

d) *Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

No Impact. The project would not involve any activities that would affect traffic or transportation hazards on existing streets or roads. The project would replace a small section of existing trail and does not include any design feature that would increase hazards. The project itself is intended to reduce the steepness of the Old Railroad Grade Trail in the vicinity of the new bridge (thus also reducing erosion during the wet months), resulting in a trail that is more level and safer for all users.

e) *Would the project result in inadequate emergency access?*

Less-than-Significant Impact. Emergency access to the existing trail is available for a portion of the trail that vehicles can reach from Sir Francis Drake Boulevard. From approximately 300 feet north of the end of the trail improvements, the existing trail is too narrow to allow access for emergency vehicles, and, access would be limited to non-vehicular travel. To reach the project site, emergency personnel would need to travel partially on foot. However, the project itself would not result in any changes to the existing emergency access.

f) *Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?*

No Impact. The Marin Countywide Plan and Marin County's Congestion Management Program contain policies to encourage non-vehicle modes of travel, as addressed in the Program EIR on the RTMP. The proposed project would be consistent with these policies of applicable documents.

REFERENCES

Marin County Open Space District (MCOSD), 2014a. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November.

Marin County Open Space District (MCOSD), 2014b. *Road and Trail Management Plan*, December.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, State, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No Impact. The project would not entail any wastewater treatment requirements. The proposed trail and other improvements would be located within existing parklands, and restroom facilities are not provided in this part of the Loma Alta Open Space Preserve.

b) *Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

No Impact. As stated above, the project would not result in any increases in wastewater treatment requirements. The project also would not result in any increased water treatment requirements. During construction, some minor amounts of water would be needed, and would be trucked as needed. If available, the MCOSD would use recycled wastewater.

- c) *Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Less-than-Significant Impact. Project impacts on stormwater drainage are addressed in Section IX, Hydrology and Water Quality, of this Initial Study.

- d) *Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

No Impact. Refer to (b) above.

- e) *Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

No Impact. Refer to (a) above.

- f) *Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?*

No Impact. The project would not generate solid waste, other than minor amounts during construction. Adequate landfill capacity would be available for this minor amount of construction debris.

- g) *Would the project comply with federal, State, and local statutes and regulations related to solid waste?*

No Impact. Such regulations would not apply to the project, due to the fact that solid waste would be minimal and only associated with construction.

		Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII.	ENERGY. Would the project:				
a)	Result in a substantial increase in overall or per capita energy consumption?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b)	Result in wasteful or unnecessary consumption of energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c)	Require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Conflict with applicable energy efficiency policies or standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the project result in a substantial increase in overall or per capita energy consumption?*

No Impact. As a trail reconstruction project, the project would not result in a substantial increase in per capita energy consumption. Some minor amounts of energy (gasoline for equipment, etc.) would be used during construction, but this consumption would not be a substantial increase.

b) *Would the project result in wasteful or unnecessary consumption of energy?*

No Impact. Refer to (a) above.

c) *Would the project require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects?*

No Impact. No new sources of energy supplies or additional energy infrastructure would be required for the project. Thus, no associated environmental effects would occur.

d) *Would the project conflict with applicable energy efficiency policies or standards?*

No Impact. The project would not conflict with policies promoting energy efficiency.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?*

Potentially Significant Impact Unless Mitigation Incorporated. Refer to Section IV, Biological Resources, of this Initial Study for discussion of the potential impact related to invasive species. With the implementation of the recommended mitigation measure, all impacts would be reduced to less-than-significant levels.

- b) *Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)*

No Impact. No new developments are proposed in the vicinity of the project, according to the Town of Fairfax and Marin County (Neal, 2015 and Raives, 2015). Therefore, there would not be any relevant cumulative impacts of concern.

- c) *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

No Impact. The proposed project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. With the implementation of the recommended mitigation measures, no impacts would result from the project.

REFERENCES

Neal, Linda, Town of Fairfax Planning Department, 2015. Email communication with A. Skewes-Cox, April 6.

Raives, James, Marin County Open Space District, 2015. Email communication with A. Skewes-Cox, April 15.

APPENDIX A

RTMP IMPLEMENTATION AND MONITORING PROGRAM

Project Development Worksheet

Project Name: Old Railroad Grade Trail Improvements

Facility Status: Existing New

Facility Type: Road Trail

Project Type: Reconstruction
 Rerouting
 Active Decommissioning
 Active Road to Trail Conversion
 New Construction
 Passive Decommissioning
 Passive Road to Trail Conversion

Recreational Uses Permitted: Multi-Use

Overall Project Facility Length: 1,100 Feet

Average Project Facility Width: 5 feet

Project Purpose: Reduce trail grade to a more sustainable configuration, improve visitor access, and reduce sedimentation into the stream

Construction Start Date: 7/27/2015

Construction Duration: Six Weeks

Construction Completion Date: 8/14/2015

Construction Contractor: None

District Project Manager: Matt Sagues

District Resource Manager: Matt Sagues

Trail Name: Old Railroad Grade Trail

OSP Name: Loma Alta

Beginning Point (Lat/Long) 38.0101, -122.6103

Ending Point (Lat/Long) **38.0081, -122.6121**

MANAGEMENT AREA

Sensitive Resource Area: 0 (ft) 0 (ft²)

Conservation Area: Length 1,100 (ft) 5,500 (ft²)

Impacted Area: Length 0 (ft) 0 (ft²)

BIOPHYSICAL CRITERIA BASED TOOL RESULTS

Pre-project OSP Baseline Score Not Available

Plus Project Score (from below) Pre project score for trail = 55; Post project score for trail = 48

Minus Offsetting Activities Score Not Applicable

Post-project OSP Baseline Score Not Available

PROJECT DECISION TOOL CRITERIA SCORES

Criterion	Score
<i>Environmental Criteria</i>	
Vegetation Management zone	4
Stream conservation areas	2
Stream crossings	5
Stream adjacency, fish-bearing streams for listed species (specifically steelhead, coho, Chinook)	1
Northern spotted owl habitat	0
Rare plant areas	0
Rare wildlife areas	0
Serpentine soils	0
Wetlands	0
Noxious weeds	10
Preserve trail density	3
<i>Physical Criteria</i>	
Hydrological slope (the slope along the fall line) – measured for new proposed trails only	4
Trail gradient (actual user-experienced slope of the road/trail) – as measured for existing trails only	0
Trail gradient (actual user-experienced slope of the road/trail) – as measured for new proposed trails only	1
Width	5
Drainage condition	0
Tread condition	0
Wet/muddy	0
Maintenance	0

Erosion impact	0
RUSLE erosion	8
Condition of worst drainage problem sites	0
Condition of worst erosion problem sites	0
Number of problem sites	0
Amount of excavated soil volume	5
<i>Social Criteria</i>	
Trail length	0.2 – 0.5 Mile
Distance from development	0.08 Mile Average
Distance between trail intersections	0.08 -0.20 mile average
Connectivity to regional trail or road/trail on adjacent public land	>0.5 -1.0 mile from connection
Connectivity to destination points or attractions	>1.5 miles from Attraction
Vegetation community variety	5 to 7 Communities
Terrain quality	Low Grade, Rolling Terrain
Overall Project Score	48

RTMP POLICY IMPLEMENTATION¹	Not Applicable	Implements Policy	To be implemented at subsequent project phase	Comments/ Proof of Compliance
SW.4 Overall Reduction of Road, Trail, and Visitor Impacts	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
SW.22 Protect High Value Vegetation Types	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
SW.24 Minimize Intrusions into Larger Contiguous Habitat Areas and Wildlife Corridors	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
SW.27 Protect High-Value Cultural and Historic Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
SW.28 Remove or Realign Roads and Trails Away from High-Value Cultural and Historic Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
SW.29 Retrofit or Upgrade Construction Equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
SW.30 Permeable Paving	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
SW.31 Floodplain Policy for New and Improved Roads and Trails	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

¹ Policy titles only listed in this table; refer to RTMP Table 4.1, *Policies Governing the MCOSD Roads and Trails*, for the text of cited policies.

ROAD AND TRAIL CROSS SECTIONS¹	Not Applicable	Implemented	To be implemented at subsequent project phase	Type of Standard Implemented/ Proof of Compliance
Dips and Water Bars	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Road or Trail Surface Treatment and Delineation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Runoff Conveyances	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Ditch Relief Culverts and Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Conveyance Flow Attenuation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Drainage, Wetland, or Stream Crossings	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Slope Stability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Trail Buttressing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Catchment Basins	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Decommissioning Existing Roads or Trails	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

¹ Standard titles only listed in this table; refer to RTMP Chapter 6, *Road and Trail Standards and Best Management Practices*, for detailed specifications for each class of standard.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
6.1 General BMPs						
General-1 Limit Work Area Footprints in Sensitive Areas	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-2 Modify Construction-Related Vegetation Management Methods in and near Wetlands, Riparian Vegetation	During Construction	Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-3 Minimize Potential for Erosion	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-4 Control-Food Related Trash	During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-5 Modify Construction Methods Relating to Soil Disturbance, Restrict Use of Offsite Soil, Aggregate, or Other Construction Materials	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-6 Prevent or Reduce Potential for Pollution	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-7 Include Standard Procedures in Construction Contracts	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-8 Control Noise	During Construction	Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-9 Conduct Worker Training	Prior to Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
General-10 Road and Trail Inspections	Periodic Post Construction	Annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
General-11 Management of Sudden Oak Death	During Construction	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.2 Sensitive Natural Resources BMPs						
Sensitive Natural Resources-1 Modify Management Practices near Sensitive Natural Resources	Prior to Construction and During Construction	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.3 Special Status Wildlife BMPs						
Special-Status Wildlife-1 Literature Reviews	Project Planning and Design	Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-2 Preconstruction Surveys	Project Planning and Design, Prior to Construction, and During Construction	Not Applicable	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-3 Seasonal Restrictions during Bird Nesting Seasons	Prior to Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-4 Avoidance and Protection of Northern Spotted Owl	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-5 Avoidance and Protection of Double-Crested Cormorant Nests and Heron and Egret Rookery Sites	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
Special-Status Wildlife-6 Avoidance and Protection of California Clapper Rail, California Black Rail, and Salt Marsh Harvest Mouse	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-7 Protection of Fish Habitats	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-8 Worker Awareness Training	Prior to Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-9 Construction Monitoring	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-10 Relocation of Special-Status Species	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-11 Noise Control	During Construction	Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-12 Trash Control	During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Wildlife-13 Road and Trail Inspections	Periodic Post Construction	Annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.4 Special Status Plants BMPs						
Special-Status Plants-1 Literature Reviews	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Biological Report Dated April 27, 2015

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
Special-Status Plants-2 Avoidance and Protection of Special-Status Plant Species	Prior to Construction and During Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-3 Ensure Proposed Actions Are Consistent with Ongoing Special-Status Plant Management Programs	Not Applicable	Once	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-4 Earthwork near Special-Status Plant Populations	Not Applicable	Once	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-5 Erosion Potential near Special Status Plants	During Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-6 Introduction of Invasive and Nonnative Plants and Plant Material	During Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-7 Revegetation with Native, Geographically Appropriate Plant Species	Post Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-8 Worker Awareness Training	Prior to Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-9 Relocation of Special Status Plants	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-10 Road and Trail Inspections	Periodic Post Construction	Annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Special-Status Plants-11 Reuse and Replanting of Native Trees and Shrubs	Post Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
Special-Status Plants-12 Ripping and Recontouring Roads	During Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.5 Invasive Plants BMPs						
Invasive Plants-1 Compliance with Integrated Pest Management	During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants-2 Herbicide Use Near Sensitive Natural Resources	During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants-3 Survey and Control of Invasive Plants in Project Footprint	Prior to Construction and During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants-4 Limited Soil Disturbance	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants—5 Cleaning of Heavy Equipment, Maintenance Tools, and Fire Management Vehicles	During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants-6 Reducing Potential for Establishment of Invasive Plants on Disturbed Soil Surfaces	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants-7 Monitor and Control of Invasive Plants in Road and Trail Management Work Areas	Periodic Post Construction	Annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants-8 Protection of Streambanks and Water Quality During Invasive Plant Removal	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
Invasive Plants-9 Road and Trail Inspections	Periodic Post Construction	Annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Invasive Plants-10 Monitor Decommissioned Areas	Periodic Post Construction	Annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.6 Construction Contracts BMPs						
Construction Contracts-1 Standard Procedures in Construction Contracts	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.7 Cultural Resources BMPs	Choose an item.	Choose an item.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Cultural Resources-1 Historical and Archaeological Resources Mapping	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Completed as part of CEQA review
Cultural Resources-2 Consultation with Northwest Information Center	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Completed as part of CEQA Review
Cultural Resources-3 Tribal Consultation	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Will be done as part of CEQA
Cultural Resources-4 Alteration of Historic Structures	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Cultural Resources-5 Permanent Protection	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Cultural Resources-6 Construction Discovery Protocol	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
Cultural Resources-7 Human Remains	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Cultural Resources-8 Community Awareness	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.8 Water Quality BMPs						
Water Quality-1 Modifications to Road and Trail Management Actions to Protect Water Bodies, Wetlands, and Tidally Influenced Areas	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Water Quality-2 Temporary Erosion and Sediment Control	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Water Quality-3 Erosion Control Measures	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Water Quality-4 Preventing or Reducing the Potential for Pollution	Prior to Construction and During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Water Quality-5 Road and Trail Inspections	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Water Quality-6 Grading Windows	Project Planning and Design	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Water Quality-7 Culvert Inspection	Periodic Post Construction	Annually	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
Water Quality-8 Proper Disposal of Excess Materials	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Water Quality-9 Sidecasting Construction Material	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.9 Geologic Hazards BMPs						
Geologic Hazards-1 Assessment and Requirements in Areas of Potential Geologic Hazard	Prior to Construction	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Geotech Report dated December 2014
Geologic Hazards-2 Construction in Areas of Slide and Debris Flows	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Geologic Hazards-3 Construction in Areas of Erodible and Expansive Soils	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Geologic Hazards-4 Construction in Areas of Collapsible Soils	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.10 Air Quality BMPs						
Air Quality-1 Implement BAAQMD Measures	Project Planning and Design	Once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Air Quality-2 Minimize Dust Emissions During Construction	During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

BEST MANAGEMENT PRACTICES¹	Timing²	Repetition³	Not Applicable	In Process	Complete	Comments/ Proof of Compliance
Air Quality-3 Enhanced Dust Control During Construction	During Construction and Post Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Air Quality-4 Dust Control during Construction in Sensitive Resource Areas	Not Applicable	Not Applicable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
6.11 Noise BMPs						
Noise-1 County Noise Ordinance Requirements	During Construction	Daily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.
Noise-2 Noise Control During Construction within and adjacent to Sensitive Wildlife Populations	During Construction	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Click here to enter text.

¹ Best Management Practices titles only listed in this table; refer to RTMP Chapter 6, *Road and Trail Standards and Best Management Practices*, and Tables 6.1 through 6.11 for the detailed requirements for each BMP.

² Timing: (PPD) During project planning and design; (PrC) Prior to construction; (DC) During construction; (PoC) Post construction; (PPoc) Periodically post construction. Also, if there are seasonal or other timing constraints on implementation of a BMP, note here.

³ Number of times BMP needs to be repeated or resurveyed

Best Management Practices

Consistent with the MCOSD *Strategic Plan* (2008) one of the goals of this *Road and Trail Management Plan* is to reduce the environmental impact of roads and trails on sensitive resources, habitats, riparian areas, and special-status plant and animal species. To achieve this goal, the Strategic Plan recommends best management practices to reduce sedimentation from roads and trails, to preserve in-stream habitat and protect populations of rare and threatened or endangered fish species, and to protect water quality.

As defined by this plan, a *best management practice* is a practice, or combination of practices, that has been determined to be most effective and practicable in preventing or reducing the amount of pollution generated, or the level of environmental harm created, from an activity to a level compatible with environmental goals and regulatory standards. Within the context of this definition, the MCOSD will adopt the best management practices described in this chapter to guide all future road and trail management actions and activities.

Prior to any road and trail management work, the MCOSD will secure all applicable authorizations and permits from federal and state resource agencies and Marin County. While many routine maintenance activities will not require special permits, some maintenance activities and new trail construction may. When required, this process will typically result in implementation of best management practices required by the resource agencies to protect natural and cultural resources, protect air and water quality, and reduce construction nuisance effects (e.g., dust and noise). These practices will supplement the practices adopted by the MCOSD. In the case of overlapping practices, the more protective practice will apply.

This plan provides a programmatic set of best management practices for all road and trail management activities that will be implemented as necessary and practicable. This programmatic set of practices can be drawn upon during the resource permitting process and can be supplemented by any additional practices required by the resource agencies. For projects not requiring permits or regulatory involvement, the best management practices presented in this chapter will be implemented as necessary and practicable to protect sensitive resources on the MCOSD and adjacent lands. The general and topically specific practices can be considered as standards to be followed and implemented as appropriate for any road and trail management action. For presentation, the practices have been divided into categories and placed into tables, as shown in the following list.

- General:
 - » Table 6.1 General Best Management Practices
- Biological resources:
 - » Table 6.2 Sensitive Natural Resources Best Management Practices
 - » Table 6.3 Special-Status Wildlife Best Management Practices

- » Table 6.4 Special-Status Plants Best Management Practices
- » Table 6.5 Invasive Plants Best Management Practices
- » Table 6.6 Construction Contracts Best Management Practices
- Cultural resources:
 - » Table 6.7 Cultural Resources Best Management Practices
- Water quality:
 - » Table 6.8 Water Quality Best Management Practices
- Geologic hazards:
 - » Table 6.9 Geologic Hazards Best Management Practices
- Air quality:
 - » Table 6.10 Air Quality Best Management Practices
- Noise:
 - » Table 6.11 Construction Noise Best Management Practices

The Best Management Practices (BMPs) listed in table 6.1 apply to all activities related to road and trail project activities. The Best Management Practices listed in tables 6.2 through 6.11 add more specificity to planning and implementation of road and trail project activities, including maintenance, management, and construction. If implemented, these BMPs will help to avoid and/or minimize impacts to all sensitive biological resources (i.e., special-status plant and wildlife species, sensitive vegetation, wetlands, and other native habitats), to reduce impacts related to soil disturbance, and erosion, and help limit the potential for spread of invasive plants from infested areas to non-infested areas. Each BMP is written to stand on its own and as a result, there is some unavoidable overlap and repetition between the BMPs.

Biological Resources

Many of the best management practices listed below stem from other existing documents adopted and approved by the Marin County Board of Supervisors and the MCOSD Board of Directors. They focus on protecting sensitive biological resources and habitat types. Properly implemented best management practices will allow road and trail management projects to avoid, minimize, and mitigate impacts to sensitive resources and habitats to the maximum extent possible. The following practices will be followed by the MCOSD, its representatives, and project contractors as applicable and appropriate.

Road and Trail Construction, General

Preconstruction Literature Reviews

Prior to any new road or trail construction activities, the MCOSD natural resource staff or a

representative will conduct a literature review to determine if any special-status species and habitats have the potential to occur in the construction project area.

The first source reviewed will be the MCOSD's extensive database of special-status plant and wildlife occurrences and sensitive habitats. This database is actively updated and maintained by the MCOSD natural resource staff and contains the most relevant data on sensitive resources on the MCOSD preserves.

In addition to the MCOSD database, other resources will be reviewed prior to work as necessary, including the following:

- U.S. Geological Survey topographic maps
- U.S. Fish and Wildlife Service National Wetlands Inventory maps
- Bay Area Aquatic Resource Inventory Database
- Aerial photographs
- California Department of Fish and Wildlife Natural Diversity Database records
- U.S. Fish and Wildlife Service quadrangle species lists
- California Native Plant Society inventory records
- University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California
- National Marine Fisheries Service Distribution Maps for California Salmonid Species

Database searches for known occurrences of special-status species will focus on the vicinity of the project area. Biological communities present in the project location and surrounding areas will be classified based on existing plant community descriptions described in the *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Biological communities will be classified as sensitive or nonsensitive as defined by the California Environmental Quality Act and other applicable laws and regulations.

Preconstruction Surveys

If it is determined that sensitive resources may occur in the project area, a qualified biologist from the MCOSD natural resource staff or an outside contractor will survey the area during the appropriate time window (e.g., season, time of day, flowering period) to determine the presence or absence of the sensitive resources identified. If sensitive resources are located, the appropriate resource agencies will be contacted and the necessary permits acquired.

Additionally, the programmatic best management practices will be implemented as applicable and appropriate.

Multi-year Wildlife Monitoring Program

To address gaps in the scientific documentation of wildlife in the preserves in a more systematic way than can be accomplished on the basis of preconstruction surveys alone, the MCOSD will, after adoption of this plan, design and implement a multi-year wildlife monitoring program with the goal of enhancing the protection of wildlife in the preserves through the collection, sharing, and analysis of wildlife data to be used in making refinements to the designated road and trail system and managing visitor use.

Construction Timing Windows

All construction activities will be timed to avoid impacts to sensitive resources. If nesting birds are present in the project area, construction will take place outside of the breeding season or after the young have fledged; or appropriate buffers will be established consistent with state and federal law. See table 6.3 for specific practices to protect special-status and nesting bird species located in the project area.

If any other special-status plant or animal species is present, construction will take place outside of the reproductive season. If migrating birds or other wildlife are present and/or using the project area as a migration corridor, construction activities will occur outside of this window, unless an alternative method for avoiding disturbance can be applied that is consistent with state and federal law. If construction activities must take place in or around a watercourse or water body, construction will take place during the dry season, when impacts on water quality and aquatic habitats will be minimized. See table 6.8 for specific practices to protect water quality.

Invasive plants in the project area will usually be treated prior to construction. However, if this is not feasible or treatments are ineffective, construction will be planned to occur when invasive plant species in and adjacent to the project area are not in seed. When plants are in seed, their populations can be distributed and inadvertently dispersed to new areas by construction personnel, equipment, and general activities. See table 6.5 for specific practices for working near invasive plant populations.

The MCOSD staff and contractors will work on a project-specific basis to determine appropriate construction timing windows.

Impact Area Planning

The MCOSD will plan all new facilities to avoid sensitive resources to the maximum extent possible and to minimize construction footprints. When feasible, construction impact zones (including staging areas and associated infrastructure to complete projects) will be confined to areas of existing disturbance, such as a current road or trail alignment. If sensitive resources are

present in the impact area or immediate surroundings, their locations (including an appropriate buffer) will be demarcated in the field, and personnel will be advised to avoid these areas. Project personnel will also be provided with maps showing sensitive resources in the project impact area that must be avoided. Workers will receive environmental sensitivity training prior to the commencement of project activities, as described below. If necessary, exclusion fencing will be installed to keep nearby special-status wildlife species from entering the area of impact.

Water Quality Protection and Erosion Control

Wetlands and other waters (e.g., streams, ponds, lakes) are sensitive communities that have the potential to support a diversity of life and provide other ecosystem services. Projects will be planned to avoid wetlands and water habitats to the maximum extent possible. The MCOSD will perform road and trail construction in a manner that controls and minimizes the potential for soil erosion and contribution of sedimentation to wetlands. All construction that must take place in or adjacent to wetlands and waters (e.g., stream crossings) will take place during the dry season. Sedimentation filtration barriers, stormwater pollution prevention plans, and other measures to protect water quality will be implemented as necessary for work in the vicinity of wetlands and waters. Specific water quality protection and erosion-control practices are listed in table 6.8.

Design Considerations

If a special-status species known to occur within the vicinity is dependent upon a vegetative community in the area of impact or the immediate surroundings, efforts will be made during project planning and design to maintain that habitat where possible. If actively breeding birds are known from the area, large tree and shrub vegetation in the immediate surroundings that could provide nesting and protective habitat will be preserved to the maximum extent possible.

Other design elements intended to protect special-status species or their habitats, or other sensitive resources, will be considered on a case-by-case basis. Specific wildlife design considerations are listed in table 6.3.

Worker Awareness Training and Construction Tailgate Meetings

A qualified biologist will conduct worker awareness training prior to any construction activities in areas with federal and state-protected sensitive resources. Training will educate workers about resource identification, avoidance measures, and necessary actions if a sensitive resource is encountered. All project personnel who will be involved with implementation activities should be present for these meetings so that all workers have a consistent understanding of sensitive resource issues. Potential invasive weed populations and the possibility for spread of invasive weeds will also be covered during these training meetings.

Worker awareness training will include the following:

- a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area

- a description of its ecology and habitat needs
- potentially confusing resources (e.g., similar species or habitats)
- an explanation of the measures being taken to avoid or reduce adverse impacts
- reporting and necessary actions if sensitive resources are encountered
- responsibility of the individual worker under the applicable environmental regulation

One tailgate meeting will be conducted on the construction site with all project personnel the day before work begins to reemphasize materials covered during the worker awareness training. The tailgate meeting will also be a good opportunity to cover any potential resource issues that might be encountered for specific project elements in more detail and reinforce resource issues for workers on the ground.

Resource-specific items to be covered during worker awareness training and tailgate meetings are listed in tables 6.1 through 6.4.

Additionally, an annual MCOSD agencywide road and trail maintenance worker education program will provide information about all the sensitive resources on the MCOSD preserves to the MCOSD road and trail management personnel.

Construction Monitoring

If federal or state-listed species are known to be present in the project area or immediate surroundings, a qualified biologist from the MCOSD natural resource staff or outside contractor will monitor construction activities to ensure impacts to sensitive resources will be avoided. If special-status wildlife species are present within the vicinity of the project area, a more involved monitoring program might be necessary to ensure that these species do not enter the project area. If a special-status species is observed by a worker or construction monitor, work will cease immediately and the appropriate resource regulatory agency will be contacted if necessary. A construction monitoring program will be developed for each project.

Noise Control

Equipment and vehicles will utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) to prevent disturbance of nearby wildlife populations.

Preventing and Reducing Potential for Pollution

The MCOSD will ensure that actions are undertaken during road and trail management projects to prevent or reduce the potential for pollutants entering the MCOSD preserve system from management activities that could affect sensitive resources. Specific practices listed in table 6.8 will be implemented as needed to reduce the potential for pollution of water quality.

Controlling Food-Related Trash

Food-related trash can attract wildlife to construction sites, disrupting their normal behavior patterns. Food-related trash will be stored daily in closed containers and removed from the construction site daily.

Relocation of Special-Status Species

If special-status plant species are located in the project area and impacts to these species are unavoidable, plants and/or propagules will be relocated to suitable habitat off site prior to the commencement of construction activities. Alternatively, off-site mitigation for impacts could be considered. If special-status wildlife species are located on site, the appropriate resource agency will be contacted, and a qualified biologist possessing necessary permits will relocate individuals to suitable habitat off site, as necessary.

Invasive Weed Control

If invasive exotic weeds (identified on the California Invasive Plant Council Inventory of Invasive Plants) are located in the project area, they will be treated prior to the commencement of project activities to reduce the potential for their spread. Project design will avoid soil disturbance in heavily invaded areas to the maximum extent possible to reduce the potential for spread on and off site. Any imported soil, compost, gravel, stone aggregate, erosion-control materials, or other fill material of any kind will be certified weed-free.

Specific invasive weed control practices are provided in table 6.5.

Revegetation with Native Plant Species

Following the completion of construction elements or soil disturbance, disturbed areas will be revegetated with native plant species as necessary and practicable. Revegetation with annual grasses and forbs can provide rapid vegetative cover and initial soil stabilization. Planting or seeding with a combination of native annual and perennial grasses, forbs, shrubs, and trees can provide longer term and stronger erosion control, as well as more desirable visual cover. The end goal of revegetation will be a species composition and vegetative structure that integrates with the surrounding natural community, or a desired natural community, to the maximum extent possible.

Locally collected native plant materials from the project footprint and surrounding areas will be the preferred standard for revegetation efforts. Plant materials will be collected from within the same watershed or the MCOSD preserve if possible. The MCOSD will allow collection of no more than 5% of any native plant population to prevent overcollection of wild plant material sources. If sufficient local plant materials are not available for collection prior to project activities, geographically appropriate native plant materials will be purchased from a local nursery or seed supplier.

A project-specific revegetation plan will be developed by the MCOSD natural resource staff for projects as needed to guide revegetation efforts.

Mitigation

Any approved impacts to sensitive resources will be mitigated as required by resource agencies, on a project-specific basis.

Road and Trail Maintenance, General

The following list of best management practices is specific to road and trail maintenance. Previously described practices for road and trail construction (e.g., preconstruction literature reviews and surveys, noise control) will be implemented wherever applicable, in addition to the following maintenance-specific protective measures.

Inspections

During regular inspections, the MCOSD staff will check to ensure that road and trail features and associated infrastructure are well maintained and poses no threat to surrounding sensitive biological resources. Staff conducting inspections will record information pertaining to runoff and effects on water quality of nearby habitats, the spread of invasive exotic plants, and the status and quality of any known sensitive resources in the immediate vicinity that could be affected by road or trail use and/or maintenance. Staff will report any findings and make recommended corrective actions if appropriate.

Grading and Maintenance Windows

Grading will only occur during the dry months (generally May 15 to October 15), when associated erosion will be reduced to the maximum extent possible.

Culverts

Culverts will be inspected on a regular basis to ensure that they do not clog with sediment or debris. Blocked culverts may affect water quality, change the water course, increase erosion or sediment runoff, or affect wildlife. Any materials blocking culverts will be removed and disposed of outside the watercourse in an area not subject to erosion. If a significant blockage or sedimentation exists, the MCOSD will plan and implement corrective actions as necessary. Excavation of sediments within streams may require a maintenance permit from the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and/or the San Francisco Water Quality Control Board.

Disposal of Materials

Any maintenance-related materials (including soils, debris, trash, or other materials that need to be removed as part of maintenance activities) will be disposed of at an appropriate site where materials could not impact sensitive resources. For example, grading-related excess soils or

removed debris will not be placed in or around a water body or wetland where the materials could be subject to erosion, thereby affecting water quality.

Road and Trail Decommissioning, General

The following list of best management practices is specific to road and trail decommissioning. Previously described practices for road and trail construction and maintenance (e.g., preconstruction literature reviews and surveys, noise control, work timing windows) will be implemented wherever applicable, in addition to the following protective measures specific to decommissioning. Any segments of roads or trails that have the potential to affect sensitive resources (e.g., water quality) will be treated immediately to ensure that impacts are avoided or minimized.

Simply closing a road or a trail is not sufficient to decommission it and protect sensitive resources. Instead, road and trail decommissioning will involve removing fill from the project area; removing creek crossings, bridges, and culverts; excavating unstable fill slopes; treating road and trail surfaces, shoulders, ditches, and embankments to prevent runoff and erosion; and revegetating any disturbed areas as necessary. These actions will eliminate the potential for runoff and erosion to enter wetlands and water habitats and will restore natural vegetative communities and habitats.

Removal of Stream Crossings

When removing a stream crossing, sediment filtration barriers will be placed around the extent of the construction area to prevent sediment from entering streams. All removed materials will be disposed of in an off-site location where they will not be subject to erosion. Slopes where infrastructure and fill were removed will be stabilized to prevent erosion. Work within streams may require regulatory agency permits. If the stream is not a perennial watercourse, the work will be done when the creek is dry.

Removal of Unstable Fill Slopes and Cut Banks

Any unstable fill slopes and cut banks that have the potential to erode and negatively affect water quality of nearby wetlands and waters will be removed entirely and graded to a stable contour. These areas will be revegetated with appropriate native species. Sediment filtration barriers will be deployed around the edges of unstable slopes as necessary to prevent erosion and runoff into wetlands and waters.

Reuse and Replanting of Excavated Trees and Shrubs

Where feasible, excavated trees and shrubs removed from unstable fill slopes and cut banks will be replanted on graded contours to restore the areas with native vegetation. These plants will represent the most locally appropriate materials for restoration and conform to the vegetation types of the surroundings.

Ripping and Recontouring Road and Trail Surfaces

Road and trail surfaces will be ripped and decompacted. Ripping surfaces provides a more suitable substrate for the recolonization or revegetation of native plant materials. Road and trail surfaces will be recontoured and sloped away from wetlands and water bodies to prevent the potential for erosion into these features. Any shoulders, ditches, or embankments will also be removed, and the area graded to a natural contour.

Invasive Plant Species

Decommissioned road and trail areas will be monitored for the presence of invasive plant species for two years following decommissioning to ensure no infestations develop. If invasive species are detected during this time, appropriate corrective actions will be taken. See table 6.3 for practices specific to managing invasive plants.

Table 6.1 General Best Management Practices

BMP ID	DESCRIPTION
General-1 Limit Work Area Footprints in Sensitive Resource Areas	Limit the size of construction-related road and trail management activities to the minimum size needed to meet project objectives. BMPs include: <ul style="list-style-type: none"> • Minimize project footprint. Minimize the size of the work area, including the project area, access roads, and staging areas. Wherever possible, use existing upland roads, trails, and other disturbed areas for project activities in order to reduce unnecessary disturbance, minimize soil and water erosion, and reduce overall project costs. • Reduce or relocate footprint during planning and design phase. Reduce the work area footprint in sensitive resource areas or move the work area to common natural communities and upland areas. Implement further refinements during site preparation and construction to further reduce impacts. • Minimize soil disturbance. Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants. • Mark project footprint near sensitive natural resources. Mark ingress/egress routes, staging areas, and sensitive resources to prevent inadvertent impacts to sensitive resources. • Restrict soil disturbance and import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. In particular, access roads, staging areas, and areas of temporary disturbance will be minimized in size. The contractor and its staff and subconsultants agree not to drive off-road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor agrees that if soil excavation is required, every attempt will be made to have a balanced cut and fill project that reuses all native soils onsite. No nonnative soil or fill material will be brought onsite, or used during the contractor's activities unless approved by the MCOSD natural resource staff.
General-2 Modify Construction-Related Vegetation Management Methods in and near Wetlands, Riparian Vegetation	Restrict construction-related vegetation management near wetlands in a manner that reduces the potential for sediment or pollutants to enter wetlands. Implement the following BMPs, as needed: <ul style="list-style-type: none"> • Establish a buffer of 100 feet from wetland and tidally influenced areas (i.e., from the ordinary high water mark of flowing or standing water in creeks, streams, or ponds). Avoid construction work within this buffer area. • If construction work in wetlands and riparian areas cannot be fully avoided, consult with the appropriate state and federal agencies to obtain permits. • Within the buffer, restrict routine vegetation management activities in creeks, streams, other waterways, and tidally influenced areas. Limit vegetation management work to least-harmful methods; restrict herbicides to those that are EPA-approved for use near water. Prohibit activities that disturb soil or could cause soil erosion or changes in water quality. • Within the buffer, limit work that may cause erosion to the low flow or low tide periods. Low flow months for local creeks are typically August to October. For tidal areas, work will not occur within 2 hours of high tide events at construction sites when high tide is greater than 6.5 feet measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).

Table 6.1 General Best Management Practices

BMP ID	DESCRIPTION
	<ul style="list-style-type: none"> • Within the buffer, minimize erosion and sedimentation; maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include weed-free straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. • Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality for work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings.
General-3 Minimize Potential for Erosion	Conduct road and trail activities in a manner that controls and minimizes the potential for soil erosion and contribution of sediment to wetlands. Implement the following as needed: <ul style="list-style-type: none"> • To minimize erosion and sedimentation, maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. • Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit and mark the allowable disturbance footprint with flagging or fencing. Following the end of work, scarify surface soils to retard runoff and promote rapid revegetation. • Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
General-4 Control Food-Related Trash	Food-related trash can attract wildlife to road and trail project sites. Store food-related trash in closed containers and remove from the project site daily
General-5 Modify Construction Methods Relating to Soil Disturbance, Restrict use of Offsite Soil, Aggregate, or Other Construction Materials	Conduct construction-related vegetation management in a manner that restricts the use of offsite materials that could introduce or spread invasive plants. Implement the following as needed: <ul style="list-style-type: none"> • Minimize soil disturbance. Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants. • Do not allow the introduction of incompatible fill. Use only clean, native soils and aggregate materials from projects within the preserve, or use fill that is purchased from a certified weed-free source, before allowing the importation of materials from outside the preserves. Fill materials should be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals. • Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. Treat, as appropriate, to prevent the spread of invasive plants. Treatment may include disposal onsite within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green waste facility. • Salvage, store, and reuse topsoil. Where activities disturb soil temporarily, require salvage of the top 6 to 12 inches of topsoil (to retain seeds, soil mycorrhizae, and fungi) from all excavation and disturbance areas. Require reapplication of the salvaged topsoil as a topdressing or topcoat over backfill, unless known to contain invasive plant seeds or propagules. • Establish dedicated areas for cleaning vehicles, inside and out, of soil or invasive plant seeds or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving preserves. Within the wash areas, the tires and body of vehicles and equipment will be brushed off and/or hosed down. • Inspect construction equipment for soil or invasive seeds or plant parts. Require contractors to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving preserves. • Develop a native seed mix for erosion control. Develop the seed mixture on a project-by-project basis based on the observed mixture of native and naturalized plants in and near the impact area. Where possible, ensure that seeds are collected locally (i.e., within the same watershed or preserve as the impact), or obtained from a reputable native plant nursery specializing in seed that is collected from local sources. • Maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized to help minimize erosion and sedimentation. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified as weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and not of plastic monofilaments or other materials that could entrap snakes or amphibians.

Table 6.1 General Best Management Practices

BMP ID	DESCRIPTION
<p>General-6</p> <p>Prevent or Reduce Potential for Pollution</p>	<ul style="list-style-type: none"> • Immediately rehabilitate areas where road and trail project activities have disturbed soil. Areas disturbed by equipment or vehicles should be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants. <p>Ensure that actions are taken during ongoing road and trail project activities to prevent or reduce the potential for pollutants entering the MCOSD preserve. Implement the following as needed:</p> <ul style="list-style-type: none"> • Prohibit, or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Require placement of fuel storage and refueling sites in safe areas well away from wetlands. Safe areas include paved or cleared roadbeds, within contained areas such as lined truck beds, or other appropriate fuel containment sites. Inspect equipment and vehicles for hydraulic and oil leaks regularly. Do not allow leaking vehicles on the MCOSD preserves, and require the use of drip pans below equipment stored onsite. Require that vehicles and construction equipment are in good working condition, and that all necessary onsite servicing of equipment be conducted away from the wetlands. • Require all contractors to possess, and all vehicles to carry, emergency spill containment materials. Absorbent materials should be on hand at all times to absorb any minor leaks and spills.
<p>General-7</p> <p>Include Standard Procedures in Construction Contracts</p>	<p>When using contractors to perform vegetation management, related to road and trail project activities, the MCOSD will include some or all of the following standard procedures in those contracts.</p> <p>The contractor will work with the MCOSD natural resource staff to determine the optimal timing of contracted work. Many timing restrictions relate to protecting special-status species. Other types of timing restrictions include timing to control invasive plants; timing to avoid migration, gestation, or flowering periods for special-status species; or timing work in wetlands to the dry season.</p> <ul style="list-style-type: none"> • Establish a buffer of 100 feet from wetland and tidally influenced areas (i.e., from the ordinary high water mark of flowing or standing water in creeks, streams, or ponds). Avoid construction work within this buffer area. <ul style="list-style-type: none"> » Within the buffer, limit work that may cause erosion to low flow periods. Low flow months for local creeks are typically August to October. For tidal areas, work will not occur within 2 hours of high tide events at construction sites when high tide is greater than 6.5 feet measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php). » If construction work cannot be fully avoided in wetlands and riparian areas, consult with the appropriate state and federal agencies to obtain permits. » Require the contractor to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality for road and trail project work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings. <p>The contractor will work with the MCOSD natural resource staff to identify any priority invasive plants that occur near the project work area, including the project footprint, access roads, staging areas, and similar work areas. The contractor agrees to comply with requirements to reduce the spread or transport of priority invasive plants related to construction activities. Requirements may include some or all of the following:</p> <ul style="list-style-type: none"> » Conduct a training program for all field personnel involved with the proposed road and trail project prior to initiating project. The program will consist of a brief presentation by person’s knowledgeable in the special-status species, sensitive resource, or invasive plants known from the project area. The program will include the following: a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impacts; and the workers’ responsibility under the applicable environmental regulation. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). » Restrict work to periods when invasive plants are not in fruit or flower. » Establish dedicated area for cleaning vehicles, inside and out, of soil or invasive plant seeds or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving preserves. Within the wash areas, the tires and body of equipment will be brushed off or hosed down. » Inspect construction equipment for soil or invasive seeds or plant parts. Require contractors to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving preserves. » Dispose of green waste in a manner that does not spread invasive plants. Methods include onsite disposal in an already infested area; offsite disposal to a cogeneration plant or an approved green waste composting facility).

Table 6.1 General Best Management Practices

BMP ID	DESCRIPTION
	<p>Protect environmentally sensitive areas. The MCOSD natural resource staff will identify any Environmentally Sensitive Areas in or near the road and trail project area prior to the start of work. Environmentally Sensitive Areas may include: special-status plant or wildlife species or their habitats (e.g., woodrat nests, habitat for special-status plant and wildlife species, individuals or populations of listed special-status plant or wildlife species or locally rare species); wetlands including creeks streams and related riparian area; and sensitive vegetation types as described in this report. The MCOSD staff and contractors will fully avoid and protect such areas during habitat restoration work, or will help obtain and comply with necessary permits and regulatory requirements.</p> <ul style="list-style-type: none"> » Use locally collected plant materials for revegetation projects. Plant materials will be collected onsite at the MCOSD preserves or within the same watershed as the revegetation project. The contractor will work with the MCOSD to identify native plant nurseries that can collect and propagate seed and other plant materials from the local area. No use of commercial grassland mixtures for erosion control unless approved in advance by the MCOSD. The contractor will allow the MCOSD to inspect and approve all plant materials and seed prior to use onsite. » Protect special-status species habitat. For vegetation work in or near special-status species habitat, the contractor is required to comply with requirements of the MCOSD project permits to protect special-status species and their associated habitats before and during construction, and to cooperate with the MCOSD in implementing any state and federal permits and agreements for the project. The special-status species population plus a buffer should be designated as an "Environmentally Sensitive Area" using lath and flagging, pin flags, or temporary fencing (depending on resource sensitivity to work). The contractor will be required to avoid all designated Environmentally Sensitive Areas during construction. For any special-status species or their habitats that cannot be fully avoided, the contractor will work with the MCOSD to obtain and comply with federal and state Endangered Species Acts, the federal Migratory Bird Treaty Act, and the state Fish and Game Code permits and agreements. » Restrict soil disturbance, import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. In particular, minimize the footprint of access roads, staging areas, and areas of temporary disturbance. The contractor and its staff and subconsultants agree not to drive off-road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor agrees that if soil excavation is required, every attempt will be made to have a balanced cut and fill project that reuses all native soils onsite. Unless pre-approved by the MCOSD natural resource staff, there will be no use of nonnative soil or fill material during the contractor's activities. » To minimize erosion and sedimentation, maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials will be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials will be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. <p>Other procedures:</p> <ul style="list-style-type: none"> • All entry gates to the project site not used for construction access will be locked at all times and gates used for construction access will be locked during non-construction hours. • All vehicles will carry a suitable fire extinguisher. • Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants. • Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit and mark the allowable disturbance footprint with flagging or fencing. Following the end of work, scarify surface soils to retard runoff and promote rapid revegetation.
<p>General-8 Control Noise</p>	<p>To reduce daytime noise and potential disturbance to wildlife species, the MCOSD will require contractors to muffle or control noise from equipment through implementation of the following measures:</p> <ul style="list-style-type: none"> • Equipment and vehicles should utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds, and installation of sound blanket around the project site.

Table 6.1 General Best Management Practices

BMP ID	DESCRIPTION
General-9 Conduct Worker Training	<p>The MCOSD will conduct a worker-training program for all field personnel involved with the proposed road and trail management project prior to initiating the project. The program will consist of a brief presentation by persons knowledgeable in the special-status species, sensitive resource, or invasive plants known from the project area. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). The program will include a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; and a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impacts; and the workers' responsibility under the applicable environmental regulation(s).</p>
General-10 Road and Trail Inspections	<ul style="list-style-type: none"> • Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding sensitive and/or special-status natural resources. Staff will record information pertaining to the status of biophysical resources that could be affected by road or trail use, maintenance, or management activities. These inspections will monitor for the spread of invasive, exotic plants that could affect sensitive and/or special-status native plant or wildlife habitats and any other changes that could create negative impacts to known sensitive and/or special-status native plant or wildlife populations in the immediate vicinity. Staff will report any findings and make recommended corrective actions if appropriate.
General-11 Management of Sudden Oak Death	<p>To reduce and control the spread of Sudden Oak Death (SOD) within the MCOSD system, the following practices will be implemented.</p> <p>The MCOSD staff will educate visitors about preventing the spread of Sudden Oak Death (SOD).</p> <ul style="list-style-type: none"> • The MCOSD may use interpretive signs, brochures, ranger talks, and other online and print materials that explain the importance of preventing the spread of pathogens and use of preventative measures. • The education materials should explain that SOD occurs within the preserve; identify typical symptoms; explain that SOD can be spread by park users, especially during rainy and windy weather; and request that park visitors: <ul style="list-style-type: none"> » Use designated parking areas » Avoid transporting SOD on shoes, bicycles, and the feet of pet dogs and horses through the use of cleaners and disinfectants. <p>The MCOSD staff shall be trained about SOD host species and disease transmission pathways and, when undertaking road and trail construction and maintenance activities in areas of the preserves affected by SOD, shall implement the following measures.</p> <ul style="list-style-type: none"> • Clean equipment, boots, truck tires, and any other exposed material after working in forest and woodland habitats, with a 10% bleach solution or other disinfectant • Avoid pruning oaks or other affected trees in wet weather. • Avoid work in forest and woodlands during the wet season when spores are being produced and infections are starting. • Leave potentially infected downed trees on site instead of transporting the material to an uninfected area. • Remove potentially infected downed trees from the property only if it is the first infected tree to be detected in the area or if there is a high fire risk. • Dispose of infected materials at an approved and permitted dump facility within the 14-county infected quarantine zone. • If necessary to reduce safety or fire hazards or to address aesthetic or recreational impacts, cut, branch, chip, and/or split infected trees in areas where the material would be less likely to be transported to an uninfected location. • Purchasing nursery stock for restoration plantings at nurseries that follows current BMPs for preventing the spread of SOD (consult the California Oak Mortality Task Force, www.suddenoakdeath.org, for current standards). • Inspect all plant materials for symptoms of SOD before bringing any plants onto the property.

The Best Management Practices listed in table 6.2 below apply to all activities related to road and trail projects to be conducted near known or suspected locations of high-value natural resources, including special-status wildlife and plants and sensitive vegetation types. Implementation of these best management practices will reduce the potential for adverse effects on these resources during road and trail project activities, and ongoing road and trail maintenance activities. Each BMP is written to stand on its own. As a result, there is some unavoidable overlap and repetition between the BMPs.

Table 6.2 Sensitive Natural Resources Best Management Practices

BMP	Description
Sensitive Natural Resources-1 Modify Management Practices near Sensitive Natural Resources	<p>For construction related activities requiring extensive ground disturbance in and near known sensitive biological resources, the MCOSD will assess the project or proposed action prior to the start of work to suggest modifications to standard procedures considered necessary to help ensure avoidance of impacts to special-status species and other sensitive biological resources. Actions that may be taken include one or more of the following:</p> <ul style="list-style-type: none"> • Mark project footprint near sensitive natural resources. Mark ingress/egress routes, staging areas, and sensitive resources to prevent inadvertent impacts to sensitive resources. • Inspect ingress/egress routes, escort vehicles, and equipment onto the site if necessary to help prevent impacts on ground nesting and ground dwelling species. Work should be conducted during bird non-breeding season (published California Department of Fish and Wildlife non-breeding season dates are August 15-March 1, but should be adjusted to local conditions). • Maintain a 15 MPH speed limit in sensitive habitat areas. This will reduce the potential for mortality, dust impacts on vegetation and wildlife. For larger projects, water the roads for dust control near sensitive resources.

Table 6.3 Special-Status Wildlife Best Management Practices

BMP ID	Description
Special-Status Wildlife-1 Literature Reviews	<p>Prior to all road and trail management activities, literature reviews will be conducted to determine if special-status wildlife-species or critical habitats exist within the project area.</p> <p>The first source reviewed will be the MCOSD's database of special-status wildlife occurrences and sensitive habitats. This database is actively updated and maintained by the MCOSD natural resource staff and contains the most relevant data on sensitive resources on MCOSD land.</p> <p>In addition to the MCOSD database, the following resources will be reviewed, as necessary, prior to work:</p> <ul style="list-style-type: none"> • U.S. Geological Survey topographic maps • Aerial photographs • California Department of Fish and Wildlife Natural Diversity Database records • U.S. Fish and Wildlife Service quadrangle species lists • University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California • National Marine Fisheries Service Distribution Maps for California Salmonid Species <p>Database searches for known occurrences of special-status wildlife species will focus on the vicinity of the project area. Biological communities will be classified as sensitive or nonsensitive as defined by the California Environmental Quality Act and other applicable laws and regulations</p>
Special-Status Wildlife-2 Preconstruction Surveys	<p>If it is determined that special-status wildlife species may occur in a project area, a qualified biologist will survey the area during the appropriate time window to determine the presence or absence of the species. If the species is located, the MCOSD should conduct the activity to avoid impacts to the species. If avoidance is not possible, the appropriate resource agencies will be contacted to obtain guidance or the necessary permits.</p>
Special-Status Wildlife-3 Seasonal Restrictions During Bird Nesting Season	<p>The MCOSD will implement the following seasonal restrictions to protect nesting birds. If work will occur outside the nesting bird window of February 1 to August 31, surveys and avoidance measures will not be necessary for nesting birds. However, surveys for special-status species may still be necessary if they are present in the area.</p> <ul style="list-style-type: none"> • Identify potential habitat for nesting birds and survey to determine if active nests are present before initiating road and trail management actions. Surveys will include the proposed road and trail management footprint, and a ¼ mile buffer area (for raptors) or a 150 foot buffer area (for other birds). Surveys will be conducted within 14 days of the start of active ground-disturbing activities.

Table 6.3 Special-Status Wildlife Best Management Practices

BMP ID	Description
	<ul style="list-style-type: none"> • If any active nests of protected bird species are found, prohibit brushing, mowing and tree removal activities at the nest site and within a buffer area until the young birds have fledged and left the site, and/or the nest has been abandoned. The buffer area will be 50-250 feet, or as determined through consultation with the California Department of Fish and Wildlife, pursuant to section 2081 of the California Fish and Game Code and the federal Migratory Bird Treaty Act. In general, a line-of-site buffer of at least 150 feet between the nest site and road and trail management activities is recommended. For raptors, buffer distances may be increased to 250 feet or more, depending on the visual distance from the nest to the road and trail management work area, and the sensitivity of the raptor species to road and trail management activities. In addition, a 5 MPH speed limit will be enforced in and near bird nesting habitats and other sensitive habitat areas. • If impacts to nesting birds cannot be avoided, contact the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities.
<p>Special-Status Wildlife-4</p> <p>Avoidance and Protection of Northern Spotted Owl</p>	<p>Northern spotted owls have potential to occur on the MCOSD preserves. The MCOSD will undertake the following actions when construction-related road and trail management actions are planned to occur within or adjacent to potential northern spotted owl habitat:</p> <ul style="list-style-type: none"> • Identify potential habitat for the northern spotted owl and survey to determine if it is occupied or if active nests are present before initiating road and trail management activities. Surveys will include the proposed road and trail management footprint and a 150 foot buffer area. Surveys will be conducted within 14 days of the start of active ground-disturbing activities. • To the greatest extent possible, avoid occupied habitat completely during key northern spotted owl breeding and nesting season (March-September). • Mark occupied habitat with flagging or temporary fencing. • Avoid removal of trees with documented northern spotted owl nests. Removal of nest trees typically requires compensatory mitigation. • Establish a buffer of at least 100 feet around occupied habitats. Within the buffer area, select least harmful road and trail management activities. Within the buffer area, retain old-growth forest trees and forest canopy, and minimize removal of other vegetation to the fullest extent possible. • Avoid cutting native trees greater than 10 inches in diameter at breast height within occupied northern spotted owl habitat. • Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by persons knowledgeable about the northern spotted owl. The program will include the following: a photograph and description of the northern spotted owl, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). • If impacts cannot be avoided, contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities. • Notify the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within 24 hours of finding any injured northern spotted owl or any unanticipated damage to its habitat associated with the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead animals will be sealed in a plastic zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the U.S. Fish and Wildlife Service within seven days to transfer any dead or injured specimens.
<p>Special-Status Wildlife-5</p> <p>Avoidance and Protection of Double-Crested Cormorant Nests and Heron and Egret Rookery Sites</p>	<p>There are several known or suspected double-crested cormorant, great blue heron, snowy egret, and black-crowned night heron rookery or nesting sites existing on the MCOSD preserves. These procedures are similar to those described in Special-Status Wildlife Protection-3 for seasonal restrictions during bird nesting season, but are more specific to these particular bird species and therefore supersede the more general practices for protecting all nesting birds. The MCOSD will undertake the following procedures when construction-related road and trail management is planned to occur within or adjacent to potential nesting or rookery sites for these species:</p> <ul style="list-style-type: none"> • Identify potential habitat for double-crested cormorant, heron, and egret nest and rookery sites and survey to determine if they are occupied or if nests are present before initiating road and trail management actions. Surveys will include the proposed road and trail management footprint and a 150-foot buffer area. Surveys will be conducted within 14 days of the start of active ground-disturbing activities. • To the greatest extent possible, avoid nests and rookery sites completely during key breeding and nesting periods. Activities in or near known sites will be limited during the known nesting seasons for each species, or until young have fully fledged. • Establish a buffer of at least 100 feet around rookery and nest sites. Within the buffer area, select least harmful road and trail management activities. Restrict activities within the buffer to those that will not disturb roosting or nesting behavior (e.g., noise and visual disturbances). • Mark occupied habitat with flagging or temporary fencing. • Prohibit the removal of known roost or nest trees. Restrict the removal of other mature riparian trees within the buffer zone.

Table 6.3 Special-Status Wildlife Best Management Practices

BMP ID	Description
	<ul style="list-style-type: none"> • Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by persons knowledgeable about the special-status species. The program will include the following: a photograph and description of the special-status species, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). • If impacts cannot be avoided during the nesting season (March 1 – August 31), contact the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities. • Notify the California Department of Fish and Wildlife within 24 hours of finding any injured special-status species or any unanticipated damage to its habitat associated with the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead animals will be sealed in a plastic zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the California Department of Fish and Wildlife within seven days to transfer any dead or injured specimens. • Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from the wetlands. • Require all contractors to possess, and all vehicles to carry, emergency spill containment materials. Absorbent materials will be on hand at all times to absorb any minor leaks and spills.
<p>Special-Status Wildlife-6</p> <p>Avoidance and Protection of California Clapper Rail, California Black Rail, and Salt Marsh Harvest Mouse</p>	<p>The MCOSD preserves encompass some tidal areas that are known to support, or have the potential to support, California clapper rail, California black rail and salt-marsh harvest mouse. In areas where road and trail management activities are planned to occur within or adjacent to salt marsh or brackish marsh habitats, the MCOSD will first consult with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to determine locations where these species could potentially be affected. The MCOSD will obtain and comply with necessary permits for working in suitable habitat for these species, including, but not limited to the following types of protective actions to prevent harm to these species:</p> <ul style="list-style-type: none"> • To the greatest extent possible, avoid occupied California clapper rail and California black rail habitat completely during key breeding and nesting periods. Noise-generating activities, including operating heavy machinery in or near known California clapper or California black rail sites, will be avoided during the nesting season (March 1 – August 31). • During the California clapper rail and California black rail breeding season, identify potential habitat for California clapper rail and California black rail, and survey to determine if it is occupied before initiating road and trail management activities. Survey will include the proposed road and trail management footprint and a 150-foot buffer area around occupied habitat. Surveys will be conducted within 14 days of the start of active ground- disturbing activities. Occupied habitat will be marked with flagging or temporary fencing. • Assume presence of salt marsh harvest mouse in appropriate habitats, avoid impacting these areas, and establish a protective buffer. Because the U.S. Fish and Wildlife Service frequently does not allow trapping of the salt marsh harvest mouse to determine its presence, the MCOSD will assume presence in appropriate habitats and avoid disturbing them. If appropriate habitats are present, a 200-foot buffer will be established around the habitat. If work is required within the buffer, activities will be restricted within the buffer to those that will not disturb nesting behavior (e.g., through noise or visual disturbances), and vegetation will be removed by hand under the supervision of a qualified biologist to ensure no impacts to the salt marsh harvest mouse occur.
<p>Special-Status Wildlife-7</p> <p>Protection of Fish Habitats</p>	<p>If crossing a stream with the potential to support fish is part of a road or trail project, proper fish passage will be designed:</p> <ul style="list-style-type: none"> • Preference will be for a bridge instead of a culvert, and an open-arch culvert instead of a pipe culvert. A bridge that will not affect streamflow will be the preferred option. If a culvert is necessary, an open-arch design that does not affect the bed or flow of the stream will be preferred. If an open arch culvert is not possible, pipe culverts will be installed slightly below grade in an area perpendicular to the crossing where the existing streamflow is linear. Resting pools will be designed above and below culverts to allow fish to rest before and after having to pass through the culvert.
<p>Special-Status Wildlife-8</p> <p>Worker Awareness Training</p>	<ul style="list-style-type: none"> • Conduct worker awareness training. Worker training will include the following information: a photograph and description of each special-status species, sensitive, resource, or invasive plant known from the project area; a description of its ecology and habitat needs; potentially confusing resources (e.g., similar species or habitats); an explanation of the measures being taken to avoid or reduce adverse impacts; reporting and necessary actions if sensitive resources are encountered; and workers' responsibility under the applicable environmental regulation.

Table 6.3 Special-Status Wildlife Best Management Practices

BMP ID	Description
Special-Status Wildlife-9 Construction Monitoring	If federal- or state-listed wildlife species are known to be present in the project area or immediate surroundings, a qualified biologist will monitor construction activities to ensure impacts to species will be avoided. If listed wildlife species are present within the immediate vicinity of the project area, a more involved monitoring program might be necessary to ensure that these species do not enter the project area. If a listed species is observed by a worker or construction monitor, work will cease immediately and the appropriate resource regulatory agency will be contacted if necessary. A construction monitoring program will be developed for each project on a project-specific basis.
Special-Status Wildlife-10 Relocation of Special-Status Species	If federal- or state-listed wildlife species are located on site, the appropriate resource agency will be contacted, and a qualified biologist possessing any necessary permits will relocate individuals to suitable habitat off site as applicable.
Special-Status Wildlife-11 Noise Control	<ul style="list-style-type: none"> • Utilize the best available noise-control techniques when in proximity to occupied sensitive wildlife habitat. The best available noise-control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will minimize disturbance of nearby wildlife populations
Special-Status Wildlife Protection-12 Trash Control	<ul style="list-style-type: none"> • Store food-related trash in closed containers and remove it from the project site daily. Food-related trash can attract wildlife to construction sites, disrupting their normal behavior patterns.
Special-Status Wildlife-13 Road and Trail Inspections	<ul style="list-style-type: none"> • Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding special-status wildlife species. Staff will record information pertaining to the spread of invasive exotic plants that could affect wildlife habitats and to the status and quality of any known special-status wildlife species in the immediate vicinity that could be affected by road or trail use, maintenance, or management activities. Staff will report any findings to MCOSD natural resource staff and make recommended corrective actions if appropriate.

Table 6.4 Special-Status Plants Best Management Practices

BMP ID	Description
Special-Status Plants-1 Literature Reviews	<p>Prior to all management activities, literature reviews will be conducted to determine if special-status plant species, critical habitats, or sensitive communities exist within the project area. In addition to the MCOSD database, the following resources will be reviewed, as necessary, prior to work:</p> <ul style="list-style-type: none"> • U.S. Geological Survey topographic maps • U.S. Fish and Wildlife Service National Wetlands Inventory maps • Bay Area Aquatic Resource Inventory Database • Aerial photographs • California Department of Fish and Wildlife Natural Diversity Database records • U.S. Fish and Wildlife Service quadrangle species lists • California Native Plant Society inventory records <p>Database searches for known occurrences of special-status plant species will focus on the vicinity of the project area. Biological communities present in the project location and surrounding areas will be classified based on existing plant community descriptions described in the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). Biological communities will be classified as sensitive or nonsensitive as defined by the California Environmental Quality Act and other applicable laws and regulations.</p>
Special-Status Plants-2 Avoidance and Protection of Special-Status Plant Species near Road and Trail Management Projects	<p>The MCOSD will undertake the following actions when construction-related road and trail management is planned to occur within or adjacent to special-status plant populations:</p> <ul style="list-style-type: none"> • Identify potential special-status plant habitat and survey to determine if it is occupied before initiating road and trail management activities. Surveys will include the proposed road and trail management footprint and a 100-foot buffer area around the footprint if potential special-status plant habitat exists. Surveys will be conducted within 14 days of the start of active ground-disturbing activities. • To the greatest extent possible, avoid occupied special-status plant populations completely. • If full avoidance is not possible, restrict work to the period when special-status plants have flowered or set seed. • Establish a buffer of at least 100 feet around special-status plant populations. Within the buffer area, select the least harmful road and trail management activities. • Mark special-status plant populations with flagging or temporary fencing. • Prevent unnecessary vehicular and human intrusion into special-status plant species habitat from adjacent construction, maintenance, and decommissioning activities. Where necessary, reroute or sign and fence trails to avoid the special-status plant population.

Table 6.4 Special-Status Plants Best Management Practices

BMP ID	Description
	<ul style="list-style-type: none"> • Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near special-status plant populations. Activities will be restricted within the buffer to those that will not disturb roosting or nesting behavior (e.g., through noise or visual disturbances). Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from special-status plant populations. • To minimize downslope erosion and sedimentation near special-status plants, maintain erosion- and sediment-control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. • Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by people knowledgeable about the special-status species. The program will include the following: a photograph and description of the special-status species, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). • If impacts cannot be avoided, contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities. Permit conditions will likely require presence of a biological monitor, installation of exclusion fencing, surveys to relocate or avoid the species, and/or possibly timed or staged road and trail management activities that avoid the species or reduce potential for take or harm. • If a special-status plant species is detected during work activities, stop work immediately at that location and contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within two working days. Work will not resume at that location until authorization is obtained from the appropriate agency (unless prior approval has already been granted). • Notify the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within 24 hours of finding any damaged special-status plant species or any unanticipated damage to plant habitats associated with the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead plants should be sealed in a zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service within two days and transmit the specimen in the appropriate manner. <p>If work occurs during the dry season and is greater than 100 feet from special-status plant species habitat, erosion control and water quality protection measures generally will not be necessary.</p>
Special-Status Plants-3 Ensure Proposed Actions are Consistent with Ongoing Special-Status Plant Management Programs	Some MCOSD preserves (e.g., Ring Mountain and Old Saint Hilary's) have ongoing special-status plant management and monitoring programs. In these locations the MCOSD will ensure that all new proposed road and trail management activities are consistent with the ongoing management of these sites: <ul style="list-style-type: none"> • Review existing management plans and analyze proposed actions for consistency against adopted procedures. • Ensure that new road and trail management projects do not interfere with ongoing management and maintenance activities.
Special-Status Plants-4 Earthwork near Special-Status Plant Populations	Many special-status plants are closely associated with specific soil types or geologic conditions (e.g., serpentine or ultramafic soils). To protect these species, the MCOSD will implement the following practices: <ul style="list-style-type: none"> • Use native soil in all MCOSD road and trail management projects in natural habitat areas. • Do not allow the introduction of incompatible fill near special-status plant populations. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed-free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals. • Salvage, store, and reuse topsoil. Where activities disturb soil temporarily, the top 6 to 12 inches of topsoil will be salvaged to retain seeds, soil mycorrhizae, and fungi from the excavated or otherwise disturbed area. The salvaged topsoil will be reapplied as a topdressing or topcoat over backfill, unless it is known to contain invasive plant seeds or propagules.

Table 6.4 Special-Status Plants Best Management Practices

BMP ID	Description
Special-Status Plants-5 Erosion Potential near Special-Status Plants	<p>The MCOSD will seek to prevent erosion near special-status plants. To protect these species, the MCOSD will:</p> <ul style="list-style-type: none"> • Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, the allowable disturbance footprint will be limited and marked with flagging or fencing. Following the end of work, surface soils will be scarified to retard runoff and promote rapid revegetation. • Maintain a 15 MPH speed limit in sensitive habitat areas. This will reduce the potential for dust impacts on vegetation. For larger projects, roads will be watered for dust control near sensitive resources. • Immediately rehabilitate areas where project actions have disturbed soil. Areas disturbed by equipment or vehicles will be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants. • To minimize erosion and sedimentation, maintain erosion- and sediment-control devices to protect special-status plant populations during ground- disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds, must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.), and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. If work occurs during the dry season and is more than 100 feet from special- status plant populations, erosion-control and water quality protection measures will not be necessary.
Special-Status Plants-6 Introduction of Invasive and Nonnative Plants and Plant Material	<p>The MCOSD will prevent the introduction of invasive and other nonnative plant material into special-status plant habitats by implementing the following practices:</p> <ul style="list-style-type: none"> • To the extent feasible, use plant seeds, cuttings, and other propagules that are collected from the same area as the project site (usually the same watershed or preserve). Allow collection of no more than 5% of any native plant population to prevent over collecting of wild plant material sources. • To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Only weed-free materials will be used as erosion- and sediment control devices. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and not of plastic monofilaments or other materials that could entrap snakes or amphibians. • Do not allow the introduction of incompatible fill near special-status plant populations. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed-free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals. • Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. To prevent the spread of invasive plants, treatment of contaminated soils may include disposal on site within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green-waste facility. • Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and interior and exterior of vehicles and equipment will be brushed off or hosed down. • Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.
Special-Status Plants-7 Revegetation with Native, Geographically Appropriate Plant Species	<p>The MCOSD will revegetate areas where construction and ground disturbance has occurred, to promote a species composition and vegetative structure that integrates with the surrounding natural community, to the maximum extent possible. This will be accomplished by implementing the following:</p> <ul style="list-style-type: none"> • Revegetate with annual grasses and forbs. Use of annual grasses and forbs can provide rapid vegetative cover and initial soil stabilization, and erosion control, promote habitat for native species, and provide a more desirable visual cover. • Prepare a project-specific revegetation plan. The MCOSD natural resource staff will develop a revegetation plan for projects as needed. • Wherever possible use locally collected native plant materials from the project footprint and surrounding areas. If possible, plant materials should be collected from within the same watershed or preserve. The MCOSD will allow collection of no more than 5% of any native plant population to prevent overcollection of wild plant material sources. If sufficient local plant materials are not available for collection prior to project activities, geographically appropriate native plant materials will be purchased from a local nursery or seed supplier.

Table 6.4 Special-Status Plants Best Management Practices

BMP ID	Description
Special-Status Plants-8 Worker Awareness Training	The MCOSD will conduct a worker awareness training for all field personnel involved with proposed road and trail management activities prior to initiating the project. The program will include the following: <ul style="list-style-type: none"> • a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area • a description of its ecology and habitat needs • potentially confusing resources (e.g., similar species or habitats) • an explanation of the measures being taken to avoid or reduce adverse impacts • reporting and necessary actions if sensitive resources are encountered • workers' responsibility under the applicable environmental regulation
Special-Status Plants-9 Relocation of Special-Status Plants	If special-status species are located in the project area and impacts to these species are unavoidable, plants and/or propagules will be relocated to suitable habitat off site prior to the commencement of construction or management activities. Alternatively, off-site mitigation for impacts could be considered. If special-status wildlife species are located on site, the appropriate resource agency will be contacted, and a qualified biologist possessing any necessary permits will relocate individuals to suitable habitat off site as applicable.
Special-Status Plants-10 Road and Trail Inspections	<ul style="list-style-type: none"> • Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding special-status plant resources. Staff will record information pertaining to the spread of invasive, exotic plants that could affect special-status plant habitats and to the status and quality of any known special-status plant populations in the immediate vicinity that could be affected by road or trail use, maintenance, or management activities. Staff will report any findings and make recommended corrective actions if appropriate.
Special-Status Plants-11 Reuse and Replanting of Native Trees and Shrubs	<ul style="list-style-type: none"> • Where feasible, replant excavated trees and shrubs, removed from unstable fill slopes and cut banks, on graded contours to restore the areas with native vegetation and promote native plant habitat. These plants will represent the most locally appropriate materials for restoration and conform to the vegetation types of the surroundings.
Special-Status Plants-12 Ripping and Recontouring Roads	<ul style="list-style-type: none"> • Rip and decompact road and trail surfaces where appropriate. Ripping surfaces provides a more suitable substrate for recolonization or revegetation by native plant materials. Decommissioned road and trail surfaces will be recontoured and sloped away from wetlands and water bodies to prevent the potential for erosion into these features. Any shoulders, ditches, or embankments will also be removed, and the area graded to a natural contour.

Table 6.5 Invasive Plants Best Management Practices

BMP ID	Description
Invasive Plants-1 Compliance with Integrated Pest Management Ordinance	All herbicide use will be administered under Marin County's Integrated Pest Management (IPM) Ordinance, and work will only be conducted under the supervision of a certified pest control applicator. All herbicide use for vegetation management actions will be posted and reported consistent with the ordinance.
Invasive Plants-2 Herbicide Use near Sensitive Natural Resources	<ul style="list-style-type: none"> • Limit herbicide use within 100 feet of sensitive natural resources. Hand control, mechanical control, and cultural control will be used wherever possible to minimize the use of herbicides near sensitive resources.
Invasive Plants-3 Survey and Control of Invasive Plants in Project Footprint	<ul style="list-style-type: none"> • Before ground-disturbing activities begin, inventory and prioritize invasive plant infestations for treatment within the project footprint and along access routes. Controlling priority invasive plant infestations at least a year prior to the planned disturbance, if feasible, will minimize invasive plant seeds in the soil. • Where feasible, survey the road shoulders of access routes for invasive plant species and remove priority invasive plants that could be disturbed by passing vehicles. • Avoid establishing staging areas in areas dominated by invasive plants. If populations of priority invasive plants occur within or near staging areas, their perimeters will be flagged so that vehicle and foot traffic can avoid them. • Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and the insides and outsides of vehicles and equipment will be brushed off or hosed down. • Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.
Invasive Plants-4 Limited Soil Disturbance	Soil disturbance during road and trail projects will be minimized to reduce the potential for introduction or spread of invasive plant species, to protect topsoil resources and to reduce available habitat for new invasive plant species: <ul style="list-style-type: none"> • Plan all road and trail management activities to disturb as little area as possible.
Invasive Plants-5 Cleaning of Heavy Equipment, Maintenance Tools, and Fire Management Vehicles	The MCOSD will implement the following procedures when working in or near infested areas: <ul style="list-style-type: none"> • Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and the insides and outsides of vehicles and equipment will be brushed off or hosed down. • Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.
Invasive Plants-6 Reducing Potential for Establishment of Invasive Plants on Disturbed Soil Surfaces	To minimize the establishment of invasive species in disturbed soil areas, the MCOSD will implement one or more of the following actions: <ul style="list-style-type: none"> • To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. • Do not allow the introduction of incompatible fill. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed-free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals. • Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. To prevent the spread of invasive plants, treatment of contaminated soils may include disposal on site within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green-waste facility.
Invasive Plant Management-7 Monitor and Control of Invasive Plants in Road and Trail Management Work Areas	<ul style="list-style-type: none"> • Periodically monitor areas subject to road and trail management activities for a minimum of three years following project completion for the presence of invasive plant species. If invasive plants threaten to become established or spread as a result of project activities, they will be treated in conformance with the Vegetation and Biodiversity Management Plan.

Table 6.5 Invasive Plants Best Management Practices

BMP ID	Description
Invasive Plant Management-8 Protection of Streambanks and Water Quality During Invasive Plant Removal	<ul style="list-style-type: none"> • Install approved erosion-control devices following the removal of invasive plants from streambanks to prevent sediment movement into watercourses and to protect bank stability. The MCOSD will obtain and comply with necessary wetland permits and integrated pest management procedures related to work in and near wetlands. Where appropriate, the MCOSD will also seek guidance from a fisheries biologist regarding the amount of material permissible to remove from stream corridors when controlling large patches of invasive plants, so as to prevent changes in water temperature and quality. If work occurs during the dry season near seasonally wet areas, erosion-control and water quality protection measures generally will not be necessary.
Invasive Plant Management-9 Road and Trail Inspections	<ul style="list-style-type: none"> • Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding sensitive biological resources. Inspectors will record information pertaining to invasive exotic plant populations and new infestations that may be threatening sensitive species and habitats. Inspectors will report any findings and make recommended corrective actions if appropriate.
Invasive Plant Management-10 Monitoring Decommissioned Areas	<ul style="list-style-type: none"> • Monitor areas of decommissioned roads and trails for the presence of invasive plant species for two years following decommissioning to ensure no infestations develop. If invasive species are detected at this time, corrective actions will be taken as appropriate.

Table 6.6 Construction Contracts Best Management Practices

BMP ID	Description
Construction Contracts -1 Standard Procedures in Construction Contracts	<p>When using contractors to perform road and trail management, the MCOSD will include some or all of the following standard procedures into construction contracts.</p> <p>Time of work. The contractor will work with the MCOSD natural resource staff to determine the optimal timing of contracted work. Many timing restrictions relate to avoiding migration, gestation, or flowering periods for special-status species. Other types of timing restrictions relate to avoiding the spread of invasive plants or scheduling work in wetlands during the dry season.</p> <p>Work in and near water bodies and wetlands. To protect water quality, the contractor will be required to prepare and implement a stormwater pollution prevention plan for road and trail management work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings. The following practices will be followed to protect these habitats:</p> <ul style="list-style-type: none"> • Avoid construction work within a buffer of 100 feet from the ordinary high-water mark of any water body, wetland, or tidally influenced area. If construction work cannot be fully avoided in water bodies, wetlands and riparian areas, the appropriate state and federal agencies will be consulted and permits obtained. • Within the buffer, restrict activities to the least-harmful methods. For example, herbicides will be restricted to those that are EPA-approved for use near water. Activities that disturb soil or could cause soil erosion or changes in water quality will be prohibited. • Within the buffer, limit work that may cause erosion to low-flow periods. Low-flow months for local creeks are typically August to October. For tidal areas, work will not occur within two hours of high-tide events at construction sites when high tide is greater than 6.5 feet as measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php). <p>Work in and near invasive plant infestations. The contractor will work with the MCOSD natural resource staff to identify any priority invasive plants that occur near the project work area, including the project footprint, access roads, staging areas, and similar work areas. The contractor will agree to comply with requirements to reduce the spread or transport of priority invasive plants related to construction activities. Requirements may include some or all of the following:</p> <ul style="list-style-type: none"> • Conduct a training program for all field personnel involved with the proposed road and trail management project prior to initiating the project. The program will consist of a brief presentation by persons knowledgeable about the special-status species, sensitive resource, or invasive plants known from the project area. The program will include the following: a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impact; and the workers' responsibility under the applicable environmental regulation. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). • Restrict work to periods when invasive plants are not in fruit or flower. • Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and insides and outsides of vehicles and equipment will be brushed off or hosed down.

Table 6.6 Construction Contracts Best Management Practices

BMP ID	Description
	<ul style="list-style-type: none"> • Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves. • Dispose of green waste in a manner that does not spread invasive plants. Disposal practices may include on-site disposal in an already infested area or off-site disposal in a cogeneration plant or an approved green-waste composting facility. <p>Work in environmentally sensitive areas. The MCOSD natural resource staff will identify any environmentally sensitive areas in or near construction projects prior to the start of the project. The following practices will be followed to protect these resources: Environmentally sensitive areas may include special-status plant or wildlife species or their habitats; wetlands; creeks, streams, and related riparian areas; and sensitive vegetation types as described in this report.</p> <ul style="list-style-type: none"> • Avoid work in environmentally sensitive areas. If work cannot be fully avoided, any applicable regulatory agencies will be consulted and the necessary permits obtained. • Use locally collected plant materials for revegetation projects. Whenever possible, locally collected native plant materials from the project footprint and surrounding area will be used for revegetation. Plant materials should be collected from within the same watershed or the MCOSD preserve if possible. The MCOSD will allow collection of no more than 5% of any native plant population to avoid overcollection of wild plant material sources. If sufficient local plant materials are not available for collection prior to project activities, geographically appropriate native plant materials will be purchased from a local nursery or seed supplier. The contractor will allow the MCOSD to inspect and approve all plant materials and seed prior to use on site. • Comply with requirements of the MCOSD project permits to protect special-status species and their associated habitats. For road and trail management work in or near special-status species habitat, the contractor is required to comply with requirements of the MCOSD project permits to protect special-status species and their associated habitats before and during construction, and to cooperate with the MCOSD in implementing any state and federal permits and agreements for the project. The special-status species population plus a buffer will be designated as an environmentally sensitive area using lath and flagging, pin flags, or temporary fencing (depending on resource sensitivity to work). The contractor will be required to avoid all designated environmentally sensitive areas during construction. For any special-status species or their habitats that cannot be fully avoided, the contractor will work with the MCOSD to obtain and comply with federal and state Endangered Species Acts, the federal Migratory Bird Treaty Act, and the California Fish and Game Code permits and agreements. • Restrict soil disturbance and import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. This includes the footprint of access roads, staging areas, and areas of temporary disturbance. The contractor and its staff and subcontractors will agree not to drive off road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor will agree that if soil excavation is required, every attempt will be made to have a balanced cut-and-fill project that reuses all native soils on site. Nonnative soil or fill material will not be used unless preapproved by the MCOSD natural resource staff. • To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials will be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials will be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. <p>Other procedures:</p> <ul style="list-style-type: none"> • Keep all entry gates to the project site locked during nonconstruction hours, or locked at all times if not needed for construction access. • Equip all vehicles with a suitable fire extinguisher. • Immediately rehabilitate areas where project actions have disturbed soil. Areas disturbed by equipment or vehicles will be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants.

Cultural Resources

Table 6.7 Cultural Resources Best Management Practices

BMP ID	Description
Cultural Resources-1 Historical and Archaeological Resource Mapping	Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will determine whether or not the project area is located within an area that is mapped as “historically or archaeologically sensitive” according to map 4-1 (Historical Resources) in the Marin Countywide Plan and/or identified as culturally sensitive on other confidential maps on file with the county that list prehistoric or archeological sites. If the project area is identified as sensitive on any of these maps, the site will be field surveyed by a state-qualified archeologist or an archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.
Cultural Resources-2 Consultation with Northwest Information Center	Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will contact the Northwest Information Center of the California Historical Resources Information System and request a records search of known historic and cultural resources within and adjacent to the proposed project area, and seek the determination of the information center coordinator regarding the potential for cultural resources on the site. Should the records request or the recommendation of the coordinator indicate the presence of sensitive resources, the site will be field surveyed by a state-qualified archeologist or archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.
Cultural Resources-3 Tribal Consultation	The following tribal consultations will be conducted prior to any new ground disturbance related to road or trail construction: <ul style="list-style-type: none"> • Send the road and trail project description information to the Native American Heritage Commission and request contact information for tribes with traditional lands or places located within the geographic areas affected by the proposed changes. • Contact each tribe identified by the commission in writing and provide them the opportunity to consult about the proposed project. • Organize a consultation with tribes that respond to the written notice within 90 days. • Refer proposals associated with proposed road and trail modifications to each tribe identified by the commission at least 45 days prior to the proposed action. • Provide notice of a public hearing at least 10 days in advance to tribes and any other persons who have requested that such notice be provided.
Cultural Resources-4 Alteration of Historic Structures	<ul style="list-style-type: none"> • Limit the modification of ranch structures or other historical features to maintain the aesthetic quality, historical setting, and rural character of the preserves.
Cultural Resources-5 Permanent Protection	<ul style="list-style-type: none"> • Where road and trail activities cannot avoid sensitive cultural resources, require modifications to the actions to incorporate the resource and include a resource protection plan for its maintenance and future protection.
Cultural Resources-6 Construction Discovery Protocol	<ul style="list-style-type: none"> • If cultural resources are discovered on a site during construction activities, halt all earthmoving activity in the area of impact until a qualified archeological consultant examines the findings, assesses their significance, and develops proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.
Cultural Resources-7 Human Remains	<ul style="list-style-type: none"> • In the event that human skeletal remains are discovered, discontinue work in the area of the discovery and contact the County Coroner. If skeletal remains are found to be prehistoric Native American remains, the coroner will call the Native American Heritage Commission within 24 hours. The commission will identify the person(s) it believes to be the most likely descendant of the deceased Native American. The most likely descendant will be responsible for recommending the disposition and treatment of the remains. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation/grading work for means of treating or disposing of the human remains and any associated grave goods as provided in section 5097.98 of the California Public Resources Code.
Cultural Resources-8 Community Awareness	<ul style="list-style-type: none"> • Increase public awareness of local history and archeology, and the need to protect cultural resources. This may be accomplished by highlighting cultural resources along a road or trail with interpretive signs and information kiosks, and/or by placing a historical marker along the road or trail segment to inform trail users about the importance of the site and/or event.

Water Quality

Table 6.8 Water Quality Best Management Practices

BMP ID	Description
<p>Water Quality-1</p> <p>Modifications to Road and Trail Management Actions to Protect Water Bodies, Wetlands, and Tidally Influenced Areas</p>	<p>Road and trail management activities will be restricted near wetlands and other waters to reduce the potential for sediment or pollutants to enter water bodies or wetlands. If work occurs during the dry season and is greater than 100 feet from creeks and wetlands, erosion control and water quality protection measures will not be necessary.</p> <ul style="list-style-type: none"> • If possible, avoid work around water bodies, wetlands, and tidally influenced areas, including a buffer area of 100 feet around these areas (i.e., as measured from the top bank of creeks, streams, or ponds). • If construction work in wetlands, riparian areas, or tidally influenced areas cannot be fully avoided, consult with the appropriate state and federal agencies. This consultation may result in wetland delineation, permit applications, and mitigation that meets Countywide Plan and other regulatory requirements. • Within the 100 foot buffer, limit construction activities. Limit activities to least-harmful methods; restrict herbicides to those that are EPA-approved for use near water. Prohibit activities that disturb soil or could cause soil erosion or changes in water quality. • Within the 100 foot buffer, limit work that might cause erosion to low-flow or low-tide periods. Low-flow months for local creeks are typically August to October. For tidal areas, work will not occur within two hours of high-tide events at construction sites when high tide is greater than 6.5 feet as measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php). • Within the 100 foot buffer, minimize erosion and sedimentation by maintaining erosion- and sediment-control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include weed-free straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
<p>Water Quality-2</p> <p>Temporary Erosion and Sediment Control</p>	<p>Temporary sediment-control practices will be implemented when new trail construction or existing trail improvements will result in greater than 1 acre of disturbance. Temporary practices may also be required when disturbance is less than 1 acre but close to a sensitive resource or has the potential to discharge a significant amount of sediments or pollutants to surface water. Several of the listed temporary practices can also be used as postconstruction stabilization measures: Information and standard details for temporary erosion-control BMPs can be found in the California Stormwater BMP Handbook – Construction (CASQA 2009).</p> <ul style="list-style-type: none"> • Install temporary fencing around staging areas and along limits of construction when work areas are immediately adjacent to sensitive resources. This will limit the disturbance footprint and help protect resources, including native vegetation, wetlands, and streams, during grading operations. • Install linear sediment barriers to slow and filter stormwater runoff from disturbed areas. Fiber or straw roll barriers can also be spaced along the contours of a disturbed area after construction to prevent concentrated flow and stabilize the area until there is sufficient vegetation coverage. • Apply one or more of the following to restore or protect areas disturbed by excavation or grading operations: <ul style="list-style-type: none"> » tilling (minimum 6 inch depth) and seeding » hydromulch and tackifier » planting » straw or wood mulch
	<ul style="list-style-type: none"> » coir (jute) netting » biodegradable erosion-control blankets » plastic sheeting (only as an interim protection during storm events when construction site is still active) <ul style="list-style-type: none"> • Cover soil and loose material stockpiles with weighted plastic sheeting when inactive or prior to storm events. Active and inactive material stockpiles will be encircled at all times with a linear sediment barrier. • Manage sediment when diverting streamflow. When constructing trail or road stream crossings, a temporary clear-water diversion may be required. The following options will be considered for isolating the work area and protecting resources when diverting streamflow via gravity-fed flexible pipe or active pumping around the work area: sand or gravel bag coffer dam enclosed in plastic sheeting, water-filled dam (e.g., Aquadam), sheet piling, and turbidity curtains. • Manage sediment during dewatering operations. The following options will be considered for applying or containing and treating sediment-laden water produced during dewatering operations: sprinkler system to open area (as long as there is no visible surface runoff), temporary constructed sediment basin or trap, rented sedimentation tank (e.g., Baker Tank).

Table 6.8 Water Quality Best Management Practices

BMP ID	Description																		
Water Quality-3 Erosion Control Measures	<ul style="list-style-type: none"> • Avoid the use of heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. • If no feasible alternative is available and staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit the disturbance footprint and flag or mark the allowable disturbance area in the field. Following the end of work, newly disturbed soils will be scarified to retard runoff and promote rapid revegetation. • Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants. • Leave the roots of target invasive trees and shrubs in place in areas with highly erosive soils or steep slopes. Stumps may be cut or ground down to the ground level. <p>If work occurs during the dry season and is greater than 100 feet from water bodies and wetlands, erosion control and water quality protection measures will not be necessary.</p>																		
Water Quality-4 Preventing or Reducing the Potential for Pollution	<ul style="list-style-type: none"> • Include spill prevention and clean-up in annual staff training sessions. • Properly use, store, and dispose of chemicals, fuels, and other toxic materials according to manufacturer's specifications and agency regulations. • Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from the wetlands. • Require all contractors to possess, and all vehicles to carry, emergency spill containment materials. Absorbent materials will be on hand at all times to absorb any minor leaks and spills. 																		
Water Quality-5 Road and Trail Inspections	<ul style="list-style-type: none"> • Inspect roads and trails for conditions that might adversely affect water quality or other resources. Road and trail maintenance staff will use road/trail inspection forms to facilitate complete and consistent data capture and reporting of the following conditions: <ul style="list-style-type: none"> » concentrated flows on roads and trails that cause erosion, rilling, or gullyng » runoff and effects to water quality of nearby habitats » the spread of invasive exotic plants near wetlands and waters » the status and quality of any known sensitive resources in the immediate vicinity that could be affected by road or trail use and/or maintenance <p>Staff will report any findings and make recommended corrective actions if appropriate.</p>																		
Water Quality-6 Grading Windows	<ul style="list-style-type: none"> • Restrict grading activity to the dry months (generally May 15 – October 15), when associated erosion will be reduced to the maximum extent possible. 																		
Water Quality-7 Culvert Inspection	<ul style="list-style-type: none"> • Inspect culverts on a regular basis. Inspections will ensure that culverts do not clog with sediment or debris. Blocked culverts may affect water quality, change the water course, increase erosion or sediment runoff, or affect wildlife. Any materials blocking culverts will be removed and disposed of outside of the watercourse in an area not subject to erosion. If a significant blockage or sedimentation exists, the MCOSD will plan and implement corrective actions as necessary. Excavation of sediments within streams may require a maintenance permit from the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and/or the San Francisco Water Quality Control Board. 																		
Water Quality-8 Proper Disposal of Excess Materials	<ul style="list-style-type: none"> • Avoid resource impacts when disposing of materials. Any excess material related to new construction, maintenance, or decommissioning (including soils, debris, trash, or other materials that need to be removed as part of management activities) will be disposed of at an appropriate site where materials could not impact sensitive resources. For example, grading-related excess soils or removed debris will not be placed in or around a water body or wetland, where the materials could be subject to erosion that would affect water quality. 																		
Water Quality-9 Sidcasting Construction Material	<ul style="list-style-type: none"> • Avoid sidcasting, or at a minimum contain and remove sidcast material when it has the potential to reach surface waters. The following "rules of thumb" based on Fishnet 4C Guidelines (2007) will be used as guidance: <table border="1" data-bbox="479 1728 1101 1890" style="margin-left: 20px; width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Slope gradient</th> <th style="text-align: left;">Distance to watercourse</th> <th style="text-align: left;">Sidcast rule</th> </tr> </thead> <tbody> <tr> <td>Any slope</td> <td>Will likely enter watercourse</td> <td>Not allowed</td> </tr> <tr> <td>≤20%</td> <td>≥150 feet</td> <td>Allowed</td> </tr> <tr> <td>≤50%</td> <td>≥300 feet</td> <td>Allowed</td> </tr> <tr> <td>> 50%</td> <td>Long vegetated slope</td> <td>Allowed</td> </tr> <tr> <td>>50%</td> <td>Shorter, sparsely vegetated slope</td> <td>Not allowed</td> </tr> </tbody> </table> 	Slope gradient	Distance to watercourse	Sidcast rule	Any slope	Will likely enter watercourse	Not allowed	≤20%	≥150 feet	Allowed	≤50%	≥300 feet	Allowed	> 50%	Long vegetated slope	Allowed	>50%	Shorter, sparsely vegetated slope	Not allowed
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Geologic Hazards

Table 6.9 Geologic Hazards Best Management Practices

BMP ID	Description
Geologic Hazards-1 Assessment and Requirements in Areas of Potential Geologic Hazard	Given the unique and potentially high risks associated with geologic hazards, general best management practices for these types of potential impacts are not appropriate. Instead, when new trails or trail improvements are proposed in preserve areas with a propensity for geologic instabilities, including slides or debris flows in the more elevated areas and subsidence or liquefaction in the low-lying areas, a site assessment will be conducted by a certified geologist or geotechnical engineer. If geologic hazards are confirmed in the area, the site assessment will propose adequate avoidance measures or engineering elements to ensure trail and infrastructure stability and maintained public safety.
Geologic Hazards-2 Construction in Areas of Slides and Debris Flows	<ul style="list-style-type: none"> • In areas of identified slide and debris flow hazards, locate and design new trails, drainage improvements, or irrigation so as not to alter the shape or stability, or change the drainage or groundwater conditions, of an existing slide area. Such alterations would potentially result in reactivation or further destabilization of the slope.
Geologic Hazards-3 Construction in Areas of Erodible and Expansive Soils	<ul style="list-style-type: none"> • Use avoidance tactics or engineered grading to mitigate adverse geologic conditions and potential hazards. Prior to final road or trail project design, consult with engineering geologists and/or geotechnical engineers to identify and implement mitigating road or trail designs for new facility locations or when improving existing facilities.
Geologic Hazards-4 Construction in Areas of Collapsible Soils	<ul style="list-style-type: none"> • In any of the lower elevation preserves (i.e., those near sea level) assess soil type and the potential for subsidence to determine optimum trail location and structural foundations necessary to avoid collapsible soils. In consultation with a certified geologist or geotechnical engineer, design roads and trails to avoid or reduce this potential hazard through optimizing location or by implementing appropriate engineering designs.

Air Quality

Table 6.10 Air Quality Best Management Practices

BMP ID	Description
Air Quality-1 Implement BAAQMD Measures	As part of the review process required under the California Environmental Quality Act, the MCOSD will use the current Bay Area Air Quality Management District guidelines to evaluate the significance of air quality impacts from road and trail management plans and projects, and to establish appropriate mitigation requirements.
Air Quality-2 Minimize Dust Control Emissions during Construction	<p>The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District control measures for emissions of dust during construction of all road and trail modifications and improvements.</p> <p>The following basic control measures cover routine operation and maintenance and day-to-day upkeep of roads and trails, minor road and trail reconstruction, and minor decommissioning activities, they also cover changes in use, the conversion of a road to a trail, or any proposed action that does not involve construction activities, but an increase or decrease in the level of activity:</p> <ul style="list-style-type: none"> • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard (vertical space between the top surface of the material and the top of the hauling container). • Pave, apply water three times daily, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
Air Quality-3 Enhanced Dust Control during Construction	<p>The following enhanced control measures cover major road and trail reconstruction, rerouting, and decommissioning activities, such as repairing, replacing, or restoring heavily used and wide road and trail segments; they also cover resurfacing, replacing, and restoring trailhead areas and installing new water quality and drainage features:</p> <ul style="list-style-type: none"> • Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). • Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.). • Limit traffic speeds on unpaved roads to 15 miles per hour. • Install sandbags or other erosion-control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.

Table 6.10 Air Quality Best Management Practices

BMP ID	Description
Air Quality-4 Dust Control during Construction in Sensitive Resource Areas	The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District optional control measures for emissions of dust during construction of all road and trail modifications and improvements that are large in area, located near sensitive resources, or which for any other reason may warrant additional emission reductions. The following measures cover rerouting road and trail alignments, significant decommissioning or restoration activities, and the construction of a new road and trail alignment on undisturbed land to connect previously unconnected points: <ul style="list-style-type: none"> • Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. • Install wind breaks, or plant trees/vegetative wind breaks, at windward side(s) of construction areas. • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour. • Limit the area subject to excavation, grading, and other construction activity at any one time.

Noise

Table 6.11 Construction Noise Best Management Practices

BMP ID	Description
Noise-1 County Noise Ordinance Requirements	<ul style="list-style-type: none"> • For all maintenance and construction projects using powered or heavy equipment, implement the day and time restrictions for equipment operation and maintenance specified by Marin County Ordinance 3431, Construction Noise.
Noise-2 Noise Control during Construction within and adjacent to Sensitive Wildlife Populations	<ul style="list-style-type: none"> • Ensure that equipment and vehicles utilize the best available noise-control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) to prevent disturbance of nearby wildlife populations. • Except for emergency projects, prohibit nighttime operations or planned operations during breeding season in areas adjacent to sensitive wildlife populations.