Initial Study
North Coast Trails Plan

September 2021

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1.0 Introduction and Background

This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code 21000 *et seq*. and the State CEQA Guidelines, California Code of Regulations Section 15000 *et seq.* The proposed Project includes construction and operation of two trail segments, a 1.1-mile trail on the Kashia Coastal Reserve and a 0.9-mile trail on the Stewarts Point Ranch. The Project will be built on trail easements conveyed to Sonoma County Regional Parks (SCRP) as part of the conservation agreements for the two properties. The proposed Project also includes construction of facilities needed to support public use of these trails, including bridge replacement, parking areas, restrooms, gates, fencing, and informational and trail signs (these improvements are hereafter called the "Project"). The two trail segments will be part of the California Coastal Trail that will eventually extend from the Mexican border to the Oregon border.

2.0 Project Location and Setting

The Project would be developed on two separate properties—the Stewarts Point Ranch and the Kashia Coastal Reserve. These properties (hereafter collectively called the Project site) are located on the west side of State Highway 1 in northwest Sonoma County approximately 30 miles northwest of the City of Santa Rosa, 20 miles north of the unincorporated community of Jenner, and approximately one mile south of the southern end of the unincorporated community of The Sea Ranch. The Project site is shown on the Annapolis and Stewarts Point 7.5-minute topographic quadrangles, within Township 10N and Range 14W. The Kashia Coastal Reserve is situated in the northwestern portion of Annapolis topographic quadrangle. The Stewarts Point Ranch Trail is situated in the southeastern portion of the Stewarts Point topographic quadrangle. Access to both properties is via State Highway 1 (SR1) with secondary access to the east via Stewarts Point-Skaggs Spring Road. In general, this stretch along SR1 is defined by rangelands, undeveloped private property, open space, parks, and, to the east, timberlands.

The 52-acre Kashia Coastal Reserve (AP No. 122-290-001) is located adjacent to the north border of Salt Point State Park. The site is a coastal terrace between SR1 and the ocean. The site is characterized by undeveloped open space; the main vegetation types are Bishop pine forest and coastal terrace grassland communities. Historically it was used for livestock grazing. The only structure on the property is a barn immediately adjacent to the highway.

The 105-acre Stewarts Point Ranch (AP No. 122-250-006) is located approximately 2.5 miles north of the Kashia Coastal Reserve, extending north from the intersection of Stewarts Point-Skaggs Spring Road with SR1. Like the Kashia Coastal Reserve, this Project site is on a coastal terrace between the ocean and SR1. Vegetation is primarily grassland communities. This property contains a main barn, a smaller barn, a cottage, and several other small ranch structures. There is a residence adjacent to the north side of the Stewarts Point Ranch as well as two residences and store adjacent to the south side of the ranch property. One ranch road leads from the property entry along SR1 to the main barn, and a number of other informal roads cross the property.

Both properties are characterized by coastal terrace geology, open grassland habitats, minor seasonal drainages and coastal wetlands. Several special status species of flora and fauna or known to occur in both Project areas, and there are culturally significant resources and tribal gathering areas associated with the Kashia Band of Pomo Indians of the Stewarts Point Rancheria.

3.0 Proposed Project Description

Project Objectives

Currently, there is no public access along the six miles of coast between Salt Point State Park and Sonoma County Regional Parks' Black Point Coastal Access Trail at the Sea Ranch. This Project will offer public access to that area while protecting grasslands, wetlands, and sensitive biological resources. The Project will provide protection of culturally significant resources, tribal gathering areas, and other tribal cultural resources associated with the Kashia Band of Pomo Indians of the Stewarts Point Rancheria. The State Coastal Plan and the County Coastal Plan call for the creation of a 1,200-mile coastal trail system (officially called the California Coastal Trail). The current Project will help the County and State meet the access objectives of the Coastal Plan. The Project will not interfere with the ability of the Kashia Band of Pomo Indians of Stewarts Point Rancheria to practice their cultural and ocean-side traditions.

The Project is a partnership between the California Coastal Conservancy (Conservancy), the Sonoma County Agricultural Preservation & Open Space District (District), the Kashia Band of Pomo Indians of Stewarts Point Rancheria (Tribe), Save the Redwoods League, and Sonoma County Regional Parks (SCRP). In December 2015, the Tribe conveyed a Conservation Easement to the District. The proposed trail alignment lies within this mapped easement with the exception of a small portion that is within the right-of-way of SR1. The owners of

the Stewarts Point Ranch conveyed a Trail Easement on that property to the District, and the proposed trail is within that easement except, again, for a small portion that would be constructed in the SR1 right-of-way.

Project

The proposed Project consists of two separate segments of the 1,200-mile California Coastal Trail (CCT), totaling about two miles in length. Implementation of the trails project (Project) will provide safe public trail access, while avoiding and minimizing potential impacts to the sensitive biological and cultural resources found along the coastal terrace. The two trail segments are about 2.5 miles apart and consist of the 0.9-mile Stewarts Point Trail and the 1.1-mile Kashia Coastal Reserve Trail (Kashia Trail) (Figure 1). Both are located west of State Highway 1 (SR1) on a gently sloping to rolling coastal terrace. The Project does not provide access to the beach; beach access is available at Salt Point State Park and the Sea Ranch Coastal Access Trails.

The trail segments will be constructed as a partnership among the California Coastal Conservancy (Conservancy), the Sonoma County Agricultural Preservation & Open Space District (District), the Kashia Pomo Tribe (Tribe), Save the Redwoods League, and SCRP. The Project includes the implementation of a Trail & Facilities Plan (Trail Plan), with trail designs based on environmental resource, geotechnical, hydrologic, traffic, and engineering studies and analysis, stakeholder and community engagement, regulatory permit consultations, and related work for the Kashia Coastal Reserve and Stewarts Point Ranch Trails.

Location

The Stewarts Point Trail begins at the south end of the Sea Ranch community (approximately 100 feet north of Caltrans Postmile (PM) 48.6) and ends just north of the Stewarts Point General Store (PM 48.2) (Figure 2a). The Kashia Trail (Figure 2b) is located between the northern end of Salt Point State Park at Horseshoe Cove (about 5.5 miles north of Ocean Cove). The trails will be located on easements obtained from the Kashia Tribe and the Faulk family, owners of Stewarts Point Ranch.

Description of Project Components

The Project consists of trail construction, staging areas, fencing, restroom and site amenities. Drainage crossings will be installed across seasonal drainages on both sites. The locations of these features are shown on the trail plans (Appendix A).

REGIONAL LOCATION

NORTH COAST TRAILS PROJECT

SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

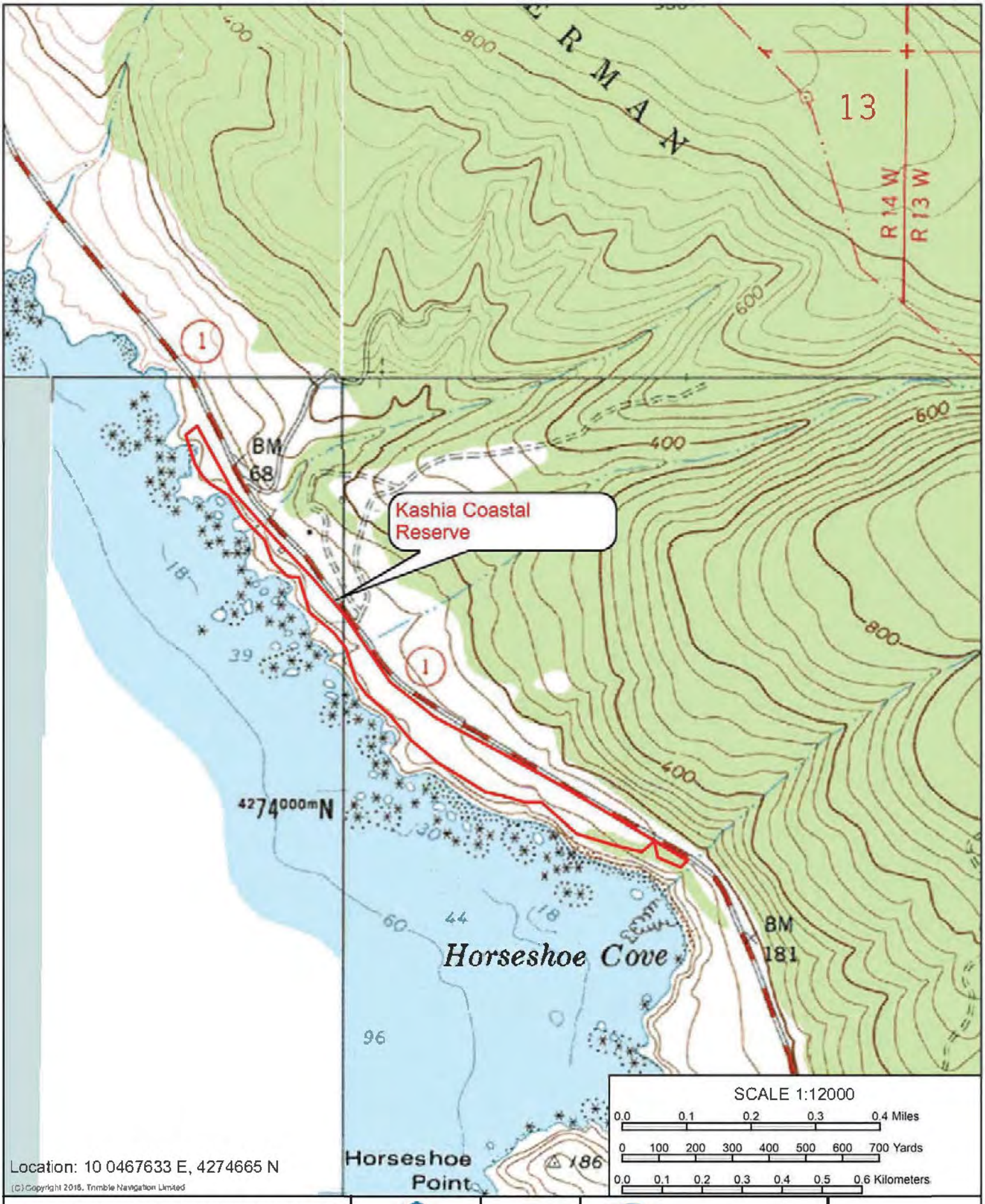
FIGURE 1

STEWARTS POINT PROJECT AREA
NORTH COAST TRAILS PROJECT
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 2A



KASHIA TRAIL PROJECT AREA
NORTH COAST TRAILS PROJECT
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 2B

Trail. The Stewarts Point Trail would consist of a 5-foot-wide natural surface hiking-only trail. The Kashia Trail would consist of a 5-foot-wide trail with a natural trail surface (**Figure 3**). Earthwork, grading and importation, placement, compaction and stabilization of aggregate base rock would be placed on the alignment to create a firm and stable surface that is in compliance with accessibility regulations.

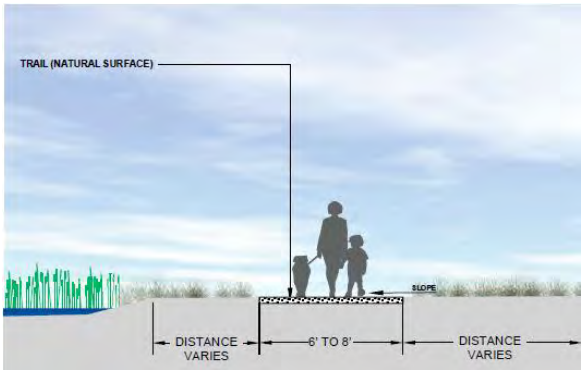


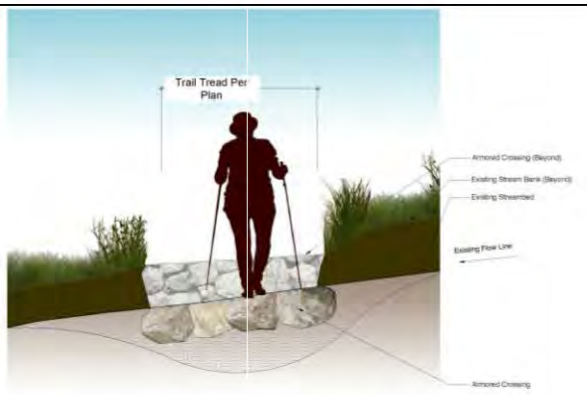
Figure 3. Typical Trail Section

Second Phase of Trail. The trail map for the Project shows a northern extension of the Stewarts Pont Ranch Trail that extends from the main trail to Highway 1 north of the proposed parking lot (shown on Appendix A, sheets 2 and 7). This northern extension would be constructed in a second phase of the Project. No schedule for constructing this phase has been determined. This Initial Study addresses the environmental impacts of that segment of the trail.

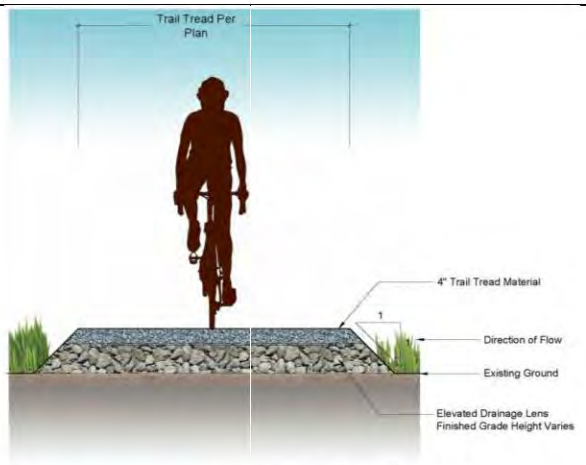
Drainage Crossings. Bridges and other drainage and wetland crossing features will be constructed along both trails to provide safe, year-round public access and to avoid or minimize impacts to the sensitive biological and cultural resources found along the coastal terrace. The drainage structure type, width and length were designed to minimize impacts to existing drainages and accommodate anticipated surface and subsurface flows.

Drainage Crossing Types. Four types of drainage structures will be installed to cross the drainages on each site (Figure 4):

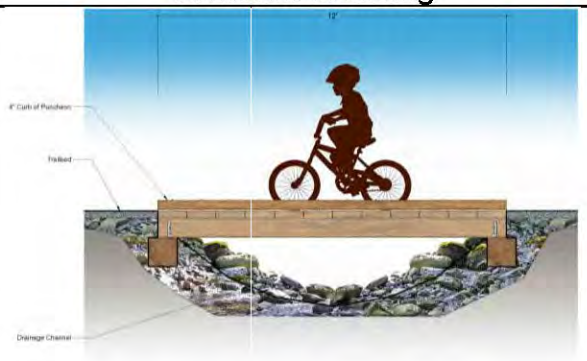
- ***Armored Crossing*.** Armored crossings consisting of a rock layer placed within the flow area and would be used to cross drainage swales.
- ***Drainage Lens*.** A drainage lens consists of a rock layer placed at or above existing grade to provide a firm and stable trail surface base. Surface drainage flows through the rock layer.
- ***Puncheon Bridge*** (a wood stringer and deck structure up to 16-feet long) that spans across the drainage) will be used to cross wider wetlands and drainages, where the drainage bottom is generally less than 30-inches deep.
- A pre-engineered ***Clearspan Bridge*** would be installed to cross a deeper, un-named drainage feature near the north end of the Kashia Trail and within one Stewarts Point trail segment.



Armored Crossing



Drainage Lens



Puncheon

Clearspan Bridge

Figure 4. Drainage Crossing Types

Staging Area. The Project includes a trailhead staging area for each trail segment, and a pre-engineered vault restroom (Figure 5) and picnic facilities at the Kashia staging area. Operational signage will provide information regarding rules and regulations for using the trail. These signs designate the hours the trail is open, prohibited activities such as use of motorized vehicles on the trail, and other regulatory and public safety information and warnings.

Figure 5. Proposed Restroom

Trail Fencing. Wire fencing (Figure 6) or grape stake fencing (similar to the existing fencing shown in Photo 4 of that Stewarts Point Ranch staging area in the subsequent Aesthetics subsection) would be installed around the parking lot and trailhead on the Stewarts Point Ranch. Grape stake fencing would also be installed along one side of the trail on the Stewarts Point Ranch to control livestock grazing. Wire fencing or grape stake fencing would also be used to prohibit trail users from accessing sensitive bluff areas.

Figure 6. Wire Fence

The bottom strand of the wire fencing could consist of smooth wire, set at minimum 6 inches above the ground to allow wildlife undercrossing. Gaps would be left in grape stake fencing to allow wildlife, movement. New gates would be installed where existing dirt roads or travel ways cross the proposed trail alignments. As the Kashia property is not currently grazed, only split rail fencing would be required around the staging area.

Improvements within Highway 1 Right of Way. Portions of both trails will be located within unimproved Caltrans Right of Way, including approximately 1,000 feet of trail in both segments, driveway apron improvements, and directional signage. This work will be coordinated with Caltrans. This includes:

- Stewarts Point northern trailhead: 50 linear feet (LF)
- Kashia Trail northern trail head: 171 LF
- Kashia Trail segment near historic bridge: 178 LF
- Kashia Trail southern trail end: 430 LF

Habitat Avoidance and Protection. The trail alignments have been sited to minimize and avoid impacts to known sensitive cultural and biological resource areas.

Both sites are characterized by coastal terrace geology bounded by steep coastal bluffs, generally open grassland habitats, minor seasonal drainages and coastal wetlands along larger drainage features. Highway 1 is a County-designated scenic view corridor, which requires the careful placement of structures and facilities to minimize visual impacts to coastal resources. In addition, several special status species of flora and fauna are known to occur in both Project areas, and there are culturally significant resources and tribal gathering areas associated with the Kashia Pomo Tribe of the Stewarts Point Rancheria. The Tribe has the right to close the trail periodically for ceremonial events and is required to notify the SCRP well in advance of proposed trail closure. The Tribe will continue to be consulted at all stages of the planning and Project implementation process to ensure the transparent sharing of information, in order to better inform the Project final design and construction, and to respect ceremonial tribal lands. To minimize potential environmental impacts, particularly in culturally sensitive areas, trail segments may be elevated on a geotechnically-stabilized foundation back-filled with light-weight materials to minimize subsurface disturbance and to distribute load, so as not to damage any culturally significant sub-surface materials.

The prefabricated bridge would clear span across the low flow channel, with the foundation located on a stabilized upland terrace. Less than 800 square feet of state and federal jurisdictional wetlands will be permanently disturbed as a result of trail facilities implementation. Project work would also include restoration and enhancement of up to 2,000 square feet of seasonal wetlands and waters of the United States and California (waters of the U.S.) that may be temporarily impacted by wetlands and drainage crossings. Enhancement plantings would be located at each site and consist of species native to the Kashia-Stewarts Point area, and the restoration area would be maintained and managed as part of the trail Project.

Proposed trail improvements are summarized as follows:

Stewarts Point Ranch Trail

- Hiking-only trail of compacted earth or stabilized quarry fines and associated site furnishings
- Clearspan bridge
- Drainage crossing(s)
- Fenced parking and staging area with parking for 9 vehicles, including one ADA van-accessible space and associated site furnishings
- Interpretive and directional signage
- Grape stake fencing to secure grazing areas
- Habitat mitigation and enhancement Area

Stewarts Point Ranch Trail Project

Component	**Quantity**	**Length (ft)**	**Area (sq. ft)**
5-foot-wide Hiking only Trail and associated site furnishings	N/A	5,000	25,000
6-foot-wide Bridge	1	40	240
Drainage Crossings	9	N/A	N/A
Drainage lens (width varies)	8	86	430
Armored crossing (width varies)	1	18	144
Staging Area	1	N/A	4000
Signage and site furnishings	5	N/A	N/A
Fencing	N/A	5,300	N/A
Habitat Mitigation and Enhancement Area	N/A	N/A	1,000

Kashia Coastal Reserve Trail

- Multi-use compacted trail of earth or stabilized quarry fines and associated site furnishings
- Clearspan bridge(s)
- Drainage crossings
- Fenced parking and staging area with parking for 8 vehicles, including one ADA van-accessible space
- Split rail fencing and pipe gates
- Picnic area with three tables and associated site furnishings
- Restroom (Pump-out vault toilet <100 square feet)
- Interpretive and directional signage
- Habitat Mitigation and Enhancement Area

Kashia Coastal Reserve Trail Project Components

Component	Quantity	Length (ft)	Area (sq. ft)
5-foot-wideTrail	N/A	6,300	31,500
6-foot-wide Bridge	1	30	180
Drainage Crossings	5	N/A	N/A
Drainage lens (width varies)	3	145	725
Puncheon Bridge (width varies)	2	20	100
Staging Area	1	N/A	10,000
Signage and site furnishings	6	N/A	N/A
Fencing (Parking and Staging Area only)	N/A	500	N/A
Habitat Mitigation and Enhancement Area	N/A	N/A	1,000

Jurisdictional Wetlands. Federal wetlands are within the jurisdiction of the U.S. Army Corps of Engineers. State wetlands include federal jurisdiction wetlands and the additional area that meet the one parameter criteria under the Coastal Commission guidelines for determining wetlands. Temporary impacts will be the result of construction activities. Permanent impacts are associated with permanent Project elements. In both federal and state wetlands, permanent impacts would be from the bridge footings. The puncheons and drainage lenses may be considered permanent impacts due to shading or rock placement.

Plant Communities. Temporary impacts are associated with construction activities and these areas will be restored to their pre-construction condition after construction activities are completed. Restoration will include installation of sediment and erosion control, as needed, and seeding with a native seed mix specifically selected for the Coastal Prairie plant community. Permanent impacts are associated with permanent Project elements.

Construction. Project construction (except for the northern spur of the Stewarts Point Ranch Trail) would occur over two construction seasons (approximately 4-6 months between April 1 and November 30). Bridge, drainage crossings, and trail construction work would follow nesting bird and wet weather/creek flow restrictions on both ends of that timeline. Construction staging would occur within the generally flat area adjacent to the proposed parking areas and near the proposed pedestrian bridge. Construction would require operations within 10 feet of the trail edge, so that in some disturbance could occur in a 25-foot-wide corridor along the trail alignment. At Stewart's Point (as shown on the trail plans), in the vicinity of drainage improvements, such as bridges, the disturbance area is slightly wider for construction and maintenance purposes. During the

construction period, the existing Highway 1 pull-over parking areas would likely be closed for short periods, but lane closure of SR1 is not anticipated.

Construction Schedule and General Methodology. SCRP expects that Project construction will be phased during 2021 and 2022 or later. Due to the various resources that will be affected within the Project area, some construction tasks, such as clearing vegetation outside of the active seasons for birds and American badger, may occur months ahead of the remaining tasks. Earth-moving tasks will occur during the dry-season to avoid impacts to sensitive species. Project construction will take approximately 6 to 8 months to complete after the limited earth-moving tasks are initiated. After construction of Project facilities is complete, the areas disturbed by construction activities will be restored to their pre-construction condition.

Construction Equipment. Equipment for Project construction will include cement trucks, dump trucks, small graders, small track excavators, loaders, and possibly a small-to-mid-sized hydraulic crane to lift bridges in place. The prefabricated bridge segments will be delivered to the Project site using a standard semi-truck trailer. Low ground-pressure track skid-steer hydraulic equipment, such as a light-weight mini-excavator with an auger attachment, will be used to drill holes for the bridge footings. The foundation piers may also be drilled using portable gas-powered drilling equipment or drilling equipment connected to hydraulic hoses to a remote power trailer. This equipment and methods will be employed to reduce disturbances to sensitive wetland and riparian areas.

Construction activities will occur during daylight hours, between 7:00 a.m. to 7:00 p.m., Monday through Friday. SCRP may authorize construction activities on weekends or beyond the regular construction hours in order to address emergency and unforeseen circumstances or to accommodate an accelerated construction schedule, as needed.

Trail Operation. Both trail areas would be operated and maintained by SCRP in association with their trail partners. Since the trails are semi-improved, periods of winter wet weather closure may occur at both facilities. Trail facilities for the Kashia Trail are also subject to temporary closure for exclusive use by the Kashia Band of the Pomo Indians for ceremonies. The Stewarts Point Ranch Trail is restricted to hiking, and dogs will not be allowed. Livestock grazing may continue within fenced areas in both trail segments.

Required Approvals

Sonoma County Regional Parks will be the lead agency under CEQA to review the proposed Project. Prior to construction, the Project will need permits or approvals from the following Responsible or Trustee Agencies:

1. California Fish & Wildlife will require a 1600 Lake and Streambed Alteration, LSA
2. North Coast Regional Water Quality Control Board will require a 401 Water Quality Certification
3. California Coastal Commission may require a Coastal Development Permit to construct the proposed Project.
4. California Department of Transportation (Caltrans) may require an encroachment permit for construction of Project improvements within the SR1 right-of-way.
5. The U. S. Army Corps of Engineers (Corps) will require a Nationwide Permit/or Individual Permit under Section 404 of the Clean Water Act for impacts to on-site wetlands.
6. U.S. Fish and Wildlife Service (USFWS) may require an Incidental Take Permit for species listed under the Federal Endangered Species Act that are under their jurisdiction.
7. Permit Sonoma will require a building permit for bridge, abutment, and restroom construction, and ADA and Architectural Barriers Act compliance.

Summary of Public Outreach Process

On February 13, 2019, SCRP issued a Press Release announcing a Community Meeting to be held at the Ft. Ross Elementary School ,30600 Seaview Road, Cazadero CA to introduce the Project to the community and gather community input.

On February 23, 2019, SCRP conducted the Community Meeting with assistance from the project design team (Questa Engineering). The SCRP staff and the design team introduced the Project and preliminary design concepts including environmental resources and constraints on the site, the trail easement corridor and preliminary trail alignment, other planned improvements, proposed uses and use restrictions. Staff and the design team answered questions from community members and explained the next step in the planning process.

A number of attendees asked questions and offered suggestions for trail planning. Primary comments beyond straightforward questions about involved concerns about trail components included the following:

- Need for active educational signing about staying on the trail and not trespassing
- Need for education of users about calls for emergency response and coordination with emergency responders
- Need for active patrolling to address trespass and other illegal activities

Community members were invited to send comments and questions to SCRP. SCRP received ten (10) emailed comments, which are on file with SCRP. The one substantive issue raised in there emailed comments was a request by several commenters that the trail on the Stewarts Point property be a multi-use trail. SCRP provided responses to all these comment letters and noted that the easement on the Stewarts Point Ranch property was negotiated between the landowners, Save the Redwoods League, and the County Open Space District The easement that was granted was for a pedestrian trail only.

A second meeting was planned to provide additional updated information on the Project planning as well as to be a CEQA Scoping Session to gather public input on what issues should be addressed in the Project CEQA study. Due to the Covid pandemic, subsequent meetings were not conducted.

The Community will have future opportunities to provide input into the planning process including;

- Web based posting of the Draft Initial Study on the SCRP North Coast Trails website.
- Public Hearing on the Draft Initial Study in front of the County's Environmental Review Committee
- Input during the 30-day public review period for the Draft Initial Study/Mitigated Negative Declaration
- Input to the Board of Supervisors at a hearing to decide whether to adopt the IS/MND and approve the Project

4.0 Environmental Checklist Data

I. Project Title

North Coast Trails Plan

II. Lead Agency Name and Address

Sonoma County Regional Parks
2300 County Center Drive, Suite 120A
Santa Rosa, CA 95403

III. Contact Person Email and Phone Number

Mark Cleveland
Senior Park Planner
Mark.Cleveland@sonoma-county.org
(707) 565-2041

IV. Project Sponsor's Name and Address

Sonoma County Regional Parks
2300 County Center Drive, Suite 120A
Santa Rosa, CA 95403

5.0 Initial Study Checklist

This section documents the anticipated environmental effects of the proposed Project using an Initial Study Checklist and providing a brief explanation supporting the findings of each checklist item.

Evaluation of Environmental Impacts

This Initial Study is based on CEQA's Environmental Checklist Form. Each item on the checklist is answered as either "potentially significant impact," "less than significant with mitigation incorporated," "less than significant," or "no impact" depending on the anticipated level of impact. The checklist is followed by explanatory comments corresponding to each checklist item.

A "no impact" response indicates that it is clear that the Project will not have any impact. In some cases, the explanation to this response may include reference to an adopted plan or map. A "less than significant impact" response indicates that there will be some impact but that the level of impact is insufficiently substantial to be deemed significant. The text explains the rationale for this conclusion. A "less than significant impact with mitigation incorporated" response indicates that there will be a potentially significant impact, but the Initial Study determines there are adequate mitigations, which are described and have been included in the Project, to reduce the level of impact to an insignificant level. Finally, a "potentially significant impact" response would indicate that the Initial Study cannot identify mitigation measures to adequately reduce the impact to a level that is less than significant. In the latter case, an EIR would be required, but no "potentially significant impacts" have been identified for this proposed Project.

Discussion of Environmental Impacts

The proposed Project will have potentially significant impacts in the areas of air quality, biological resources, cultural resources, geology/soils, hydrology, land use and planning, noise and transportation. All potentially significant impacts identified in this Initial Study can be reduced to a level that is less than significant if mitigation measures recommended in this Initial Study are incorporated into the Project.

I. Aesthetics

This section will evaluate the potential changes to the existing visual characteristics of the Project site and vicinity that could result from the proposed Project. The analysis focuses on changes in visual character and effects on views and scenic resources.

1. Setting

Regional Setting

The proposed Project is located along the coastal bluffs in northwestern Sonoma County, adjacent to State Highway 1. While the southern portion of the county is characterized by low mountains and pastoral valleys, the northwestern region is dominated by rugged terrain. In this area, the Coast Ranges have been folded into a steep and often convoluted series of ridges and river valleys. The Sonoma County General Plan recognizes coastal bluffs as a "landscape of special importance" within the County. It also identifies the Sonoma Coast as a vital scenic resource. The Project site is within a region classified by the County as a Scenic Landscape Unit (Sonoma County General Plan Figures OSRC-1 and OSRC-2).

The primary road in this area is State Highway 1, which runs north-south along the coastline. Skaggs Springs Road, a narrow and winding two-lane County road, connects Highway 1 to Highway 101 just over 40 miles to the east. Highway 1 in the vicinity of the Project sites is designated by Sonoma County as a County Scenic Corridor.

This portion of the county is very lightly developed, with a few small communities, residences, and vineyards. The vast majority of land is undeveloped parkland or privately owned lands. In most areas, zoning restricts parcel subdivision to lots of 240 acres or larger. In the vicinity of the Project area, the primary human-made features include the outpost of Stewarts Point, which consists of a store and post office, located at the intersection of Highway 1 and Skaggs Springs Road. Gualala Point Regional Park and the unincorporated communities of Sea Ranch and Gualala are located to the north; Salt Point State Park, Kruse Rhododendron State Natural Reserve, and Stillwater Cove Regional Park are located to the south.

Project Site Description

The Project site is located between State Highway 1 and the ocean. Existing views from Highway 1 are primarily of coastal terrace grasslands with some

stands of trees and rock outcroppings and several intermittent streams. From State Highway 1 there are many scenic vistas looking west to the Project properties and the ocean beyond.

The Kashia Coastal Reserve site is undeveloped with the exception of one barn adjacent to Highway 1. The southernmost portion of the site supports a Bishop pine overstory with shrubs, ferns, and grasses in the understory. However, the majority of the site is dominated by Coastal Terrace Prairie Grassland. The southern portion of this site is comparatively narrow often providing striking views of the bluff edges and rocky shoreline.

Travelling north on Highway 1, one passes through Salt Point State Park before reaching the Kashia Reserve. Views through the park are of dense Bishop Pine forest on both sides of the road. There are many highway edge turnouts in the park, and it is common to see cars parked at these turnouts, especially on weekends. As one leaves the park, views soon open up as one proceeds north along the Kashia Reserve. Views are of coastal terrace prairie with prominent rock outcropping, intermittent stream channels, and a few stands of trees with the ocean not too distant. Approximately 0.5 mile north of the south end of the Reserve, there is a large section of old highway that serves as a long turnout and an emergency call box. There are additional call boxes to the north including one just north of the northern trail terminus. There is a sign about halfway along this old road section a sign identifying the property as the Kashia Coastal Reserve. This is the location of the proposed Kashia Coastal Reserve parking lot and staging area. Views from the parking area location are of open grassland to the west with a blue-water background. The parking area and trailhead have been sited to use existing vegetation along Highway 1 to partly screen the facility from view

Photo 1 - Historic Wooden Bridge

Just north of the parking lot is an historic barn near the highway edge. The barn is a one-story wooden structure with some adjacent fenced corrals. The Reserve is quite narrow in

this area with a view of an historic wood bridge spanning an inlet at the bluff edge with prominent white-water views see).

Proceeding north, the bluff edge is located further to the west, allowing the trail to be sited to the west and at a lower elevation than the highway. The portion of the Reserve that would be developed with the trail ends at a rocky knoll approximately 0.6 miles north of the proposed parking lot site. There is a call box just to the north of this trail end.

The Stewarts Point Ranch site is located about 2.5 miles north of the Kashia Coastal Reserve. This property is dominated by views of grassland, with only occasional scattered trees and shrubs—and those mostly located in natural drainage depressions. Rock outcroppings occur in places. This portion of the Project site is wider than the southern Kashia Coastal Reserve parcel, but offers unobstructed views of the ocean, nonetheless. Existing structures on the Stewarts Point Ranch site include a cottage, two barns and an ancillary agricultural shed.

Travelling north from the Stewarts Point Store, one passes the small cottage just north of the store and then views open up to the west. The views to the west and northwest are of a coastal prairie with views of the ocean in the background. Approximately 0.2 miles north of the cottage is an unpaved ranch road leading to a large barn visible to the west. Roadside fencing along this stretch of the highway is old redwood picket fencing to the west. Approximately 0.45 miles from the cottage is the driveway to a private residence located northwest of the Project site. This residence has an easement through the property. North of this driveway to the north end of the site views are open vistas across the coastal prairie. Fencing north of the driveway is wire mesh. The views across the coastal prairie are dissected by riparian vegetation along several drainages with forested hillsides to the east of the highway

Regulatory Setting

Sonoma County General Plan

The Open Space and Resource Conservation Element of the Sonoma County General Plan designates three types of scenic resources within the County that are important to the County's visual character and quality: Community Separators, Scenic Landscape Units, and Scenic Corridors. Community separators are open space or rural buffers located between urban communities that provide distinction between the County's developed communities and prevent urban sprawl. Scenic Landscape Units offer special importance to the County by contributing to the quality of life of County residents, tourists, and the

agricultural economy; providing a scenic backdrop to communities; and providing visual relief from urban. Furthermore, the County designates corridors within the County with views of high visual quality landscapes as Scenic Corridors (Sonoma County 2016, Figure ORSC-1). The segment of State Highway 1 that extends from the northern boundary of Sonoma County until approximately 5 miles east of the City of Bodega Bay has been designated by the County as a Scenic Corridor. This corridor includes the Project site.

The Open Space and Resource Conservation Element of the Sonoma County General Plan provides objectives, policies, and programs regarding aesthetic resources. Several of these policies are pertinent to areas designated as Scenic Landscape Units, Community Separators, and Scenic Corridors. Design review is required within these areas to ensure consistency Project consistency with its surroundings. Relevant General Plan policies are included below:

Goal OSRC-4: Preserve and maintain views of the nighttime skies and visual character of urban, rural and natural areas, while allowing for nighttime lighting levels appropriate to the use and location.

Policy OSRC-4a: Require that all new development projects, County projects, and signage utilize light fixtures that shield the light source so that light is cast downward and that are no more than the minimum height and power necessary to adequately light the proposed use.

Policy OSRC-4b: Prohibit continuous all-night exterior lighting in rural areas, unless it is demonstrated to the decision-making body that such lighting is necessary for security or operational purposes or that it is necessary for agricultural production or processing on a seasonal basis. Where lighting is necessary for the above purposes, minimize glare onto adjacent properties and into the night sky.

Goal OSRC-5: Retain and enhance the unique character of each of the County's unincorporated communities, while accommodating projected growth and housing needs.

Goal OSRC-6: Preserve the unique rural and natural character of Sonoma County for residents, businesses, visitors and future generations.

Policy OSRC-6a: Develop design guidelines for discretionary projects in rural areas, but not including administrative design review for single family homes on existing lots, that protect and reflect the rural character of Sonoma County. Use the following general design principles until these Design Guidelines are adopted, while assuring that Design Guidelines for agricultural support uses on

agricultural lands are consistent with Policy AR-9h of the Agricultural Resources Element.

(1) New structures blend into the surrounding landscape, rather than stand out.
(2) Landscaping is included and is designed to blend in with the character of the area.
(3) Paved areas are minimized and allow for informal parking areas.
(4) Adequate space is provided for natural site amenities.
(5) Exterior lighting and signage are minimized.

Local Coastal Plan

The Sonoma County Local Coastal Plan (LCP), which was adopted in 1981 and updated in 2001, is the standard of review and the default General Plan for the Coastal Zone. Coordination with the Coastal Commission may be appropriate for projects that have potentially significant impacts. The LCP calls for the protection of visual resources. The County has prepared a Public Review Draft Update of its LCP, but that update has not been finalized nor adopted by the Coastal Commission. Until that occurs, the existing LCP contains applicable policy guidance. The existing LCP includes the following relevant recommendations.

<u>View Protections</u>

(1) Prevent development (including buildings, structures, fences, paved areas, signs, and landscaping) from obstructing views of the shoreline from coastal roads, vista points, recreation areas, and beaches.
(2) Prohibit development which will significantly degrade the scenic qualities of major views and vista points
(3) Except in rural community and urban service areas, require a minimum setback of 100 feet from the right-of-way along scenic corridors and greater where possible. However, permit a 50-foot setback when sufficient screening exists to shield the structure from public view. Where the General Plan policies and standards are more restrictive than the above standards, development shall comply with the General Plan or Coastal Plan policies, whichever are more restrictive, provided that no development shall be approved which does not comply with Coastal Plan policies.

<u>Coastal Terrace Development</u>

(1) Prohibit development in open fields in rural areas.

(2) Minimize the number of structures and clustering them near existing natural or man- made vertical features.
(3) Design structures to be in scale with the rural character of the region.

Community Compatibility

(1) Design structures to be compatible with existing community characteristics.
(2) Relate structures in size and scale to adjacent buildings.
(3) Locate and design all development to minimize the impacts of noise, light, glare, and odors on adjacent properties and the community at large.

Vegetation

(1) Discourage the removal of significant trees except through legitimate logging operations.
(2) Locate and design new development to minimize tree removal.
(3) Prohibit removal of windbreaks unless required because of the disease.
(4) Prohibit the planting of vegetation west of Highway 1 which could block coastal views.

Coastal Zone Design Guidelines

(1) Design and site structures to preserve unobstructed broad views of the ocean from Highway 1 and to minimize visual impacts. Cluster structures to the maximum extent feasible.

Recreation

Consistent with the California Coastal Act, the County LCP calls for maximizing coastal access and maximizing public recreational opportunities in the coastal zone consistent with sound resources conservation principles. The LCP Access Plan identifies the properties as priority acquisition and development sites and recommends their acquisition. When providing trail access, the following recommendations are provided:

(1) Design safe and well-designed trails.
(2) At trail staging areas, provide restrooms, trash receptacles, signs, and parking lots.
(3) Avoid environmentally sensitive habitats and resources. Where avoidance is infeasible, design trails to mitigate or offset impacts.

2. Impacts

Except as provided in Public Resources Code Section 21099, would the project:

a. Have a substantial adverse effect on a scenic vista? **Less than significant impact.**

As noted in the Setting, the Project site is classified as a Scenic Landscape Unit, which includes scenic vistas from State Highway 1. The methodology used to assess the visual and aesthetic impacts of the proposed Project is based on the Visual Assessment Guidelines issued by the Sonoma County Permit Sonoma. This methodology addresses the types and scales of proposed projects normally evaluated in environmental documents prepared for the County pursuant to CEQA. The methodology provides an objective basis for determining the significance of visual and aesthetic impacts under CEQA.

The primary tasks in assessing the Project's visual and aesthetic impacts consist of viewing the site from relevant locations in the vicinity of the Project site, selecting representative viewpoints for consideration in the Initial Study, describing the site from those locations, determining the sensitivity level of the site, assessing the Project's visual dominance within its setting, and determining the significance of impact.

Equipment and materials used in constructing the trail and associated amenities would be quite visible for drivers on Highway 1 as they passed the active construction zone. However, these would be short-term impacts that would end once the construction phase is completed. Such short-term construction impacts would not constitute a substantial impact or change to the coastal viewshed.

The Project would add two parking areas, one restroom, three picnic tables, several benches, bicycle racks, signing, wire and grape stake fencing. These features would be visible from certain vantage points along the highway. The compacted natural surface trail would rarely be noticeable from the highway due to the elevation differences between the highway and the trail, intervening topographic differences, and rock outcrops, trees and shrubs. The trail, once completed, would blend with the surrounding vegetation. Most wetland and stream crossings would be constructed at ground level to cross the wetlands. Some surface crossings would use puncheons that would be constructed of wood or stone materials that over time would blend with surrounding vegetation. The

principal visual changes would be views of the Stewarts Point Ranch parking lot and the Kashia Coastal Reserve parking lot with adjacent picnic tables, benches, and a restroom. The following discussion summarizes possible changes to views.

Starting at the south end of the Kashia Coastal Reserve, the southern trail intersection with Highway 1 would be visible as one passes the site. There is no proposed parking at this entry, so there would be no views of parked cars, and there would be minimal signing as this terminus is not a trailhead (it is expected that in the future the trail will be extended south to connect to trails on Salt Point State Park). This trail intersection would need to be developed in coordination with Caltrans. Caltrans may condition the easement onto their right-of-way to not include signage and/or roadside parking. To the north, a new bridge would be installed near the bluff edge to replace a deteriorating historic bridge. This new bridge would likely not be visible from the highway due to the elevation difference and roadside screening.

Further north the Kashia parking area with associated amenities would be visible. The parking lot would parallel the highway with a one-way entry at the north end and one-way exit at the south end. Cars would be parked in three parking bays plus an ADA parking space next to the restroom. The restroom would be located immediately south of the parking area. This area would include the restroom, an ADA parking space, three picnic tables, two benches and trail signing. Preliminary design plans indicate that trees and shrubs would be planted around these facilities. Large rocks would be placed between the parking area and the highway to confine vehicles to the lot and the designed entrance and exit. The final design for this parking area including, where warranted, new plantings to provide screening has not been completed at this stage. It is assumed, as recommended by the LCP, that these improvements will be screened as far as feasible from highway vantage points. Even if not fully screened, views would be of up to nine cars parked in an area near the highway edge. A view of a few cars parked along or near the highway edge is common along Highway 1 as it passes through State and County parks to the south. Drivers travelling north would have views of these improvements for about 500 feet (about 6 seconds at 55 mph.

Photo 2
View Looking South from the Kashia Parking Lot Area

Photo 3
View Looking North from the Kashia Parking Lot Area

One vantage point where the trail could be noticeable is just north of the historic barn where the trail would travel into the highway right-of-way in order to avoid the deteriorating historic bridge and unstable bluff edge on the Project site. Here, a driver traveling on the highway might see an occasional trail user on the trail. The historic bridge would remain visible to the west. North of this vantage point the trail; would be located to the west. As it approached the northern terminus, it would be at a lower elevation than the highway and not visible from most vantage points on the highway. The northern terminus of the trail will intersect the highway just south of a large rock outcropping. The trail would switchback up from the lower terrace and be visible only at the intersection with the highway. Again, this intersection design would be coordinated with Caltrans and likely would be signed to prohibit parking near the trail intersection.

For the Stewarts Point Ranch trail, starting at the Stewarts Point Store at the intersection of Highway 1 and Skaggs Springs Road, the southern trail terminus is adjacent to a small cottage. The trail intersection with the

highway would have, at most, a sign here, but there would be no parking at this entrance. Travelling north the trail would be located nearer the ocean bluff distant from the highway. The parking lot and up to nine cars parked in that lot will first become visible approximately 750 feet south of the lot. As the driver gets nearer, the parking lot amenities, including parked cars, two benches and signage, would become increasingly evident until one passes the lot. The lot will be located immediately south of the private driveway to the private residence that is located north of the Project site (see photo below). It will be located about 20-50 feet from the highway. Access will be off the driveway to the private residence. Existing picket fencing where this driveway intersects the highway will provide some screening of the lot and parked cars, especially from the north.

Photo 4
View from Access to Private Driveway
Location of Stewart Point Staging area

Travelling from the north, the parking area will first become visible where the highway bends east and descends the highway grade just south of the small sheep shed near on the Project site. The Stewarts Point staging

Photo 5
View Travelling from the North

area and up to nine cars parked in that lot will be visible for about 700 feet until the traveler passes south of the lot. The Project trail extension proposed for the second phase of development is distant from the highway except where it intersects the highway near the old shearing shed and would not be very noticeable from the highway. When this second phase is constructed, its intersection design would also be coordinated with Caltrans regarding parking and signage.

As described previously, the compacted natural surface trail would rarely be noticeable from the highway due to the elevation differences between the highway and the trail, intervening topographic differences, and trees and shrubs. The trail, once completed, would tend to blend with the surrounding vegetation. Most wetland and stream crossings would all be constructed to be at ground level to cross the wetlands. The crossings on the Stewarts Point Ranch are mainly located near the west side of the

property, typically 800-900 feet from the edge of the highway. They likely would not be visible from the highway. The one bridge that would be installed would include railings and supports that would extend above the ground level. However, this bridge is at least 600 feet west of the highway. Some fencing to control cattle will be installed on this site. The fencing would be 4- to 5-strand wire as shown in Figure 6. The fencing would not be particularly visible from most vantage points due to the distance of the trail from the highway. In addition, various forms of fencing already exist on the site, so it would not be adding a new visual feature to the site.

To summarize, 1) the trail itself would not be a substantial visual intrusion into the viewshed; 2) there would be few visible proposed improvements spread along two miles of State Highway 1 frontage; and 3) most trail improvements would not be visible due to intervening vegetation, horizontal and vertical curves in the highway, and/or the distance from the highway. The two elements that would have some impact on views are the parking lots/staging areas. The Stewarts Point Ranch lot would be noticeable for about 750 feet from either the south or north until one passed the lot. Vehicles, when present in the lot, would be visible, but it is projected that at the most 5-9 vehicles would be parked there at any one time, and much of the time there would likely be fewer. Similarly, the parking lot, parked cars, the restroom, and picnic facilities at Kashia Coast Reserve would be limited to views from about 500 feet from the north and the south.

The visual impact of the few visible improvements on the 2-mile section of Highway 1 viewshed would be minimal. In accordance with the County's Visual Assessment Guidelines, the determination of the significance of visual impacts was made by correlating visual sensitivity with visual dominance. Based on the County's Visual Assessment Guidelines, the project would have a significant visual impact if the visual dominance of the proposed project exceeds that which is considered acceptable for the sensitivity level of the project site.

Based on the field review and the characterizations of view toward the Project site described above, the visual sensitivity level of the Project site (either low, moderate, high, or maximum as described in the County's Visual Assessment Guidelines) would be considered "maximum." Maximum sensitivity is the appropriate level of sensitivity when: *The site or any portion thereof is within a land use or zoning designation*

protecting scenic resources, such as General Plan designated scenic landscape units, coastal zone, community separators, or scenic corridors

Once site sensitivity has been established, the visual dominance of the project characteristics is assessed to determine if the project elements are dominant, co-dominant, subordinate, or inevident. If a project is generally not visible from public view, then the visual dominance is considered "inevident." As described above, Project elements are generally not visible from the two miles of Highway 1 stretching alongside the Project site. The few improvements that would be visible are either shielded or only visible for a brief time as one passes those improvements. These improvements are typical of other parks along the Sonoma Coast, where there are views of scattered parking areas, restrooms, and trails, while most of the views are of native vegetation and the ocean.

The overall Project is deemed as having "Inevident" Visual Dominance per the County's Visual Assessment Guidelines because as described above, almost all proposed improvements would be screened by intervening vegetation, topography, and distance from the highway.

The improvements will identity the Project site as public land or land allowing public access rather than private land that can only be looked at as passing by on Highway 1. These identifying signs and other amenities will likely be a pleasant visual addition to the landscape for many passersby. While certain Project elements will be noticed by drivers along Highway 1, these changes do not reach the impact level of being a "substantial adverse" effect.

This finding of less-than-significant impact is consistent with the findings for other coastal trail projects in the area. The Local Coastal Plan calls for construction of a coastal trail the length of the County. In adopting that plan, the County found that construction of such a trail and facilities needed to access the trail would not have significant visual impacts so long as the facilities were sited and constructed to minimize their visibility. The Project implements and is consistent with the County LCP. It is noted that, the Initial Study/Mitigated Negative Deceleration adopted in 2016 by the County for the parking lot, restroom, and trail improvements proposed for the Jenner Highlands Integrated Resource Management Plan found that the proposed much larger parking lot, restroom facilities, and other improvements at that site would not have a significant aesthetic impact.

b. *Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?* **No Impact.**

Though Highway 1 in the Project area is eligible for official designation as a California State Scenic Highway, it has not been so designated. As such, the Project would not damage scenic resources visible from a state scenic highway. Accordingly, the Project would have no impact on scenic resources as defined by this criterion. In addition, as discussed under the previous checklist item, the Project would not significantly impact scenic vistas, including scenic resources on the site. There would be no removal of rock outcroppings or historical buildings. A few small Bishop pine trees will be removed at the south end of the Kashia property in order to contruct the trail. These trees are common in this area, and these small trees are not considered a "scenic resource." An objective of the Project is to preserve scenic resources on the site.

c. *In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?* **Less than significant impact.**

As described in the discussion of Checklist Item 1(a), the Project would not have a significant impact on scenic vistas or the visual character of the Project site. A primary objective of the Project is to provide public access consistent with County and State plans for the California Coastal Trail while maintaining the integrity of scenic resources of the properties.

d. *Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?* **No impact.**

The Project would not include any lighting. Neither the few proposed new structures nor the proposed trail, would have reflective surfaces and therefore would not create glare. Therefore, there would be no impact from new lighting or sources of glare.

II. Agriculture and Forestry Resources

1. Setting

The Stewarts Point Ranch site is currently used for livestock grazing. The Kashia Reserve is undeveloped, and historically has been used for livestock grazing. Though the Kashia Reserve has a small wooded area, it primarily consists of Bishop and Monterey pine, neither site supports "forest land."

2. Impacts

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 non-agricultural use? **No impact.**

The proposed Project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on the 2014 Map of Sonoma County Farmland. Therefore, there would be no impact on these resources.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract? **No impact.**

The Stewarts Point Ranch is zoned Land Extensive Agriculture. The property is currently grazed and will continue to be grazed after the trail and parking area are installed. The trail will be located on an easement across the property to allow both recreational use and commercial grazing of the property. Therefore, the Project will not conflict with the existing zoning for agricultural use.

The Kashia Coastal Reserve is zoned Coastal Zone Resources and Rural Development (RRD CC), and the reserve is under a Williamson Act contract. The RRD CC zoning permits recreational use as an allowed use. Therefore, the Project would not conflict with this zoning classification. The site is not currently grazed, and the Project would not prohibit extension of the Williamson Act contract or restrict uses to agricultural or related open space use. The proposed Project would be considered a related open space use for the Project site. Therefore, the Project would not conflict with existing zoning of this reserve nor the restrictions of the Williamson Act contract.

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))?* **No impact.**

The site is not zoned as forest land or timberland. Accordingly, the Project would not conflict with forest land or timberland zoning.

d. *Result in the loss of forest land or conversion of forest land to non-forest use?* **No impact.**

The site does not contain forest land, nor would it result in conversion of such land to other uses.

e. *Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?* **Less than significant impact.**

The Project would not create conditions that would affect other grazing lands to the north of either property. Visitors will be restricted to the parking areas and trail system on the reserves. Trespass off the trails will be forbidden. Dogs will not be allowed on the Stewarts Point property. There is no evidence that such use would adversely affect other grazing operations in the area. Therefore, the impact would be less than significant.

III. Air Quality

1. Setting

Environmental Setting

Air quality is a function of the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

Climate has a strong influence on both natural resources and recreational opportunities on the Project site. Sonoma County has a Mediterranean climate with moderate temperatures, wet winters and typically dry summers. The climate along the coast is heavily influenced by the Pacific Ocean that brings summertime fog, low clouds, winter storms, and seasonally variable winds. Summer temperatures are mild (average 64º F), with frequent low clouds and fog that provide important moisture to vegetation during the dry season. Prevailing summer winds are from the northwest, averaging 10 to 15 miles per hour, with gusts as high as 50 to 60 miles per hour. Winter storms often batter the coastline with strong, moisture-laden, southerly winds. These winter storms, from November through April, account for nearly all the average annual rainfall that varies between 30 and 38 inches. Winter temperatures are moderate, with averages ranging from highs in the 50s to lows in the 40s.

Sensitive Receptors

Sensitive receptors are defined as facilities where sensitive population groups are located, including residences, schools, childcare centers, convalescent homes, and medical facilities.

Regulatory Setting

The Project site is located within the North Coast Air Basin. Air quality in this air basin is governed by the Northern Sonoma County Air Pollution Control District (NSCAPCD). The NSCAPCD is responsible for implementing emissions standards and other requirements of federal and state laws. The air basin is in compliance with all ambient State and federal air quality standards except for the 24-hour particulate (PM10) standard, which is only violated in Humboldt County which is under the regulation of the North Coast Unified Air Quality Management District.

Accordingly, the NSCAPCD is not required to adopt nor implement an air quality plan.

2. Impacts

a. Conflict with or obstruct implementation of the applicable air quality plan? **No impact.**

The NSCAPCD does not have an air quality plan. The Project would generate a small amount of criteria air pollutants during construction. Once opened, vehicles being driven to the site would emit pollutants. The quantity of pollutants generated by the projected 11 trips per day on a weekday and 18 trips per day on a weekend day (i.e., about the number of trips generated by an average single-family residence) would not be expected to cause air quality conditions in the air basin to exceed State or federal thresholds. Accordingly, there would be no impact on the NSCAPCD maintaining its compliance standards with State and federal standards.

b. 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? **Less than significant with mitigation incorporated**

The Northern Sonoma County portion of at regional air basin is in attainment with all applicable federal and State ambient air quality standards. To ensure that the Project emissions do not make a cumulatively impact relative to attainment issues, standard dust control mitigation measures will be required.

Mitigation Measure AQ-1: The Project Contractor and SCRP shall construct and conduct needed maintenance activities on the Project site to control dust from leaving the site. Specific control measures include the following**:**

1. The Contractor will be required to spray water or dust palliative on unpaved construction, staging areas, and to stockpiles of soil as needed to control dust during construction. SCRP staff will be required to spray water or dust palliative on unpaved areas as needed during maintenance activities.

2. The Contractor will be required to cover loads of soil, sand, and other loose materials over public roads, keep the loads at least two feet below

the level of the sides of the hauling container, and wet the load sufficiently to prevent dust emissions during construction of the proposed Project. SCRP staff will be required to cover loads of soil, sand, and other loose materials over public roads, keep the loads at least two feet below the level of the sides of the hauling container, and wet the load efficiently to prevent dust emissions as needed during maintenance activities.

3. The Contractor will be required to sweep paved roads as needed to remove soil that has been carried onto them from the Project site during construction. SCRP staff will be required to sweep paved roads as needed to remove soil that has been carried onto them from the Project site due to maintenance activities

4. The Contractor will be required to operate all construction vehicles and equipment with emission levels that meet current air quality standards and to minimize idling time for all heavy equipment to reduce on-site emissions during construction. SCRP staff will be required to operate all construction vehicles and equipment with emission levels that meet current air quality standards and to minimize idling time for all heavy equipment to reduce on-site emissions during maintenance activities.

Mitigation Monitoring and Reporting

The applicant will include these measures in the construction contract. The Contractor will be responsible for implementing the construction-related measures. SCRP shall monitor construction to ensure implementation. SCRP shall implement and oversee maintenance projects that would potentially generate duct.

Impact Significance After Mitigation

These standard mitigation measures would reduce the construction emissions to a less-than-significant level. In addition, as described in the previously discussion, the Project would generate an insignificant quantity of emissions of air pollutants.

c. Expose sensitive receptors to substantial pollutant concentrations? **Less than significant impact**

The one residence that is near the proposed trail is located adjacent to the southern end of the trail on the Stewarts Point Ranch. Otherwise, there are few residences within 1,000 feet of the proposed Project. The

residence to the north of the Stewarts Point Ranch is appreciably 350 feet from the nearest trail section and over 1,000 feet from the proposed parking area. Two residences east of Highway 1 are approximately 850 feet and 350 feet, respectively, from the nearest trail segment and over 2,000 feet from the proposed parking area. One residence to the south of this reserve is within 450 feet of the nearest trail segment. There is one residence east of Highway 1 that is within approximately 350 feet of the nearest trail segment on the Kashia Coastal Reserve.

As described previously, the quantity of pollutants emitted during construction would be small and occur for a very short time. The distance between most of the trail construction and these residences would allow dispersal of emissions, particularly given frequent winds in the area. These short-term emissions would not constitute a substantial pollutant concentration at these residences. Future use of the trails would attract additional trips on Highway 1, but the increase over ambient traffic using that highway would be minimal. The small increase would not be expected to result in substantial pollutant concentrations at these residences. Therefore, the impact to sensitive receptors would be less than significant.

d. *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?* **No impact.**

Odors are typically associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes. New operations associated with the proposed Project would be limited to a small number of new trips. Thus, the proposed Project operation is not expected to create objectionable odors, and the odor impact associated with the proposed Project would be less than significant.

IV. Biological Resources

1. Setting

The following assessment of biological conditions and impacts is based on the *Biological Resources Assessment - North Coast Trail* (Wildlife Research Associates and Jane Valerius Environmental Consulting, August 23, 2018) prepared for the Project; it is contained in Appendix B. Additional information was taken from *Delineation of Wetlands Waters of the U.S. and State Including California Coastal Commissions Wetlands for the Kashia Coastal Reserve Trail Project Sonoma County, CA* (Jane Valerius Environmental Consulting, August 13, 2018) contained in Appendix C. The following summarizes much of the data on the environmental setting. The reader is referred to the full appended report for additional details on habitat types.

The Project area is located within the ecological North Coast Province. This province is located along the Pacific coast from the California-Oregon border to the San Francisco Bay watershed in the south. The North Coast Province vegetation consists predominantly of conifer and mixed-conifer forests dissected by chaparral stands, riparian forests, and wetlands. Valley and foothill grassland and woodland communities emerge along the central and southeastern border of the province, while coastal wetlands and marshes appear along the coastline. Locally, the Sonoma County Local Coastal Program identifies this portion of Sonoma County as being within the Stewarts Point-Horseshoe Cove Environmental Resource Area.

The proposed Kashia and Stewarts Point trails would be located between an elevation of 140 feet on the east, along Highway 1, and 50 feet in the west, along the bluffs of the Pacific Ocean. Surrounding land uses consist of open space lands used as ranches and rural residences located along Highway 1.

The Kashia trail area supports two unnamed creeks that flow from east to west across the property, both of which are identified as intermittent blue line creeks on the USGS topographic map. In addition, eight (8) unmarked drainages and multiple wetlands and seeps occur on the parcel. This parcel is not currently being grazed and was not grazed in 2018 when the Biological Assessment was prepared.

The Stewarts Point Ranch trail area supports two unnamed creeks that flow from east to west across the parcel, both of which are identified as intermittent blue line streams on the USGS topographic map. In addition, six (6) unmarked drainages and multiple wetlands and seeps occur on the parcel. The Stewarts

Point Ranch parcel is typically grazed with sheep, cattle and goats and an active ranching operation.

Vegetation Communities

The Project area contains five main vegetation communities. These communities are further subdivided into twelve different vegetation alliances. The twelve vegetation types are briefly described below. See Table 1 and Appendix B for a full description of these communities, alliances, and species found or expected in these communities on the Project site. Five of the communities are grassland types, three are wetland types, one is a conifer forest type, one is a coastal scrub type, and two coastal riparian scrub types.

Table 1: Vegetation Communities Present– North Coastal Trails Plan

Vegetation Community	Vegetation Alliance
Kashia Coastal Reserve	
Grassland/ coastal terrace prairie	Common velvet grass -sweet vernal grass meadows (*Holcus lanatus – Anthoxanthum odoratum, A. aristatum* Semi-Natural Alliance
	Pacific reed grass meadows (*Calamagrostis nutkaensis* Herbaceous Alliance)
	Tall fescue grassland (*Festuca arundinacea* Semi-Natural Alliance)
Seasonal wetlands	Soft and western rush marshes [*Juncus (effusus, patens*) Provisional Alliance]; slough sedge swards [*Carex obnupta* Herbaceous Alliance]
North Coast coniferous forest/closed-cone pine forest	Bishop pine forest (*Pinus muricata* Forest Alliance)
Coastal scrub	Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance)
Coastal riparian scrub	Red alder forest (*Alnus rubra* Forest Alliance)
Stewart's Point Trail	
Grassland/ coastal terrace prairie	Common velvet grass -sweet vernal grass meadows (*Holcus lanatus – Anthoxanthum odoratum,, A. aristatum* Semi-Natural Alliance
	Annual dogtail grasslands [*Cynosurus echinatus* Semi-Natural Alliance; *Cynosurus echinatus – (Danthonia Pilosa [Rytidosperma penicillatum] – Stipa manicata*) Provisional Semi-Natural Association]
	Tufted hair grass meadows (*Deschampsia cespitosa* Alliance)
Seasonal wetlands	Soft and western rush marshes [*Juncus (effusus, patens*) Provisional Alliance]
Coastal riparian scrub	Wax myrtle scrub (*Morella californica -Rubus spectabilis* Alliance)

Of the twelve vegetation types described below, five are grassland types, three are wetland types, one is a conifer forest type, one is a coastal scrub type and there are two coastal riparian scrub types.

The grasslands within the Stewarts Point Ranch had been grazed at the time of the plant surveys in both 2016 and 2018. No grazing occurs within the Kashia Coastal Reserve, and the grassland areas there have a dense cover of grasses and forbs throughout most of the Project area.

Within the two study areas the grasslands are mostly dominated by non-native species. However, in the Kashia Coastal Reserve there is an area dominated by Pacific reed grass (*Calamagrostis nutkaensis*), which is a native species, and within the Stewarts Point Ranch trail there are large areas dominated by native tufted hair grass (*Deschampsia caespitosa* ssp. *holciformis*). In addition, native California oat grass (*Danthonia californica*) occurs in patches in the Stewarts Point Ranch but does not constitute a separate plant community. These grasses are also associated with the coastal terrace prairie grassland type, which is a special status vegetation type.

The coastal terrace prairie grassland type is defined as dense, tall grassland dominated by both sod and tussock-forming perennial grasses with most stands being patchy and variable in composition. This reflects local differences in soil moisture, hydrology and drainage. The coastal terrace prairie also includes the non-native species tall fescue (*Festuca arundinacea*) and velvet grass (*Holcus lanatus*), both of which occur in varying densities within the Project area.

The trail will primarily be located within grassland/coastal terrace prairie plant community, with some portions of the trail within North Coast coniferous forest and Coastal riparian scrub communities, with small areas of seasonal wetlands. The trail will not be located within other plant communities found in the Project area.

Coastal Terrace Prairie Grassland Community

Common velvet grass-sweet vernal grass meadows Alliance: The northern portion of the Kashia Coastal Reserve, and much of the grassland in the Stewarts Point Ranch Trail, is comprised of this non-native grassland vegetation type. Within this community type, velvet grass is co-dominant with sweet vernal grass and includes other non-native grasses. Native grasses and forbs also occur within this grassland type and include California oat grass, Douglas iris (*Iris douglasiana*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), hairy star tulip (*Calochortus tolmei*), Wight's paintbrush (*Castilleja wightii*), sea pink (*Armeria maritima*), brownie thistle (*Cirsium quercetorum*), bracken fern (*Pteridium aquilinum*), California blackberry (*Rubus ursinus*), seaside daisy (*Erigeron glaucus*), and common coastal morning-glory (*Calystegia purpurata* ssp. *purpurata*). Two special status plants that occur in this type include coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*) and Harlequin lotus (*Hosackia gracilis*).

Pacific reed grass meadows Alliance: This native coastal terrace prairie grassland type occurs only within the Kashia Coastal Reserve at the southern end of the

trail and also occurs as an understory grassland type for the North Coast coniferous forest type, or Bishop pine forest Pacific reed grass is also a facultative wetland (FACW) plant species and the area where this grass is dominant qualifies as a California Coastal Commission (CCC) wetland area since there is a dominance of a wetland species. Although the grassland is a mesic type, there was no evidence of wetland soils or wetland hydrology, so this area does not qualify as a U.S Army Corps of Engineers (USACE) wetland.

Tall fescue grassland Alliance: This is a non-native grassland type and occurs only in the Kashia Coastal Reserve. Tall fescue forms very dense stands in the middle portion of the proposed trail system. This type also includes other non-native species similar to those listed previously as well as various native plant species.

Annual dogtail grassland Alliance: This nonnative grassland type is found only within the Stewarts Point Ranch. This type is dominated by dogtail grass with purple awned wallaby grass (*Rytidosperma penicillatum*) and Andean tussock grass (*Stipa manicata*).

Tufted Hair Grass Herbaceous Alliance*:* This vegetation occurs primarily within the Stewarts Point Ranch. This native coastal terrace grassland type occurs in areas that are slightly wetter and typically near wetlands and sometimes extending into them. Where this species is dominant it forms larger areas of tufted grasses. Other non-native and native species such as those listed for other types are also present here.

<u>Seasonal Wetlands</u>

Soft and Western Rush Marshes [Juncus (effusus, patens) Provisional Alliance : This vegetation type occurs within both the Kashia Coastal Reserve and the Stewarts Point Ranch. Within the Kashia Coastal Reserve, it occurs at data points 4, 7, 9 and 17 (see Appendix C). Within the Stewarts Point Ranch, it occurs in all the areas identified as USACE jurisdiction wetlands. Wetland plants associated with this type include several species of rush including soft rush (*Juncus effusus)*, spreading rush (*Juncus patens*), iris-leaved rush (*Juncus phaeocephalus*), wire rush (*Juncus balticus*) and toad rush (*Juncus bufonius*).

Slough sedge swards (Carex obnupta) Herbaceous Alliance): This wetland type occurs in one area in the northern portion of the Kashia Coastal Reserve. Other wetland plants noted include spreading rush and velvet grass.

California Coastal Commission (CCC) one-parameter wetlands: Three areas were delineated as CCC only wetlands. These areas typically had a dominance of

wetland plants such as Pacific reed grass, velvet grass and/or soft rush, but generally lacked wetland soils and, sometimes, wetland hydrology.

North Coast Coniferous Forest/Closed-Cone Pine Forest

Bishop pine forest: This vegetation type is mainly in the southern portion of the Kashia Coastal Reserve and is common along Highway 1 within the Project study area. The dominant tree species is the native Bishop pine and it also includes some Douglas fir (*Pseudotsuga menziesii*), and non-native Monterey pine (*Pinus radiata*). There are a variety or understory shrubs and grasses.

Coastal Scrub

Coyote brush scrub (Baccharis pilularis Shrubland Alliance): This vegetation type is mapped for the Kashia Coastal Reserve and occurs between the highway shoulder and the slope leading down to the property.

Coastal Riparian Scrub

Red alder forest (Alnus rubra Forest Alliance): This vegetation type is mapped for the Kashia Coastal Reserve at drainage D-5 which is marked as mile marker 45.17 along the Highway 1.

Special Status Biological Resources

Within the Project Area, several vegetation communities, as well as individual plant and animal species are designated as having special status based on their overall rarity, endangerment, restricted distribution, and/or unique habitat requirements. One of the special status vegetation communities, *Coastal Terrace Prairie,* occurs within both the Kashia and Stewarts Point properties. Two coastal scrub riparian communities, red alder forest alliance and wax myrtle scrub, and two seasonal wetland types, slough sedge swards and soft rush marshes, and one grassland type, Pacific reed grass meadows, are all identified as special status plant communities based on the CDFW (2010) natural communities list. In addition, any wetland areas that are not identified as CDFW special status vegetation communities are considered as sensitive natural communities because of their habitat values, and they fall under the jurisdiction of the USACE, RWQCB and CDFW. They also meet the definition of environmentally sensitive habitats as defined by the CCC and the Sonoma Local Coastal Plan (see below). Riparian corridors are also identified in the Sonoma County General Plan as special areas to be protected by use of setbacks and other restrictions.

The Bishop pine forest alliance is also a CDFW special status vegetation community type. This is a native species and is common within and adjacent to the Project area. Locally the pine trees are considered to be invasive taking over native coastal terrace prairie grassland communities. South of the site, at Salt Point State Park the Bishop pine trees are being removed to reduce fire hazard and to open up areas for native coastal terrace prairie grassland. No compensatory mitigation is recommended for individual trees of this type. Some of the smaller pine trees may be removed to provide restoration areas of coastal terrace prairie grassland habitat. Opening up more area for coastal prairie grassland would also benefit the endangered butterflies and the California red-legged frog.

California Coastal Commission: Environmentally Sensitive Habitat Areas (ESHAs)

ESHAs are delineated by the presence of sensitive species and habitats. The California Coastal Act (Public Resources Code Section 30107.5) provides special protections for areas designated as ESHAs, defined as follows: "Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. The County's LCP provides for protection of wetlands, coastal prairies, coastal bluffs, and riparian zones. Given these definitions, areas of coastal terrace grasslands, coastal brush or scrub, wetlands, and riparian areas are all considered to be environmentally sensitive areas.

Special Status Plant Species

A total of 33 special status plant species have been reported occurring on the three topographic quadrangles in the greater Project area (CNDDB 2018). See Appendix B for a full list of reported species and for the list of species assessed in this Initial Study.

Four (4) special status plants were observed during the appropriately timed surveys. These are coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola)*, harlequin lotus (*Hosackia gracilis*), purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurata*), and fringed corn lily (*Veratrum fimbriatum*). See Appendix B for a description of the general ecology of each of these species and the locations for these species within the Project study area. The following describes the results of the surveys done for special status plant species.

Coastal bluff morning-glory (*Calystegia purpurata* ssp*. saxicola*) Status: CNPS Rank 1. This species occurs in coastal bluff scrub, coastal dunes, coastal scrub

and North Coast coniferous forest habitats. This species was found in multiple locations within the Project study areas.

Harlequin lotus (*Hosackia gracilis*) *Status*: CNPS Rank 4: This species occurs in a variety of habitats including coastal bluff scrub, coastal prairie, coastal scrub, meadows and seeps, North Coast coniferous forest and valley and foothill grassland. It often occurs in wetlands and along roadsides. This plant species was abundant within the two study areas. On the Stewarts Point Ranch the numbers were in the thousands. It was generally found in wetland areas, including many locations within the proposed trail corridor. Although it is on the CNPS Watch List, it is relatively common on the northern California coast and was particularly abundant in the Stewarts Point Ranch study area.

Purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurata*) *Status:* CNPS Rank 1B" This low-growing, perennial herbaceous species is considered to be fairly endangered in California. This species occurs in broadleaf upland forests and coastal prairie. This species has been recorded near Fort Ross, at Gerstle Cove in Salt Point State Park, and near Stewarts Point. It was found on the Kashia Coastal Reserve in 2018. This plant was not observed in the Stewarts Point Ranch. This species was not abundant nor common on the site.

Fringed corn lily *(Veratrum fimbriatum) Status: CNPS Rank 4:* Fringed corn lily typically occurs in wet meadows in coastal scrub. Dozens of individuals were observed on the Stewarts Point Ranch. No individuals of this species were observed in the Kashia Coastal Reserve.

One other special-status species, salt sedge (*Carex saliniformis,* CNPS Rank 1B), has moderate potential to occur in the study area. During a 2016 field survey, one sedge species which was lacking reproductive parts for identification (due to timing and/or herbivory) was present in the large wetland south of Drainage D in the Stewarts Point Ranch, so the presence of *Carex saliniformis* could not be ruled out. This species typically occurs in mesic coastal prairie, scrub, meadows, seeps, and salt marshes. Dozens of plants were present, and they were not in an area of proposed impact. Further study would be needed to confirm its identity, but this plant is not located near proposed trail areas.

As detailed in Appendix B, four other species have recorded occurrences close to the Project study area but were not observed during the site visits and are therefore considered not likely to occur in the study area:

Waters of the U.S. and State

Wetland delineations were prepared in 2016 for the Stewarts Point Ranch and in 2018 for the Kashia Coastal Reserve. See Appendix C for details on the surveys and delineation process. See the impact analysis section below for a description of what wetlands would be affected by the Project,

Special Status Animal Species

"Special Status Species" is a universal term used in the scientific community for species that are considered sufficiently rare that they require special consideration and/or protection and should be, or have been, listed as rare, threatened or endangered by the Federal and/or State governments. The following definitions apply:

1. **Endangered** (Federal & State) - any species that is in danger of extinction throughout all or a significant portion of its range. (Except insect pests - Feds).
2. **Threatened** (Federal & State) - any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
3. **Rare (State)** - this is technically used only for plants, as defined under the California Native Plant Protection Act. When the California Endangered Species Act (CESA) was enacted, all animals with a rare classification were reclassified as threatened; however, rare plants were not.
4. **Species of Concern (Federal)** - species for which existing information indicates it may warrant listing as threatened or endangered but for which substantial information for listing is still lacking.
5. **Species of Special Concern (State)** - special plant/animal species tracked by California Natural Diversity Data Base regardless of their legal or protection status.

As described in Appendix B, 36 Special Status wildlife species were evaluated to determine their potential presence on or use of the Project site. The Appendix also provides details on the general ecology of each species. The following species were observed or have the potential to occur on the site.

Western Bumble bee (*Bombus occidentalis*) *Status*: CNDDB watch list: The habitat for this species is described as open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. No species-specific surveys were conducted for this habitat assessment. It is a possible

inhabitant of the Project site. Measures to protect wetlands and native plants on the site will protect the bees. The Biological Assessment report (Appendix B) did not recommend further mitigation for this species.

Lotus blue butterfly (*Lycaeides argyrognomon lotis*) *Status*: USFWS Listed Endangered: Habitat occupied by this species includes wet meadows and sphagnum bogs. It is thought that the harlequin lotus (*Hosackia gracilis (Lotus formosissimus)*) is the larval food plant for this species. The larval plant was found on the both the Kashia Coastal Reserve and the Stewarts Point Ranch. However, the species has not been observed since 1983, despite extensive surveys in historical and potential sites in 1991, 2003-2004.

Behren's silverspot butterfly (*Speyeria zerene behrensii) Status*: USFWS Listed Endangered with a Recovery Plan adopted in 2003 and a Final Implemented in 2015: Occurrences and known habitats are coastal terrace prairie habitat west of the Coast Range in southern Mendocino and northern Sonoma Counties. Populations of this species have been reported north and south of the Kashia Coastal Reserve and the Stewarts Point Ranch, with one reported location just south of the Stewarts Point Ranch.

California Red-legged Frog (*Rana draytonii*) *Status*: USFWS listed Threatened with Critical Habitat, CDFW Species of Special Concern: Review of occurrences within a one-mile radius reveals no populations have been reported; however, that may mean that not all private lands have been surveyed for this species. This species has not been reported within three miles of either trail. However, individuals in unreported areas may be moving about the landscape during construction. It is possible this frog inhabits or uses the Project site.

Burrowing owl (*Athene cunicularia*) *Status*: USFWS Bird of Conservation Concern and CDFW Species of Special Concern: Foraging and breeding habitat for burrowing owl includes native and non-native grasslands, deserts, and agricultural areas. Although no evidence of occupancy was observed during the site visits, there is potential for burrowing owls to use the Project area for wintering habitat. The closest reported sighting is more than 3 miles south.

American badger (*Taxidea taxus) Status*: CDFW Species of Special Concern: A medium-sized carnivore, badgers rely primarily on small burrowing mammals, such as California ground squirrel and Botta's pocket gopher, as a prey source, and badger populations vary with prey availability. This species

has been observed and reported on both trail parcels. See the appended biology report for maps showing burrow locations on the site.

Roosting bats – including Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*). *Status*: CDFW Species of Special Concern (SSC), as well as Fish and Wildlife Code Sections 86, 2000, 2014, 3007, Title 14, Sections 15380, 15382: Pallid bats and Townsend's big-eared bats have potential to roost in the barn structures located on the Project site.

Nesting Raptors – white-tailed kite (*Elanus leucurus*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*) *Status*: USFWS Migratory Bird Treaty Act and CDFW 3503.5: Raptors nest in a variety of substrates including, cavities, ledges and stick nests. Foraging habitat for raptors, such as white-tailed kite and red-shouldered hawk, among others, occurs throughout the Project area. The larger trees on the Kashia Coastal Reserve provide potentially suitable nesting habitat for American kestrels.

Nesting Passerines – including grasshopper sparrow and song sparrow, among others *Status*: USFWS Migratory Bird Treaty Act and CDFW Code 3503: Several passerine (perching birds) species may nest on the site in the various habitats, including, but not limited to, grasshopper sparrow in the grasslands and white-crowned sparrows in the shrubs, both species were observed on the two parcels.

No suitable habitat was found for California giant salamander (*Dicamptodon ensatus*) *Status*: CDFW Species of Special Concern or Western Pond Turtle (*Emys marmorata*) (WPT) *Status*: CDFW Species of Special Concern.

Wildlife Movement Corridors

Wildlife movement includes migration (i.e., usually one way per season), inter-population movement (i.e., long-term genetic flow) and small travel pathways (i.e., daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow among populations.

These linkages among habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement among populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats

found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations comprising a large single population, which is often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, migration corridors and movement corridors. Depending on the condition of the corridor, genetic flow between populations may be high in frequency, thus allowing high genetic diversity within the population, or may be low in frequency.

As described in the *California Essential Connectivity Project* (Spencer, et al. 2010), the study area is located in North Coast Ecoregion. The natural drainages in the area (e.g., Stewarts Creek) flow west into the Pacific Ocean. The Study Area is not within a Natural Landscape Block (defined as relatively natural habitat blocks that support native biodiversity). The study area is not located in an Essential Connectivity Area (defined as areas that are essential for ecological connectivity between blocks.

Movement corridors for large and small mammals occur between the two parcels and undeveloped lands of Salt Point State Park and lands to the north. Although several intermittent drainages occur on both parcels, the drainages are situated on coastal bluffs, approximately 30 to 50 feet above the Pacific Ocean. As a result, none of the drainages support fisheries.

Regulatory Setting

Federal Regulations

Federal Endangered Species Act. Section 9 of the federal Endangered Species Act (ESA) protects federally- listed endangered and threatened wildlife species from unlawful take (16 U.S.C. § 1538 (a)(1)). "Take" is defined to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S.C. § 1532 (19)).In addition, federal agencies are required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under ESA or result in the destruction or adverse modification of critical habitat designated for such species (16 USC 1536[3], [4]). Projects that would result in "take" of any federally listed threatened or endangered species are required to obtain authorization from NMFS and/or USFWS through either Section 7 (interagency consultation) or section 10(a) (incidental take permit) of ESA, depending on whether the federal government is involved in permitting or funding the project.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) regulates or prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 Code of Federal Regulations (CFR) Section 10.13. The MBTA is an international treaty for the conservation and management of bird species that migrate through more than one country and is enforced in the United States by the USFWS. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

Federal Clean Water Act (Section 404). The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Under Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) has the authority to regulate activities that could discharge fill or dredge material or otherwise adversely modify wetlands or other waters of the United States. The USACE implements the federal policy embodied in Executive Order 11990, which, when implemented, is intended to result in no net loss of wetland values or function.

Federal Clean Water Act (Section 401). The State Water Resources Control Board (SWRCB) has authority over wetlands through Section 401 of the CWA, as well as the Porter-Cologne Act, California Code of Regulations Section 3831(k), and California Wetlands Conservation Policy. The CWA requires that an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the SWRCB to the nine regional boards. The North Coast Regional Water Quality Control Board (NCRWQCB) has authority for Section 401 compliance in the Project site. A request for certification is submitted to the regional board at the same time that an application is filed with the USACE.

State Regulations

California Endangered Species Act. The California Endangered Species Act (CESA) prohibits the take of state-listed threatened or endangered species unless an incidental take permit is issued by CDFW pursuant to Section 2081 of the Act. The state definition of take is similar to the federal definition, except that the CESA does not prohibit indirect harm to listed species by way of habitat modification. Pursuant to the requirements of CESA, a State agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present and the extent to which the project could potentially result in take of such species. CDFW also maintains a Special Animals List which includes species considered of "Special Concern" in

California. A Species of Special Concern is a species, subspecies, or distinct population of an animal native to California that typically meets the State definition of threatened or endangered but has not formally been listed; is experiencing serious (noncyclical) population declines or range retractions that, if continued or resumed, could qualify it for State threatened or endangered ; or has naturally small populations exhibiting high susceptibility to risk from any factor(s) that, if realized, could lead to declines that would qualify it for State threatened or endangered status.

Fish and Game Code Sections 1940, 3503, 3511, 3513 and 4150. Fish and Game Code Section 1940 requires CDFW to develop and maintain a vegetation mapping standard for the state. Over half the vegetation communities in the state have been mapped through the Vegetation Classification and Mapping Program.

Fish and Game Code Section 3503 addresses protection of Migratory Birds and Raptors. It states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. Section 3511 protects species considered "fully protected". Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the Migratory Bird Treaty Act.

Fish and Game Code Section 4150 states a mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A nongame mammal may not be taken or possessed under this code. All bat species occurring naturally in California are considered nongame mammals and are therefore prohibited from take as stated in Fish and Game Code Section 4150.

CDFW Lake and Streambed Alteration Agreement. Under Sections 1600-1616 of the California Fish and Game Code, the CDFW regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFW's jurisdiction are defined in the code as the "… bed, channel or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." (Section 1601). In practice, the CDFW usually marks its jurisdictional limit at the top of the stream or bank, or at the outer edge of the riparian vegetation, whichever is wider.

CDFW Wetlands Protection Regulations. CDFW derives its authority to oversee activities that affect wetlands from state legislation. This authority includes

Sections 1600-1616 of the Fish and Game Code (lake and streambed alteration agreements), CESA (protection of state listed species and their habitats - which could include wetlands), and the Keene-Nejedly California Wetlands Preservation Act of 1976 (states a need for an affirmative and sustained public policy program directed at wetlands preservation, restoration, and enhancement). In general, the CDFW asserts authority over wetlands within the state either through review and comment on USACE Section 404 permits, review and comment on CEQA documents, preservation of state listed species, or through stream and lakebed alteration agreements.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act established the SWRCB and each Regional Water Quality Control Board (RWQCB) as the principal state agencies responsible for the protection of water quality in California. As noted above, the NCRWQCB has regulatory authority over the project site.

The Porter-Cologne Water Quality Control Act provides that "All discharges of waste into the waters of the State are privileges, not rights." Waters of the State are defined in Section 13050(e) of the Porter-Cologne Water Quality Control Act as "…any surface water or groundwater, including saline waters, within the boundaries of the state." All dischargers are subject to regulation under the Porter Cologne Water Quality Control Act, including both point and nonpoint source dischargers. The NCRWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. As noted above, the NCRWQCB is the appointed authority for Section 401 compliance in the project site.

California Environmental Quality Act. Although threatened and endangered species are protected by specific federal and state statutes, California Environmental Quality Act (CEQA) Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals, and it allows a public agency to undertake a review to determine if a significant effect on a species that has not yet been listed by either the USFWS or CDFW (i.e., species of concern) would occur. Whether a species is rare, threatened, or endangered can be legally significant because, under CEQA Guidelines Section 15065, an agency must find an impact to be significant if a project would "substantially reduce the number or restrict the range of an endangered, rare, or threatened species." Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts

until the respective government agencies have an opportunity to designate the species as protected, if warranted.

California Coastal Act and Local Coastal Program. Through the California Coastal Act of 1976, the California Coastal Commission (Commission) became tasked with the protection of coastal resources including shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, hazards, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, power plants, ports, and public works facilities. For further explanation of the Commission's responsibilities, please see the California Coastal Act, Chapter 3 policies (Sections 30200 - 30265.5). Coastal Act policies encourage the productive maintenance and protection of marine resources and designated Environmentally Sensitive Habitat Areas (ESHAs). They also require that new development be located and designed to minimize risks to life and property from geologic hazards and flooding; and to avoid substantial alteration of natural landforms.

Local Coastal Programs (LCPs) are basic planning tools used by local governments to guide development in the coastal zone, in partnership with the Coastal Commission. LCPs contain the ground rules for future development and protection of coastal resources in coastal cities and counties. The LCPs specify appropriate location, type, and scale of new or changed uses of land and water. Each LCP includes a land use plan and measures to implement the plan (such as zoning ordinances). Prepared by local government, these programs govern decisions that determine the short- and long-term conservation and use of coastal resources. While each LCP reflects unique characteristics of individual local coastal communities, regional and statewide interests and concerns must also be addressed in conformity with Coastal Act goals and policies. Following adoption by a local government, an LCP is submitted to the Coastal Commission for review for consistency with California Coastal Act requirements.

After an LCP has been approved, the Commission’s coastal permitting authority over most new development proposals is transferred to the local government, which applies the requirements of the LCP in reviewing proposed new developments. The Commission retains permanent coastal permit jurisdiction over development proposed on tidelands, submerged lands, and public trust lands, and the Commission also acts on appeals from certain local government coastal permit decisions.

Local Regulations

Local Sonoma County Coastal Plan. In 1981, Sonoma County adopted the Coastal Plan, Coastal Zoning Ordinance, and Coastal Administrative Manual planning documents prepared under specific requirements of State law that are intended to provide an intermediate level of detail between the 1978 General Plan and site development plans submitted to the County for approval. The current Coastal Plan is currently being updated. The Coastal Plan covers an area which is 55 miles in length and extends inland generally 1,000 yards from the mean tide line. In significant coastal estuarine habitat and recreational areas, it extends inland to the first major ridgeline paralleling the sea or five miles from the mean high boundary is generally 3000 to 12,000 feet inland from shoreline, except around Duncan Mills, Willow Creek and Valley Ford, where it extends up to five miles inland.

The Environment Chapter of the Coastal Plan identifies rare and endangered plant locations, bird and animal habitats, wetlands, riparian corridors and other areas which are very sensitive to disturbance are mapped as Sanctuary Preservation or Conservation areas. In Sanctuary Preservation areas, essentially no development other than nature trails is allowed. In Conservation Areas no development is allowed unless an environmental study determines that the project can be accomplished with no adverse effects. Other management recommendations are proposed for each specific resource or habitat area.

Sonoma County General Plan 2020. As noted previously, the LCP is the standard of review and the default General Plan for the Coastal Zone. Coordination with the Coastal Commission may be appropriate for projects that have potentially significant impacts. The discussion of the Sonoma General Plan 2020 presented below is intended to provide additional information about County planning goals. The Sonoma County General Plan Open Space and Resource Conservation (OSRC) Element provides guidance for the protection of biological resources in Sonoma County as set by its citizens and elected officials (Sonoma County 2016). The plan includes the following goals and policies related to biological resources applicable to the project:

> **Goal OSRC-7:** Protect and enhance the County's natural habitats and diverse plant and animal communities.
> **Objective OSRC-7.1:** Identify and protect native vegetation and wildlife, particularly occurrences of special status species, wetlands, sensitive natural communities, woodlands, and areas of essential habitat connectivity.
> **Objective OSRC-7.5:** Maintain connectivity between natural habitat

areas.
Objective OSRC-7.6: Establish standards and programs to protect native trees and plant communities. **Objective OSRC-7.7:** Support use of native plant species and removal of invasive exotic species.
Goal OSRC-8: Protect and enhance Riparian Corridors and functions along streams, balancing the need for agricultural production, urban development, timber and mining operations, and other land uses with the preservation of riparian vegetation, protection of water resources, flood control, bank stabilization, and other riparian functions and values.
Objective OSRC-8.3: Recognize and protect riparian functions and values of undesignated streams during review of discretionary projects.
Policy OSRC-8d: Allow or consider allowing the following uses within any streamside conservation area:
(2) Streamside maintenance and restoration
(4) Road crossings, street crossings, utility line crossings
(11) Creekside bikeways, trails, and parks within Urban Residential, Commercial, Industrial, or Public-Quasi Public land use categories.

2. Impacts

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 with mitigation incorporated.**

Special status wildlife species with the potential to occur at the Project site include: Western Bumble bee, Lotus blue butterfly, Behren's silverspot butterfly, California Red-legged Frog, Burrowing owl, American badger, Roosting bats – including Townsend's big-eared bat, pallid bat, Nesting Raptors – white-tailed kite, red-shouldered, American kestrel, and Nesting Passerines – including grasshopper sparrow and song sparrow.

Direct impacts could include removal or disturbance of suitable habitat required by these species during construction as well as disturbance, injury, or mortality of individual animals or plants. Indirect impacts could occur as a result of maintenance and operation activities that affect habitat and wildlife within and in the vicinity of the trail alignments. Construction-related activities could result in destruction of individual plants or populations of plants that may be located near or within the proposed trails at the time of ground disturbance. In addition, visitors ignoring posted use regulations could harm individual plants and animals

or adversely affect habitat values. Signs would be installed at several locations along each trail to educate trail users about use regulations, including the requirement to stay on the trail and not trespass outside the trail area. If users are found to be in non-compliance with this measure, a fine may be imposed by a ranger at any time. The following lists the species potentially affected and the mitigations for each species.

Western Bumble bee (*Bombus occidentalis*) is a possible inhabitant of the Project site. Measures listed subsequently in this section to protect wetlands and native plants on the site will pride for necessary habitat for the bees. The Biological Assessment report did not recommend further action for this species.

Lotus blue butterfly *(Lycaeides argyrognomon lotis)*. Harlequin lotus is the larval food plant for this species and was found on both the proposed Kashia Coastal Reserve Trail and the Stewarts Point Ranch Trail. Should this species occur on the site during Project construction, impacts could be the same as listed for the previous butterfly species.

Behren's silverspot butterfly (*Speyeria zerene behrensii*) is present on Coastal Terrace Prairie communities north and south of the Project area. Should this species occur on the site during Project implementation, impacts would be the same as listed above.

The following mitigations apply to the impacts on butterflies. The first three mitigations apply to the impacts on all special status species and resources.

Mitigation Measure BIO-1 - Contractor/Worker Awareness Training

All construction workers shall receive environmental awareness training to be conducted by a qualified biologist. The training may also be conducted with a site -specific electronic presentation. Training shall include how to recognize all special-status plant/wildlife species, their preferred habitat potentially present in the Project site, applicable laws and regulations regarding each species, actions to take if a special-status species is observed during construction activities (including contact information of the monitoring biologist, purpose of protective measures and documentation of best management practices (BMPs) and other required mitigation measures that were used). They shall also be instructed as to sensitive resource areas, including wetlands and waters of the U.S., to avoid within the Project site other than where impacts

have been authorized, and relevant laws and regulations for each resource.

Mitigation Measure BIO-2 - Trail Alignment Fencing and Interpretive Signage

Fencing shall be used in strategic areas to protect sensitive biological resources. The monitoring biologist will provide recommendations for where fencing should be placed to protect sensitive resources. Fencing would be used to minimize trampling and disturbance to on-site special-status plant populations, harassment, disturbance, injury and/or mortality to on-site special-status wildlife species, degradation to aquatic/riparian features; and/or disturbance to nesting native bird species. New or relocated fencing and gates would only be located where trails are adjacent to sensitive biological habitats or areas where special-status plant and/or wildlife species are known to occur. Fencing will be designed and reviewed by the monitoring biologist to allow movement of wildlife species.

Interpretive signage will be provided in the staging areas to provide information about staying on the trail and avoiding damaging sensitive plant and wildlife species and other sensitive resources.

Mitigation Measure BIO-3 - Construction Schedule

SCRP will structure the Project construction schedule to minimize and avoid impacts to special-status species and sensitive habitats, to the greatest extent possible. The conceptual construction schedule is based upon the avoidance periods for each species and habitat of concern, as well as regulatory constraints. The conceptual construction schedule may change based on completion of the CEQA processes, the construction bid process, regulatory permit conditions, and special conditions contained within the regulatory permits. SCRP will remove trees and shrubs in advance of bird-nesting season. Implement appropriate measures in the storm water pollution prevention plan and install exclusionary fencing to prevent CA red-legged frog and other sensitive species from entering/ re-entering work areas.

SCRP will conduct ground-disturbing construction activities associated with the Project during this timeframe with the exception of vegetation removal, which will be conducted to avoid impacts to sensitive animal species. Construction activities that are not ground disturbing may occur before and after this timeframe.

Mitigation Measure BIO-4 - Special Status Species Butterflies

To avoid/minimize direct and indirect impacts to special status butterfly species within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented.

A pre-construction survey shall be performed no sooner than 30 days prior to the onset of construction to identify the presence of host plant species along both trail corridors, and staging areas. If any host plants are observed within areas proposed for ground disturbance, they shall be marked with pin flags and surveyed to determine if any butterfly eggs, larva or pupa are attached to the plants. If any of these life stages of the butterfly are observed attached to the plants, the plants shall be avoided until the pupa has metamorphosed into adult butterflies and are no longer attached to the host plants.

If avoidance of host plants is not considered possible, a qualified botanist shall be consulted to prepare a translocation plan to transplant the plants, once any pre-adult life stages of the butterfly are determined not to be present, to a suitable location on the Project site. The plan shall contain, at a minimum, the following: (a) goals and objectives of the transplantation; (b) methods of collection and transplantation; (c) location of the area(s) on site in which the plants will be transplanted; (d) monitoring methods and timing; (e) success criteria; and (f) measures to be taken in the event that the transplantation is not successful. In addition, the plan shall be approved by the County and by the USFWS since these butterfly species are federally listed as endangered.

California red-legged frog (*Rana draytonii*) has not been reported within three miles of the Project area. Construction-related impacts can include direct harm or mortality to individual animals as a result of construction of wetland crossings, erosion and/or siltation that can adversely affect egg masses. Destruction of suitable upland refugia habitat adjacent to drainages can occur in the form of grading or laying gravel for parking or equipment staging areas. Indirect impacts from trail users can include disturbance of CRLF at wetland crossings, disturbance of eggs, tadpoles or adult frogs by users that go off trail and into the drainages or along edges of drainages, and siltation of drainages by users that go off-trail and wander along edges of drainages. Potential direct or indirect impacts associated with construction and operation of the trail is considered a potentially significant impact.

Mitigation Measure BIO-5 - California Red-legged Frog

To avoid/minimize direct and indirect impacts to California red-legged frog (CRLF) within or adjacent to the proposed trails as a result of Project implementation, the following measures shall be implemented:

1. SCRP will design the trail and associated facilities with appropriate spanning structures (bridges/boardwalks) to avoid foot traffic in sensitive wetland and riparian habitats.

2. The Contractor will perform major ground-disturbing work, such as excavation, grading and pier installation, during the dry-season to minimize impact to California red-legged frog (CRLF). The dry-season is typically May 15 – November 30, when rainwater has receded and standing water is not present.

3. SCRP will conduct a pre-construction survey for CRLF 48-hours prior to the onset of construction activities. Construction activities will only be allowed in areas that have been surveyed.

4. SCRP will conduct a pre-construction training session for all construction crew members. The training will include discussion of the sensitive biological resources within the Project area and the potential presence of special-status species. A discussion of CRLF status, life history characteristics, protection measures to ensure CRLF and other sensitive resources are not impacted by construction activities and the work area boundaries will also be included.

5. The Contractor will install and properly maintain temporary wildlife exclusionary fencing around the work area in sensitive wetland and riparian habitats to preclude CRLF from entering the construction area following the pre-construction survey. Exclusionary fencing should include all sensitive wetland areas, including US Army Corps of Engineers, CDFW, and California Coastal Commission jurisdictional wetlands.

6. SCRP will conduct regular assessments of the work area during construction activities to ensure no CRLF or other species have entered the work area and are being impacted by construction activities. If CRLF are encountered during construction, SCRP will have CRLF relocated by an US Fish and Wildlife Service-approved

biologist, following consultation with the US Fish and Wildlife Service and the California Department of Fish and Wildlife.

7. SCRP will install signage in the trailhead and along the trail to inform visitors of the sensitive habitats and species within the Project area and requiring visitors to remain on the trail to avoid impacts to the sensitive habitats and species.

Burrowing owl *(Athene cunicularia).* Although no Burrowing owl were observed during site visits, the Project area provides suitable nesting and foraging habitat for burrowing owl and this species could utilize any ground squirrel burrow along the trail corridors. If present, construction-related activities could potentially result in injury or mortality to individual burrowing owls and/or active nest burrows (including eggs and/or chicks) as a result of equipment or vehicles collapsing an active burrow. Construction activities could also cause an adult owl to abandon an active nest that is in close proximity to the ground disturbance area and therefore leave eggs or chicks vulnerable to predation or without provisions. Increased human activity immediately adjacent to an active nest burrow due to trail use after construction, or due to off-trail use by visitors in an area containing active owl burrows, could also cause adult owls to abandon an active burrow resulting in likely mortality of any eggs or young. Potential direct or indirect impacts associated with construction and operation of the trail is considered a potentially significant impact.

Mitigation Measure BIO-6 - Burrowing Owl

To avoid/minimize direct and indirect impacts on burrowing owls as a result of Project implementation, the following measures shall be implemented:

1. Protocol-level surveys for burrowing owls shall be conducted 30 days prior to scheduled construction activity that is conducted during the breeding season (March through August) to determine whether burrowing owls are present on site and, if so, their breeding status. Surveys shall be conducted by a qualified biologist with experience conducting such surveys.

2. If during surveys, burrows are observed being used by non-nesting burrowing owls within the construction footprint, construction work shall cease until owls are evacuated from

any such burrow using a California Department of Fish and Wildlife-approved burrow closure procedure in accordance with the California Department of Fish and Game "Staff Report on Burrowing Owl Mitigation" (CDFW 2012) and by a qualified biologist. Once owls from any such burrow have been successfully evacuated, the burrow can be collapsed and construction work can proceed.

3. If nesting burrowing owls are observed during these surveys, construction work within 300 feet of active nest burrows shall be delayed until young have fledged and are independent of the nest burrow, as determined by a qualified biologist. The qualified biologist may reduce the 300-foot setback based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once any young have fledged and are no longer dependent upon the nest burrow, the same burrow closure procedure described above shall be used to confirm the burrow is inactive before ground disturbance activities can continue near the burrow.

American Badger *(Taxidea taxus).* The American badger is a California designated as a Species of Special Concern. This mammal has no federal status. It is found in a variety of habitats, especially in open habitats such as oak-savannah and grasslands where its presence is typically identified by its distinctive, large underground dens (burrows) excavated in friable (loose) soils. In the region, this animal is uncommon. This nocturnal mammal is rarely directly observed. Except during breeding, badgers are typically highly solitary and have vast home ranges.

Badgers have large territories and hunt in particular areas where their small rodent prey is abundant and can be easily dug out of their burrows. Badgers move opportunistically to find prey and to establish maternity burrows. Female give birth to young underground in March and April with an average litter size of 2 or 3. Newborns remain underground until the age of 6 – 8 weeks old. In July through August, the young badgers disperse to live in their own burrows. Adult badgers do not show long-term faithfulness to particular dens, except reproductive dens, until young disperse. Badgers observed in one area in one year may not be present in following years, which appears to be the case within the Project area.

American badger is known to occur in the Project area, and suitable habitat exists for this species within the site. The site is likely used for breeding, cover and foraging by this species, and could also be used as a movement corridor between adjacent patches of suitable habitat. If occurring on the Project site within proposed ground disturbance areas just prior to or during construction, potential direct impacts include direct harm or mortality to individual animals, loss of active dens, and loss of suitable denning and foraging habitat. Potential indirect impacts include disturbance to active dens as a result of off-trail use by visitors. Potential direct or indirect impacts associated with construction and operation of the trail is considered a potentially significant impact.

Mitigation Measure BIO-7 - American Badger

The Construction Bid Documents will specify that the Contractor conduct ground-disturbing activities, including vegetation removal in habitat areas only between September 1 and February 28 to avoid the natal season for American badger. If it is not feasible to conduct ground-disturbing activities, including vegetation removal and grading to avoid natal season for the American badger in these habitat areas then SCRP will complete the following:

1. To ensure there are not direct impacts to American badger, a qualified biologist shall conduct a pre-construction den survey no more than 21 days prior to site grading. The area to be surveyed will include all construction sites and staging areas in suitable habitat areas for which vegetation removal and grading is required, to a buffer of 150 feet outside the boundary of the area to be cleared. Survey results will remain valid for a period of 21 days following the date of the survey.

2. If a potential den is located, infrared camera stations will be set up and maintained for three (3) consecutive nights at the potential den openings prior to initiation of grading/work activities to determine the status of the potential dens.

3. If American badger is not found to be using the den, the burrow can be filled (using hand work and shovels) and site grading may proceed in the vicinity of this burrow(s) unhindered. However, if American badger is found using a den site within the area of proposed grading, provided it is not a natal den, the badger will

be passively and humanely evicted from its den if it could be impacted by grading or other construction activities.

- Exclusion techniques will be used to passively relocate any badgers that are present in the Project work area, or within 150 feet of Project activities at the discretion of the qualified biologist.

- Exclusion techniques, such as installation of a one-way door in the burrow entrance, would exclude badgers from entering the burrow. Burrows with exclusion techniques will be monitored to confirm badger usage has been discontinued. After badger use has been discontinued, burrows outside the Project work area, but within 150 feet of construction activities, will be temporarily covered with plywood sheets or similar material. Burrows within the Project work area will be hand-excavated and collapsed to prevent reoccupation.

4. If a natal den is found, then an eviction plan will be prepared and submitted to CDFW for discussion and approval. Evictions shall not occur until CDFW approves the passive eviction plan. The Construction Contractor will be directed to postpone all ground-disturbing construction activities, including vegetation removal, within 100 feet of the active natal burrow. No ground-disturbing activity will be allowed to occur within this area until it is determined that the young have dispersed the natal burrow.

5. SCRP will include information about sensitive habitats and the nocturnal presence of American badgers as part of the interpretive signage program associated with this Project.

Roosting Bats –Townsend's big-eared bat (*Corynorhinus townsendii*) and **Pallid bat** (*Antrozous pallidus*) are both known to occur in the vicinity of the Project site. Townsend's big-eared bat is sensitive to human disturbances and activities. The trail is proposed to be constructed within 25 feet of the existing barn on the Kashia Reserve and within 100 feet of the barn on Stewarts Point Ranch. The staging area would not be located near any structures.

Although the structures would not be directly affected by trail construction, pallid bats utilizing these structures could be adversely affected by construction noise. Potential direct effects with respect to

general construction-related noise on bats include acute acoustic trauma, degradation of physiological condition and social order, avoidance of foraging areas, and disturbance from and/or abandonment of roost sites. In particular, loud ultrasonic noise (i.e., those having frequencies above the range of human hearing >20 kilohertz [kHz]) can deter bats from accessing and using known roosts. Depending on noise attenuation rates and other factors, construction equipment such as graders, dozers and diesel engines can produce sound at a dBA that is high enough to disturb roosting bats. Similarly, studies have shown that high frequency laser survey tools inaudible to the human ear, but within range of bat auditory capabilities (19-28 kHz), can also disturb active roosts.

Trail construction would be done by hand tools and in some areas with the use of small equipment. Use of such tools in constructing the portion of the trail closest to the structures is not expected to generate noise levels that would adversely affect any roosting bats. Construction would primarily occur during the summer months when pallid bats, if utilizing the structure, would likely be present.

Noise levels and human activity associated with construction of the trails and staging areas would be temporary and expected to last approximately four weeks. Therefore, they are not expected to adversely affect individual bats that are using the structure as a roost site. However, adverse noise and disturbance impacts could occur if a maternity roost was within a structure at the time of construction activities, Potential direct or indirect impacts associated with construction and operation of the trail is considered a potentially significant impact.

Signage would be provided regarding site management, activities, allowable uses, hours, maps, and interpretive signage with information on the species adjacent to the trails, particularly in close proximity to sensitive resource areas. Therefore, potential direct and indirect impacts associated with trail operations are not expected to significantly impact bats that may be using structures as roost habitat.

Mitigation Measure BIO-8 - Special-Status Bats

To ensure that the noise of construction equipment would not adversely affect any maternity roosts that could occur adjacent to existing structures, a pre-construction survey shall be conducted by a qualified bat biologist to determine if active maternity roosts exist within the

structure. If maternity roosts are observed, and construction of the access road and/or staging areas adjacent to the barn or outbuilding would occur at the time the roosts are active, equipment emitting ultrasonic noise (i.e., those having frequencies above the range of human hearing >20 kilohertz [kHz]) shall be prohibited from the construction area until the maternity roost is no longer active, as determined by the qualified bat biologist. Alternatively, equipment that emits noise with frequencies <20 kHz can be used to grade and prepare the access road and staging areas adjacent to the barn and outbuilding. Fencing may also be used as necessary to keep users on trail and away from the barn and roosting bats.

Nesting Raptors – white-tailed kite (*Elanus leucurus*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*) The site provides foraging habitat for raptors, such as white -tailed kite and red-shouldered hawk, among others, occurs throughout the Project area. The larger trees on the Kashia Coastal Reserve provide potentially suitable nesting habitat for American kestrels.

The grasslands provide suitable foraging and wintering habitat. Construction activities could cause an adult raptor to abandon an active nest that is in close proximity to the ground disturbance area and therefore leave eggs or chicks vulnerable to predation and inclement weather conditions, and without provisions. Increased human activity immediately adjacent to an active nest due to trail use after construction, or due to off-trail use by visitors in an area containing an active nest, could also cause adult kites to abandon an active nest resulting in likely mortality of any eggs or young. Potential direct or indirect impacts associated with construction and operation of the trail is considered a potentially significant impact.

Nesting Passerines –grasshopper sparrow and song sparrow were observed in the Project area. Suitable nesting and foraging habitat for these species occurs on the Project site. Should any of these species be nesting on the site prior to Project implementation, impacts in the form of direct harm or mortality to individual animals during vegetation removal and trail construction, loss of active nest sites due to vegetation removal, or abandonment of active nest sites and possibly due to increased human presence associated with off-trail use could occur. Potential direct or indirect impacts associated with construction and operation of the trail is considered a potentially significant impact.

Mitigation Measure BIO-9 - Native Nesting Birds

The Construction Bid Documents will stipulate that the Construction Contractor can only remove trees, shrubs, and other vegetation between August 31 and February 15 to avoid migratory bird-nesting season. If it is not feasible to remove vegetation within this window, then SCRP will complete the following:

1. Conduct a bird-nesting survey at least seven (7) days prior to ground-disturbing activities in a specific construction work area, including vegetation removal. The area to be surveyed will include all construction activity areas, including staging areas, for which vegetation removal is required, to a buffer of 150 feet outside the boundary of the area to be cleared. Survey results will remain valid for a period of 21 days following the date of the survey.

2. If an active nest is found, Regional Parks will consult with the CDFW to determine the appropriate buffer size and then establish the buffer zone around the occupied nest, using fencing, pin flags, yellow caution tape, or other CDFW-approved material. Vegetation clearing and construction activities will be postponed within the buffer zone; no construction–related activity will be allowed to occur within this area until it is determined that the young have fledged, the nest is vacated, and there is no evidence of second nesting attempts. SCRP will require a qualified biologist regularly monitor the buffer area during construction activities to evaluate the nest(s).

3. If an active nest is found after the completion of the pre-construction surveys and after construction activities have begun, all construction activities will cease immediately until a qualified biologist has evaluated the nest and a CDFW-approved buffer zone has been created. If establishment of a buffer zone is not feasible, SCRP will contact CDFW for further avoidance and impact minimization guidelines.

Special Status Plants. As described in the Setting section, four plant species, coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*), harlequin lotus (*Hosackia gracilis*), purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurata*), and fringed corn lily (*Veratrum fimbriatum*) have a moderate or high potential to occur. several special-status wildlife and plant species are known or have the potential to occur

within the Project area including the proposed trail corridors. These plants can be destroyed during trail construction as well as by off-trail use of recreational visitors.

Mitigation Measure BIO-10 - Special-Status Plants

1. To avoid/minimize direct and indirect impacts to special-status plant populations within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented:

2. SCRP will contract with a qualified biologist (botanist or plant ecologist) to conduct a focused survey for special status plan species in habitat areas that can support these species during their blooming period, prior to the on-set of ground-disturbing activities.

3. Based on the survey results**,** SCRP or a qualified biologist will flag areas with special status species prior to the onset of ground-disturbing activities. The Contractor will avoid impacts to marked populations and individuals of these species.

4. If disturbance cannot be avoided, SCRP will consider re-aligning the affected trail segment where possible. If trail re-route is not possible, SCRP will consult with the CDFW to develop and implement a plan to harvest and re-locate, collect seed collection or re-seed and replant (a Habitat Mitigation and Monitoring Plan or HMMP).

5. The HMMP will specify that relocation/re-seeding or planting occur at a level necessary to ensure at least a 1:1 survival rate, meaning one surviving replanted individual for every individual removed or impacted (take) in order to construct the Project.

6. SCRP will conduct a mandatory Contractor / Worker Awareness Training, instructing workers how to identify and avoid “take” of special status plant species. If such species are observed during construction activities that were not identified during pre-construction surveys, work will immediately cease in the vicinity of the discovery until SCRP develops and implements additional mitigation measures and authorizes work continuation.

7. SCRP will include information about sensitive plant habitats as part of the interpretive signage program associated with this trail Project.

Mitigation Monitoring and Reporting for Biological Impacts to Sensitive Resources

Mitigations will be implemented by SCRP and qualified biologists working under SCRP or the Construction Contractor. Each of the required actions will be monitored for implementation by SCRP, the qualified biologist, or another qualified designee approved by SCRP. SCRP will be responsible for successful implementation and completion.

Impact Significance After Mitigation

Implementation of mitigation measures outlined in this section would avoid/minimize direct and indirect impacts to sensitive plant and wildlife species and communities by ensuring that any sensitive species within proposed ground disturbance areas are avoided to the extent possible and reduce potential impacts to a less-than-significant level with mitigation incorporated.

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 with mitigation incorporated.**

Table 2 summarizes the temporary and permanent impacts to the several plant communities existing on the site. Two special status vegetation communities, coastal terrace prairie, and coastal scrub riparian occur in the Project area and would be affected by trail implementation. The seasonal wetlands are also identified as special status plant communities based on the CDFW natural communities list. As a result of construction and/or operation and maintenance of the proposed trail system, potential impacts could occur to these communities.

Table 2: Potential Impacts to Plant Communities

Plant Community	Total Project Area*(SF)	Total Project Area* (Acres)	Temporary Impacts (SF)	Temporary Impacts (Acres)	Permanent Impacts (SF)	Permanent Impacts (Acres)
Stewarts Point Segment						
Barren and Sparsely Vegetated	182,956	4.2	0	0	0	0
Herbaceous/Coastal Terrace Prairie Grassland	3,245,520	74.5	101,416	2.33	27,174	0.63
Seasonal Herbaceous Wetland	71,427	1.64	880	0.02	220	0.005
Riparian Forest	12,722	0.29	0	0	0	0
Riparian Shrub	79,306	1.82	1,540	0.04	385	0.009
Kashia Segment						
Barren and Sparsely Vegetated	360,461	0.83	0	0	0	0
Conifer Forest	333,241	7.65	24,880	0.57	6,220	0.14
Shrub/Coastal Scrub	36,678	0.84	0	0	0	0
Herbaceous/Coastal Terrace Prairie Grassland	1,040,061	23.88	122,412	2.81	34,394	0.78
Total						
Barren and Sparsely Vegetated	543,417	12.48	0	0	0	0
Conifer Forest	333,241	7.65	24,880	0.57	6,220	0.14
Shrub/Coastal Scrub	36,678	0.84	0	0	0	0
Herbaceous/Coastal Terrace Prairie Grassland	4,285,581	98.38	223,828	5.14	61,568	1.41
Seasonal Herbaceous Wetland	71,427	1.64	880	0.02	220	0.005
Riparian Forest	12,722	0.29	0	0	0	0
Riparian Shrub	79,306	1.82	1,540	0.04	385	0.009

Direct adverse impacts to these sensitive communities include removal or disturbance of these habitats during construction, including impacts associated with proposed bridge crossings. Removal of vegetation within riparian areas, or disturbance to the bed, bank, and/or channel of the drainages would require authorization from the CDFW in the form of a Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code.

Indirect impacts to these sensitive natural communities include runoff and siltation during and immediately after construction, as well as the potential for increased off-trail human disturbance within these areas after the trail is completed. Direct impacts primarily include trampling, cutting, and/or removal of individual plants or plant populations.

Ground disturbance and construction activities within the Project could result in the disturbance and/or destruction of vegetation and wildlife habitat within sensitive natural communities, causing a reduction in the ecological functions and values of these communities. These are potentially significant impacts.

Mitigation Measure BIO-11 - Coastal Terrace Prairie, Seasonal Wetlands and Coastal Scrub Riparian Communities

To avoid/minimize direct and indirect impacts to Coastal Terrace Prairie, Seasonal Wetlands and Coastal Scrub Riparian Communities within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented:

1. Exclusionary fencing shall be installed during construction to avoid riparian vegetation where bridges are proposed. Sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets.

2. If riparian vegetation removal and/or disturbance to the bed, bank, or channel of the central drainage is necessary, a Streambed Alteration Agreement (SAA), pursuant to Section 1602 of the California Fish and Game Code, shall be procured from the California Department of Fish and Wildlife (CDFW) prior to any disturbances to these areas. As part of the SAA, compensatory mitigation may be required to offset the loss of riparian habitat. If so, a mitigation plan shall be prepared to

address implementation and monitoring requirements under the SAA to ensure that the Project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, performance criteria, monitoring methods, and actions to be taken in the event that the mitigation is not successful. Mitigation may be required at a ratio directed by the SAA.

3. A pre-construction survey shall be completed prior to the onset of construction to identify and quantify the plants along or immediately adjacent to the proposed trail corridors that could be potentially removed or disturbed. If removal or disturbance of any of these plant communities would occur, a planting plan shall be prepared to offset the loss of any vegetation/plants to be removed or disturbed. Propagation and planting outside of the trail corridor(s) may be required on a 1:1 basis to ensure no net loss of these sensitive natural communities.

4. SCRP will:

    a. Plant native trees and shrubs at a 3:1 ratio for any trees removed that have a breast-height diameter of 6-inches or greater. In the case of removal of non-native species, a suitable native species will be selected for replanting.
    b. Hydroseed and/or direct seed the temporary construction areas with a seed mix based on the native grasses, forbs, and flowers disturbed to construct the Project.
    c. In order to maintain the genetic integrity and diversity of native plants, revegetation will utilize on-site seed stock to the maximum extent possible.
    d. The final installation/placement of the trail shall be finalized in the field to avoid/minimize the placement of the matting over patches of sensitive vegetation. Prior to installation, appropriate signage shall be placed at the beginning of the access trail and at appropriate locations along the trail prohibiting off trail use. The signage shall also include information on the sensitivity of habitat areas

Mitigation Monitoring and Reporting

Mitigations will be implemented by SCRP and qualified biologists working under SCRP or the Construction Contractor. Each of the required actions will be monitored for implementation by SCRP, the qualified biologist, or another qualified party approved by SCRP. SCRP will be responsible for successful implementation and completion.

Impact Significance After Mitigation

Implementation of mitigation measures outlined in this section would avoid/minimize direct and indirect impacts to sensitive natural communities by ensuring that any communities within proposed ground disturbance areas are avoided to the extent possible and reduce potential impacts to *less-than-significant with mitigation incorporated.*

c. *Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?* **Less than significant with mitigation incorporated.**

The Project site supports 4,677 square feet (SF) of Corps jurisdictional wetlands (including swales, seasonal wetlands, and wetland meadows) 14,923 SF of CCC wetlands and 2,327 SF of waters of the U.S., primarily in the form of ephemeral and intermittent drainages 1-2 feet wide (see Table 3). These features are anticipated to meet the criteria for jurisdictional waters of the United States based on the jurisdictional delineation conducted on the Project site and analysis of the three parameters for wetlands (soils, hydrology, and vegetation).

Table 3: Potential Wetland Impacts

Jurisdiction	Temporary Impacts (sq. ft)	Permanent Impacts (sq. ft)
Stewarts Point Segment		
Federal (USACE)		616
State (CCC)	3114	756
Kashia Segment		
Federal (USACE)	1740	385
State (CCC)	3900	1125
Total		
Federal (USACE)	4298	1001
State (CCC)	7014	1881

Any fill or dredging of the drainage, which is assumed to be jurisdictional waters of the U.S., associated with the installation of the crossing would require prior authorization from the ACOE in the form of permits pursuant to Section 404 of the Clean Water Act. Several drainage crossings are proposed over swales and ephemeral drainages on the Project site. Any fill or removal of these features, if confirmed to be jurisdictional by the ACOE, would also be subject to regulatory permitting by the ACOE.

Indirect impacts to the jurisdictional features on the Project site include runoff and siltation as a result of construction vehicles and heavy equipment during and immediately after trail construction activities and construction upslope of these features, as well as the potential for disturbance, erosion, and other adverse effects due to the potential for increased off-trail human activities within and adjacent to these areas after the trails are completed.

Impacts to wetlands and waters include permanent loss as well as a reduction in the ecological functions and values of these features. This is considered a potentially significant impact.

Mitigation Measure BIO-12 - Wetlands

Mitigation Measure BIO-12 - Wetlands

To avoid/minimize direct and indirect impacts to wetlands within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented

1. The proposed trails and bridge crossings shall avoid mapped jurisdictional wetland areas and waters of the U.S. and the state of California as defined by the California Coastal Commission (CCC), California Department of Fish and Wildlife (CDFW) and/or North Coast Regional Water Quality Control Board (RWQCB) to the extent feasible. Areas of temporary disturbance due to construction shall be restored to pre-construction condition. Drainage crossings shall be designed to avoid wetland disturbance. Prior to the initiation of ground disturbance activities within 100 feet of wetland habitat areas, sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets.

2. If wetland areas or other waters of the U.S. under the jurisdiction of the ACOE and/or the state of California are disturbed in order to install drainage crossings, an individual or Nationwide Section 404 permit from the ACOE, and/or consultation /agreement with the CCC, CDFW Lake and Streambed Alteration Agreement and/or RWQCB Section 401 permit shall be obtained prior to any ground disturbance that could result in fill or removal of wetlands or waters of the U.S or CA. As part of the permit(s), compensatory mitigation may be required, at a ratio to be determined by the responsible regulatory agencies to offset the loss of wetland/waters habitat. For CEQA purposes, compensatory mitigation will be provided at a minimum of 2:1 for permanent impacts, and 1:1 for temporary impacts to regulatory wetlands. The amount and type of compensatory mitigation will be provided in consultation with regulatory agencies as part of the permit application process, a habitat mitigation and monitoring plan (HMMP) shall be prepared to address implementation and monitoring requirements under the permit to ensure that the Project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, monitoring methods and performance criteria, extent of monitoring to be

conducted, actions to be taken in the event that the mitigation is not successful, and reporting requirements.

Mitigation Monitoring and Reporting

Mitigations will be implemented by the Contractor, SCRP and qualified biologists working under SCRP or the Construction Contractor. Each of the required actions will be monitored for implementation by SCRP, the qualified biologist, or another qualified designee approved by SCRP. SCRP will be responsible for successful implementation and completion.

Impact Significance After Mitigation

Implementation of mitigation measures outlined in this section would avoid and minimize direct and indirect impacts to wetlands and non-wetland waters of the U.S. by ensuring that any wetlands are avoided to the extent possible, providing for compensatory wetland replacement and reduce potential impacts to less-than-significant with mitigation incorporated

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 site*s**? Less than significant impact**.

Movement corridors for large and small mammals occur between the two parcels and undeveloped lands of Salt Point State Park and lands to the north. Although several intermittent drainages occur on both parcels, the drainages are situated on coastal bluffs, approximately 30 to 50 feet above the Pacific Ocean. As a result, none of the drainages support fisheries. With implementation of mitigation measures listed previously in this section, the design of any fencing along the trails would be such that wildlife movement perpendicular to the fencing would not be adversely inhibited. Therefore, no substantial direct impact to local or regional wildlife movement is expected to occur as a result of the trails.

The mainly open habitat on the site allows travel onto and through the site. The principal constraint on movement is SRI that constitutes a hazard for wildlife moving east-west. The trail itself will not block wildlife movement. Fencing is designed to allow animals to pass beneath it. Therefore, no substantial direct impact to local or regional wildlife movement is expected to occur as a result of the trails.

Although visitor use of the trails may periodically inhibit daytime movement of some wildlife species on the site, most wildlife species in the region tend to be more active at night and would, therefore, not be harassed or substantially inhibited by visitors as the trail system would be closed to visitors at night. Trail construction would occur during daylight hours. Because trail construction would be temporary in nature and limited to the proposed corridor and the area immediately adjacent to the trail, disturbance associated with trail construction would not substantially affect daytime wildlife movement. The drainages on the Project site do not support fish, so there would be no impact on fish movement. Therefore, impacts would be less than significant.

e. *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?* **Less than significant with mitigation incorporated.**

No protected trees as defined in the Sonoma County Code, Article 02. Sec. 26-02-010 will be removed as part of this Project. The Project site is not within a County Riparian Corridor Combining Zone and is not subject to Article 65 of the Zoning Code regarding creek setbacks for development activities.

The Project area is within the Sonoma County Coastal Zone and is subject to the Local Coastal Program and Plan with regards to protection of wetlands and mitigation of impacted wetlands, view corridors.

The Sonoma County Coastal Plan along with General Plan policies encourage the productive maintenance and protection of Environmentally Sensitive Habitat Areas (ESHAs).

Pursuant to Sections 30231 and 30233 of the California Coastal Act, the California Coastal Commission (CCC) requires that most development avoid and buffer wetland resources. Policies require the maintenance and restoration of the biological productivity and quality of wetlands, as well as limit the filling of wetlands. The filling of wetlands is generally limited to high priority uses, and it must be avoided unless there "is no feasible less environmentally damaging alternative, and authorized fill must be fully mitigated."

The Project site includes 1.64 acres of wetlands. However, Project construction would affect less than 1% (0.005 acres) due to Project implementation. Trail crossings are essential to constructing this portion

of the California Coastal trail (and State Coastal Plan Policy 145 calls for establishing this trail) and there is no alternative for a trail route on the west side of Highway 1. The Project is accordingly a "high priority use." Mitigation measures in this section include avoidance or mitigation of direct impacts to special-status plant and wildlife species, sensitive plant communities, federal- and state-protected wetlands, and also avoid and/or minimize the potential for indirect impacts on these resources primarily due to off-trail use by visitors. No known heritage or landmark trees occur on the Project site and, in particular, within the areas of proposed ground disturbance associated with parking/staging areas and the trail alignments. No native trees are proposed to be removed in association with the parking or staging areas or in association with the proposed trail alignments.

The Project would have a relatively low impact associated with construction and operation of the proposed trails and associated staging/parking areas. With implementation of previously described mitigation measures in this section that avoid and/or minimize the potential for direct and indirect impacts on sensitive biological resources impacts, along with compliance with local policies or ordinances protecting these resources., potential Project conflicts with applicable policies and ordinances would not be considered a substantial effect, and, therefore, the impact would be less than significant.

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?* **No impact.**

There are no known Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state Habitat Conservation Plans that would pertain to the proposed Project area

V. Cultural Resources and Tribal Cultural Resources

1. Setting

The following summarizes the archaeological setting of the site described in detail in the Cultural Resources report contained Appendix D of this Initial Study.

Archaeological evidence indicates that human occupation of California began at least 11,000 years ago. At the time of European settlement, the study area was within territory controlled by the Kashia Pomo. This group lived in rich environments that allowed for dense populations with complex social structures. They settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Primary village sites were occupied throughout the year and other sites were visited in order to procure particular resources that were especially abundant or available only during certain seasons. Sites often were situated near sources of fresh water and in ecotones where plant life and animal life were diverse and abundant.

The closest ethnographic villages to the study areas are dana'ga and kapa'cīnal. These villages are described as located "just south of the store at Stewarts Point" and "about two miles northwest of Fisk's Mills and near the shoreline.

The Project area has been surveyed on numerous occasions in the past. The trail right-of-was was surveyed again in June 2019, and no archaeological resources were found. The study area is located on nearly level terrain, perennial freshwater sources are at least 250 meters away, and the geology is older than 11,700 years old. The geologic deposits within the study area predate human arrival and occupation of California. Therefore, it appears that there is a very low probability of identifying a buried prehistoric archaeological site within the study area.

Regulatory Setting

Tribal cultural resources are: 1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing in the California Register of Historical Resources (California Register), or local register of historical resources, as defined in PRC Section 5020.1(k); or, 2) a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). For a cultural landscape to be considered a tribal cultural resource, it must be geographically defined in terms of the size and scope of the landscape (PRC Section 21074[b]). Also, an historical resource, as defined in PRC Section

21084.1, unique archaeological resource, as defined in PRC Section 21083.2(g), or non-unique archaeological resource, as defined in PRC Section 21083.2(h), may also be a tribal cultural resource.

2. Impacts

a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5? **Less than significant impact.**

No archaeological resources were found or are expected within the trail right-of-way. The 2018 preliminary trail plan showed the trail right-of-way passing through a historic structure (barn). The trail was subsequently realigned so that the current right-of-way avoids this historical resource.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? **Less than significant with mitigation incorporated.**

No archaeological resources were found or expected to be disturbed during Project construction. However, it is always possible that such resources could be uncovered during construction. The mitigation measures listed below would apply to this impact, and the impact would be reduced to a less-than-significant level.

Mitigation Measure CR-1: If buried archeological resources, such as chipped or ground stone, historic debris building foundations, or human bone, are inadvertently discovered during ground-disturbing activities, work would stop in that area and within 100 feet of the find until the Kashia Band of Pomo Indians is contacted about the finds. The Band will determine whether a qualified archaeologist should assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the Parks Department and other appropriate agencies, or whether an alternative approach is warranted for the finds.

Mitigation Monitoring and Reporting

The mitigations will be implemented throughout the construction phase. SCRP will be responsible for monitoring construction to ensure compliance.

Impact Significance After Mitigation

The recommended mitigation measures ensure that any cultural resources, and/or paleontological resources found during Project construction will be treated, preserved, curated, and/or disposed of consistent with pertinent federal and State laws and regulations. Therefore, the impact would be reduced to a less-than-significant level.

c. Disturb any human remains, including those interred outside of dedicated cemeteries? **Less than significant with mitigation incorporated. .**

There are no known human remains on the site. The mitigation measure below addresses the impact if currently unknown remains are discovered during Project construction.

Mitigation Measure CR-2: If human remains of Native American origin are discovered during Project construction, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (NAHC) (PRC 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the county coroner has been informed and has determined that no investigation of the cause of death is required; and

If the remains are of Native American origin, the Kashia Band of Pomo Indians shall be contacted to determine the means of treating or disposing of the human remains and any associated grave goods as provided in PRC 5097.98.

Mitigation Monitoring and Reporting

The mitigations will be implemented throughout the construction phase. SCRP will be responsible for monitoring construction to ensure compliance.

Impact Significance After Mitigation

The recommended mitigation measures ensure that any cultural resources, paleontological resources, and/or human remains found during Project construction will be treated, preserved, curated, and/or disposed of consistent with pertinent federal and State laws and regulations. Therefore, the impact would be reduced to a less-than-significant level.

d(i) *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the Caltrans Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?* **Less than significant.**

The Kashia Band of Pomo Indians is a partner in developing the Project. The Band is responsible for overseeing trail use to protect tribal cultural resources. As described previously, the Project has been designed to avoid tribal cultural resources. The Project will not interfere with the ability of the Kashia Band of Pomo Indians of Stewarts Point Rancheria to practice their cultural and ocean-side traditions. Per the adopted Grant of Public Trail Easement for the property, the Band has the right to have portions of the trail closed on the Keshia Reserve to honor Kashia funerals and ceremonial activities. The Grant established protocols for the Band to notify SCRP prior to planned closures, and it establishes caps on the total number of days per year that portions of the trail can be closed to public access. The Band has reviewed the Project design and not requested any changes to the Project.

d(ii). *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the*

significance of the resource to a California Native American tribe. **Less than significant with mitigation incorporated.**

As noted previously, the Project has been designed to ensure the integrity of significant tribal resources on the site. Mitigation Measures CR-1.1 and CR-1.2 would mitigate any impact to currently unknown resources to a less-than-significant level.

VI. Energy

1. Setting

The Project site is open land with livestock grazing on the Stewarts Point Ranch site. There are also several barns and ranch buildings, but no energy is currently used to light or heat these structures.

Regulatory Setting

EPA Emission Standards for Non-Road Diesel Engines

The U.S. EPA sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The U.S. EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the federal standards.

The U.S. EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. Heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce PM and NOx emissions from diesel engines up to 95 percent in 2030.13 The U.S. EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The new standards reduced the amount of sulfur allowed by approximately 97 percent for highway diesel fuel and by 99 percent for off-highway diesel. Ultra-low sulfur diesel is currently required for use by all vehicles in the U.S. California has adopted the federal diesel engine and diesel fuel requirements.

Renewables Portfolio Standard Program

In 2002, California established its Renewables Portfolio Standard (RPS) Program, with the goal of increasing the percentage of renewable energy in the State's electricity mix to 20 percent of retail sales by 2010. In 2008, Executive Order S-14-08 was signed into law requiring retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. In October 2015, Governor Brown signed SB 350 to codify California’s climate and clean energy goals. A key provision of SB 350 requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from renewable sources by 2030. SB 100, passed in 2018, requires 100 percent of electricity in California to be provided by 100 percent renewable and carbon-free sources by 2045.

2. Impacts

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation. **Less than significant impact.**

The Project involves constructing a trail and associated features such as stream crossings and fences as well as installation of recreation facilities including benches, a restroom, picnic tables, and signs. This will require the use of heavy equipment and vehicles that use petroleum fuels. No other energy sources would be affected by the Project. The short-term construction Project would involve operating a small number of pieces of equipment (cement trucks, dump trucks, small graders, small track excavators, loaders, and possibly a small-to-mid-sized hydraulic crane to lift bridges in place) over one 8-month construction period. Use of this equipment would not be constant as clearing vegetation would need to avoid bird nesting season and badger restrictions. The Project is small, involves few pieces of equipment that consume petrochemical energy, and energy use would occur over a short period.

Once operational, the Project would attract people who would access the site by motor vehicles. According to the traffic analysis done for this Initial Study, the Project would generate an average of 11 weekday trips per day and 18 weekend trips per day. This is a minor increase in trips (one single-family residence typically generates 10 trips per day) plus many of these trips would likely be going to other parks and seashore access sites if the proposed Project was not open for access.

For these reasons, it is concluded that the Project would have a negligible effect on the State's energy resources. Therefore, there is no evidence that the Project would result in wasteful, inefficient, or unnecessary use of energy that would result in significant environmental effects nor evidence that the Project would result in wasteful, inefficient, or unnecessary use of energy that would result in significant environmental effects. No mitigation is required.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency. ***Less than significant impact.***

As discussed above, the use of petrochemical energy to construct the trail and associated amenities would have a negligible effect on local and State energy resources, and would, therefore, be consistent with State

plans (e.g., California Long-Term Energy Efficiency Strategic Plan) and County plans to conserve energy and energy efficient construction practices.

As stated previously, the Project would use a negligible amount of energy to provide a long-term environmental and recreational benefit. The Project would be consistent with State and local plans aimed at developing the California Coastal Trail as well as plans aimed at reducing long-term energy use as well as other State and local plans aimed at providing protection for environmental resources. Therefore, the Project is not inconsistent with any plan for energy efficiency, and the impact is less than significant.

VII. Geology and Soils

This section summarizes the geotechnical investigation done by Questa Engineering that is included in Appendix E. The full report contains additional details on site geology, soils, and geotechnical constraints. The following discussion summarizes the main points pertinent to a CEQA impact assessment.

1. Setting

*Seismicit*y

The Project site lies in the tectonically active Coast Ranges Geomorphic Province of Northern California. The geologic and geomorphic structure of the northwest trending ridges and valleys in the region, including the Sonoma Mountains and adjacent low-lying areas, are controlled by active tectonism along the boundary between the North American and Pacific Tectonic Plates, defined by the San Andreas Fault System. The nearest known active fault is the San Andreas Fault, with several mapped fault traces located approximately 1-mile northeast of the proposed Stewarts Point Ranch and Kashia Reserve sites. The northernmost 2,750 feet of the proposed Kashia Trail alignment is located within the mapped boundary of an Alquist-Priolo Earthquake Fault Zone for a local, subsidiary fault to the San Andreas Fault.

Regional Geology

This area is characterized by northwest trending mountain ranges and valleys oriented sub-parallel to faults of the San Andreas Fault System. The Project site is regionally dominated by the San Andreas Fault itself. Over at least the last 25 million years, cumulative offsets have transported some rocks west of the fault trace (those that compose the Project site) approximately 350 miles northwestward relative to those on the east side of the fault trace. The strata in the Project area contain clasts believed to derive from sources in the San Emigdio Mountains, part of the Transverse Ranges in Kern County, California.

Site Topography

The Project area is comprised of a gently sloping coastal terrace landward of a sea cliff ranging from thirty to one hundred feet above sea level. The coastal terrace area can be broadly classified as a grass-covered surface interspersed with knobs and ridges of bedrock. Only the southern section of the Kashia Trail (approximately 1,000 feet of trail alignment starting from the southern end of the trail) is wooded. The terrace is bounded on its inland side by coastal slope

terrain, which exhibits a moderately sloping topography cut by steep-sided southwest-trending canyons.

Site Geology

Large sections of the proposed Stewarts Point and Kashia Trail alignments are situated on a marine terrace deposit surface. The coastal terrace is a wave-eroded surface created between 80 to 120 thousand years ago. This surface was subsequently uplifted by crustal movements to its present elevation.

2. Impacts

a. Directly or indirectly cause potentially substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of 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 with mitigation incorporated.**

Surface fault rupture may occur along this subsidiary fault trace within the design life of the trail. The surface rupture of the subsidiary fault at this location could physically damage or destroy the proposed trail improvements by direct fault offset. However, it should be noted that this is a recreational trail and not a critical infrastructure element (major road, rail, utility pipeline) or facility (school, hospital, police or fire station, etc.). Even when properly designed using the latest seismic engineering design standards, the proposed trail improvements could potentially be damaged or destroyed by a large fault rupture event and place people at risk if they happen to be present at this location during a major earthquake and fault rupture event. However, the trails will include few improvements, and will be designed for bicycle and pedestrian (not vehicle) use, with modest trail use at any given time. Surface fault rupture is considered to be a potentially significant impact to site use or improvements on the northern portion of the Kashia Trail. This can be mitigated through compliance with mitigation measures listed below.

ii. Strong seismic ground shaking? **Less than significant with mitigation incorporated.**

Earthquakes that occur along or near one of the active earthquake faults in the region could impact the site due to the effects of strong seismic groundshaking. Peak ground accelerations at the Project site are estimated to be on the order of 83% that of gravity (g) with a 10 percent chance of exceedance in a 50-year period. Ground accelerations of this magnitude could result in significant damage to unreinforced structures or buildings. Current Building Codes, including the 2020 California Building Code (adopted by the County of Sonoma), require new structures to be designed to resist the effects of strong seismic ground shaking. Strong seismic ground shaking is considered to be less than significant with incorporation of the mitigation measures in this section.

iii. Seismic-related ground failure, including liquefaction? **Less than significant impact.**

Another effect of seismic activity is the potential for seismic-related ground failure, including liquefaction. During and following strong seismic groundshaking, low density silty sand and poorly graded sand deposits can undergo settlement. Liquefaction occurs when water saturated sand deposits lose strength due to a loss of pore pressure. Liquefaction settlement generally occurs gradually over the following days and weeks. Dynamic densification occurs when dry sand and silty sand deposits settle rapidly during strong seismic groundshaking.

Potentially liquefiable sands and silty sands were not found at the Project site during the geotechnical investigation. Potentially liquefiable sands are unlikely to be present in terrace deposits and unlikely to affect trails and bridge crossings as they span across stream deposits containing sands. Seismic-related ground failure, including liquefaction, is considered to be a less-than-significant impact.

iv. Landslides? **Less than significant with mitigation incorporated.**

The cliff face along the Kashia Trail is mapped by the California Division of Mines and Geology as either an unstable cliff zone or a cliff zone of very low stability. The thinly interbedded sandstone and shale bedrock (German Rancho formation) in the general vicinity of the proposed Bridge D-5 location strikes nearly parallel with the cliff face and dips steeply (approximately 50 degrees) towards the ocean and shoreline. This composition and orientation are conducive to rockslides and rockfall, potentially within the lifetime of the bridge structure. Pieces of bedrock can be cleanly separated from the rock mass along the bedding surface

by hand. The bedrock additionally exhibits two well-defined systematic joint sets that also contribute to its low stability. Large storm events, wave undercutting, earthquakes, fires and human activity all contribute to cliff instability.

The area immediately north of the originally proposed Bridge D-6 crossing is composed of 5 to 7 feet of marine terrace deposits overlying bedrock. The originally proposed trail alignment in this area is constrained on its inland side by an existing fence, and the cliff face on its ocean side. For approximately 15 feet extending north beyond the bridge abutment, the maximum width of traversable land is 6 feet (see Appendix E). Field observation of this section indicates that slides within the marine terrace deposit occur readily and regularly. The introduction of trails with moderate human traffic makes this area particularly susceptible to rapid erosion and shallow cliff failure.

An area approximately 45 feet southeast of the originally proposed Bridge D-6 crossing may also be susceptible to cliff instabilities. This section of trail is constrained to a width of approximately 20 feet by a northwest-southeast running fence line on the trail's northeast side and the cliff face on its southwest side.

Portions of the originally proposed Stewarts Point Trail alignment approaches the cliff face. At its narrowest, this section of trail is constrained to a width of approximately 15 feet by a fence to the east and the cliff face to the west. The cliff face along this section of trail was mapped by the California Division of Mines and Geology as a zone of low stability. The massive marine sandstone and conglomerate bedrock (Gualala formation, Stewarts Point member) that underlies the trail section is less susceptible to cliff instability than the bedrock observed at the general Bridge D-6 location. However, these cliffs are still considered to exhibit a relatively low stability.

Questa reviewed and analyzed historic aerial imagery of the Project sites from 1953 and 1965 to assess cliff erosion and retreat at the Bridge D-6 location and at potentially sensitive areas where the trail alignments approach the current cliff face. While it was found that measurable retreat has occurred in places along the cliff face, retreat at the Bridge 2 location and in these potentially sensitive areas has occurred at too small of a scale to be accurately measured using this technique. Despite 65 years of relatively little change, the cliffs are still highly susceptible to landslide events.

Both trails have been re-aligned so that they do not approach the cliff face and generally avoid unstable cliff slope areas. Bridge D-6 was also re-located further east near the Caltrans roadway right of way edge to also avoid instability issues. These sections are situated in areas with gentle slopes and on bedrock with shallow soils (Slope Stability Class A), areas of gentle slopes on terrace deposits or alluvium (Slope Stability Class B), and areas of moderate slopes on strong rocks (Slope Stability Class C). Class A areas are stable, and landsliding is unlikely. Class B areas are stable but may exhibit some local bank slumps along gullies and streams. Class C areas are relatively stable, where landslides are infrequent and unlikely except on the steepest slopes.

A fill slope for Highway 1 begins approximately 20 feet northeast of the originally proposed Bridge D-6 location. The slope runs parallel and upslope to the proposed crossing. A culvert constructed of corrugated metal pipe outlets from this fill slope, crossing underneath Highway 1 to feed the drainage that the proposed crossing spans. Review of historic aerial imagery at this location indicates that Highway 1 adopted much of its present alignment between 1953 and 1965. Fill slopes constructed during this time were often under-engineered and are susceptible to failure. The culvert appears to be highly corroded and in poor condition. Should the culvert deteriorate beyond functionality, unmanaged subsurface water conditions could destabilize the slope.

Landslides and slope instabilities are a **potentially significant impact** to site use or improvements. Implementation of the mitigation measures listed in this section will reduce or minimize potential impacts to geologic resources to less than significant with mitigation incorporated.

Mitigation Measure GS-1: Design and construct the Project in compliance with the Sonoma County Code, including the Building Ordinance (Chapter 7), Drainage and Storm Water Management Ordinance (Chapter 11), and Subdivision Ordinance (Chapter 25).

All construction activities shall meet the California Building Code regulations for seismic safety. Construction plans shall be subject to review and approval of Permit Sonoma prior to the issuance of a building permit. All work shall be subject to inspection by Permit Sonoma and must conform to all applicable code requirements and approved improvement plans prior to the issuance of a certificate of occupancy.

SCRP shall apply for building permits from Permit Sonoma and further modify the trail alignment and develop trail and crossing design and stabilization plans to ensure that permits are granted and that the trail and crossing structures, including all existing culverts, are stable, hydraulically adequate, and protect surface water quality. SCRP will design the trail and staging areas to incorporate LID features such as areas of permeable pavement and drainage bio- swales where feasible and beneficial. This will ensure County review of improvement plans; and that all structures such as bridges and boardwalks adhere to the Sonoma County Codes and applicable Building Ordinances, including grading, drainage, and seismic design criteria for planned structures.

Mitigation Measure GS-2: The Project design shall conform with the specifications and criteria contained in the Project Geotechnical Report. Geotechnical recommendations were prepared and presented in the North Coast Trails Preliminary Geotechnical Report prepared by Questa Engineering dated August 2018. The report provided recommendations for site preparation and grading, parking lots, and bridge foundations. The report also identified seismic design parameters in accordance with the 2020 California Building Code.

Proper foundation engineering and construction of any structures such as small bridge structures built as a result of implementation of the Project shall be performed in accordance with the geotechnical recommendations as well as preparation of plans prepared by a Registered Structural Engineer or Civil Engineer experienced in structural design. The structural engineering design shall incorporate seismic design parameters as outlined in the current California Building Code and Sonoma County Code.

Mitigation Monitoring and Reporting

All conditions will be included on construction plans. Conditions will be included in the Building Permit. Permit Sonoma will be responsible for monitoring compliance with the Building Permit.

Impact Significance After Mitigation

Constructing improvements per the recommendations of the Registered Civil and Structural Engineers will ensure that improvements can withstands projected seismic activity and properly address local slope and cliff instability issues. The impacts from seismic activity and

geotechnical instability would, therefore, be reduced to a less than significant level.

b. *Result in substantial soil erosion or the loss of topsoil?* **Less than significant with mitigation incorporated**.

Areas of proposed trails traverse areas of gently sloping to rolling topography with terrace slopes typically less than 5%. Site soils have slight to moderate soil erosion hazards. Areas to be graded and altered during trail construction and restoration activities could be subjected to soil erosion by wind and water.

In accordance with the Clean Water Act and the State Water Resources Control Board (SWRCB) the applicant prepared a Draft Storm Water Pollution Prevention Plan (SWPPP); see Appendix A. A final SWPPP will be required prior to the start of construction. The SWPPP shall include specific best management practices to reduce soil erosion. This is required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit).

Additionally, the Project requires an Erosion Control Plan to be submitted to the County in conjunction with the Grading Permit Application. The Plan shall include winterization, dust, erosion and pollution control measures conforming to the ABAG Manual of Standards for Erosion and Sediment Control Measures, with sediment basin design calculations. The Erosion Control Plan shall describe the "best management practices" (BMPs) to be used during and after construction to control pollution resulting from both storm and construction water runoff. The Plan shall include locations of vehicle and equipment staging, portable restrooms, mobilization areas, and planned access routes.

As noted above, the Project design includes a Draft SWPPP for this Project. The SWPPP includes Best Management Practices (BMPs) for control of soil erosion including placement of straw wattles, silt fences, berms, and gravel construction entrance areas or other control to prevent tracking sediment off-site onto Highway 1.

Mitigation Measure GS-3: SCRP and the Construction Contractor shall finalize the Draft SWPPP and submit it and the Notice of Intent to the North Coast Regional Board and, if required by the State Water Resources Control Board, amend the SWPPP to obtain an approved Final

SWPPP. The applicant shall implement all conditions set forth in the Final SWPPP. The Project SWPPP shall include a description of the "Best Management Practices" (BMPs) to be used to prevent the discharge of other construction related NPDES pollutants beside sediment (i.e., paint, concrete, etc.) to downstream waters and the ocean. After construction is completed, all drainage facilities shall be inspected for accumulated sediment from the Project and these drainage structures shall be cleared of debris and sediment.

Mitigation Measure GS-4: SCRP shall complete an Erosion Control Plan to be submitted to PRMD in conjunction with the Building Permit Application. The Erosion Control Plan shall include winterization, dust control, erosion control and pollution control measures conforming to the Association of Bay Area Government (ABAG) Manual of Standards for Erosion and Sediment Control Measures and the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook Portal: Construction. The Erosion Control Plan shall describe the "Best Management Practices" (BMPs) to be used during and following construction to control pollution resulting from both storm and construction water runoff. The Plan shall include locations of vehicle and equipment staging, portable restrooms, mobilization areas, and planned construction access routes.

Mitigation Monitoring and Reporting

The SWPPP and the Erosion Control Plan will be submitted prior to any construction work starting on the site. The Construction Contractor will be responsible for implementing the final permit conditions for both the SWPPP and the Erosion Control Plan. Permit Sonoma will be responsible for monitoring Project construction for compliance with the SWPPP.

Impact Significance After Mitigation

Constructing improvements per the conditions set forth in the Final SWPPP and Erosion Control Plan will ensure that erosion and release of any hazardous substances will be prevented or minimized. These permit conditions would reduce the impact 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 with mitigation incorporated.**

The North Coast Trails, Preliminary Geotechnical Report (Appendix E) identified several areas on landslide concern in locations where the original trail design was located near or at the bluff edge. That report recommended relocation of the trail in these locations, including where two new bridges near the bluff edge were originally proposed. The current proposed trail plan implements the recommendations of that 2018 report, and the trail has been realigned to avoid the three identified areas of geologic concern. Potential instability-related impacts on trail and bridge construction would be reduced to a less-than-significant level by implementing the conditions set forth in the aforementioned Preliminary Geotechnical Report and in Mitigation Measures GS-1 and GS-2. These mitigation measures would reduce impacts related to geologic or soil instability to a less-than-significant level.

d. *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?* **Less than significant with mitigation incorporated.**

Expansive soils are those that shrink and swell in response to changes in moisture content. According to information contained in the USDA Sonoma County Soil Survey, site soil series have generally low to moderate shrink-swell potential. Seasonal expansion and contraction of site soils could damage site improvements such as foundations, concrete slabs, sidewalks, and pavements. Expansive soils can be mitigated by including design measures such as removal and replacement with non-expansive soils, segregating expansive soils from overlying improvements, lime-treating expansive soils to reduce the expansiveness, and increasing the thickness of non-expansive construction materials such as Class 2 Aggregate Base between the expansive soil and overlying concrete and hot mix asphalt improvements. The impact of expansive soils would be addressed, as necessary, during construction in accordance with recommendations set forth in the aforementioned Mitigation Measures GS-1 and GS-2.

e. *Have soils incapable of adequately supporting the use of septic tanks or alternative water disposal systems where sewers are not available for the disposal of waste water?* **No impact.**

There are no planned on-site wastewater disposal systems at the Project site. The planned restroom will be a pre-engineered pump-out vault structure. The impact of soils incapable of supporting septic tanks or alternative wastewater disposal systems is considered less than significant.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? **Less than significant with mitigation incorporated.**

There are no records of paleontological finds on the Project site. However marine terraces are uplifted sea bottoms that may contain marine fossils. Destruction of such fossil would be a potentially significant impact

Mitigation Measure GS-5: If vertebrate fossils are discovered during construction, all work on the site shall stop immediately, Sonoma County Regional Park or the Agency's designee shall be notified, and a qualified professional paleontologist shall assess the nature and importance of the find and recommend appropriate treatment. Treatment may include, but is not limited to, preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and may also include preparation of a report for publication describing the finds. The Project applicant shall be responsible for implementing the recommendations of the qualified paleontologist. A report of all findings shall be submitted to Sonoma County Regional Park or the Agency's designee.

Mitigation Monitoring and Reporting

The applicant will include this measure in the construction contract. SCRP or its Designee shall monitor from compliance of the measure successful implementation.

Impact Significance After Mitigation

This standard mitigation measure would ensure protection and/or a report on their importance and thereby reduce the construction impacts to valuable paleontological resources to a less-than-significant level.

VIII. Greenhouse Gas Emissions

1. Setting

Climate change is caused by greenhouse gases (GHGs) emitted into the atmosphere around the world from a variety of sources, including the combustion of fuel for energy and transportation, cement manufacturing, and refrigerant emissions. GHGs are those gases that have the ability to trap heat in the atmosphere, a process that is analogous to the way a greenhouse traps heat. GHGs may be emitted as a result of human activities, as well as through natural processes. GHGs have been accumulating in the earth's atmosphere at a faster rate over the last 150 years than has occurred historically. Increasing GHG concentrations in the atmosphere are leading to global climate change.

Executive Order S-3-05 was established by Governor Arnold Schwarzenegger in June 2006 established the following statewide emission reduction targets through the year 2050:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels;
- By 2050, reduce GHG emissions to 80% below 1990 levels.

AB 32, also known as the California Global Warming Solutions Act of 2006 designates the California Air Resources Board (CARB) as the State agency charged with monitoring and regulating sources of emissions of GHGs. Under AB 32, the State board is required to approve a statewide GHG emissions limit equivalent to the statewide GHG emissions level in 1990 to be achieved by 2020 and to adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG emissions reductions. The law establishes periodic targets for reductions and requires certain facilities to report emissions of GHGs annually.

Sonoma County Climate Action 2020 and Beyond Regional Climate Action Plan

In 2016, Sonoma County adopted the Climate Action 2020 and Beyond Regional Climate Action Plan (CAP) which establishes the County GHG reduction goals below 1990 levels: 25% by 2020, 40% by 2030, and 80% by 2050, consistent with the state requirements. The CAP outlines the reduction efforts in six major GHG source areas, including building energy, transportation and land use, solid waste, water and wastewater, livestock and fertilizer, and advanced climate initiatives. Notably, based on projections from the 2010 GHG inventory, Sonoma County is not expected to meet the 2015 goal of 25% below 1990 levels. Furthermore, the

County's population is projected to increase by 5% between 2010 and 2020, and employment is projected to increase by 13% over the same period. The two main factors which influence the growth of GHG emissions in the County are from population and economic growth.

In addition, Appendix A of the County's CAP includes a consistency checklist in which projects can identify all applicable mandatory local or regional measures in the CAP in order to demonstrate consistency. Projects that implement all applicable mandatory CAP measures can conclude that their impacts related to GHG emissions would be less than significant under CEQA. However, since the CAP checklist is intended for residential, commercial, and mixed-use projects, the proposed Project is not a type of project addressed within the CAP. Thus, the County's CAP does not apply to the proposed Project

2. Impacts

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? **Less than significant impact.**

The California Emissions Estimator Model (CalEEMod, Version 2016.3.2) was used to estimate GHG emissions from the 1-year construction phase and the operational phase on a few vehicles accessing the reserves for recreational use and a few trips by SCRP staff or contractors to monitor the site and provide maintenance. Equipment and vehicles constructing the Project would generate the most emissions.

The estimated construction phase GHG emissions would generate a maximum annual total of 131 metric tons of GHG emission during the year of construction. The Northern Sonoma County Air District does not have an adopted air quality plan, or any other adopted policies related to GHG emissions. The Bay Area Air Quality Management District uses a significance threshold of 1,100 metric tons per year; emissions beyond this threshold are considered cumulatively significant. Project emissions would be well below this significance threshold.

After completion of the proposed trail and parking improvements, net new operational GHG emissions would come primarily from motor vehicles conducting park maintenance and trail users arriving by automobile. Emissions from these few vehicles would generate less emissions than the worst-case year. Both construction and operational GHG emissions are well below standard GHG significance thresholds that

would require a more detailed numerical analysis. The 2019 Draft EIR prepared for the County for the proposed Estero Trail Easement project found that construction emissions of that construction of that project as well as new trips (which are over twice that predicted for this Project) would generate 5.2 metric tons per year (amortized. This far below the 1,100 metric ton significance threshold. Accordingly, the impact is deemed less than significant.

b. *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?* **Less than significant impact.**

As described in the previous analysis, the Project would generate insignificant GHG emissions compared to the emissions from other sources in California or the world. Once construction is complete, the Project would generate minimal vehicle-related emissions, approximate the same number of vehicle trips as a single-family household. In addition, many of these visitors would likely be driving to another park or preserve on the coast to meet their recreational needs if the Project was not constructed. Also, the Project implements State plans for a California Coastal Trail. Accordingly, it is concluded that the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

IX. Hazards and Hazardous Materials

1. Setting

The site is used for livestock grazing and/or open space. No hazardous materials are currently used on the Project site.

Wildfire Hazards

The unincorporated Project site includes wildlands within the State Responsibility Area (SRA) served by CAL FIRE Based upon fire hazard mapping by the CAL FIRE Forest Resource Assessment Program, the Project area is located within an area identified as the high fire hazard zone. The area containing structures adjacent to the Stewarts Point Sore are classified as Very High Fire Hazard Severity zone.

Airports

The nearest airport to the Project site is the Sea Ranch Airport, a private airport for Sea Ranch residents and their guests. The airport is atop the ridge east of Highway 1 (360 feet elevation) and located at 36221 Timber Ridge Road, Sea Ranch. It is located approximately 4.5 miles northwest of the Stewarts Point Store.

Emergency Response

The North Sonoma Coast Fire Protection District serves the very northwestern corner of Sonoma County. We are a company of dedicated volunteer and career firefighters who provide fire protection, emergency medical response, rescue, and public assistance services to the communities of northwestern Sonoma County. CAL FIRE, under contract, provides emergency response, administrative, maintenance and training services to the Department. This contract is funded through real property taxes. CAL FIRE provides at least two (and often more) duty officers at all times and staffs the fire equipment located at the South Station on Annapolis Road. During fire season the South Station is enhanced by a seasonal crew of CAL FIRE wildland firefighters.

2. Impacts

a. 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 activities for the proposed Project, limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, hydraulic fluid, etc. would be used for operation of motorized equipment. Use of these types of substances would not occur in significant (that is, regulatory) amounts or frequencies to constitute a potential hazard to the public or environment. Once constructed, the Project would not require long-term operational use of hazardous materials. Potential impacts are restricted to the construction phase.

The applicant has prepared a Draft SWPPP to address how the contractor will avoid spills of hazardous materials. This Draft SWPPP will be replaced by a Final SWPPP after review and comment by reviewing agencies. The Project would be subject to the requirements of the North Coast Region Water Quality Control Board, which includes requirements for construction site control and water quality protection measures.

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?* **Less than significant impact.**

The proposed Project would involve grading of a trail and associated facilities. The Project site has historically been used for livestock grazing. There is no record of storage of hazardous material on the site. Accordingly, site preparation is not expected to result in the accidental release of hazardous materials into the environment, and the potential impact would be less than significant.

c. *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 within one-quarter mile of a school. Therefore, there would be no impact. The nearest school is the Kashia Elementary school that is located about 4.4 miles east of the Stewarts Point Store.

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?* **No impact.**

The Project site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 known as the Cortese List.

e. *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?* **No impact.**

The nearest airport is the private Sea Ranch Airport located about 4.5 miles to the northeast. Development of the Project site would not interfere with the airport land use plan. The airport is on top of the ridge. Development of a trail near sea level would have no impact on safety conditions at the airport or on the Project site.

f. *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?* **No impact.**

The Project would be located west of Highway 1. It would not create a new public street or otherwise block or impede emergency access or evacuation on Highway 1 or in the general Project area.

g. *Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?* **Less than significant impact.**

The Project area is susceptible to wildfire, witness the Meyers Fire of 2020 that burned down to the coast a few miles south of the Project site. However, it is unlikely there would be recreational use allowed at the trails system when a large wildfire is threatening the area. The risk to trail users would be minimal under normal fire weather conditions.

X. Hydrology and Water Quality

1. Setting

The Project area is located in Sonoma County in the North Coast Watershed, a slender watershed that extends along the Pacific Coast north to the Sonoma-Mendocino County line and south to the town of Jenner. The watershed is bound to the east by the coastal mountain range ridge which makes the shared boundary with the Gualala Watershed. The North Coast Watershed drains the western face of the coastal mountain ranges across a coastal terrace, down a sea cliff and into the Pacific Ocean. The coastal ranges are wooded with steep slopes while the terrace area is gently sloped, and grass covered. The coastal range elevation peaks around 900 feet at the watershed boundary and drops to about 100 feet at the start of the coastal terrace. The coastal terrace gently slopes towards the sea cliff, which sits 30 to 100 feet above sea level. The drainage has a uniform slope towards the coast, with few valleys or depressions. As a result, runoff primarily sheets directly towards the ocean, collecting in numerous, small, ephemeral streams.

The Project site is located on the coastal terrace region of the watershed, west of Highway 1. Runoff from the coastal ranges is controlled in culverts as it passes beneath Highway 1 and onto the coastal terrace. There is little development in the watershed besides Highway 1 and sparsely placed farm buildings. Most runoff travels over natural pervious surfaces and pastureland. The proposed Project will construct parking lots and trails paved with resin-stabilized aggregate. The proposed Project will create a nominal area of impervious surface and will have an insignificant impact on runoff

Precipitation

The closest rainfall record is recorded at Point Arena, which is approximately 28 miles north of Stewarts Point. Precipitation has been recorded at Point Arena from 1938 to 1988 and estimates an annual precipitation of 42 inches.

Surface Water

Surface water in the North Coast Watershed collects mainly in unnamed, ephemeral streams that are scattered along the watershed. In addition to blue line streams the gentle slope and soil of the terrace also produces small seasonal drainages and wetlands that do not appear on USGS maps. The Project area features a total of 14 drainages, which are numbered south to north. Of the 14 drainages, five (5) are blue line streams, and are discussed in further detail

below. The non-blue line drainages have less than 0.04 square miles of drainage area and are not significant contributors of water conveyance.

Ephemeral Streams

A total of five ephemeral streams are in the Project area, three of which will be crossed by the proposed trails. The plans for the Kashia Trail include two new crossings over streams 2 and 3. Stewarts trail includes one new crossing over wetlands and an existing bridge to cross Stream 4 and adjacent wetlands. No crossings are proposed over ephemeral streams 1 and 5.

There are a total of five (5) blue line streams in the Project area, which have been numbered 1 to 5, south to north, for reference. The streams have drainage sizes ranging between 0.2 and 0.6 square miles, are ephemeral, and have two-year flows ranging between eight (8) and fifty (50) cubic feet per second (StreamStats). Table 4 summarizes the characteristics of the streams.

Table 4: Blue Line Stream Summary

Stream Number	Trail	Length (km)	Drainage Area (sq mi)	2-Yr Flow (cfs)	Channel Description	OHW Channel Width (ft)
1	Kashia	1.01	0.2	17.5	narrow, deeply incised drainage	1-2
2	Kashia	2.38	0.6	47.5	Wide, evolved channel	9-10
3	Kashia	1.4	0.4	31.9	narrow, deeply incised drainage bed is comprised of rock.	1-2
4	Stewarts	1.05	0.24	15.3	slightly incised, defined bed and banks, gravel deposits on soft bottom	2-3
5	Stewarts	0.95	0.1	8.61	deeply incised	1-2

All of the streams have headwaters in the wooded slopes of the coastal range and drain into the Pacific. The stream profiles are steeper in the upper regions and level as they extend across the coastal terrace. Flows are confined as they pass through a culvert underneath Highway 1. With the exception of Stream 2, all streams are incised and show signs of Stage III-IV channel evolution. Stream 2 has a wide Ordinary High Water (OHW) channel width and shows geometry typical of Stage V or VI evolution.

The Project area is located in FEMA Flood Zone D. Area D indicates an area where flooding is possible but where no analysis has been conducted. Though the coastal terrace has a gradual slope towards the ocean, the Project area is prone to pooling in regional depressions and around seeps. From the characteristics of the blue-line streams discussed in the previous channel, it should be noted that most channels are incising and have banks higher than their bankfull depth.

Bridges currently exist on Streams 2 and 3 on the Kashia Trail. The bridge on Stream 2 will be replaced by a new bridge crossing further upstream and the trail on Stream 3 has been moved east and will cross at an existing culvert. A new puncheon crossing is proposed on Stream 4, and additional drainage crossings are proposed over wetland areas. All bridge designs are preliminary and have not been finalized for any of the crossings but will be designed to minimize erosion and impedance to flood flow. All new structures will be built to county flood standards and have a freeboard 1-foot above the determined 100-year flood elevation.

Groundwater

Groundwater is not abundantly present in the Project area, nor is it identified by any agency. Sonoma County has classified the groundwater in the region as Low/Highly Variable Water Yield Area. Additionally, USGS has not identified any aquifers or wells in the area.

Regulatory Framework

Overview

The federal Clean Water Act and California's Porter-Cologne Water Quality Control Act are the primary laws related to water quality in California. Regulations set forth by the U.S. EPA and the State Water Resources Control Board (SWRCB) have been developed to fulfill the requirements of this legislation. EPA regulations include the National Pollutant Discharge Elimination System (NPDES) permit program, which controls sources that discharge pollutants into the waters of the United States (e.g., streams, lakes, bays, etc.). These regulations are implemented at the regional level by the RWQCBs. The Project site is within the jurisdiction of North Coast RWQCB.

<u>Clean Water Act</u>

The Clean Water Act (CWA) regulates the discharge of pollutants into the waters of the U.S. and the quality standards for surface waters which includes lakes, rivers, streams, wetlands, and coastal areas. The CWA made it unlawful to discharge any pollutant into navigable waters (as defined by the U.S. Army Corps of Engineers)

Construction General Permit Order 2009-0009-DWQ

Dischargers are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009- DWQ if their projects disturb one or more acres of soil or disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres.

Sonoma County General Plan 2020

The goals and policies listed in the following text summarize the priorities of the Sonoma County General Plan Water Resources Element (Sonoma County 2008) related to hydrology and water quality.

Goal WR-1: Protect, restore and enhance the quality of surface and groundwater resources to meet the needs of all reasonable beneficial uses.

Objective WR-1.2: Work with the RWQCB and interested parties in the development and implementation of RWQCB requirements.

Objective WR-1.2: Avoid pollution of stormwater, water bodies and groundwater.

> **Policy WR-1c:** Prioritize stormwater management measures in coordination with the RWQCB direction, focusing first upon watershed areas that are urbanizing and watersheds with impaired water bodies. Work cooperatively with the RWQCBs to manage the quality and quantity of stormwater runoff from new development and redevelopment in order to:
>
> (1) Prevent, to the maximum extent practicable, pollutants from reaching stormwater conveyance systems.
>
> (2) Ensure, to the maximum extent practicable, that discharges from regulated municipal storm drains comply with water quality objectives
>
> (3) Limit, to the maximum extent practicable, stormwater from post development sites to pre-development quantities.
>
> (4) Conserve and protect natural areas to the maximum extent practicable

Proposed Project Improvements

Table 5 summarizes proposed Project improvements related to existing drainages and ephemeral streams. The locations of these improvements are shown on Figures 3 and 4 in the Project Description section of this report.

Table 5: Project Improvements at Existing Drainages

Table 5A: Stewarts Point Trail: Features Crossing CCC Wetlands

Water Feature	Crossing or Culvert Label	Feature Description	Length (FT) of New Feature	Width (FT) of New Feature	Area of Piers and Piles (SF) for New Feature	Total Temporary Impacts (SF)	Total Permanent Impacts (SF)
CCC-W-26	NA	Trail Segment	10	3	0	30	0
ESHA Drainage/ Wetland	NA	Trail Segment	12	6	0	72	0
USACE-W-17	NA	Trail Segment	6	3	0	18	0
USACE-16	SD-1	Minor Drainage Lens	10	7	0	200	70
USACE-16	SD-2	Minor Drainage Lens	14	7	0	280	98
USACE-16	SD-3	Minor Drainage Lens	10	7	0	200	70
CCC-W-12	NA	Trail Segment	8	3	0	24	0
CCC-W-14	NA	Trail Segment	10	3	0	30	0
CCC-W-11	SD-4	Minor Drainage Lens	10	7	0	200	70
USACE-16	SD-5	Minor Drainage Lens	12	7	0	240	84
CCC-W-10 AND D-12	SD-6	Minor Drainage Lens	10	7	0	200	70
USACE-15	SD-7	Minor Drainage Lens	10	7	0	200	70
USACE-W-13 AND D-11	SD-8	Minor Drainage Lens	10	7	0	200	70
USACE-W-11 AND D-10	SD-9	Armored Crossing	18	8	0	360	144
USACE-W-10 AND D-9	SD-10	Clearspan Bridge	40	6	10	800	10
USACE-W-9	NA	Trail Segment	20	3	0	60	0
		Total Stewarts Point Trail Impacts				3114	756

Table 5B: Kashia Trail: Features Crossing CCC Wetlands

Water Feature	Crossing or Culvert Label	Feature	Length (FT) of New Feature	Width (FT) of New Feature	Area of Piers and Piles (SF) for New Feature	Total Temporary Wetlands Impacts (SF)	Total Permanent Wetlands Impacts (SF)
USACE-W-6	KD-11	Minor Drainage Lens	25	7	0	500	175
D-8	KD-10	Puncheon Bridge	8	5	0	0	0
USACE-W-5 AND D-7	KD-12	Minor Drainage Lens	20	7	0	400	140
D-6	EX-1	Existing Culvert	0	0	0	0	0
CCC-W-2	KD-14	Minor Drainage Lens	100	7	0	2000	700
D-5 Wetland Fringe	KD-15	Clearspan Bridge	30	5	10	600	10
D-4	KD-16	Puncheon Bridge	12	5	0	240	60
D-3	EX-2	Existing Culvert	0	0	0	0	0
D-2	KD-18	Puncheon Bridge	8	5	0	160	40
D-1	EX-3	Existing Culvert	0	0	0	0	0
		Total Kashia Trail Impacts				3900	1125

Table 5 Note: Some of the lengths and widths of the crossings on Table 5 differ slightly from those on the trail plans because the Table 5 footprints represent the base of the crossings including the added rocks while the trail plan crossing footprints represent the surface of the crossings.

a. *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?* **Less than significant impact**

The Project Engineers (Questa) have concluded that Project construction would not violate any water quality standards or waste discharge requirements however, project construction could result in temporary impacts to water quality. Best Management Practices have been incorporated into the Project design to protect water quality. This less-than-significant impact can be reduced with implementation of the following standard construction conditions of approval to reduce potential construction impacts from erosion, sedimentation, and other potential water quality impacts to all waters, including jurisdictional wetlands and riparian areas.

Mitigation Measure HYD-1: Regional Parks will schedule ground-disturbing activities including vegetation removal, excavation, grading, and compaction, to the dry season, May 15 – October 31. Regional Parks will schedule ground-disturbing activities below top-of-bank of the unnamed blue-line stream channel between June 15 and October 14. Regional Parks must approve ground-disturbing activities that must occur during the rainy season (November 01 – May 15) based on an approved Storm Water Pollution Prevention Plan (if required).

Mitigation Measure HYD-2: Regional Parks will delineate the limits of construction activity within or near wetlands, the unnamed blue-line stream channel, and riparian habitat prior to the onset of ground-disturbing activities. Work limit delineation will be temporary, high-visibility construction fencing to protect environmentally sensitive areas and prevent construction work and equipment from unnecessarily extending the work area. Regional Parks will include the temporary fencing locations on the construction drawings and will require it be removed after construction activities are completed.

Mitigation Measure HYD-3: The Contractor will disturb only the minimum amount of riparian vegetation possible within the construction area. Within temporary disturbance areas, the Contractor will cut riparian vegetation at or above grade to facilitate natural regrowth.

Mitigation Measure HYD-4: The Contractor will comply with regulations of the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, the North Coast Regional Water Quality Control Board and the State Coastal Commission regarding construction activities that affect drainages and wetlands.

Mitigation Measure HYD-5: The Contractor will dispose of surplus soils, surplus concrete rubble, or pavement at an acceptable and legally permitted disposal site or taken to a permitted soil concrete and/or asphalt recycling facility.

Mitigation Measure HYD-6: The Contractor will implement Best Management Practices to protect geology and soils, including the following:

1. Avoid construction activities during rainy days as directed by Regional Parks.

2. Preserve existing vegetation except what is designated by Regional Parks for removal.
3. Leave root structure of vegetation in place whenever feasible.
4. Minimize the extent of disturbance from construction activities.
5. Stabilize exposed slopes, banks and stockpiles of soil materials during construction using Erosion control blankets, or other method approved by Regional Parks.
6. Stabilize exposed soil by installing erosion control materials such as blankets, mulch, and/or Seed that are free of exotic species or other method approved by Regional Parks.

Mitigation Measure HYD-7: The Contractor will be required to prepare, submit, and implement a spill prevention plan for the Project, which shall include, but not be limited to, the following elements:

1. Follow the provisions of Sections 5163 – 5167 of the General Industry Safety Orders (CCR Title 8) to protect the project site from being contaminated by the accidental release of any Hazardous materials and/or waste.
2. Store all flammable liquids in compliance with the Sonoma County Fire Code and section 7- 1.01G of the Caltrans Standard Specification (or the functional equivalent) for the protection of surface waters.
3. If hazardous materials are encountered during construction, the contractor will immediately halt construction activities and will implement actions required by the current California Regulatory requirements.
4. In the event of a spill of hazardous materials the Contractor will immediately call the emergency number 9-1-1 to report the spill; and will take appropriate actions to contain the spill to prevent further migration of the hazardous materials to storm water drains or surface Waters.
5. Prevent the following activities within areas protected by construction barrier fencing:
    i. Fueling of any vehicles or portable generators
    ii. Vehicle/equipment washing and maintenance areas
    iii. Above-ground tanks for liquid storage
    iv. Industrial waste management areas (landfills, waste piles, treatment plants, disposal areas)
6. The Contractor will use drip pans or absorbent pads during vehicle and equipment maintenance, cleaning, fueling, and storage.

7. Spill kits and cleanup materials shall be available at all locations of pile-driving activities.
8. Equipment that is to be used shall be kept leak free and inspected for leaks and spills on a daily basis.
9. Equipment will be parked over drip pans or absorbent pads.
10. When not in use, the contractor will store pile-driving equipment away from concentrated flows of storm water, drainage courses, and inlets.
11. Protect hammers and other hydraulic attachments by placing them on plywood and covering them with plastic or a comparable material prior to the onset of rain.

Mitigation Measure HYD-8: The Contractor will dispose of petroleum-based products in accordance with applicable laws and regulations.

Mitigation Measure HYD-9: Regional Parks Department operations and maintenance crews will dispose of petroleum-based products in accordance with applicable laws and regulations.

Mitigation Measure HYD-10: During construction, the Contractor will conduct inspections and maintenance, according to current regulations, of portable toilet facilities used during construction. The contractor will conduct daily sanitation and waste removal to ensure that effluent spills are avoided or minimized.

Mitigation Measure HYD-11: Regional Parks or the Contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP) for implementation during project construction, if required The SWPPP will include a sediment control plan to identify measures to prevent sediment from entering delineated wetlands, the unnamed tributary, and any other surface drainage within the project area. The sediment control plan will address temporary, construction-related sediment control that may include but not be limited to silt fencing, sediment traps, fiber roles, and/or barriers. The SWPPP will be prepared by a certified Qualified SWPPP Developer and will be monitored by a Qualified SWPPP Practitioner.

Mitigation Measure HYD-12: The Contractor will be required to install a protective impermeable barrier, such as a tarp, between the bridge work area and any surface water.

Mitigation Monitoring and Reporting

The mitigation measures listed above will be implemented per the timing listed for each measure by SCRP, the Construction Contractor, or a designee approved by SCRP. SCRP will monitor for successful implementation of all measures prior to opening the trails for public use.

Impact Significance After Mitigation

These mitigation measures will ensure that trail construction is done to minimize erosion and consequent water quality impacts and impacts to water quality from construction in wetlands. These measures will reduce potential drainage and water quality impacts to a less-than-significant level. In addition, as stated before, these mitigations will be reviewed by other regulatory agencies prior to said agencies issuing permits and authorization need by SCRP in order to construct the Project. It is possible that final permits and authorizations will revise these mitigations or add additional requirements for protecting water quality.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? **No impact.**

The proposed Project will not deplete groundwater supplies or interfere with groundwater recharge. Impervious surface area created by the Project is well less than 10% of the Project area. The Project area is not within a groundwater recharge area or major groundwater basin, and no water supply wells or domestic water supply will be provided (i.e., no trailhead restroom or drinking fountain). Therefore, the proposed Project is not expected to deplete groundwater supplies or interfere substantially with groundwater recharge.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(i) result in substantial erosion or siltation on- or off-site; **Less than significant with mitigation incorporated.** Project construction would cause potential erosion. However, erosion impacts would be reduced to a less-than-significant level by implementing the previously required mitigation measures as well as Mitigation Measures G-3 and G-4.

(ii) 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.**

*(iii) 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***.**

(iv) impede or redirect flood flows? **Less than significant impact.**

The proposed Project is not expected to alter the course of existing site drainage patterns and will not alter the course of surface waters, including wetlands and the unnamed stream. Once constructed, the increase in runoff from the trail system and ancillary improvements would be insubstantial, and not large enough to cause site flooding or redirect sheet flows across the site. Boardwalk structures will span the drainage with landings outside of the channel margin. Boardwalk sections will also span wetlands with piers placed in upland areas and not in State of California or in federal jurisdictional wetlands; therefore, wetlands would not be adversely affected.

The proposed Project will not alter drainage patterns or substantially increase the rate or amount of run-off in the Project area. The proposed trail improvements are not expected to contribute to existing flooding patterns or occurrences. The proposed Project is not expected to result in a substantial increase in surface runoff, or block or re-direct flood flows, either on-site or off-site. Mitigation measures recommended in the Geology and the Hydrology Sections of this report will reduce impact to hydrology and water quality to a less-than-significant level.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? **No impact***.*

The site is not within a mapped flood hazard, seiche, or tsunami zone

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? **No impact.**

The project area is not a part of a Water Quality Control Plan (other than the Regional Board's Basin Plan) nor is it in a Groundwater Management Plan area.

XI. Land Use and Planning

1. Setting

The proposed Project is located on the west side of Highway 1 between Stewarts Point and Salt Point State Park. The 105-acre Stewarts Point Ranch Reserve is designated as Land Extensive Agriculture (LEA) in the County General Plan. This reserve is zoned Land Extensive Agriculture (LEA) Coastal Zone (CC), Scenic Resources Combining District (SR), Riparian Corridor Combing District (RC) establishing agricultural use setbacks for riparian corridors, and B6 Combining District establishing limits on residential density. The LEA CC designation zoning is applied to lands best suited for permanent agriculture of relatively low production per acre of land to implement the General Plan Agricultural Resources Element policies and the resource policies of the Local Coastal Plan.

The 52-acre Kashia Coastal Reserve has a general plan designation of Resources and Rural Development (RRD). It is zoned Rural and Resources Development (RRD) Coastal Zone (CC), B6 Combining District, Floodplain Combining District (F2), Geologic Hazards Combining District (G), RC combining District, and SR Combining District. The RRD CC zoning is to implement the provisions of the resources and rural development land use category of the General Plan, namely to provide protection of lands needed for commercial timber production, geothermal production, aggregate resources production; lands needed for protection of watershed, fish and wildlife habitat, biotic resources, and for agricultural production activities that are not subject to all of the policies contained in the agricultural resources element of the General Plan. The resources and rural development district is also intended to allow very low density residential development and recreational and visitor-serving uses where compatible with resource use and available public services.

2. Impacts

a. Physically divide an established community? **No impact.**

The Project would not include any construction within or near an established community, and therefore would not physically divide or interfere with any established community. No impact would occur.

b. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? **No impact.**

The County General Plan and LCP contains numerous policies, programs, and recommendations to preserve the biological, aesthetic, recreational, and other resources of the coastal zone. Pertinent policies and programs are described in the other resource sections of this Initial Study. Those analyses concluded that all impacts to coastal aesthetic, biological, cultural, noise, traffic, and other environmental resources could be reduced to a less-than-significant level with Project modification to include the mitigation measures recommended in this report.

The Project is consistent with the LCP Section V-48 and 49 of the LCP General Recommendations 20, 22, 23, 26 and 30, calling for development of trails recommended in the Access Plan (as noted above). Furthermore, the Project is also consistent with Section V-51, recommendation 56 encouraging a coastal trail along the beach, the coastal terrace, the uplands, the ridge roads, or the highway to connect public and private recreation areas and access trails with communities and commercial services. Finally, the trails are consistent with LCP Section III-12 recommendation 9, that states trails and access may be permitted if studies determine no long long-term adverse impacts would result from their construction, maintenance, and public use; and recommendation 17, that states pedestrian to eliminate adverse impacts on biological resources.

The Project is also consistent with the Sonoma County Coastal Zoning Code (Section 26C- 91(a)) that allows park and recreational facilities subject to approval of a Use Permit, provided that the Project can be found consistent with the LCP. As stated in the aforementioned finding, the Project is consistent with the LCP.

The proposed Project meets all of the required standards contained within Attachment “M” of the LCP Administrative Manual that states that access paths are allowed with buffer areas.

Given Project consistency with pertinent adopted plans to protect important environmental resources as well as policies to meet the State’s goals of providing a California Coastal Trail, the Project would not cause a significant adverse environmental impact report resulting from an inconsistency with adopted plans, policies, or recommendations. All those possible environmental impacts have been assessed in other resource discussions in this Initial Study and all those impacts were found to be less than significant with incorporation of recommended mitigations.

XII. Mineral Resources

1. Setting

The Project area is not within an aggregate resource area. According to the USGS Mineral Resources Data System, there are no known mineral occurrences, prospects, or past or present mineral producers within or immediately adjacent to the Project area.[1]

2. Impacts

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? **No impact.**

As noted above, no known mineral resources of importance to the state or region are located on site. Therefore, the proposed Project would not result in the loss of availability of mineral resources, or otherwise interfere with the extraction of existing mineral resources. No impact would occur.

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? **No impact.**

No locally important mineral resource recovery sites are delineated for the Project area, including in a general plan or other land use plan.

[1] U.S. Geologic Survey, *Mineral Resources Data System (MRDS), Mineral Resources On-Line Spatial Data*, available http://mrdata.usgs.gov/mineral-resources/mrds-us.html. Accessed 4/10/2017.

XIII. Noise

1. Setting

The Project site is located on lands currently or formerly used for livestock grazing. Existing noise audible on the site is from motor vehicles passing the site on Highway 1.

The Noise Element of the Sonoma County General Plan establishes goals, objectives and policies including performance standards to regulate noise affecting residential and other sensitive receptors. The General Plan sets separate standards for transportation noise and for noise from non-transportation land uses.

The nearest sensitive receptor (residences) to the Project trails are: one residence located adjacent to the southern end of the trail on the Stewarts Point Ranch; one residence north of Stewarts Point Ranch approximately 350 feet from the nearest trails section and over 1,000 feet from the northern parking lot; one residence west of the Stewarts Point Store; two residences east of Highway 1 are approximately 850 feet and 350 feet, respectively, from the nearest Stewarts Point Ranch trail segment and over 2,000 feet from the proposed parking area; and one residence east of Highway 1 that is within approximately 350 feet of the nearest trail segment on the Kashia Coastal Reserve.

2. Impacts

a. Generation a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? **Less than significant impact.**

Construction of the Project will generate noise due to the use of heavy construction equipment. Equipment will include cement trucks, dump trucks, small graders, small track excavators, loaders, and possibly a small-to-mid-sized hydraulic crane to lift bridges in place. This equipment will be operating at different locations along the trail over a six-month construction period. Grading would occur after the close of the bird nesting period (i.e., later summer-early fall). Project construction will take approximately 3 to 4 months to complete after the limited earth-moving tasks are initiated. After construction of Project facilities is complete, the areas disturbed by construction activities will be restored to their pre-construction condition.

Typically, heavy construction equipment will generate a maximum noise level of up to 85 decibels (dB). The hourly noise levels would be expected to be lower since construction equipment operates in alternating cycles of full power and low power. Construction noise in a well-defined area typically attenuates at approximately 6 dB per doubling of distance, consistent with the rules applied for a point source with hard site conditions.

Assuming a.5 dB decrease per doubling of distance from the noise source, the six residences in the area receptor (350-800 feet distant) would be exposed to a maximum noise level of 65-70 dBA from Project construction. This maximum noise level would occur only when the heavy equipment was grading or doing other site preparation at the trail segment nearest the residence. As site work proceeded north or south of this nearest location, noise levels would decrease. Also, actual noise levels would likely be less than predicted here due to intervening vegetation and topography. Once construction is completed, Project operations would not generate significant noise. While these short-term noise impacts would be typical of any construction project, they could be annoying to residents of the six homes.

Mitigation Measure N-1: The applicant will reduce construction noise by implementing the following controls:

(1) The Contractor will operate all internal combustion engines with mufflers that meet the requirements of the State Resources Code, and, where applicable, the Vehicle Code.

(2) The Contractor will restrict construction activities to the hours of 7:00 a.m. to 7:00 p.m. except for actions taken to prevent or resolve an emergency.

(3) SCRP will operate all internal combustion engines with mufflers that meet the requirements of the State Resources Code, and, where applicable, the Vehicle Code.

Mitigation Monitoring and Reporting

These conditions will be included on the Construction Contract and implemented by the Contractor. SCRP will monitor for compliance throughout the construction phase.

Impact Significance After Mitigation

These standard noise controls would reduce the temporary noise impacts to a less-than-significant level.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? **Less than significant impact.**

The Project includes construction activities that may locally generate ground borne vibration and noise. These levels would not be significant because they would be short-term and temporary and would be limited to daytime hours. There are no other activities or uses associated with the Project that would expose persons to or generate excessive ground borne vibration or ground borne noise levels. The Project will not result in permanent, long-term exposure of people to excessive ground borne vibration or noise levels. Construction activities associated with installing the foundation for the bridge and boardwalk sections will result in short-term noise from ground borne vibration that could be noticeable near the noise source, however there are few receptors in the Project vicinity. This less than significant impact can further be reduced with implementation of Mitigation Measure N-1.

c. For a project located within the vicinity of a private airstrip or 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 is over four miles from the nearest airport and people using the Project would not be affected by planes accessing that airport.

XIV. Population and Housing

1. Setting

There are no residences or public roads on the Project site.

2. Impacts

a. Induce substantial unplanned 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 not involve or result in major new housing, business, or industrial developments that could drive population growth. The proposed Project would involve constructing and operating a trail system providing increased recreational opportunities to the existing local and regional population.

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? **No impact.**

The proposed Project would involve construction and operation of a trail system. It would not result in the demolition of existing housing, or otherwise cause a reduction in housing units on site or elsewhere. Therefore, no impact would occur.

XV. Public Services

1. Setting

The Project site is current or former grazing lands located between SR 1 and the ocean bank. The undeveloped land and few agricultural buildings do not require public services or utilities.

The closest response to a fire or medical emergency is by the North Sonoma Coast Fire Protection District that serves the very northwestern corner of Sonoma County. Volunteers with this district provide fire protection, emergency medical response, rescue, and public assistance services to the communities of northwestern Sonoma County. The District has three stations, the nearest to the Project site being the South Station on the Sea Ranch (960 Annapolis Road).

CAL FIRE, under contract, provides emergency response, administrative, maintenance and training services to the Department. This contract is funded through real property taxes. CAL FIRE provides at least two (and often more) duty officers at all times and staffs the fire equipment located at the South Station on Annapolis Road. During fire season the South Station is enhanced by a seasonal crew of CAL FIRE wildland firefighters

Police protection services are provided by the Sonoma County Sheriff's Office. The nearest substation is the Russian River Substation in Guerneville. This substation serves the west county including the entire coastline within the county.

2. Impacts

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the 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? **Less than significant impact.**

The Project will not include flammable structures. No campfires, barbecues, smoking, or other ignition sources would be permitted. Trail use would not be expected to ignite fires on the site. In addition, the site does not contain hazardous fuels that would be expected to grow to a large size prior to response from the Sea Ranch South Station. In any

case, the potential for fire response to the Project would not be sufficient to require new fire protection facilities.

The North Sonoma Coast Fire Protection District would be the first providers for emergency medical calls

Police protection? **Less than significant impact.**

SCRP Rangers would patrol the Project to ensure adherence with the use requirements of the two properties. There would be the potential for trail users to trespass onto portions of the properties outside the trail corridor or to other private properties in the area. At the Community Meeting held on the proposed Project, community members expressed concern about trespassing and other user disregard of trail use regulations. The Project includes signage that will tell users to not trespass of the trail. The mitigation measure recommended below further addresses this potential impact.

Response to crimes would be the responsibility of the Sheriff's Office. It is expected that such crimes would be rare. While the additional recreational facilities may increase police response to the site, such response would be within the existing capabilities of the Sheriff's Office. No new facilities would be needed to serve the Project nor maintain existing police response capabilities for the coastal area.

Mitigation Measure PS-1: SCRP will monitor and record reports of trespass and other incidents involving unauthorized use of the trails. If such incidents are considered above normal, SCRP will consider the following: increase its patrols; add additional signage; and/or develop a volunteer program to educate users and monitor use.

Mitigation Measure PS – 2: SCRP will prepare a Maintenance Plan and Schedule for review and approval by PRMD. SCRP will implement the approved program for ongoing sanitation and maintenance of the vault restroom, including the vault inspection and pump maintenance schedule , daily checks and maintenance during seasonal use periods, and provision of water for cleaning and maintenance, and the provision of personal sanitation supplies. The self-contained restroom will include a shutter flush valve or similar equipment for safety and preventative maintenance.

Mitigation Monitoring and Reporting

SCRP will log incidents seen by staff and reports received from other agencies and members of the public and review the log on an annual basis. If warranted, SCRP will consider the recommended additional actions and continue monitoring until incidents are deemed typical for its parks.

Impact Significance After Mitigation

The mitigation plus already-proposed signage and patrolling would be expected to reduce trespass and other nuisance actions to a less-than-significant level.

Schools, Parks, and Other Public Facilities? **No impact.**

The proposed Project would involve construction of a trail system and associated recreation-serving facilities. No operational activities beyond routine patrolling and maintenance of facilities would be required. The proposed projects would not require the need for new schools, other new parks, or need for other public facilities, such that new or physically altered public facilities would be needed.

XVI. Recreation

1. Setting

There are no parks or recreational facilities on the Project site. The site adjoins the north end of Salt Point State Park,

2. Impacts

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.**

The proposed Project would create new recreational facilities. In time, the southern trail section may be linked to trails on Salt Point State Park and provide another connection in the California Coastal Trail. Eventually, the two Project trails may be linked as well as links further north to extend the California Coastal Trail. Future use of Project trails as well as links to other trails would not be expected to increase use of the existing trails to a level causing substantial deterioration. Ongoing use of these trails would require normal maintenance by State Parks' or SCRP' staffs.

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 with mitigation incorporated.**

The Project is a new recreational facility. This Initial Study assesses the impacts of constructing and operating these facilities. These impacts can be reduced to a less-than-significant level by incorporating the mitigation measures listed in this Initial Study.

XVII. Transportation

1. Setting

The Project is located for a length of about two miles on the west side of Highway 1. There is no existing public road access to or through the site from Highway 1.

2. Impacts

a. Conflict with program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? **Less than significant impact.**

The traffic report (included in Appendix) prepared when the Project was being designed projected that the Project would generate an average 11 trips on a weekday and 18 trips on a weekend day. This is similar to the number of trips generated by a single-family residence. This small increase in traffic would not be expected to conflict with Caltrans plans or operation on State Route 1. The Project would not result in new pedestrian or bicycle facility along Highway 1.

b. Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? **Less than significant impact.**

Project would generate an average of 11 weekday trips and 18 weekend trips per day once the trails become operational. OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA (*September 2017) states that projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact. The number of new trips generated by the Project would be well below the screening criterion for such projects. Therefore, the Vehicle Miles Travelled (VMT) impact would be less than significant.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? **Less than significant impact.**

The proposed trailhead parking areas would be accessed via two driveways along SR 1. The northern parking lot which would include 9 parking spaces would be located a half-mile north of the SR 1/Stewarts Point-Skaggs Point Road intersection. The southern parking lot which would include 8 parking spaces would be located approximately three

miles south of the same intersection. The existing driveway to the northern lot currently serves a residence including a locked gate. The driveway is approximately 12-14 feet in width between fence lines with landscaping along the driveway side of the fence. The southern lot would include constructing a parking area inside the existing fence that is within the trail easement with a one-way circulation scheme from the entrance at the north end to the exit at the south end. The parking lot would include landscaping between the parking and the SR 1 travelway.

Sight lines along SR 1 at the location of the northern driveway extend approximately 700 feet north, up to the horizontal curve that is on a downward slope approaching the driveway. Sight lines to the south are also clear for 750 feet, which is adequate for speeds over 65 mph. Approaching vehicles traveling on SR 1 have clear sight lines to the driveway and of anyone exiting it.

Sight lines for the originally proposed southern parking area were found to be inadequate. The traffic report recommended relocating the parking area 430 feet to the north. The Project design has been subsequently revised to relocate the parking area as recommended.

The existing driveway to the northern lot currently serves a residence including a locked gate. The driveway is approximately 12-14 feet in width between fence lines with landscaping along the driveway side of the fence. Because there is inadequate width for two vehicles to pass on the existing residential driveway between SR 1 and the parking lot, it should be widened to at least 16 feet of clear pathway. Also, with the addition of traffic whose drivers may not be familiar with this section of SR 1, a Stop sign should be installed at the intersection of SR 1 and the access driveway.

The proposed parking area at the southern end of the trail would have a designated entrance and exit. To ensure visitors do not pull into and out of the parking area at any point between the two driveways, the lot has been designed with fencing and landscaping separating the parking lot from the SR1 travelway.

Mitigation Measure T-1: At the northern parking lot, the existing driveway section between SR 1 and the locked gate, will be widened to provide at least 16 feet of paved width without obstruction from landscaping. An R-1 Stop sign should be installed at the existing driveway

intersection approaching SR 1. The sign should not obstruct sight lines and the size should be at the discretion of Caltrans.

At the southern parking lot, striping and signage shall be provided at the driveways including "Do Not Enter" signs at the southern exit-only driveway and striped directional arrows identifying the entry and exit driveways. An R-1 Stop sign should be installed at the exit driveway. The sign should not obstruct sight lines and the size should be at the discretion of Caltrans.

Mitigation Monitoring and Reporting

These improvements shall be included in the Construction Contract and implemented by the Contractor. SCRP shall monitor for compliance.

Impact Significance After Mitigation

The recommended improvements will provide safe access to Project parking areas and reduce the impact on safety to a less-than-significant level.

d. Result in inadequate emergency access? **No impact**

Highway 1 provides emergency access along the length of the trail system. The Project parking lots provide emergency access to the trail system. However, the trail will be only five feet wide, so typical emergency response vehicles would be unable to access a medical emergency distant from the parking areas. This is a potentially significant constraint.

Mitigation Measure T-2: SCRP shall include signage explaining who to call in case of a fire or emergency medical situation as well as the location of the nearest call box. SCRP will initiate coordination with North Sonoma Coast Fire Protection District about access constraints on the Project site and a protocol for providing emergency response. SCRP shall also coordinate with the Sheriff's Office and State Parks to develop this protocol for emergency medical response to the site.

Mitigation Monitoring and Reporting

SCRP shall implement this mitigation prior to the trail system opening for public access.

Impact Significance After Mitigation

SCRP coordination with emergency responders would reduce the impact on emergency response constraints to a less-than-significant level.

XVIII. Utilities and Service Systems

1. Setting

The Project site is existing or former grazing land. It is not served by public utilities or service systems.

2. Impacts

a. *Require or result in the relocation or construction of new or expanded water, wastewater treatment facilities, or storm water drainage, electric power, natural gas, or telecommunications facilities or expansion of existing facilities, the construction or relocation of which could cause significant environmental effects?* **Less than significant impact.**

The proposed Project will include a restroom at the Kashia reserve parking lot. The restroom will be placed near the picnic tables and disabled parking space at the south end of the lot. Placement of this facility would not result in any impacts beyond those assessed in this Initial Study. This restroom will be maintained and serviced by SCRP

b. *Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?* **No impact.**

Potable water would not be provided to the site. Visitors will be responsible for providing their own water.

c. *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?* **Less than significant impact.**

Wastewater from the restroom will be pumped out on a regular basis and disposed of at a permitted wastewater treatment facility that has capacity to accept hauled septage. The small amount of wastewater generated by one restroom would not be expected to adversely affect the capacity of the receiving facility.

d. *Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals***? Less than significant impact**.

The primary construction will entail grading. It is not expected that grading of a trail on this relatively flat site would generate excess soil material that could not be reused on site. In the case excess cut material cannot be used on the trail site, it would be disposed of at a site licensed or permitted to receive fill material.

Otherwise, construction involves installation of a restroom, picnic table, benches, signs, and fencing. It is not expected that construction would generate a substantial amount of waste requiring disposal at a solid waste facility. This impact is considered less than significant.

The two parking areas will include solid waste receptacles that will be serviced by SCRP staff or a contractor. It is not expected that the small amount of solid waste generated would generate waste beyond the capacity of receiving landfills.

e. *Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?* **No impact.**

The proposed Project construction would comply with all applicable regulatory requirements related to solid waste. Specifications for Project construction would contain requirements for the handling, storage, cleanup, and disposal of any hazardous materials, or other construction pollutants. This impact is considered less than significant.

XIX. Wildfire

1. Setting

The Project site is primarily vegetated with grasses and forbs and is mainly level. The site is designated as having a high fire hazard.

2. Impacts

a. Substantially impair an adopted emergency response plan or emergency evacuation plan? **Less than significant impact.**

The Project restricts all types of open flame, including campfires, barbecues, smoking, etc. The ignition risk from trail use is very low. Accordingly, use of the site would not be expected to ignite a wildfire that would substantially impair an emergency response plan or emergency evacuation plan. A much more likely scenario would be a wildfire descending the wooded ridge to the east and blocking Highway 1, as was the case in 2020 for the Meyers Fire a few miles to the south of the Project site. Such a fire could extend across Highway 1 to the Project site. However, the Project itself would not be the cause for any blocking or impeding access along Highway 1.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? **Less than significant impact**.

Recreational users would not be allowed on the site when a large wildfire was burning in the area to the east of the site. It is likely that Highway 1 would be closed in the area potentially threatened by a fire. Therefore, people would not be exposed to air pollution, nor uncontrolled spread of a wildfire across the Project site.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? **No impact**.

The Project will include few structures or infrastructure that would burn if a wildfire crossed onto the site. At worst, the restroom, some picnic tables, benches, and signs could burn, though concrete or masonry prefabricated structures do not burn easily. These facilities are not costly

to replace. No infrastructure is required to protect site resources from a wildfire. Accordingly, no additional fire-related infrastructure would be built, and there would be no impacts on the environment from such construction.

d. *Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?* **No impact.**

No residences will be constructed on the site, so they would not be subject to flooding or landslides. The site is level, so any people on the site would not be subject to landslides, plus it is expected the Project would be closed to the public if there was a risk from post-fire flooding or landsliding. Accordingly, there would be a less-than-significant impact from the potential ramifications of a wildfire in the area.

XX. Mandatory Findings of Significance

a. Does the project have the potential to substantially 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, substantially 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? **Less than significant with mitigation incorporated.**

The proposed Project would involve grading of approximately two miles of trail. As described in Section IV, Biological Resources, trail construction would result in potentially adverse impacts to several special-status plant and animal species, special status vegetation communities, and wetlands. Mitigation measures have been recommended to avoid these impacts to sensitive biological resources or, where avoidance is not feasible given the constraints of the trail easements, the report includes mitigation measures to provide compensatory restoration of wetlands and other resources and/or to minimize the adverse effects of both trail construction and the prohibited, but likely occasional, off-trail use by recreational users. The proposed mitigation measures would reduce the potential for direct and indirect effects to these sensitive biological resources to a level that is less than significant.

The Project will require subsequent approvals from several regulatory agencies that issue permits or approvals for projects to ensure that biological and water quality resources are protected, including: a 1600 Lake and Streambed Alteration from the California Department of Fish and Wildlife; North Coast Regional Water Quality Control Board 401 Water Quality Certification; a Coastal Development Permit from the California Coastal Commission; a Nationwide Permit/or Individual Permit under Section 404 of the Clean Water Act for impacts to on-site wetlands from the U.S Army Corps of Engineers; possibly an Incidental Take Permit from the U.S Fish and Wildlife; and a grading permit from Permit Sonoma. These agencies will review this CEQA document and add or revise mitigations to further ensure adequate protection of environmental resources.

As discussed in Section V, Cultural Resources, there are no known historical resources or archaeological resources in the Project area. Tribal cultural resources will be protected in concert with the oversight of the Kashia Band of Pomo Indians of Stewarts Point Rancheria. Potential

impacts to inadvertently discovered archaeological resources, tribal cultural resources or human remains would be mitigated to a less-than-significant level with implementation of Mitigation Measures CR-1 and CR-2. No other cultural resources would be affected, and the proposed Project would not eliminate important examples of the major periods of California history or prehistory.

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)?* **Less than significant with mitigation incorporated.**

Cumulative environmental effects are multiple individual effects that, when considered together, are considerable or may compound or increase other environmental impacts. The proposed Project is a new recreational facility, which will be part of the California Coastal Trail.

The State and County have developed numerous parks and trails along the northern Sonoma Coast over the past 50 years. Trails on these parks were constructed to be consistent with Local Coastal Plan policies and requirements. All these projects were approved with Mitigated Negative Declarations indicating that public access could be constructed and used without significant adverse impacts to environmental resources or public safety. The proposed Project trails are a small addition to the coastal trail system on the north Sonoma coast that include the six coastal access trails on the Sea Ranch and Stillwater Cove Regional Park operated by SCRP and miles of trails on Salt Point State Park, Ft. Ross State Park, and Sonoma Coast State Park to the south. The State Coastal Act calls for development on the California Coastal Trail, and the Project helps to implements this planned trail's completion.

The Project impacts can all be reduced to a less-than -significant level and would not make a cumulatively considerable contribution to a significant cumulative impact of trail development along the coast. There are no other proposed non-park-related projects in the immediate vicinity of the Project site, so there would be no cumulative impacts from the Project plus other nearby proposed developments. Cumulative impacts associated with projects in other more distant areas that could affect air quality, and climate change could potentially be significant. However, as described in this report, Project energy use, GHG emissions, and air

pollutant emissions are very short-term and minor, and the Project would not make a cumulatively considerable contribution any cumulative impact associated with energy use, climate change, or air pollution.

By including mitigation measures recommended in this report, the Project would not make a cumulatively considerable contribution to a cumulative impact associated with other local planned development or development in the region as a whole.

c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?* **Less than significant with mitigation incorporated.**

Project construction and operation would not be expected to cause a significant health risk nor adverse impact on human beings. Public safety will be ensured through standard SCRP patrolling augmented by emergency response in case of a medical emergency or fire. Implementing recommended mitigation measures, Project improvements will be designed to withstand probable seismic events. Flooding is not a concern at this site. Recommended mitigation measures will ensure safe ingress and egress from Project parking lots. Accordingly, direct and indirect impacts on human beings would be reduced to a less-than-significant level.

6.0 Determination

On the basis of this initial evaluation:

Determination	Check Box
I find that the proposed project **could 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 revisions in the project have been made by or agreed to by the applicant. A **Mitigated Negative Declaration** will be prepared.	x
I find that the proposed project **may** have a significant effect on the environment, and an **Environmental Impact Report** is required.	
I find that the proposed project **may** have a "potentially significant impact" or "potentially significant unless mitigated impact" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **Environmental Impact Report** is required, but it must analyze only the effects that remain to be addressed.	
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards and (b) have been avoided or mitigated pursuant to an earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	

_____ _____

Signature Date
Mark Cleveland
Senior Park Planner

Contact Person and Phone Number

Mark Cleveland
Senior Park Planner
Sonoma County Regional Parks
2300 County Center Drive, Suite 120A
Santa Rosa, CA 95403

(707) 565-2041

7.0 Report Preparers

Lead Agency

Sonoma County Regional Parks
2300 County Center Drive, Suite 120A
Santa Rosa, CA 95403

Contact Person and Phone Number

Mark Cleveland
Senior Park Planner
(707) 565-2041

Environmental Consultants

Leonard Charles and Associates

Leonard Charles, Ph.D., Project Manager and Environmental Analyst
Lynn Milliman, M.A., Environmental Analyst
Jacoba Charles, M.A. & M.S., Biologist and Environmental Analyst

Questa Engineering (Hydrology/Water Quality, Geology/Soils, and Biological Resources)

Jeffrey Peters, Principal
Margaret Henderson, ASLA, Principal Restoration Planner
Will Hopkins, P.G. Geologist
Oliver Reyes, Staff Landscape Architect
Colette Curran, Staff Landscape Architect

Appendix A

Trail Plans

NORTH COAST TRAILS PROJECT

ITEMS TO BE PROVIDED BY COUNTY:

1. ENCROACHMENT PERMIT FROM SONOMA COUNTY TRANSPORTATION & PUBLIC WORKS
2. SOILS REPORT BY QUESTA
3. SIGNS
4. COASTAL DEVELOPMENT PERMIT (CPH09-0007)
5. WATER QUALITY CERTIFICATION (WDID-1B15D189WNSO)
6. ARMY CORPS OF ENGINEERS PERMIT (2009-00269-N)
7. CA DEPARTMENT OF FISH & WILDLIFE PERMIT (1600-2010-011-R3)
8. TIP ID SON 070008

SCOPE OF WORK:

BASE BID: PERFORM CLEARING, GRUBBING, BOARDWALKS, STABILIZED PATHS, DRAINAGE IMPROVEMENTS, CONCRETE LANDING, CONCRETE PADS, GRAVEL PARKING AREAS, PREPARE & IMPLEMENT STORMWATER POLLUTION PREVENTION PROGRAM, PARKING LOT STRIPING, INSTALL SIGN POSTS (SIGNS TO BE PROVIDED BY COUNTY), AND ASSORTED AMENITIES.

GENERAL NOTES

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION SHALL CONFORM TO THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS AND STANDARD PLANS (LATEST REVISION), UNLESS OTHERWISE NOTED.
2. ALL UTILITIES CONFLICTING WITH THE PROPOSED CONSTRUCTION SHALL BE LOCATED PRIOR TO START OF CONSTRUCTION.
3. THE SUBGRADE, CLASS II AGGREGATE BASE, ASPHALTIC CONCRETE SHALL BE 90% (MIN.) VIRGIN MATERIALS AND SHALL HAVE A RELATIVE COMPACTION OF 95%. SHALL BE FREE OF LOOSE OR EXTRANEOUS MATERIAL, AND BE A TIGHT, NON-YIELDING SURFACE WITH NO VISIBLE DISPLACEMENT.
4. UNDERGROUND SERVICE ALERT (USA) – CALL TOLL FREE 800-642-2444 AT LEAST 48 HOURS PRIOR TO EXCAVATION.
5. ALL UNUSABLE EXCESS SOIL MATERIAL, STUMPS AND BOULDERS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER AND BECOME PROPERTY OF THE CONTRACTOR.

GRADING NOTES

1. PERFORM GRADING IN ACCORDANCE WITH THE LATEST EDITION OF APPENDIX CHAPTER 33 OF THE CALIFORNIA BUILDING CODE, APPLICABLE SONOMA COUNTY REGULATIONS AND TO THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEERING REPORT FOR THIS PROJECT.
2. EXISTING DRAINAGE COURSES REDIRECTING WATERS FROM THIS SITE AND LOCATED THROUGHOUT THIS SITE SHALL REMAIN OPEN AND CLEAR OF DEBRIS TO PROPERLY CONVEY STORM WATER. IF EXISTING DRAINAGE COURSES REDIRECTING WATERS FROM THIS SITE ARE LOCATED IN THE COUNTY RIGHT-OF-WAY AND NEED MAINTENANCE, CONTACT THE DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS AT (707) 565-2231 AND THE DEPARTMENT OF PARKS AND RECREATION AT (707) 865-2391 FOR FURTHER ASSISTANCE. IN ANY EVENT, THE OWNER AND/OR CONTRACTOR SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.
3. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER UPON DISCOVERING SIGNIFICANT DISCREPANCIES, ERRORS OR OMISSIONS IN THE PLANS, PRIOR TO PROCEEDING. THE OWNER SHALL HAVE THE PLANS REVISED TO CLARIFY IDENTIFIED DISCREPANCIES, ERRORS OR OMISSIONS. THE REVISED PLANS SHALL BE SUBJECT TO REVIEW BY THE CHIEF BUILDING OFFICIAL.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UNDERGROUND SERVICE ALERT (USA), TOLL FREE AT 1-800-642-2444, AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL UNCOVER RELEVANT UTILITIES TO VERIFY THEIR LOCATION AND ELEVATION. IF UNEXPECTED OR CONFLICTING UTILITIES ARE ENCOUNTERED DURING EXCAVATION, NOTIFY USA, THE UTILITY OWNER AND/OR THE PROJECT ENGINEER IMMEDIATELY. UTILITIES INCLUDE BUT ARE NOT LIMITED TO WATER, SEWER, ELECTRICAL, GAS, TELEPHONE AND CABLE/TV.
5. IN THE EVENT CULTURAL RESOURCES (I.E., HISTORICAL, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES, AND HUMAN REMAINS) ARE DISCOVERED DURING GRADING OR OTHER CONSTRUCTION ACTIVITIES, WORK SHALL BE HALTED WITHIN A 100 FOOT RADIUS OF THE FIND. THE NORTHWEST INFORMATION CENTER SHALL BE NOTIFIED AT (707) 664-0880. A QUALIFIED ARCHEOLOGIST SHALL BE CONSULTED FOR AN ON-SITE EVALUATION. ADDITIONAL MITIGATION MAY BE REQUIRED BY THE COUNTY PER THE ARCHEOLOGISTS RECOMMENDATIONS. IF HUMAN BURIALS OR HUMAN REMAINS ARE ENCOUNTERED, THE CONTRACTOR SHALL ALSO NOTIFY THE COUNTY CORONER AT (707) 565-5070.
6. SHOULD GRADING OPERATIONS ENCOUNTER HAZARDOUS MATERIALS, OR WHAT APPEAR TO BE HAZARDOUS MATERIALS, STOP WORK IN THE AFFECTED AREA IMMEDIATELY AND CONTACT 911 OR THE APPROPRIATE AGENCY FOR FURTHER INSTRUCTION.

EARTHWORK NOTES

1. ALL QUANTITIES SHOWN ON THIS PLAN ARE APPROXIMATE. CALCULATED EXCESS AND SHORTAGE ARE TO FINISHED ROUGH GRADE AND EXISTING GROUND. THE ACTUAL AMOUNT OF EARTH MOVED WILL VARY, DEPENDENT ON COMPACTION, CONSOLIDATION, STRIPPING REQUIREMENTS, AND THE CONTRACTOR'S METHOD OF OPERATION.
2. DUE TO THE INEXACT NATURE OF EARTHWORK ESTIMATING, THERE IS NO GUARANTEE OF THESE QUANTITIES. CONTRACTOR SHALL MAKE HIS OWN ESTIMATE FOR BID AND CONSTRUCTION PURPOSES.

DISTURBED AREA

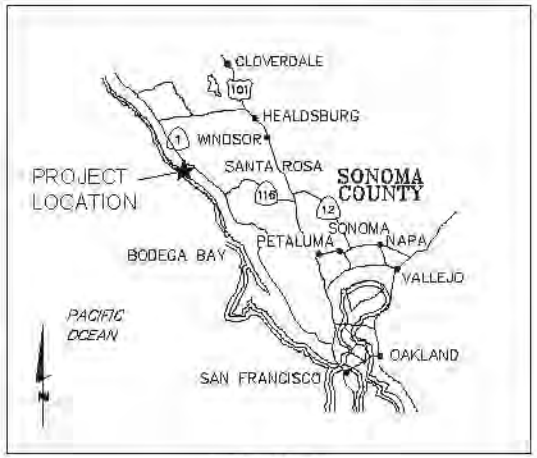
TOTAL AREA = 0.70 ACRES

ABBREVIATIONS

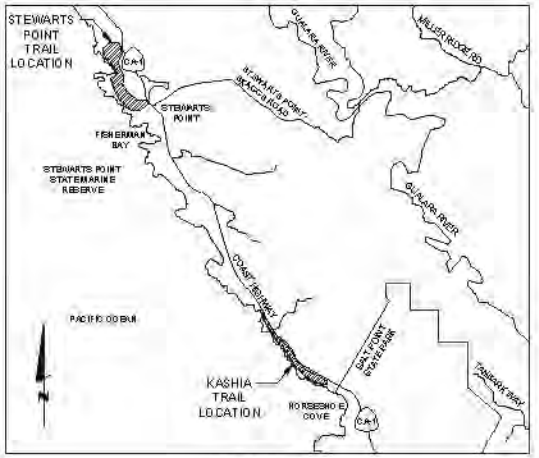
AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
AFG	ABOVE FINISH GRADE
AGGR	AGGREGATE
&	AND
APPROX	APPROXIMATE
@	AT
BFG	BELOW FINISH GRADE
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
CL	CLASS
CONC	CONCRETE
CLR	CLEARANCE
CP	CONTROL POINT
DIA, Ø	DIAMETER
EA	EACH
EL, ELEV	ELEVATION
EP	EDGE OF PAVEMENT
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
EX., EXIST	EXISTING
(E)	EXISTING
FG	FINISHED GRADE
FL	FLOW LINE
FT	FEET
GALV	GALVANIZED
GB	GRADE BREAK
H, HORIZ	HORIZONTAL
INV	INVERT
JP	JOINT POLE
LF	LINEAR FEET
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
MH	MANHOLE
MON	MONUMENT
N	NORTH
NO., #	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
OH	OVER HEAD
PCC	POINT COMPOUND CURVE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PP	POWER POLE
PROP	PROPERTY
PT	POINT
PRVCE	POINT OF REVERSE VERTICAL CURVE ELEVATION
PRVCS	POINT OF REVERSE VERTICAL CURVE STATION
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RBP	RESIN BASED PAVEMENT
RC	RELATIVE COMPACTION
RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT OF WAY
S	SLOPE OR SOUTH
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SHT	SHEET
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
ST	STREET
STL	STEEL
TC	TOP OF CURB
TYP	TYPICAL
VC	VERTICAL CURVE
W/	WITH
W/O	WITH OUT

PHASE --

STEWARTS POINT TRAIL AND KASHIA TRAIL, SONOMA COUNTY, CALIFORNIA CONSTRUCTION PLANS



VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

SHEET INDEX

SHEET NUMBER	SHEET TITLE
1	TITLE SHEET & INDEX
2	STEWARTS POINT TRAIL PLANS
3	STEWARTS POINT TRAIL PLANS
4	KASHIA TRAIL PLANS
5	KASHIA TRAIL PLANS
6	KASHIA TRAIL PLANS
7	STEWARTS POINT TRAILHEAD AREA
8	STEWARTS POINT PARKING AREA
9	GRADING
10	GRADING & DRAINAGE
11	EROSION & SEDIMENT CONTROL
12	EROSION CONTROL DETAILS & NOTES
13	RESTROOM PLANS
14	RESTROOM PLANS
15	RESTROOM PLANS

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

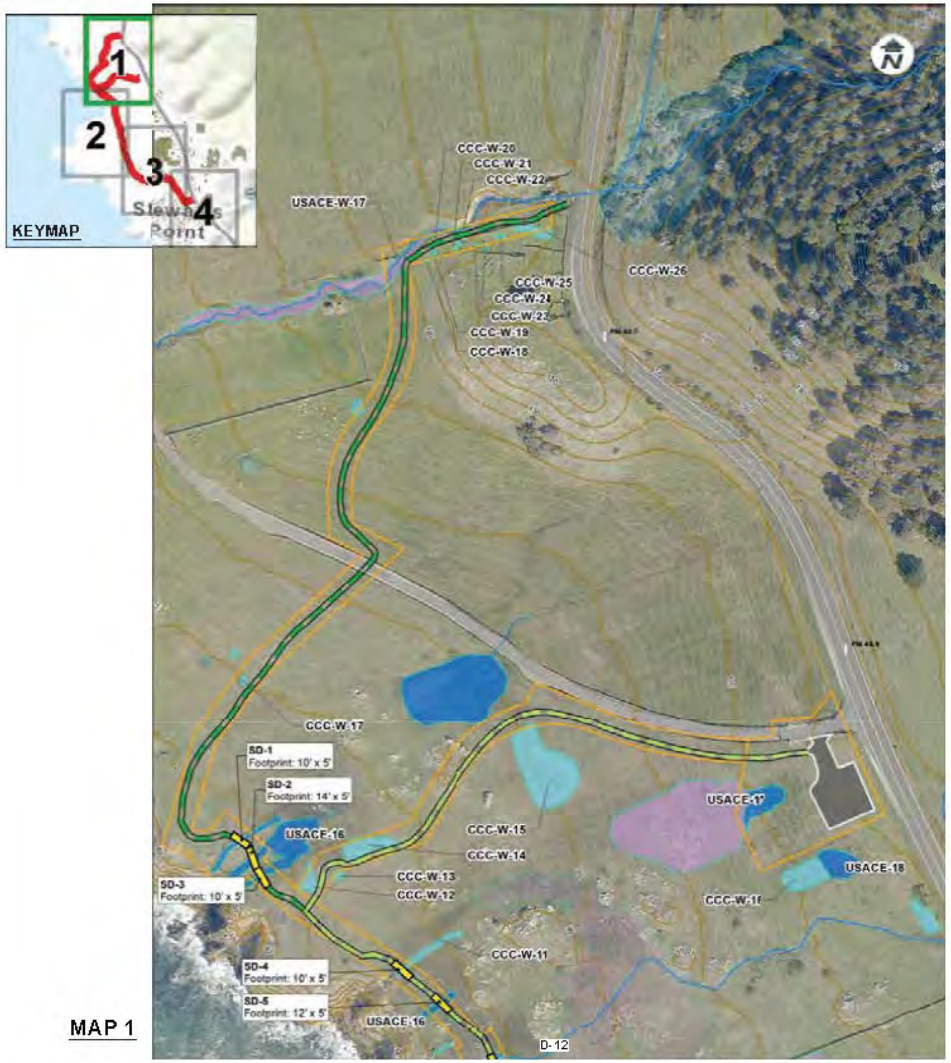
QUESTA ENGINEERING CORP
QW Environmental & Water Resources
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

Sht	Rev:	Date:	By:	Description:	Appd:

Design: MH
Drawn: CC
Checked: JP
Appvd: XXX

NORTH COAST TRAILS PROJECT
TITLE SHEET & INDEX
STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: NOT TO SCALE
Date: 4/26/21
Sheet: 1 OF 15



MAP 1

MAP 2

LEGEND:

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS
SONOMA COUNTY

QUESTA ENGINEERING CORP.
CIVIL Environmental & Water Resources
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

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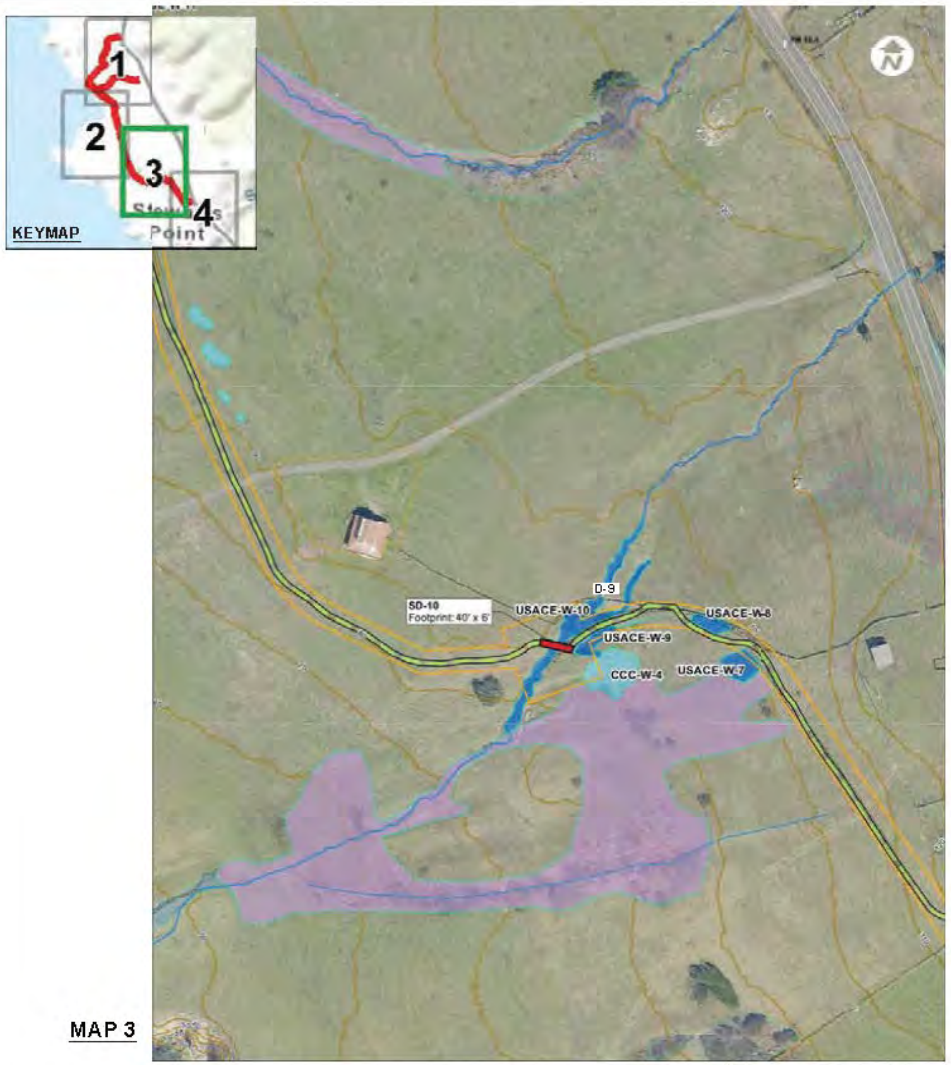
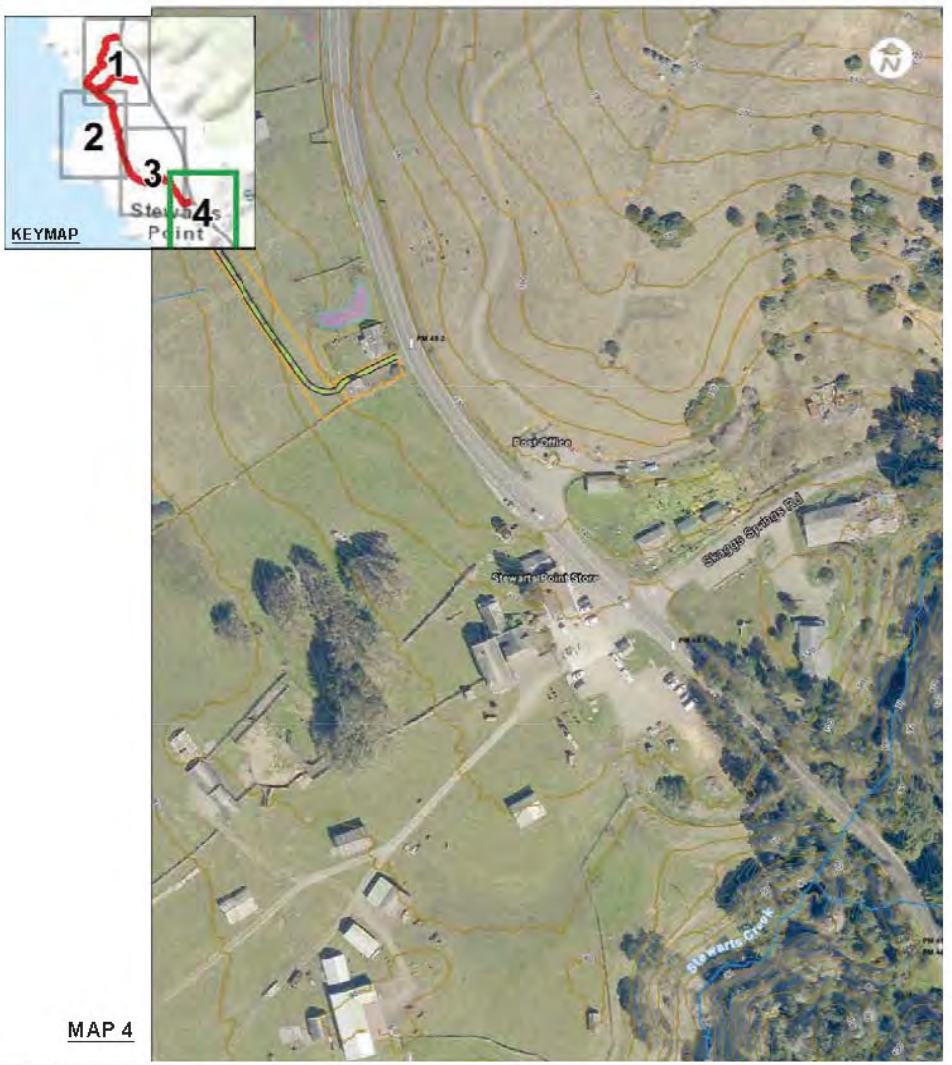
Design: MH
Drawn: OR
Checked: JP
Apprd: XXX

NORTH COAST TRAILS PROJECT
STEWARTS PT TRAIL PLAN - 1
STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: AS NOTED
Date: 4/26/21
Sheet: 2 OF 15



MAP 3



MAP 4

LEGEND:

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS
SONOMA COUNTY

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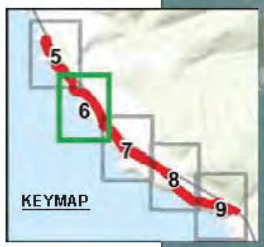
Apprd: XXX

NORTH COAST TRAILS PROJECT
STEWARTS PT TRAIL PLAN - 2
STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: AS NOTED
Date: 4/26/21
Sheet: 3 OF 15

MAP 5



MAP 6

LEGEND:

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS
SONOMA COUNTY

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

Sht	Rev	Date	By	Description	Appd

Design: MH
Drawn: OR
Checked: JP
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NORTH COAST TRAILS PROJECT
KASHIA TRAIL PLAN - 1
STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: AS NOTED
Date: 4/26/21
Sheet: 4 OF 15

MAP 7

MAP 8

LEGEND:

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS
SONOMA COUNTY

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Design: MH
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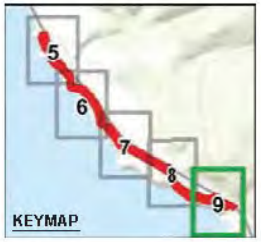
NORTH COAST TRAILS PROJECT
KASHIA TRAIL PLAN - 2

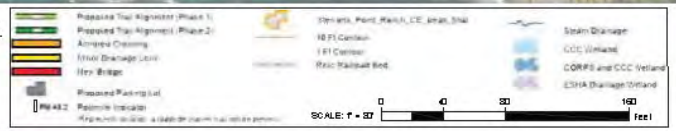
STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: AS NOTED
Date: 4/26/21
Sheet: 5 OF 15



MAP 9

LEGEND:



30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS
SONOMA COUNTY

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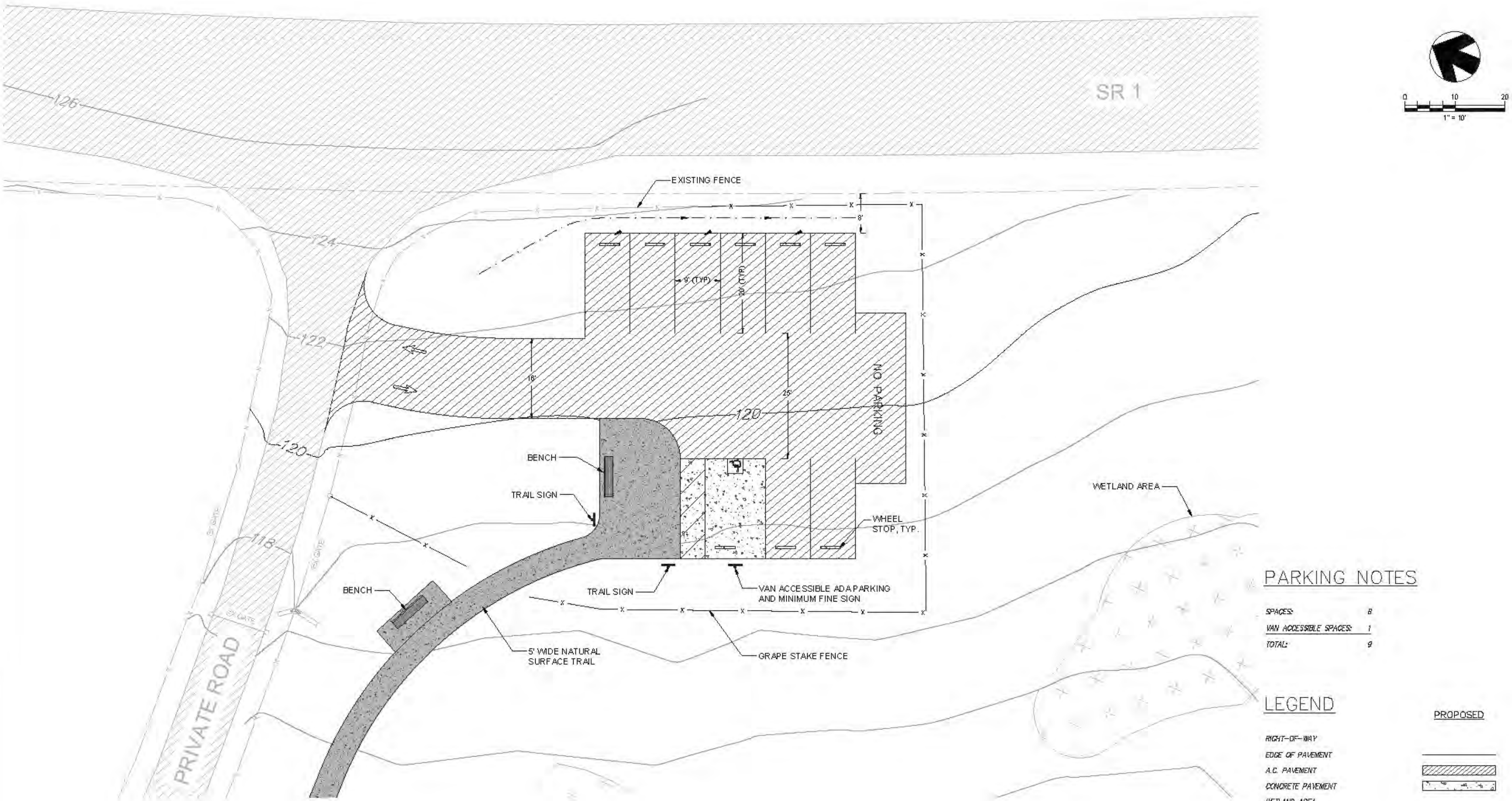
Design: MH
Drawn: OR
Checked: JP
Apprv: XXX

NORTH COAST TRAILS PROJECT
KASHIA TRAIL PLAN - 3

STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: AS NOTED
Date: 4/26/21
Sheet: 6 OF 15



PARKING NOTES

SPACES:	8
VAN ACCESSIBLE SPACES:	1
TOTAL:	9

LEGEND

PROPOSED / EXISTING

- RIGHT-OF-WAY
- EDGE OF PAVEMENT
- A.C. PAVEMENT
- CONCRETE PAVEMENT
- WETLAND AREA
- FENCE
- SAWCUT AND CONFORM LINE
- SWALE FLOW LINE
- GATE

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS
SONOMA COUNTY

QUESTA ENGINEERING CORP.
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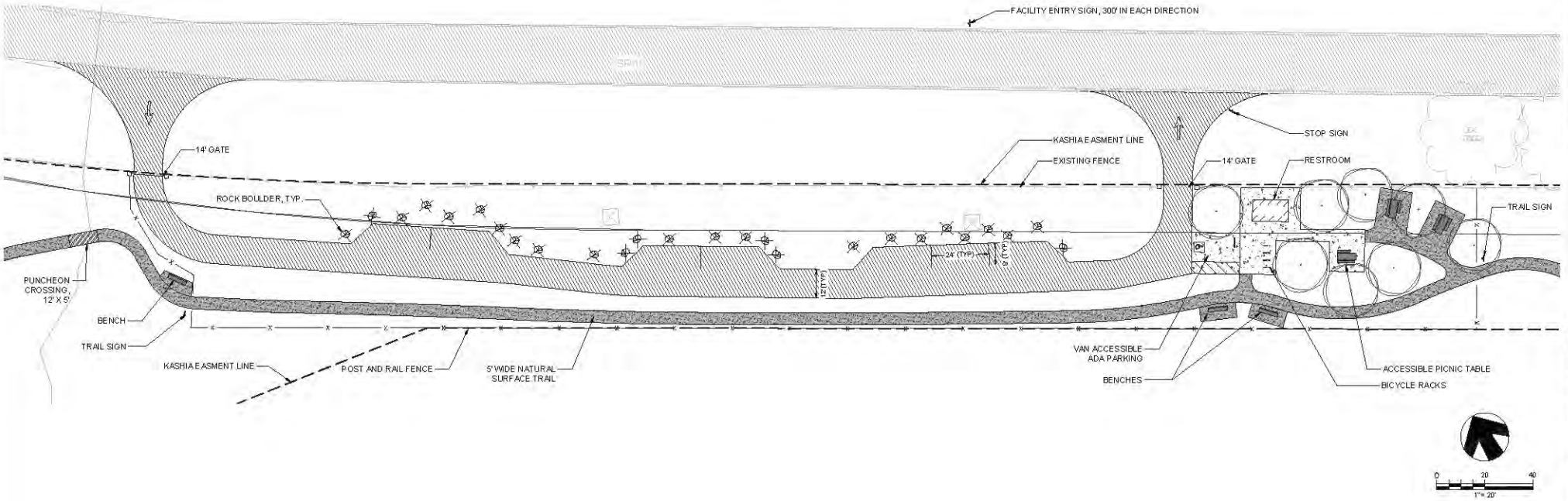
Sht	Rev	Date:	By:	Description:	App'd:

Design: MH
Drawn: OR
Checked: JP
Appr'd: XXX

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL PARKING AREA
STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: AS NOTED
Date: 4/26/21
Sheet: 7 OF 15



LEGEND

	PROPOSED	EXISTING
KASHIA EASEMENT LINE		
EDGE OF PAVEMENT		
FOG LINE		
A.C. PAVEMENT		
CONCRETE PAVEMENT		
WETLAND AREA		
FENCE		
SAWCUT AND CONFORM LINE		
TRAIL CENTERLINE		
14' GATE		

PARKING NOTES

SPACES:	7
VAN ACCESSIBLE SPACES:	1
TOTAL:	8

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS
SONOMA COUNTY

QUESTA ENGINEERING CORP.
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Environmental
& Water Resources
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Sht:	Rev:	Date:	By:	Description:	App'd:

Design: MH
Drawn: OR
Checked: JP
Appr'd: XXX

NORTH COAST TRAILS PROJECT
KASHIA TRAIL PARKING AREA
STEWARTS POINT, CA

Size: D | Project: 1700167
Scale: AS NOTED
Date: 4/26/21
Sheet: 8 OF 15

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) GUIDELINES - MINIMIZING CONSTRUCTION SITE IMPACTS

CONSTRUCTION ACTIVITIES CAN SIGNIFICANTLY IMPACT WATER QUALITY AND ECOLOGIC PROCESSES. EROSION AND TRANSPORT OF DIRT, DEBRIS, CHEMICALS, AND OTHER CONSTRUCTION WASTE CAN ENTER MUNICIPAL DRAIN SYSTEMS, LOCAL CREEKS, AND REGIONAL WATERWAYS AND CAUSE SEVERE DAMAGE TO NATURAL SYSTEMS AND HUMAN INFRASTRUCTURE. MINIMIZE ENVIRONMENTAL IMPACTS BY FOLLOWING THE BMPS OUTLINED IN THE PROJECT SPECIFICATIONS AND LOCAL, STATE, AND FEDERAL LAWS GOVERNING CONSTRUCTION SITE IMPACT MANAGEMENT AND WATER QUALITY COULD RESULT IN LEGAL VULNERABILITY AND FINES EXCEEDING $10,000 PER DAY. TO AVOID SUCH INSTANCES, PLAN AHEAD, IMPLEMENT THE SPECIFIC BMPS OUTLINED FOR THIS PROJECT, AND FOLLOW THE GUIDELINES OUTLINED BELOW. MORE INFORMATION ON CONSTRUCTION SITE BMPS AND SWPPPS CAN BE FOUND AT: http://www.dot.ca.gov/hq/construc/stormwater/documents/October2016_SWPPP_Manual.pdf

NON-HAZARDOUS MATERIAL STORAGE

1. STORE ALL SAND, DIRT, AND OTHER ERODIBLE MATERIAL AT LEAST 10 FEET FROM CATCH BASINS AND WHEN FORECASTS CALL FOR RAIN, COVER WITH A TARP, AND SECURE EDGES WITH SANDBAGS, BRICKS, OR OTHER HEAVY OBJECTS.
2. KEEP A CLEAN JOBSITE BY SWEEPING UP PAVED OR OTHER IMPERMEABLE SURFACES DAILY, ESPECIALLY WHEN RAIN IS FORECASTED. DO NOT ADVERTENTLY OR INADVERTENTLY TRANSPORT SEDIMENT OFFSITE, INTO STORM DRAINS, OR ROADWAYS USING WATER, BLOWERS, OR OTHER MECHANICAL DEVICES. DISPOSE ALL NON-HAZARDOUS WASTES INTO THE APPROPRIATE DUMPSTER UNITS.
3. RECYCLE AT LEAST THE MINIMUM REQUIRED AMOUNT OF DEMOLITION MATERIAL INCLUDING CONCRETE, ASPHALT, BASE AGGREGATE, WOOD, ETC. AS OUTLINED IN PROJECT SPECIFICATIONS. PROMOTE RECYCLING OF DAILY CONSUMPTIVE MATERIALS SUCH AS PAPER AND DRINK CANS BY PROVIDING RECYCLE BINS ONSITE.
4. BE SURE DUMPSTERS AND STORAGE CONTAINERS ADEQUATELY MEET ONSITE DEMAND. CHECK FOR ANY LEAKS, CRACKS, OR MATERIAL OVERFLOW ON A REGULAR BASIS. ORDER EXTRA DUMPSTERS AS NECESSARY AND REPAIR ALL LEAKS AND CRACKS IMMEDIATELY.

HAZARDOUS MATERIALS MANAGEMENT AND STORAGE

1. ALL HAZARDOUS MATERIALS AND WASTE MUST BE LABELED (E.G., DIESEL, GASOLINE, ANTIFREEZE, SOLVENTS, THINNERS, PESTICIDES, FERTILIZERS) IN CONFORMITY TO ALL LOCAL, STATE, AND FEDERAL REGULATIONS. FOR GENERAL INFORMATION ON HAZARDOUS WASTE LABELING VISIT: HTTP://WWW.EPA.GOV/EPAOSWER/OSWHAZWASTE.HTM
2. FOR A COMPLETE LIST OF EPA DEFINED HAZARDOUS WASTES VISIT: HTTP://WWW.EPA.GOV/EPAOSWER/HAZWASTE/LISTING/REF.PDF
3. STORE ALL HAZARDOUS MATERIALS AND WASTES IN APPROVED SECONDARY CONTAINERS PROTECTED FROM THE ELEMENTS (WIND, RAIN, WATER, DIRECT SUNLIGHT). CONSIDER LIMITING THE AVAILABILITY OF HAZARDOUS WASTES BY LOCKING THEM IN SECURED CABINETS/AREAS.
4. FOLLOW THE MANUFACTURER'S INSTRUCTIONS WHEN STORING, TRANSPORTING, APPLYING, AND DISPOSING OF UNUSED HAZARDOUS WASTES. IN GENERAL, OUTDOOR APPLICATION OR USE OF MATERIALS LABELED AS HAZARDOUS WASTES SHOULD BE AVOIDED WHEN FORECASTS CALL FOR RAIN OR HEAVY FOG.

SPILL PREPARATION AND CONTROL

1. PREPARE FOR SPILLS BY STOCKING AN ADEQUATE SUPPLY OF RAGS, ABSORBENTS, SPILL POWDERS, AND SAFETY EQUIPMENT (GLOVES, EYEGLASSES, ETC). FOLLOW ALL HAZARDOUS WASTE STORAGE AND USE RECOMMENDATIONS OUTLINED ABOVE AND CONSULT PROJECT ENGINEERS REGARDING SPILL PREPARATION PLANS THAN MAY BE REQUIRED.
2. COMMUNICATE WITH ALL CONSTRUCTION SITE WORKERS THE IMPORTANCE OF DETECTING AND REPORTING LEAKS TO JOBSITE MANAGERS.
3. CONTAIN ALL SPILLS OR LEAKS UPON DETECTION.
4. PREVENT ALL LEAKS AND SPILLS FROM ENTERING GUTTERS, MUNICIPAL STORM DRAINS, AND ADJACENT CREEKS/WATERWAYS.
5. REPORT ALL HAZARDOUS MATERIAL SPILLS TO THE LOCAL GOVERNMENT ENTITIES OVERSEEING CONSTRUCTION. IN ADDITION, ANY SPILL OF HAZARDOUS MATERIALS, INCLUDING OIL, PAINT, GASOLINE, AND DIESEL, THAT REACH STATE WATERS MUST BE REPORTED THE OFFICE OF SPILL PREVENTION AND RESPONSE. THEY CAN BE REACHED THROUGH THE DEPARTMENT OF FISH AND GAME'S TOLL FREE LINE: CALTIP 1-888-DFG-CALTIP

VEHICLE MAINTENANCE AND CLEANING

1. INSPECT ALL ON-SITE VEHICLES FOR OIL, FUEL, ANTIFREEZE, OR GENERAL FLUID LEAKS. IF LEAKS ARE DETECTED USE APPROPRIATELY SIZED CATCH BASINS TO CAPTURE FLUIDS AND MAKE NECESSARY REPAIRS IMMEDIATELY IN AN APPROVED STAGING AREA.
2. CONDUCT ALL REFUELING AND MAINTENANCE WORK ON VEHICLES WITHIN DESIGNATED STAGING AREA, USE APPROPRIATELY SIZED DRIP PANS TO CAPTURE ALL FLUIDS, AND PREVENT SOIL AND WATER CONTAMINATION. DO NOT ALLOW FLUIDS TO REACH STORM GUTTERS, RUN-OFF IMPERVIOUS SURFACES, OR ENTER WATER BODIES AT THE SITE (SEE SPILL PREPARATION AND CONTROL, ABOVE).
3. IF VEHICLE CLEANING IS REQUIRED, DO NOT ALLOW WASH WATER TO LEAVE THE STAGING AREA. THIS MAY REQUIRE CONSTRUCTION OF BERMS AND TARPS THAT PROHIBIT RUN-OFF TO GUTTERS, STREETS, STORM DRAINS, OR CREEKS.
4. DO NOT CLEAN VEHICLES WITH DEGREASERS, SOLVENTS, OR STEAM EQUIPMENT.

EROSION CONTROL AND SOIL CONTAMINATION

1. STORE, TRANSPORT, AND TRANSFER ALL EXCAVATED SOIL, SAND, AND MATERIAL IN CONFORMITY WITH THE TECHNICAL SPECIFICATIONS. IN ADDITION, AVOID STORING EXCAVATED MATERIAL WHERE IT CAN EASILY ERODE OR BE TRANSPORTED TO STREAMS, ROADWAYS, AND DRAIN SYSTEMS
2. CLEARING, EXCEPT THAT NECESSARY TO ESTABLISH SEDIMENT CONTROL DEVICES, SHALL NOT BEGIN UNTIL ALL SEDIMENT CONTROL DEVICES HAVE BEEN INSTALLED AND HAVE BEEN STABILIZED.
3. MAJOR GRADING OPERATIONS SHALL BE SCHEDULED DURING DRY MONTHS, AND SHALL ALLOW ADEQUATE TIME BEFORE RAINFALL BEGINS TO STABILIZE THE SOIL WITH EROSION CONTROL MATERIALS.
4.
5. EXAMINE AND FOLLOW THE SPECIFIC EROSION CONTROL PLAN TO MINIMIZE TRANSPORT OF DEBRIS AND SILT OFF THE CONSTRUCTION SITE. THIS MAY INCLUDE INSERTING FIBER ROLLS, SILT FENCING, WATTLES, SEEDING AND OTHER APPROVED BMPS.
6. VEGETATION REDUCES RAINFALL IMPACT AND PROVIDES COHESIVE PROPERTIES TO SOIL. THEREFORE, DURING SITE CLEARING AND GRUBING MINIMIZE THE REMOVAL OF NATURAL VEGETATION INCLUDING FORBS, GRASSES, SHRUBS, GROUND COVERINGS, AND TREES.
7. SLOPES DISTURBED DURING CONSTRUCTION ACTIVITIES WILL REQUIRE SOME FORM OF TEMPORARY AND PERMANENT STABILIZATION. CONSULT THE PROJECT EROSION CONTROL PLANS AND SPECIFICATIONS REGARDING THE SPECIFIC REQUIREMENTS. PROJECT BMPS INCLUDE INSTALLATION OF EROSION CONTROL FABRIC, HYDRO-SEEDING, DRILL-SEEDING, OR DIRECT PLANTING SEEDING AND MULCHING SHALL BE DONE AS SOON AS GRADING IS COMPLETE.
8. SOIL STABILIZATION SHALL BE COMPLETED WITHIN FIVE DAYS OF CLEARING OR INACTIVITY IN CONSTRUCTION
9. SOIL STOCKPILES MUST BE STABILIZED AND/OR SECURELY COVERED AT THE END OF EACH WORKDAY.
10. IN AREAS WHERE PERMANENT RE-SEEDING AND PLANTING IS NOT ESTABLISHED AT THE CLOSE OF THE CONSTRUCTION SEASON, ADDITIONAL CONTROL MEASURES SHALL BE USED, SUCH AS A HEAVY MULCH LAYER OR ANOTHER METHOD THAT DOES NOT REQUIRE GERMINATION, TO ENSURE SOIL STABILIZATION AT THE SITE.
11. WHERE RUNOFF NEEDS TO BE DIVERTED FROM ONE AREA AND CONVEYED TO ANOTHER, EARTH DIKES, DRAINAGE SWALES, SLOPE DRAINS OR OTHER SUITABLE PRACTICE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN CRITERIA SET FORTH IN THE MOST RECENT VERSION OF THE CALIFORNIA STORMWATER QUALITY ASSOCIATION BEST MANAGEMENT PRACTICE HANDBOOK.
12. LINEAR SEDIMENT BARRIERS SHALL BE PLACED BELOW THE TOE OF EXPOSED AND ERODIBLE SLOPES, DOWN-SLOPE OF EXPOSED SOIL AREAS, AROUND SOIL STOCKPILES, AND AT OTHER APPROPRIATE LOCATIONS ALONG THE SITE PERIMETER.
13. STREET SWEEPING SHALL BE CONDUCTED ON AN AS NEEDED BASIS TO REMOVE SEDIMENT FROM STREETS AND ROADWAYS AND TO PREVENT THE SEDIMENT FROM ENTERING STORM DRAINS OR RECEIVING WATERS.
14. EVERY STORM DRAIN INLET WITH THE POTENTIAL TO RECEIVE SEDIMENT-LADEN RUNOFF SHALL BE PROTECTED IN ACCORDANCE WITH THE DESIGN CRITERIA SET FORTH IN THE MOST RECENT VERSION OF THE CALIFORNIA STORMWATER QUALITY ASSOCIATION BEST MANAGEMENT PRACTICE HANDBOOK. INLET PROTECTION SHALL BE INSPECTED AND MAINTAINED FREQUENTLY.
15. SEDIMENT BASINS OR SEDIMENT TRAPS SHALL BE INSTALLED ON PROJECTS WHERE SEDIMENT-LADEN WATER MAY ENTER THE DRAINAGE SYSTEM OR WATERCOURSES AND IN ASSOCIATION WITH DIKES, TEMPORARY CHANNELS, AND PIPES USED TO CONVEY RUNOFF FROM DISTURBED AREAS.
16. OTHER MEASURES, SUCH AS TRACK-OUT PREVENTION DEVICES, OR AS REQUIRED BY THE DISTRICT INSPECTOR, IN ORDER TO ENSURE THAT SEDIMENT IS NOT TRACKED ONTO PUBLIC STREETS BY CONSTRUCTION VEHICLES OR WASHED INTO STORM DRAINS.
17. DURING EXCAVATION WORK, LOOK FOR UNDERGROUND STORAGE TANKS, ABANDONED PIPES, OR BURIED DEBRIS THAT WERE NOT IN THE PROJECT PLANS OR JOBSITE BACKGROUND INVESTIGATION. IF FOUND, IMMEDIATELY CONTACT THE PROJECT ENGINEER.
18. IF CONTAMINATED SOIL IS FOUND, IMMEDIATELY CONTACT SITE ENGINEERS AND LOCAL GOVERNMENT ENTITIES OVERSEEING CONSTRUCTION. SPECIAL EXCAVATION, TRANSPORT, AND TREATMENT OF CONTAMINATED SOILS MAY BE REQUIRED.
19. SUFFICIENT EROSION AND SEDIMENT CONTROL SUPPLIES SHALL BE AVAILABLE ON SITE DURING THE RAINY SEASON (OCTOBER THROUGH APRIL) TO PROTECT AREAS SUSCEPTIBLE TO EROSION DURING RAIN EVENTS. CONTRACTORS SHALL BE PREPARED YEAR-ROUND TO DEPLOY EROSION AND SEDIMENT TREATMENT CONTROL PRACTICES.

WATER USE

1. WATER IS A PRECIOUS RESOURCE. RECYCLE AND RE-USE ON-SITE WATER RESOURCES FOR DUST CONTROL, IRRIGATION, AND OTHER USES WHEN POSSIBLE.
2. CONTACT THE LOCAL MUNICIPALITY OR AGENCY RESPONSIBLE FOR DRAINAGE IF STORM GUTTERS, SEWER SYSTEMS, OR WATER BODIES WILL RECEIVE ANY JOBSITE RUN-OFF.
3. WATER CONTAINING HIGH AMOUNTS OF SEDIMENT AND OTHER CONTAMINANTS MAY REQUIRE CONSTRUCTION OF SEDIMENT BASINS, TREATMENT FACILITIES, OR SPECIAL TRANSPORT THAT ARE OUTLINED IN THE PROJECT DRAWINGS AND SPECIFICATIONS.
4. TO REDUCE THE IMPACT OF CONTAMINATED SURFACE WATERS ON LOCAL/REGIONAL GROUNDWATER QUALITY, CONSULT WITH LOCAL OFFICIALS AND PROJECT ENGINEERS REGARDING THE PROPER TESTING, TREATMENT, AND DISPOSAL OF CONTAMINATED WATERS.

CUTTING WOOD, ASPHALT, OR CONCRETE MATERIALS

1. CONTAIN AND PROPERLY DISPOSE ALL SAWDUST FROM CUTTING OPERATIONS AT THE JOBSITE. DO NOT ALLOW SAWDUST AND WOOD DEBRIS, ESPECIALLY TREATED LUMBER PRODUCTS, TO ENTER STORM DRAINS OR ENTER ADJACENT WATER BODIES.
2. PRIOR TO FORECASTED RAINFALL EVENTS, CLEAN UP AND DISPOSE OF ALL WOOD WASTE SOURCES.
3. WHEN SAW CUTTING ASPHALT OR CONCRETE MATERIALS, BLOCK ALL STORM GUTTERS AND DRAINS TO PROHIBIT SLURRY FROM CONTAMINATING AND CLOGGING INFRASTRUCTURE. IMMEDIATELY REMOVE ANY AND ALL SLURRY WASTE THAT REACHES STORM DRAINS/GUTTERS.
4. INSTALLATION OF FILTER FABRICS, SEDIMENT BASINS, STRAW BALES, OR SPECIAL FILTER EQUIPMENT MAY BE REQUIRED. CONSULT THE PROJECT PLANS AND TECHNICAL SPECIFICATIONS.
5. CONTAIN, CLEAN UP, AND PROPERLY DISPOSE ALL CUTTING WASTE AND SLURRIES UPON MOVING LOCATIONS AND COMMENCING DAILY OPERATIONS.

ASPHALTIC PAVING

1. ASPHALTIC PAVING DURING WET WEATHER IS NOT PERMITTED DUE TO APPLICATION GUIDELINES AND ENVIRONMENTAL CONCERNS.
2. COVER ALL DRAINS AND MANHOLES WHEN PAVING OR APPLYING SEAL COATS, TACK COATS, SLURRY SEALS, AND FOG SEALS.
3. ASPHALTIC PAVING MACHINES CAN LEAK WHEN NOT IN USE. PLACE DRIP PANS AND OTHER ABSORBENT MATERIALS IN APPROPRIATE LOCATIONS TO MINIMIZE LEAKS AND SPILLS WHEN ASPHALTIC PAVING EQUIPMENT IS BEING STORED OR NOT IN USE.
4. ALL SAND USED DURING PAVING, SLURRY SEALING, AND COATING SHOULD BE REMOVED FROM THE JOB SITE AND DISPOSED OF AS TRASH. DO NOT ALLOW EXCESS MATERIALS TO ENTER STORM DRAINS OR LOCAL WATER BODIES.

CONCRETE AND CEMENTITIOUS MATERIALS

1. STORE AND CONTAIN ALL CONCRETE AND CEMENTITIOUS PRODUCTS IN DRY AREAS AND AWAY FROM ANY WATER SOURCES.
2. IF TRUCK AND EQUIPMENT CLEANUP OCCURS ON-SITE, DESIGNATE A BASIN/AREA FOR WASHING. ALLOW WATER TO SEEP INTO A VIS QUEEN LINED BASIN AND WAIT UNTIL CONCRETE HARDENS. REMOVE AND DISPOSE ALL HARDENED CONCRETE IN THE APPROPRIATE SOLID WASTE UNIT.
3. DO NOT ALLOW TRUCK AND MIXING EQUIPMENT WASH WATER TO ENTER STORM DRAINS, GUTTERS, OR ADJACENT WATER BODIES.

PAINTING

1. RINSING OF PAINT BRUSHES, PANS, SPRAYERS AND ANY ASSOCIATED EQUIPMENT INTO STORM DRAINS, STREETS, OR WATER BODIES IS NOT PERMITTED.
2. PRIOR TO CLEANING WATER BASED PAINTING EQUIPMENT, ROLL, BRUSH, OR SPRAY ANY EXCESS PAINT ONTO A DISCARDABLE SURFACE (WOOD, PAPER, ETC.) WHEN A SINK IS UNAVAILABLE DILUTE WASTE PAINT WITH WATER AND POUR ONTO SOIL WHILE AGITATING WITH A SHOVEL OR RAKE.
3. PRIOR TO CLEANING OIL BASED PAINTING EQUIPMENT WITH A THINNER, ROLL, BRUSH, OR SPRAY ANY EXCESS PAINT ONTO A DISCARDABLE SURFACE. FILTER AND RE-USE PAINT THINNERS FOR FUTURE USE AND DISPOSE UNUSABLE THINNER AS HAZARDOUS WASTE.

GENERAL

1. SANITARY FACILITIES OF SUFFICIENT NUMBER AND SIZE TO ACCOMMODATE CONSTRUCTION CREWS SHALL BE LOCATED AWAY FROM STORM DRAIN INLETS AND DRAINAGE FACILITIES, AND ANCHORED TO PREVENT BEING BLOWN OVER OR TIPPED BY VANDALS. THE FACILITIES SHALL BE MAINTAINED IN GOOD WORKING ORDER AND EMPTIED AT REGULAR INTERVALS BY A LICENSED SANITARY WASTE HAULER.
2. TECHNIQUES SHALL BE EMPLOYED TO PREVENT THE BLOWING OF DUST OR SEDIMENT FROM THE SITE SUCH AS WATERING ACCESS ROADS AND COMPACTION AND SEEDING OF FILL AREAS.

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

QUESTA ENGINEERING CORP
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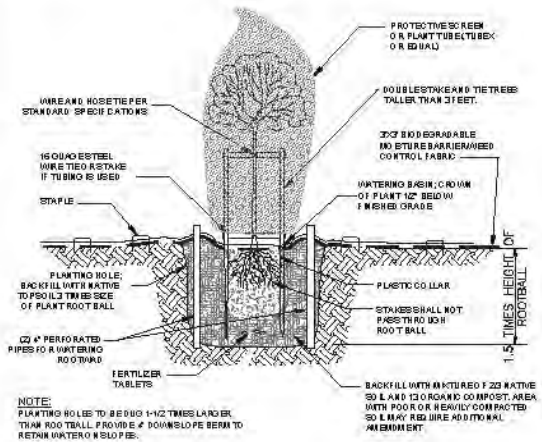
Design: MH
Drawn: CC
Checked: JP
Appr'd: XXX

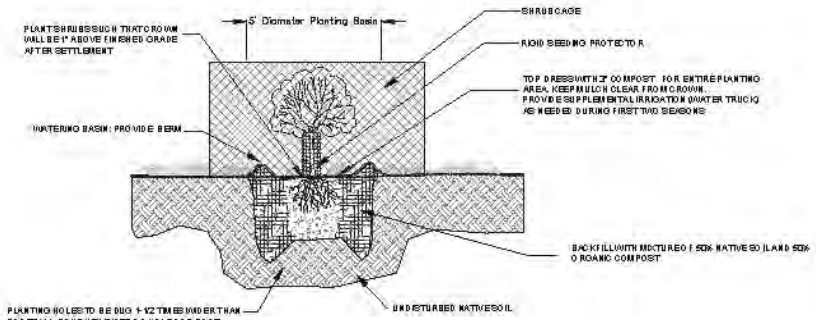
NORTH COAST TRAILS PROJECT
SWPPP
STEWARTS POINT, CA

Size: D
Project: 1700167
Scale: NA
Date: 4/26/21
Sheet: 9 OF 15



NOTE:
PLANTING HOLES TO BE DUG 1-1/2 TIMES LARGER THAN ROOTBALL. PROVIDE 4" DOWNSLOPE BERM TO RETAIN WATER ON SLOPES.

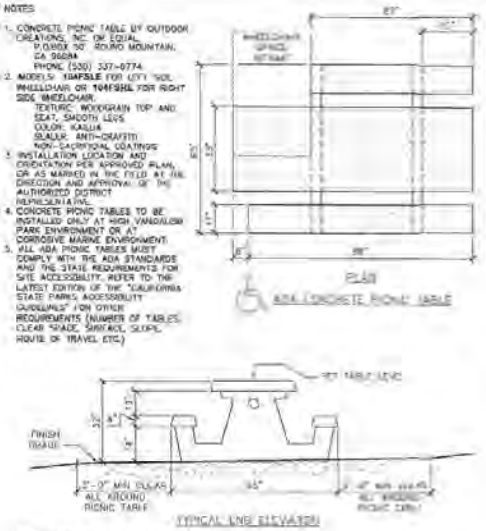
1 TREE PLANTING WITH STAKES
Scale: NTS



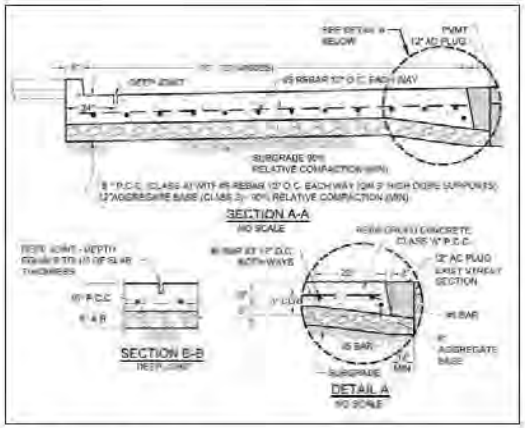
2 SHRUB PLANTING DETAIL
Scale: NTS

NOTES

1. CONCRETE PICNIC TABLE BY OUTDOOR CREATIONS, INC. OR EQUAL. PHONE (530) 537-0774
2. MODEL: 10AFSLE FOR LEFT SIDE WHEELCHAIR OR 10AFSRE FOR RIGHT SIDE WHEELCHAIR.
   TEXTURE: WOODGRAIN TOP AND SEAT, SMOOTH LEGS
   COLOR: KALUA
   SEALER: ANTI-GRAFFITI NON-SACRIFICIAL COATINGS
3. INSTALLATION LOCATION AND ORIENTATION PER APPROVED PLANS, OR AS MARKED IN THE FIELD AT THE DIRECTION AND APPROVAL OF THE AUTHORIZED DISTRICT REPRESENTATIVE.
4. CONCRETE PICNIC TABLES TO BE INSTALLED ONLY AT HIGH VANDALISM PARK ENVIRONMENT OR AT CORROSIVE MARINE ENVIRONMENT.
5. ALL ADA PICNIC TABLES MUST COMPLY WITH THE ADA STANDARDS AND THE STATE REQUIREMENTS FOR SITE ACCESSIBILITY. REFER TO THE LATEST EDITION OF THE "CALIFORNIA STATE PARKS ACCESSIBILITY GUIDELINES" FOR OTHER REQUIREMENTS (NUMBER OF TABLES, CLEAR SPACE, SURFACE, SLOPE, ROUTE OF TRAVEL ETC.)



3 ADA CONCRETE PICNIC TABLE
Scale: NTS



4 CONCRETE PAD
Scale: NTS

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

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NORTH COAST TRAILS PROJECT
PLANTING & PICNIC TABLE DETAILS
STEWARTS POINT, CA

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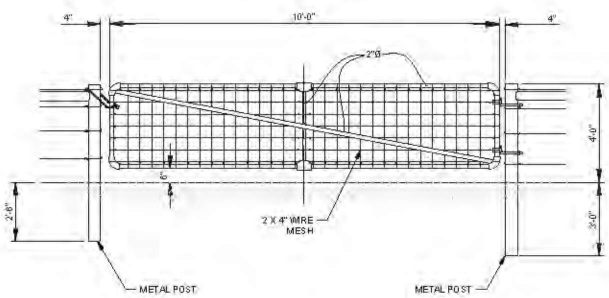
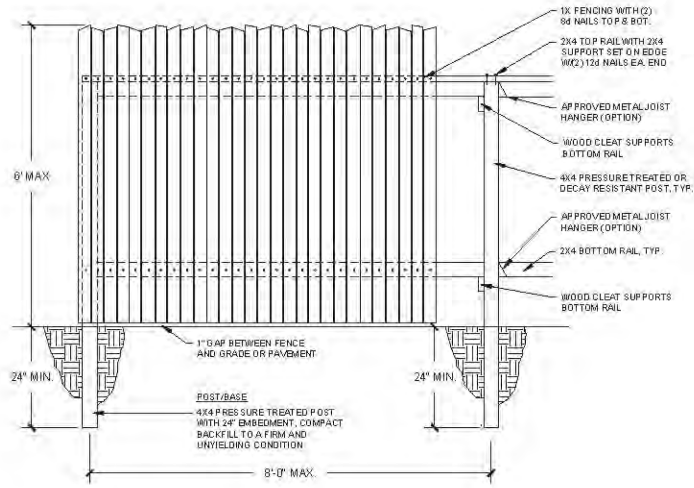
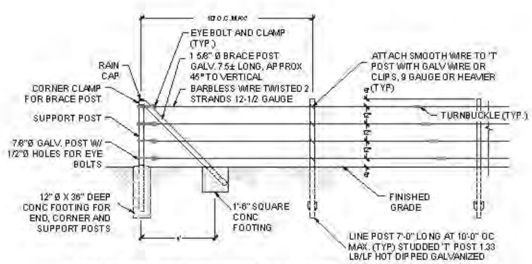


1 **10' PIPE GATE**
Scale = NTS



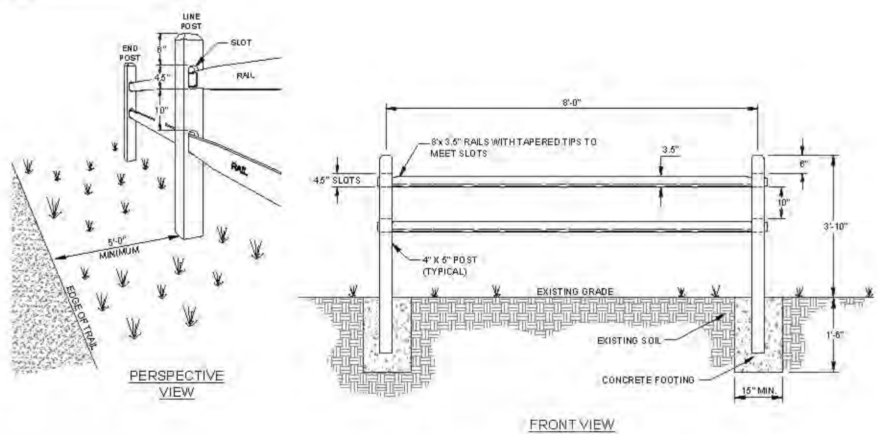
2 **GRAPESTAKE FENCE**
Scale = NTS



STANDARD FIELD FENCE (SMOOTH-WIRE FENCE) NOTES:

1. ALL POSTS, BRACES AND FITTINGS SHALL BE HOT DIPPED GALVANIZED.
2. CONCRETE SHALL BE COMMERCIAL CONCRETE, 5 SACK MIX.
3. WIRE SHALL BE TWISTED 2 STRANDS 12-1/2 GAUGE.
4. BRACE POSTS ARE REQUIRED ON EACH SIDE OF SUPPORT POSTS AT CORNER.
5. SUPPORT POSTS REQUIRED AT ENDS AND CORNERS.
6. SUPPORT POSTS SHALL BE LOCATED 100' O.C. MAX FOR STRAIGHT RUNS, WITH BRACE POSTS ON EACH SIDE OF SUPPORT POSTS, AT ALL TURNS AND ANGLES.
7. 'T' POSTS SHALL WEIGH 1.33 POUNDS PER LINEAR FOOT AND BE HOT DIPPED GALVANIZED. 'T' POSTS SHALL BE DRIVEN TO THE DEPTH INDICATED ON DRAWING IN ALL SOILS, HOWEVER NO BENT OR DAMAGED POSTS SHALL BE ACCEPTED.

3 **STANDARD FIELD FENCE**
Scale = NTS



NOTES:

1. ALL WOOD FOR SPLIT RAIL FENCE TO BE WESTERN CEDAR.
2. END POST SHALL BE TERMINAL POST.
3. MINIMUM 5 FEET CLEAR BETWEEN FENCE & TRAIL EDGE.

4 **SPLIT-RAIL FENCE**
Scale = NTS

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

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NORTH COAST TRAILS PROJECT
FENCE & GATE DETAILS
STEWARTS POINT, CA

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Project: 1700167
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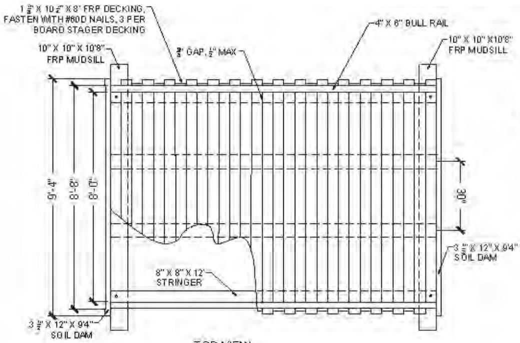
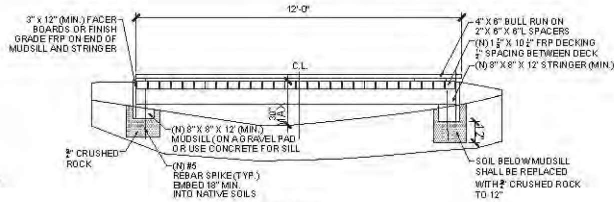
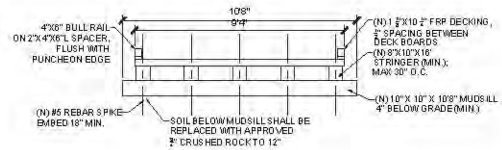


TOP VIEW



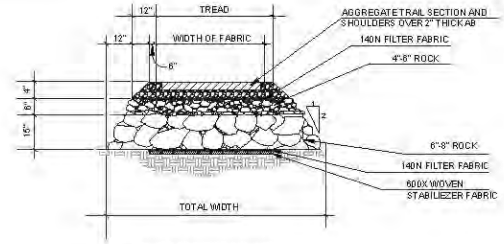
SIDE VIEW



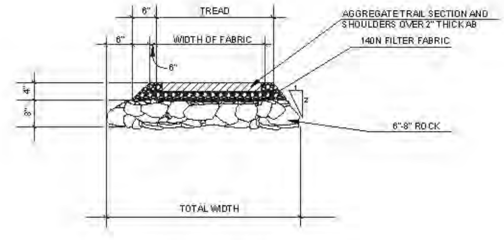
END VIEW

NOTES:
1. MUDSILLS AND SOIL DAMS IN CONTACT WITH EARTH SHALL BE SELECT STRUCTURED GRADE DOUGLAS FIR. DECKING SHALL BE 10 1/2" X 1 1/2" FRP COMPOSITE, DYNAPLANK OR APPROVED EQUAL.
2. SOIL BELOW MUDSILL SHALL BE RECOMPACTED TO A DEPTH OF 12" OR REPLACED WITH APPROVED CRUSHED ROCK.
3. ALL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL ANCHOR DECKING WITH #10 - 4" STAINLESS STEEL DECK SCREWS
4. MAINTAIN 5% MAXIMUM SLOPE ON PUNCHEON.

1 PUNCHEON BRIDGE
Scale = NTS

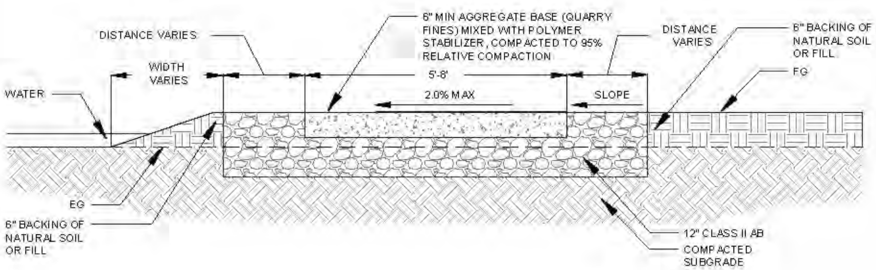


MAJOR DRAINAGE LENSES



MINOR DRAINAGE LENSES

2 DRAINAGE LENSES
Scale = NTS



3 HIKING TRAIL SECTION
Scale = NTS

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

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NORTH COAST TRAILS PROJECT
PUNCHEON, DRAINAGE LENSES, & SECTION
STEWARTS POINT, CA

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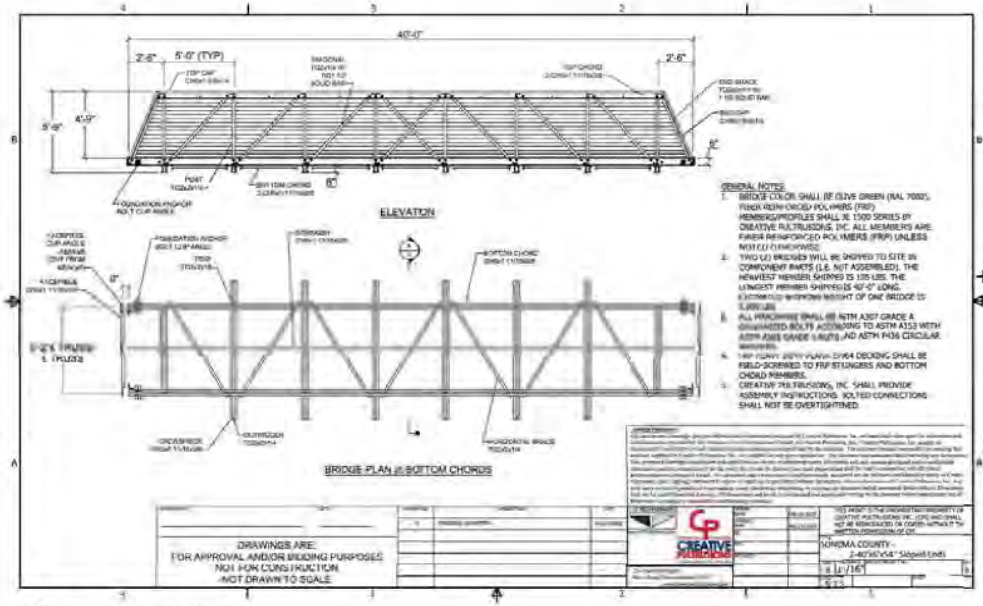
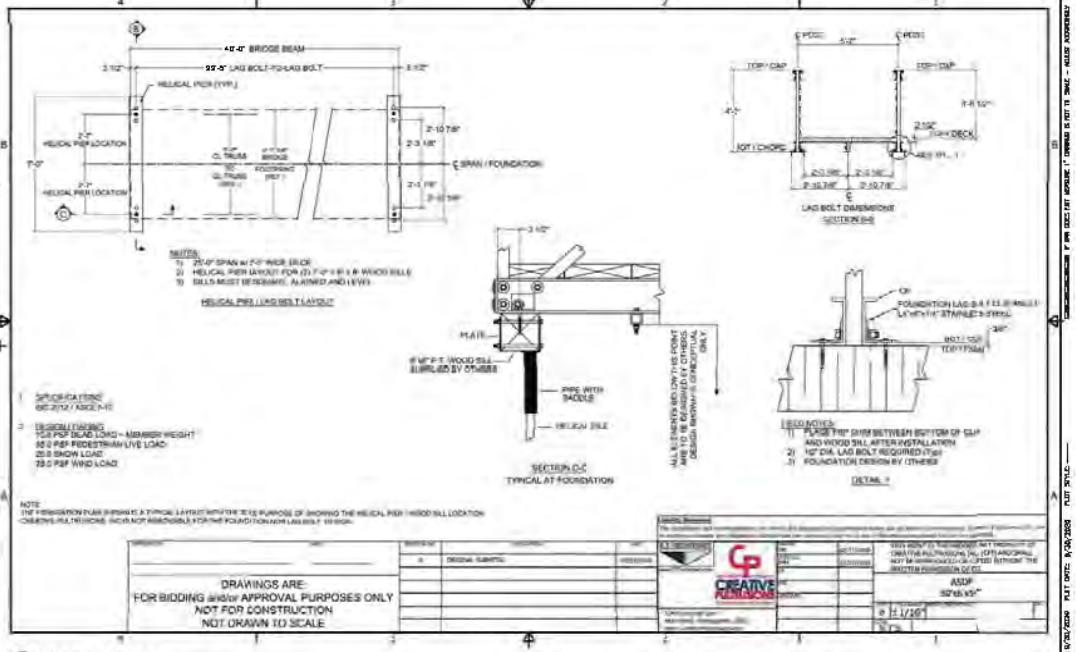
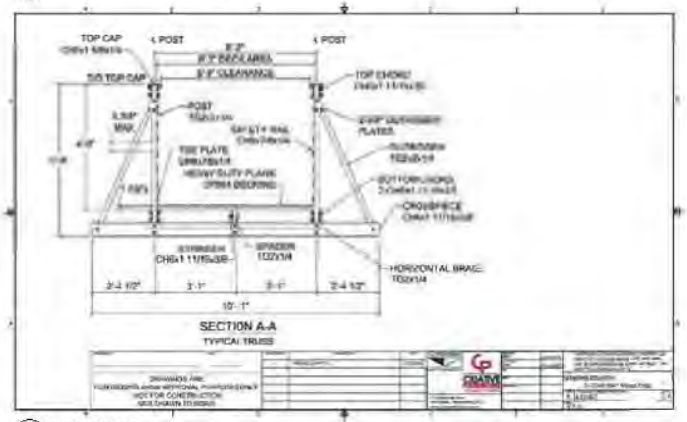


1 40' BRIDGE ELEVATION AND PLAN



2 40' BRIDGE DETAILS



3 TYPICAL TRUSS

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

QUESTA ENGINEERING CORP.
Civil Environmental & Water Resources
P.O. Box 70356 1220 Brickyard Cove Road Point Richmond, CA 94807

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NORTH COAST TRAILS PROJECT
40' BRIDGE DETAILS
STEWARTS POINT, CA

Size: D
Project: 1700167
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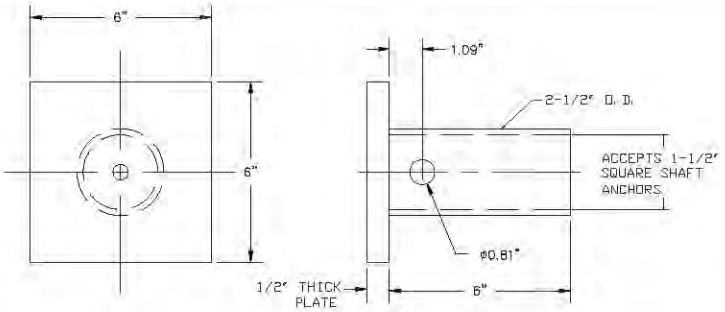
Sheet: 13 OF 15

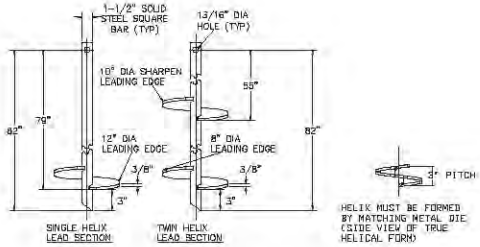


COUPLING BOLT AND NUT			
BOLT DIA.	BOLT LENGTH (MIN.)	BOLT GRADE	NUT
3/4"	4.25"	ASTM A325 TYPE 1	3/4", MATCHING HEX NUT

==NOTES==

1. FINISH: HOT DIP GALVAIZED PER ASTM-A153 (LATEST REVISION)
2. MATERIAL SPECIFICATIONS:
   PIPE: BLACK UNCOATED ROUND STEEL TUBE PER ASTM A513 TYPE 5, GRADE 1026.
   PLATE: PER ASTM A572 GRADE 50.
3. TENSION RATING VALID ONLY IF USING COUPLING BOLT AND NUT SPECIFIED IN CHART BELOW OR THEIR MECHANICAL EQUIVALENT.
4. THESE ABOVE RATINGS ARE VALID ONLY IF THE PIER CAP DETAIL HAS BEEN DESIGNED TO ENSURE ADEQUATE LOAD TRANSFER FROM REINFORCED CONCRETE FOUNDATION TO SCREW PIER, AND IN ACCORDANCE WITH EXISTING LOCAL CODE REQUIREMENTS AND /OR ESTABLISHED LOCAL PRACTICES.

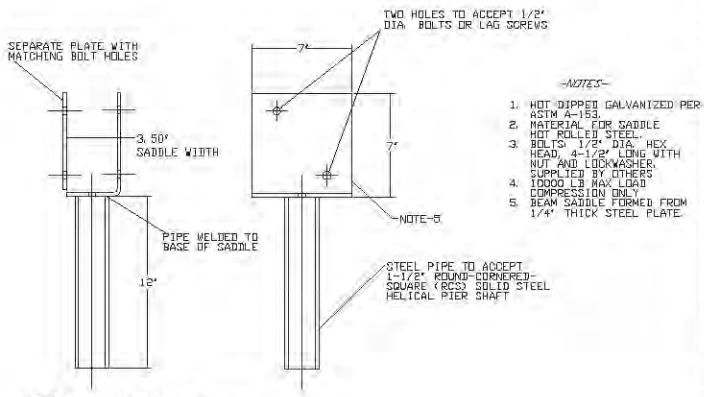
1 **PIER CAP**



-NOTES-

1. HOT DIP GALVANIZED PER ASTM A153-(LATEST REV.)
2. LEAD AND EXTENSION SECTION AND PILOT POINT LENGTHS ARE NOMINAL.
3. SHAFT MATERIAL-HOT ROLLED ROUND-CORNERED SQUARE (RCS) SOLID STEEL BARS PER ASTM A29, MINIMUM YIELD STRENGTH=70 KSI.
4. HELIX MATERIAL-HOT ROLLED LOW CARBON STEEL SHEET, STRIP, OR PLATE PER ASTM A656, OR A1018 GRADE 80, MINIMUM YIELD STRENGTH=80 KSI.
5. COUPLING BOLTS: 3/4" DIAMETER X 3" LONG HEX HEAD PER ASTM A320 GRADE L7.
6. NOMINAL SPACING BETWEEN HELICAL PLATES IS THREE TIMES THE DIAMETER OF THE LOWER HELIX.
7. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
8. ALL WELDING TO BE DONE BY WELDERS CERTIFIED UNDER SECTION 5 OF THE AWS CODE D1.1.

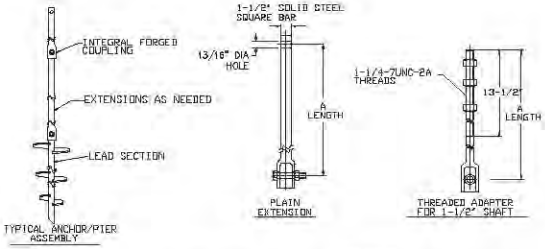
2 **LEAD SECTION DETAILS**



-NOTES-

1. HOT DIPPED GALVANIZED PER ASTM A-153.
2. MATERIAL FOR SADDLE HOT ROLLED STEEL.
3. BOLTS: 1/2" DIA. HEX HEAD, 4-1/2" LONG WITH NUT AND LOCKWASHER, SUPPLIED BY OTHERS
4. 10000 LB MAX LOAD COMPRESSION ONLY
5. BEAM SADDLE FORMED FROM 1/4" THICK STEEL PLATE.

3 **BEAM SEAT BRACKET**



EXTENSION SECTION	
CAT. NO.	A
C150-0144	38"
C150-0145	59"
C150-0146	81"
C150-0175	124"
C150-0032	20"
C114-0009	11"

==NOTES==

1. HOT DIP GALVANIZED PER ASTM A153-(LATEST REVISION).
2. LEAD AND EXTENSION SECTION LENGTHS AND HELIX SPACINGS ARE NOMINAL.
3. SHAFT MATERIAL-HOT ROLLED ROUND-CORNERED-SQUARE (RCS) SOLID STEEL BARS PER ASTM A29, MINIMUM YIELD STRENGTH=70 KSI.
4. COUPLING BOLTS: 3/4" DIAMETER X 3" LONG HEX HEAD PER ASTM A320 GRADE L7.
5. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
6. ALL WELDING TO BE DONE BY WELDERS CERTIFIED UNDER SECTION 5 OF THE AWS CODE D1.1.
7. SEE ICC EVALUATION SERVICE, INC., EVALUATION REPORT NO. ER-5110 FOR ALLOWABLE VALUES AND/OR CONDITIONS OF USE CONCERNING MATERIAL PRESENTED IN THIS DOCUMENT.

4 **EXTENSION AND ADAPTER DETAILS**

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

NORTH COAST TRAILS PROJECT
STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

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NORTH COAST TRAILS PROJECT
HELICAL PILE
STEWARTS POINT, CA

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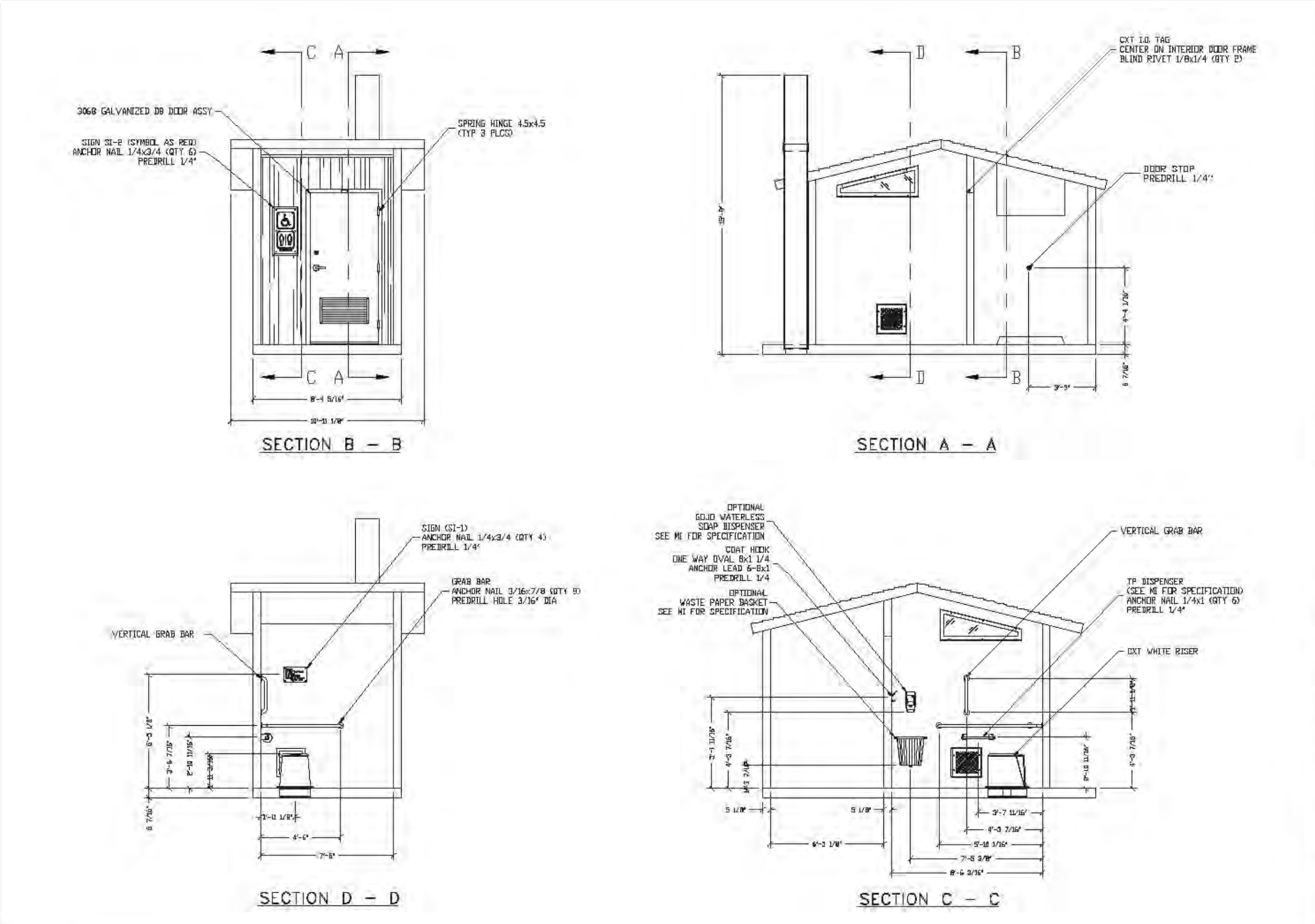
Sheet: 14 OF 15


3068 GALVANIZED DB DOOR ASSY
SIGN SI-2 (SYMBOL AS REQ)
ANCHOR NAIL 1/4x3/4 (QTY 6)
PREDRILL 1/4"
SPRING HINGE 4.5x4.5
(TYP 3 PLCS)
SECTION B – B
CXT I.D. TAG
CENTER ON INTERIOR DOOR FRAME
BLIND RIVET 1/8x1/4 (QTY 2)
DOOR STOP
PREDRILL 1/4"
SECTION A – A
SIGN (SI-1)
ANCHOR NAIL 1/4x3/4 (QTY 4)
PREDRILL 1/4"
GRAB BAR
ANCHOR NAIL 3/16x7/8 (QTY 9)
PREDRILL HOLE 3/16" DIA
VERTICAL GRAB BAR
SECTION D – D
OPTIONAL
GOJO WATERLESS
SOAP DISPENSER
SEE MI FOR SPECIFICATION
COAT HOOK
ONE WAY OVAL 8x1 1/4
ANCHOR LEAD 6-8x1
PREDRILL 1/4
OPTIONAL
WASTE PAPER BASKET
SEE MI FOR SPECIFICATION
VERTICAL GRAB BAR
TP DISPENSER
(SEE MI FOR SPECIFICATION)
ANCHOR NAIL 1/4x1 (QTY 6)
PREDRILL 1/4"
CXT WHITE RISER
SECTION C – C

CXT WHITE RISER	1
V-1 GRAB BAR	1
TP DISPENSER	1
TOILET PAPER ROLL	3
COAT HOOK	1
DOOR STOP	1
SI-1	1
SI-2	2
CXT I.D. TAG	1
ANCHOR NAIL 1/4x1	6
ANCHOR NAIL 1/4x3/4	10
ANCHOR NAIL 3/16x7/8	15
ONE WAY OVAL 8x1/4	2
ANCHOR LEAD 6-8x1	2
BLIND RIVET 1/8x1/4	2
3068 DOOR ASSEMBLY	1
SPRING HINGE 4.5 x 4.5	3
18" VERTICAL GRAB BAR	1

CXT INCORPORATED
CONTROLLED COPY

CXT Precast Products

PROJECTTITLE1
PROJECTTITLE2

DESCRIPTION1
DESCRIPTION2

NUMBER | REV

1 VAULT TOILET
Scale = NTS

30 % DESIGN PLANS - NOT FOR CONSTRUCTION

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STEWARTS POINT TRAIL & KASHIA TRAIL
SONOMA REGIONAL PARKS

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NORTH COAST TRAILS PROJECT
VAULT TOILET
STEWARTS POINT, CA

Size: D | Project: 1700167
Scale: NOT TO SCALE
Date: 4/26/21

Appendix B

Biological Resources Assessment

Biological Resource Assessment
North Coast Trail

KASHIA COASTAL RESERVE AND
STEWARTS POINT RANCH TRAIL
SONOMA COUNTY, CA

August 23, 2018

Prepared for
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P.O. Box 70356
1220 Brickyard Cover Road, Ste 206
Point Richmond, CA 94801

Prepared by
Wildlife Research Associates
1119 Burbank Avenue
Santa Rosa, CA 95407

And

Jane Valerius Environmental Consulting
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Sebastopol, CA 95472

North Coast Trail
Biological Resource Assessment
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SUMMARY

The North Coast Trail is comprised of two components, the Kashia Coastal Reserve and the Stewarts Point Ranch Trail, both of which are located on the west side of Highway 1, approximately 2.5 miles apart, in northern Sonoma County. The project includes the development of a Trail and Facilities Plan that also provides parking for both trail segments, a vault type restroom (design provided by County), a multi-use trail for the Kashia Coastal Reserve, and a hiking only trail at Stewarts Point Ranch. Several bridges and other features along both trails will be required to cross drainages and wetland areas. The approximately 2 miles of new trails in northern Sonoma County will form part of the 1,200 mile California Coastal Trail.

This Biological Resource Assessment presents the findings of our literature review (including scientific literature and previous reports detailing studies conducted in the area) and the California Department of Fish and Wildlife's (CDFW) Natural Diversity Data Base (CNDDB) for reported occurrences of special status vegetation communities, plants and animals.

Based on our site visit, five main vegetation communities and six wildlife habitat types occur the Kashia Coastal Reserve and the Stewarts Point Ranch Trail. The vegetation communities are coastal terrace prairie grassland comprised of common velvet grass-sweet vernal grass meadows, Pacific reed grass meadows, tall fescue grassland, annual dogtail grassland, and tufted hair grass meadows; seasonal wetlands comprised of soft and western rush marshes, slough sedge swards, and California Coastal Commission (CCC) wetlands; North Coast coniferous/closed-cone pine forest comprised of Bishop pine forest; coastal scrub comprised of coyote brush scrub; and coastal riparian scrub comprised of red alder forest and wax myrtle scrub. An additional wildlife habitat type is identified in this report beyond those associated with vegetation communities. Anthropogenic structures, the sixth wildlife habitat, include two barns located on the Kashia Coastal Reserve parcel and two barns on the Stewarts Point Ranch Trail parcel.

As part of this Biological Resource Assessment, we also evaluated the potential for occurrence of 33 special status plant species, and 36 special status wildlife species, including bats, as well as the potential for California red-legged frog to occur on the two parcels. No focused surveys for any special status wildlife species were conducted as part of this assessment. Seasonal protocol level surveys were conducted for special status plants in April, May and June of 2018.

INTRODUCTION

Questa Engineering Corp. contracted with Jane Valerius Environmental Consulting and Wildlife Research Associates to prepare a Biological Resource Assessment (BRA) of the proposed North Coast Trail, located west of Highway 1 and north of Salt Point State Park, in the northern portion of Sonoma County, California (**Figure 1**). The BRA is part of the engineering, environmental review and regulatory permitting work that is being completed on behalf of Sonoma County Regional Parks Department, the project sponsor. The BRA will provide guidance to the Planning Team in the determination of the final trail alignment to avoid where possible, placing the trail within wetlands or sensitive habitat areas. The approximately 2 miles of new trails are proposed to form part of the 1,200 mile California Coastal Trail. This portion of the North Coast Trail is divided into two trail segments, the Kashia Coastal Reserve Trail (APN 122-290-001) (**Figure 3**), located in the south, and the Stewarts Point Ranch Trail (APN 122-250-006) (**Figure 2**), located in the north, and are located approximately 2.5 miles apart.

This Biological Resource Assessment was conducted to determine the potential for special status plant and animal species to occur within the two parcel boundaries or trail easement areas. Focused plant surveys were conducted and a preliminary jurisdictional wetland delineation was completed along the general or preliminary trail alignment corridors (trail corridors) of the two trail segments in accordance with California Coastal Conservancy, and USACOE Section 404 Permit regulations. Please see Methods for further discussion. The information on wetlands are summarized in this report; more detailed information on wetlands is contained in a companion report "Wetlands Delineation".

Site Location

The linear trails are located on the west side of Highway 1, north of Salt Point State Parks and south of Black Point Landing, on the Annapolis and Stewarts Point 7.5-minute topographic quadrangles, within Township 10N and Range 14W. The trails are located in the unsectioned portion of the German Rancheria. The Kashia Trail is situated in the northwestern portion of Annapolis topographic quadrangle (**Figure 2**). The Stewarts Point Ranch Trail is situated in the southeastern portion of the Stewarts Point topographic quadrangle (**Figure 3).**

Project Description

The Kashia Coastal Reserve Trail, located on a 52.07-acre parcel, will develop a multiuse trail, approximately 1 mile in length and 10-12 foot wide. The Stewarts Point Ranch Trail, located on a 104.5-acre parcel, will be a hiking only trail. It will be approximately 1 mile in length and 5-6 feet wide.

Both trails will include puncheon bridges and other structures to pass over small drainages and wetlands. Boardwalk structures and clear span bridges will be used to pass over larger wetland areas and small streams. Each trail system will also include a small parking or staging area capable of accommodate 6-8 automobiles, as well as benches, trash cans, and picnic tables. For the purposes of this Biological Resource Assessment, the proposed trail corridor was assumed to be approximately 30'-wide. However, at drainage crossings, this corridor evaluation area was expanded to 50'.

METHODS

Information on special status plant species was compiled through a review of the California Natural Diversity Data Base (CNDDB 2018) for the Stewarts Point, Plantation and Annapolis 7.5-minute topographic quadrangles, the California Department of Fish and Wildlife's (CDFW) Special Animals List (CDFW 2018), State and Federally Listed Endangered and Threatened Animals of California (CDFW 2018), the California Native Plant Society's on-line electronic inventory of rare and endangered plants of California, and the USFWS Information on Planning and Conservation (IPaC) list (USFWS 2018). (Please refer to Appendix A for more detailed descriptions of these federal, State and local plans, policies, regulations and ordinances). In addition, we also reviewed the County of Sonoma Local Coastal Program (PRMD 2001) for further categorization of the environmental resource categories and summaries for the specific area.

Previous reports conducted in the area were also reviewed and include the following:

- Biological Resources Assessment, Stewarts Ranch, Stewarts Point, Sonoma County, California (Macmillan and Perron-Burdick 2010);
- Coastal Commission Compliance Report, Stewarts Point Coastal Access Project (Prunuske Chatham, Inc. [PCI] 2016a).
- Preliminary Delineation of Wetlands, Stewarts Point Coastal Access Project (Prunuske Chatham, Inc. [PCI] 2016b)

Botanical nomenclature used in this report conforms to Baldwin, et al. (2012) for plants and to Sawyer, et al. (2009) for vegetation communities, with mapping conforming to Sonoma County VegMap with modifications based on ground-truthing (Appendix B). Nomenclature for special status animal species conforms to CDFW (2018).

Site Survey: Trish Tatarian, Wildlife Research Associates, and Jane Valerius, Jane Valerius Environmental Consulting, conducted a general survey of the Kashia Coastal Reserve on April 12, 2018 and of the Stewarts Point Ranch Trail on April 23, 2018. The weather was cool (~72 Fahrenheit), clear and breezy on both days.

Rare Plant Surveys: Jane Valerius conducted special status plant surveys for the Kashia Coastal Reserve on April 12, May 23, and June 19, 2018 and for the Stewarts Point Ranch Trail on April 23 and June 19, 2018. A list of special status plant species reported in the CNDDB (Appendix C and D) was compiled prior to the field surveys. Appendix E provides the table identifying the plant species observed during the surveys. The Stewarts Point Ranch Trail was also previously surveyed by Prunuske-Chatham, Inc. (PCI) from March to April 2016. As required by CDFW protocols, the entire site was walked and surveys were floristic with all plant species identifiable at the time of the site visit recorded.

Wildlife Survey: Based on the animal species reported in the CNDDB (Appendix F and G) Trish surveyed both parcels for suitable potential habitat for nesting birds and roosting bat habitat using 8 x 42 roof-prism binoculars, noting presence of cavities, old bird nests and squirrel nests in trees. The reconnaissance-level site visit was intended only as an evaluation of on-site and adjacent habitat types, and no special status animal species surveys were conducted as part of this effort. However, evidence of animal occupancy (i.e., burrows, nests, etc.) was noted and mapped at the time of the survey, with a list of species observed per habitat type in Appendix H.

Wetland Delineation: Jane Valerius conducted a wetland delineation to identify potential areas that are subject to the U. S. Army Corps of Engineers (USACE) and/or the California Coastal Commission (CCC) jurisdiction on April 12 and May 23, 2018 for the Kashia Coastal Reserve. Appendix I provides the maps identifying the areas that are under jurisdiction of the U.S. Army Corps of Engineers and/or the California Coastal Commission, as well as other biological resources. A formal delineation was previously conducted for the Stewarts Point Ranch Trail by PCI (2016b). Some modifications were made to the PCI (2016) delineation map based on surveys conducted for the Stewarts Point Ranch Trail on April 23 and June 19,2018. The USACE wetland definition is based on a three-parameter definition which requires that there be a dominance of wetland plants, presence of wetland soils, and presence of wetland hydrology. The California Coastal Commission wetland delineation is based on a one-parameter definition which requires either a dominance of wetland plants, and/or presence of wetland soils, and/or presence of wetland hydrology.

EXISTING CONDITIONS

The project area is located within the North Coast Province (CDFW 2015). This province is located along the Pacific coast from the California-Oregon border to the San Francisco Bay watershed in the south (CDFW 2015). The eastern boundary includes the Cascade Range along the northern portion of the province and the transition to the Sacramento Valley along the southern portion. The coastal mountain ranges within the province are aligned somewhat parallel and rise from low to moderate elevation (i.e., up to about 7,500 feet) (CDFW 2015). The climate varies considerably across the province, with high precipitation levels and moderate temperatures in many coastal areas, and dry conditions with rain shadow effects and more extreme

temperatures in some inland valleys. Overall, the province has a fairly wet climate and receives more rainfall than any other part of the state, feeding more than ten river systems (CDFW 2015).

The North Coast Province vegetation consists predominantly of conifer and mixed-conifer forests dissected by chaparral stands, riparian forests, and wetlands (CDFW 2015). Valley and foothill grassland and woodland communities emerge along the central and southern eastern border of the province, while coastal wetlands and marshes appear along the coastline (CDFW 2015). Specifically, Douglas-fir, mixed-evergreen, western hardwoods, and chaparral-mountain shrub dominate the province (CDFW 2015).

Locally, the Sonoma County Local Coastal Program identifies this portion of Sonoma County as being within the Stewarts Point-Horseshoe Cove Environmental Resource Area (Sonoma County 2001).

The linear 2-mile trail ranges in elevation between 140 feet in the east, along Highway 1, and 50 feet in the west, along the bluffs of the Pacific Ocean. Surrounding land uses consist of mainly of open space lands consisting of ranches and rural residences located along Highway 1. The Kashia Trail supports two unnamed creeks that flow from east to west across the parcel, both of which are identified as intermittent blue lines on the topographic map. In addition, several unmarked drainages (a total of 8), and multiple wetlands and seeps occur on the parcel. These resources are discussed further below, under Waters of the U.S. and State. At the time of the April survey, the Kashia Coastal Reserve was not being grazed.

The Stewarts Point Ranch Trail supports two unnamed creeks that flow from east to west across the parcel, both of which are identified as intermittent blue lines on the topographic map. In addition, several unmarked drainages (6), and multiple wetlands and seeps occur on the parcel. The Stewarts Point Ranch Trail parcel is typically grazed with sheep, cattle and goats and an active ranch (existing house and outbuildings) is located on the north side of the parcel with an associated access road. On the southern portion of the parcel is a barn and associated access road.

Vegetation Communities

Five main vegetation communities have been mapped for the two parcels. The five main vegetation communities are further broken down into twelve difference alliances based on The Manual of California Vegetation (Sawyer et. al. 2008). The twelve vegetation communities and their associated alliances have been broken down per trail and are presented in Table 1. Of the twelve vegetation types described below, five are grassland types, three are wetland types, one is a conifer forest type, one is a coastal scrub type and there are two coastal riparian scrub types. Appendix B shows the vegetation mapped per the Sonoma County VegMap with modifications made based on field ground-truthing.

The grasslands within the Stewarts Point Ranch Trail project area had been grazed at the time of the plant surveys in both 2016 (PCI 2016a) and 2018. No grazing occurs within the Kashia Coastal Reserve and the grassland areas there have a dense cover by grasses and forbs throughout much of the study area. Within the two study areas the grasslands are mostly dominated by non-native species. However, in the Kashia Coastal Reserve there is an area dominated by Pacific reed grass (*Calamagrostis nutkaensis*), which is a native species, and within the Stewarts Point Ranch Trail there are large areas dominated by native tufted hair grass (*Deschampsia caespitosa* ssp. *holciformis*). In addition, native California oat grass (*Danthonia califonica*) occurs in patches in the Stewarts Point Ranch Trail but not as its own vegetation type. These grasses are also associated with the coastal terrace prairie grassland type which is a special status vegetation type. The coastal terrace prairie grassland type is defined by Holland (1986) as a dense, tall grassland dominated by both sod and tussock-forming perennial grasses with most stands being patchy and variable in composition. This reflects local differences in soil moisture capacity and availability. This description fits the grasslands within the North Coast Trail project. The coastal terrace prairie also includes the non-native species tall fescue (*Festuca arundinacea*) and velvet grass (*Holcus lanatus*) (Holland 1986), both of which occur in varying densities within the project areas.

Table 1: Vegetation Communities Present per Trail Segment– North Coastal Trail

Vegetation Community	Vegetation Alliance
Kashia Coastal Reserve	
Grassland/ coastal terrace prairie	Common velvet grass - sweet vernal grass meadows (*Holcus lanatus – Anthoxanthum odoratum, A. aristatum* Semi-Natural Alliance
	Pacific reed grass meadows (*Calamagrostis nutkaensis* Herbaceous Alliance)
	Tall fescue grassland (*Festuca arundinacea* Semi-Natural Alliance)
Seasonal wetlands	Soft and western rush marshes [*Juncus (effusus, patens)* Provisional Alliance]; slough sedge swards [*Carex obnupta* Herbaceous Alliance]
North Coast coniferous forest/closed-cone pine forest	Bishop pine forest (*Pinus muricata* Forest Alliance)
Coastal scrub	Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance)
Coastal riparian scrub	Red alder forest (*Alnus rubra* Forest Alliance)
Stewart's Point Trail	
Grassland/ coastal terrace prairie	Common velvet grass - sweet vernal grass meadows (*Holcus lanatus – Anthoxanthum odoratum, , A. aristatum* Semi-Natural Alliance
	Annual dogtail grasslands [*Cynosurus echinatus* Semi-Natural Alliance; *Cynosurus echinatus – (Danthonia Pilosa [Rytidosperma penicillatum] – Stipa manicata*) Provisional Semi-Natural Association]
	Tufted hair grass meadows (*Deschampsia cespitosa* Alliance)
Seasonal wetlands	Soft and western rush marshes [*Juncus (effusus, patens)* Provisional Alliance]
Coastal riparian scrub	Wax myrtle scrub (*Morella californica - Rubus spectabilis* Alliance)

Coastal Terrace Prairie Grassland

Common velvet grass-sweet vernal grass meadows (Holcus lanatus-Anthoxanthum odoratum, A. aristatum Semi-Natural Alliance): The northern portion of the Kashia Coastal Reserve, and much of the grassland in the Stewarts Point Ranch Trail, is comprised of this non-native grassland vegetation type. Within this community type, velvet grass is co-dominant with sweet vernal grass and includes other non-native grasses such as large quaking grass (*Briza maxima*), European hairgrass (*Aira caryophyllea*), dogtail grass (*Cynosurus echinatus*), ryegrass (*Festuca perennis*), wild oats (*Avena barbata*), bromes (*Bromus diandrus, B. hordaeceus*), and hare barley (*Hordeum murinum* ssp. *leporinum*). In the Stewarts Point Ranch Trail other non-native grasses noted that were not observed in the Kashia Coastal Reserve include Andean tussockgrass (*Stipa manicata*), harestail grass (*Lagurus ovatus*), and purple awned wallaby grass (*Rytidsperma penicillatum*). Tall oat grass (*Arrhenatherum elatius*) and orchard grass (*Dactylis glomerata*), both non-native species, were observed in the Kashia Coastal Reserved but not in the Stewarts Point Ranch Trail. Non-native forbs are also common and include English plantain (*Plantago lanceolata*), rough cat's-ear (*Hypochaeris radicata*), flax (*Linum bienne*), English daisy (*Bellis perennis*), bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*) and milk thistle (*Silybum marianum*).

Native grasses and forbs also occur within this grassland type and include California oat grass, Douglas iris (*Iris douglasiana*), yarrow (*Achillea millefolium*), dwarf brodiaea (*Brodiaea terrestris*), hairy star tulip (*Calochortus tolmei*), Wight's paintbrush (*Castilleja wightii*), sea pink (*Armeria maritima*), brownie thistle (*Cirsium quercetorum*), bracken fern (*Pteridium aquilinum*), Californai blackberry (*Rubus ursinus*), seaside daisy (*Erigeron glaucus*), and common coastal morning-glory (Calystegia purpurata ssp. purpurata). Two special status plants that occur in this type include coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*) and Harlequin lotus (*Hosackia gracilis*). The Harlequin lotus is particularly common and abundant in the Stewarts Point Ranch Trail occurring throughout most of the trail. Western dog violet (*Viola adunca*) was also observed in this type. Western dog violet is a larval host plant for the Behren's silver spot butterfly which is an endangered species. The violet was observed in slightly moister grassland areas near to the coastal bluffs and often along drainages (PCI 2016a). This species occurs in both trail systems.

Pacific reed grass meadows (Calamagrostis nutkaensis Herbaceous Alliance): This native coastal terrace prairie grassland type occurs only within the Kashia Coastal Reserve at the southern end of the trail and also occurs as an understory grassland type for the North Coast coniferous forest type, or Bishop pine forest Pacific reed grass is also a facultative wetland (FACW) plant species and the area where this grass is dominant qualifies as a CCC wetland area since there is a dominance of a wetland species. Although the grassland is a mesic type there was no evidence of wetland soils or wetland hydrology so this area does not qualify as a USACE wetland. Other species noted within this type include sweet vernal grass, tall fescue, velvet grass, large quaking grass, bracken fern, California blackberry, salal (*Gaultheria shallon*) and cow parsnip (*Heracleum lanatum*). Also common within the grassland was biddy biddy (*Acaena novae-zelandiae*), yarrow, hedge nettle (*Stachys ajugoides*), honeysuckle (*Lonicera hispidula*), blue-eyed grass (*Sisrynchium bellum*) and self-heal (*Prunella vulgaris*).

Tall fescue grassland (Festuca arundinacea Semi-Natural Alliance): This is a non-native grassland type and occurs only in the Kashia Coastal Reserve project area. Tall fescue forms very dense stands in the middle portion of the proposed trail system. Other non-native grasses include velvet grass, sweet vernal grass, wild oats, large quaking grass and ryegrass. Within this type there are also small patches of native tufted hairgrass (*Deschampsia caespitosa* ssp. *holciformis*). A variety of non-native species occur in this type including sheep sorrel (*Rumex acetosella*), milk thistle, wild radish (*Raphanus sativus*), filaree (*Erodium* sp.), and scarlet pimpernel (*Lysimachia arvensis*). Native forb species include red maids (*Calandrinia ciliata*), California poppy (*Eschscholzia californica*), common coastal morning-glory, and hedge nettle. . One of the special status plants, purple checkerbloom (*Sidalcea malviflora* ssp. *purpurata*), was found within this type.

Annual dogtail grassland (Cynosurus echincatus Semi-Natural Alliance;Cynosurus echinatus – Danthonia pilosa [Rytidosperma penicillatum]-Stipa manicata) Provisional Semi-Natural Association]: This non-native grassland type is found only within the Stewarts Point Ranch Trail. This type is dominated by dogtail grass with purple awned wallaby grass (*Rytidosperma penicillatum*) and Andean tussock grass (*Stipa manicata*). Other non-native grasses include velvet grass, sweet vernal grass, large quaking grass, wild oats and ryegrass. Native grasses are also present by in patches and include native California oatgrass, meadow barley (*Hordeum brachyantherum*), and foothill needle grass (*Stipa lepida*). Native and non-native forbs are common. Native forbs noted include Douglas iris, yarrow, harlequin lotus (a CNPS Rank 4 species), red maids, dwarf brodiaea, white brodiaea (*Tritelieia hyacinthaina*), and pussy ears.

Tufted hair grass meadows (Deschampsia caespitosa Alliance): This vegetation occurs primarily within the Stewarts Point Ranch Trail project area. This native coastal terrace grassland type occurs in areas that are slightly more moist and typically near wetlands and sometimes extending into them (PCI 2016a). Where this species is dominant it forms larger areas of tufted grasses. Other grasses include non-native velvet grass, sweet vernal grass, and ryegrass. Native forbs include Douglas iris, harlequin lotus, and blue-eyed grass.

Seasonal Wetlands

Soft and western rush marshes [Juncus (effusus, patens) Provisional Alliance]: This vegetation type occurs within both the Kashia Coastal Reserve and the Stewarts Point Ranch Trail. Within the Kashia Coastal Reserve it occurs at data points 4, 7, 9 and 17. Within the Stewarts Point Ranch Trail is occurs in all the areas identified as USACE jurisdiction wetlands (PCI 2016b). Wetland plants associated with this type include several species of rush including soft rush (*Juncus effusus*), spreading rush (*Juncus patens*), iris-leaved rush (*Juncus phaeocephalus*), wire rush (*Juncus balticus*) and toad rush (*Juncus bufonius*).

Slough sedge swards (Carex obnupta Herbaceous Alliance): This wetland type occurs in one area in the northern portion of the Kashia Coastal Reserved at data point 10 near drainage D-8 (see map). Slough sedge occurs as a large wetland seep area near a rocky outcrop. Other wetland plants noted include spreading rush and velvet grass. California blackberry, which is not a wetland plant, was also common in this area.

California Coastal Commission (CCC) one-parameter wetlands: Three areas were delineated as CCC only wetlands. These area typically had a dominance of wetland plants such as Pacific reed grass, velvet grass

and/or soft rush but generally lacked wetland soils and sometime wetland hydrology. In one location the wetland designation is based primarily on wetland hydrology at data point 7. This area had standing water that was also seeping but the dominant plant species is an invasive iris called bulbil bugle lily (*Watsonia meriana*),which has become very invasive along the coast.

North Coast Coniferous Forest/Closed-Cone Pine Forest

Bishop pine forest (Pinus muricata Forest Alliance): This vegetation type is mapped mainly in the southern portion of the Kashia Coastal Reserve and is common along the coast highway within the project study area. The dominant tree species is the native Bishop pine and also includes some Douglas fir (*Pseudotsuga menziesii*), and non-native Monterey pine (*Pinus radiata*). Understory shrubs include poison oak (*Toxicodendron diversilobum*), salal (*Gaultheria shallon*), coyote brush (*Baccharis pilularis*), blue blossom (*Ceanothus thyrsiflorus* var. *griseus*), twinberry (*Lonicera involucrata*), coffeeberry (*Frangula califonica*) and native blackberry. Bracken fern (*Pteridium aquilinum*) and sword fern (*Polystichum munitum*) are also common in the understory. Grasses include the native Pacific reed grass described above and non-native grasses such as velvet grass, sweet vernal grass, and large quaking grass. A variety of native forbs were also noted including hedge nettle, self-heal, honeysuckle, coast onion (*Allium dichlamydeum*), and yarrow. Although Bishop pine is a native species and is a common vegetation type within and adjacent to the Kashia Coastal Reserve Trail. Locally the pine trees are considered to be invasive taking over coastal terrace prairie grassland communities. At Salt Point State Park the Bishop pine trees are being removed to reduce fire hazard and to open up areas for native coastal terrace prairie grassland. Opening up more area for coastal prairie grassland would also benefit the endangered butterflies and the California red-legged frog.

Coastal Scrub

Coyote brush scrub (Baccharis pilularis Shrubland Alliance): This vegetation type is mapped for the Kashia Coastal Reserve and occurs between the road shoulder and the slope leading down to the property. Only one area was mapped as coastal scrub or coyote brush scrub as the same plant species occur as understory to the North Coast coniferous forest type. Species noted within this type include sticky monkeyflower (*Mimulus aurantiacus*), California blackberry, bracken fern, sword fern, salal, and California bee plant (*Scrophularia californica*).

Coastal Riparian Scrub

Red alder forest (Alnus rubra Forest Alliance): This vegetation type is mapped for the Kashia Coastal Reserve at drainage D-5 which is marked as mile marker 45.17 along the coast highway. The drainage extends north with a very dense riparian canopy cover. This vegetation type is dominated by red alder and includes twinberry, California blackberry, coast willow (*Salix hookeriana*), and wax myrtle (*Morella californica*). Within the project study area there is just a small, thin band between the culvert for the creek drainage and the edge of the highway.

Wax myrtle scrub (Morella californica-Rubus spectabilis Alliance): This type occurs only in the Stewarts Point Ranch Trail although individuals of wax myrtle occur in the Kashia Coastal Reserve. As described in the PCI (2016a) report, this type occurs in narrow bands within the larger drainages and on the southern portion of the Stewarts Point Ranch Trail. This type is characterized by low-growing, wind-shaped trees including wax myrtle, Douglas fir, coffeberry, California blackberry, thimbleberry (*Rubus parviflorus*), rushes, bracken fern, western chain fern (*Woodwardia fimbriata*), and sword fern.

Waters of the U.S. and State

Kashia Coastal Reserve Trail: Jane Valerius conducted a delineation of wetlands and waters of the U.S. and state, including areas that meet the CCC one-parameter test, for the Kashia Coastal Reserve study area. A separate delineation report has been prepared that includes the details of the delineation methods, results, maps and data sheets (Jane Valerius Environmental Consulting 2018). Field work for data points and mapping were conducted on April 12 and May 23, 2018. The delineation was conducted in accordance with the U.S. Army Corps of Engineers' (USACE) Wetland Delineation Manual (USACE 1987) and the Regional

Supplement for the Western Mountains, Valleys and Coast Region, Version 2.0 (USACE 2010). At each sample point a determination was made for both USACE and the CCC jurisdiction. Areas designated as USACE wetlands meet the three-parameter definition which requires the presence of wetland plants, soils and hydrology. For CCC wetlands only one of the parameters need be present. A total of five areas were delineated as USACE wetlands and are labeled USACE-W-1 to USACE-W-5. An additional three areas were delineated as CCC wetlands only and are labeled as CCC-W-1 to CCC-W-3. In addition there are a total of eight (8) drainages labeled as D-1 to D-8. A detailed explanation of wetlands and waters is provided in the delineation report (Jane Valerius Environmental Consulting 2018). Acreages of USACE- and CCC-defined wetlands both within and outside of the trail easement area are provided in Table 2 below, and are included in Appendix I.

Table 2: Acreages of Existing Wetlands - Kashia Coastal Reserve Trail Corridor

Kashia Coastal Reserve Trail	Square Feet	Acres
Easement Area	437,565.9	10.05
CCC Wetlands in Easement Area	15,246	0.35
CORPS Wetlands in Easement Area	4676.4	0.11
ESHA Drainage/ Wetland in Easement Area	1742.4	0.04
Total Wetlands in Study Area	21,667.7	0.50
Easement Area not mapped as Wetland	429,501.6	9.55
Percentage of Easement Area Mapped as Wetland	4.95	4.95

Stewarts Point Ranch Trail: PCI conducted a delineation and also prepared a Coastal Commission Compliance (CCC) Report for the Stewarts Point Coastal Access Project (PCI 2016a). These reports are available from the Sonoma County Regional Parks office. Some of the wetland areas were modified based on the April 23 and June 19, 2018 site visits by Jane Valerius as part of the plant survey for the Stewarts Point Ranch Trail and on the current trail alignment. Appendix I shows the delineated USACE jurisdictional wetlands as well as the CCC wetlands for the Stewarts Point Ranch Trail. A total of 0.17 acres of wetland were mapped within the main trail alignment. Acreages of USACE- and CCC-defined wetlands both within and outside of the trail easement area are provided in Table 3 below, and are included in Appendix I.

Four drainages (A, B, C, and D) are crossed by the proposed trail development. A total of six drainages were mapped for the entire study area (Drainages A to F) along with multiple wetlands.

Table 3: Acreages of Existing Wetlands – Stewarts Point Ranch Trail Corridor

Stewarts Point Ranch Trail	Square Feet	Acres
Easement Area	448,190.3	10.29
CCC Wetlands in Easement Area	10235.6	0.32
CORPS Wetlands in Easement Area	18211.5	0.42
ESHA Drainage/ Wetland in Easement Area	720.7	0.02
Total Wetlands in Study Area	29167.9	0.67
Easement Area not mapped as Wetland	419,021.4	9.62
Percentage of Easement Area Mapped as Wetland	6.51	6.51

Wildlife Habitats

The value of a site to wildlife is influenced by a combination of the physical and biological features of the immediate environment. Species diversity is a function of diversity of abiotic and biotic conditions and is greatly affected by human use of the land. The wildlife habitat quality of an area, therefore, is ultimately determined by the type, size, and diversity of vegetation communities present and their degree of disturbance. Wildlife habitats are typically distinguished by vegetation type, with varying combinations of plant species providing different resources for use by wildlife. The following is a discussion of the wildlife species supported by the on-site habitats, as described by *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). The California Wildlife Habitat Relationship (CWHR) habitat classification scheme was developed by the CDFW to support the CWHR System, a wildlife information system and predictive model for California's regularly-occurring birds, mammals, reptiles and amphibians. To show the relationship between the CWHR and the Vegetation Mapping Units, please refer to Table 4.

Table 4: Wildlife Habitats in Relation to Vegetation Communities Present per Trail

Vegetation Community	Wildlife Habitat	Kashia Coastal Reserve	Stewarts Point Ranch
Grassland/ coastal terrace prairie	Annual/Perennial grassland	√	√
Coastal scrub	Coastal scrub	√	
Monterey/Bishop Pine forest	Closed-cone pine-cypress	√	
Seasonal wetlands	Fresh Emergent Wetland	√	√
Coastal riparian scrub	Coastal scrub	√	√
	Structures	√	√

Annual and Perennial Grasslands: Native and non-native grasslands typically provide foraging, hunting and nesting habitat for a wide variety of wildlife species. Small species using this habitat as primary habitat include reptiles and amphibians, such as alligator lizard (*Gerrhonotus multicarinatus*), western fence lizard and Pacific slender salamander (*Batrachoseps attenuatus*), which feed on invertebrates found within and beneath vegetation and rocks within the vegetation community. The grasslands on the site are typical of cattle grazed non-native grasslands and provide habitat for small mammals, such as California vole (*Microtis californicus*), and Botta's pocket gopher (*Thomomys bottae*), the evidence of which was observed throughout both parcels. Other species potentially occurring on the site include opportunistic small mammals, such as western harvest mice (*Reithrodontomys megalotis*) and house mice (*Mus musculus*), which are attracted to nearby anthropogenic structures. American badgers (*Taxidea taxus*) were observed on both the Stewarts Point Ranch. Ground nesting passerines (perching birds), such as California quail (*Lophortyx californicus*), are typically seed-eaters that nest and forage in grasslands, if feral cats are not in high numbers. Avian species inured to human habitation, such as California towhee (*Pipilo crissalis*), Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), American kestrel (*Falco sparverius*), and western scrub-jay (*Aphelocoma californica*) forage and hunt in the grasslands but nest in the trees, were observed on the property and likely nest on the parcel.

Coastal Scrub: Coastal scrub habitat, often interspersed with other habitats, provides foraging and nesting habitat for bird species that are attracted to edges of communities and the structural diversity in those communities, including white-crowned sparrow (*Zonotrichia leucophrys*), California quail (*Callipepla californica*), bushtit (*Psaltriparus minimus*), mourning dove (*Zenaida macroura*), western scrub jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*) and spotted towhee (*Pipilo maculatus*), among others. These species forage among the leaf litter for invertebrates. Avian species that use the canopy of scrub for catching insects include Bewick's wren (*Thryomanes bewickii*). Besides creating habitat for insect prey, flowering scrub vegetation (*e.g.*, *Salvia*) provides nectar for bird species such as Anna's

hummingbird (*Calypte anna*). Other bird species, such as purple finches (*Carpodacus purpureus*), feed on seeds or other parts of the vegetation. Mammals, including striped skunk (*Mephitis mephitis*), use this habitat for protection and foraging grounds, feeding off new shoots of plants. Black-tailed deer (*Odocoileus hemionus californicus*) often feed in scrub. Small mammals that are expected to occur within the scrub include brush rabbit (*Sylvilagus bachmani*), Botta's pocket gopher (*Thomomys bottae*), and deer mice (*Peromyscus maniculatus*). Small mammals may attract such predators such as gray fox (*Urocyon cinereargenteus*), and bobcat (*Felis rufous*).

Closed-cone Pine-Cypress: When Monterey pines or Bishop pines dominate this habitat, shrubs associated with pine stands are typically those of the surrounding vegetation, such as California huckleberry, salal, rhododendron and Labrador tea. Few species make substantial use of this type as a breeding habitat, although the great horned owl (*Bubo virginianus*) and red-tailed hawk (*Buteo jamaicensis*) will nest in closed-cone pine forests if the trees are tall enough. None of the trees on the Kashia Coastal Reserve were of a height to support these birds. Most of the trees were less than 20 feet tall. These monotypic forests offer perching and roosting sites for limited avian species, such as Anna's hummingbird (*Calypte anna*).

Fresh Emergent Wetland: None of the wetlands supported deeply ponded water. Rather they provided an above-ground moisture that is important to amphibians as they move across a landscape. Amphibian species potentially using the fresh emergent wetlands include the Pacific chorus frog (*Pseudacris regilla*). Vertebrate species that may opportunistically forage within the fresh emergent wetland within the study area include great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), and raccoon (*Procyon lotor*), among others, feeding on amphibians. Aerial foraging species that hunt over marshy areas that supported winged insects include various swallow species, such as barn swallow (*Hirundo rustica*), and bat species, such as myotis (*Myotis* sp.).

Individual Trees. Individual trees are foraging and nesting habitat for passerines, and roosting habitat for bats. Smaller passerines, such as chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), plain titmouse (*Baeolophus inornatus*) and acorn woodpecker (*Melanerpes formicivorus*) may nest and forage in the larger trees, feeding on insects on the bark. No large cavities that may support the larger raptors, such as great horned owl (*Bubo virginianus*), were observed in any of the trees.

Bats that use trees fall into three categories: 1) solitary, obligate tree-roosting bats that roost in the foliage or bark such as Western red-bat (*Lasiurus blossevillii*), or hoary bat (*Lasiurus cinereus*); 2) colonial tree-roosting bats that form groups of varying size in tree cavities or beneath exfoliating bark, such as silver-haired bats (*Lasionycteris noctivagans*), and 3) more versatile bat species that will use a wide variety of roosts from buildings to bridges to trees, such as various *Myotis* species, pallid bat (*Antrozous pallidus*), and others.

Solitary-roosting bats consist either of females either alone or with young, or solitary males. Colonial-roosting bats may form maternity colonies in tree cavities or crevices, caves, mines, bridges, or other man-made structures. During the day, these roosts provide shelter and protection for adult females and their young, which remain in the roost while females forage at night, returning to nurse and care for their young. Greater impacts to bats can occur as a result of removal of trees that support cavity-roosting bat species than those that provide habitat for solitary foliage-roosting species.

Structures: Some passerines use buildings for nesting, such as black phoebe (*Sayornis nigricans*), cliff swallows (*Petrochelidon pyrrhonota*) and barn swallows (*Hirundo rustica*), of which the phoebe and the cliff swallows were observed on the two parcels. As stated above, many colonial bat species have adapted to using man-made structures such as houses, barns, sheds, garages, bridges, and culverts. Statewide and in the project region, buildings provide significant roosting habitat for bat species, including more common species such as Brazilian free-tailed bat (*Tadarida brasiliensis*) and Yuma myotis (*Myotis yumanensis*), as well as more rare species such as pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

In general, day roost habitat is considered more critical than night roost habitat, because it provides shelter for bats from light, air currents, predators, and other disturbance, and are where bats mate, raise young, roost during dispersal, and overwinter, either in torpor or hibernation. Because of this, and because demolition typically occurs during daytime hours, the risks of direct mortality of bats is very high at day roosts. Although night roosts are also very important for bats for various purposes (conservation of energy during foraging bouts, social interaction, etc.), buildings are not usually demolished at night, so although the habitat is lost, direct mortality does not usually occur.

Movement Corridors

Wildlife movement includes migration (i.e., usually one way per season), inter-population movement (i.e., long-term genetic flow) and small travel pathways (i.e., daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow among populations.

These linkages among habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement among populations located in discrete areas and populations located within larger habitat areas. The mosaic of habitats found within a large-scale landscape results in wildlife populations that consist of discrete sub-populations comprising a large single population, which is often referred to as a meta-population. Even where patches of pristine habitat are fragmented, such as occurs with coastal scrub, the movement between wildlife populations is facilitated through habitat linkages, migration corridors and movement corridors. Depending on the condition of the corridor, genetic flow between populations may be high in frequency, thus allowing high genetic diversity within the population, or may be low in frequency. Potentially low frequency genetic flow may lead to complete isolation, and if pressures are strong, potential extinction (McCullough 1996; Whittaker 1998).

As described in the *California Essential Connectivity Project* (Spencer, et al. 2010), the study area is located in North Coast Ecoregion (Spencer et al. 2010). The natural drainages in the area (e.g., Stewarts Creek) flow west into the Pacific Ocean. The Study Area is not within a Natural Landscape Block (defined as relatively natural habitat blocks that support native biodiversity). The study area is not located in an Essential Connectivity Area (defined as areas that are essential for ecological connectivity between blocks) (Spencer et al. 2010).

Movement corridors for large and small mammals occur between the two parcels and undeveloped lands of Salt Point State Park and lands to the north. Although several intermittent drainages occur on both parcels, the drainages are situated on coastal bluffs, approximately 30 to 50 feet above the Pacific Ocean. As a result, none of the drainages support fisheries.

SPECIAL STATUS BIOLOGICAL RESOURCES

Certain vegetation communities, and plant and animal species are designated as having special status based on their overall rarity, endangerment, restricted distribution, and/or unique habitat requirements. In general, special status is a combination of these factors that leads to the designation of a species as sensitive. The Federal Endangered Species Act (FESA) outlines the procedures whereby species are listed as endangered or threatened and established a program for the conservation of such species and the habitats in which they occur. The California Endangered Species Act (CESA) amends the California Fish and Wildlife Code to protect species deemed to be locally endangered and essentially expands the number of species protected under the FESA. The California Coastal Commission identifies areas designated as Environmentally Sensitive Habitat Areas (ESHA's) and may be based on the presence of sensitive species and habitats. Please refer to Appendix A for more detailed descriptions of these federal, State and local plans, policies, regulations and ordinances.

Special Status Vegetation Communities

Two special status vegetation communities have been reported in the CNDDB for the three topographic quadrangles, Stewarts Point, Plantation and Annapolis (CNDDB 2018). One of these special status vegetation communities, coastal terrace prairie, occurs on both the Kashia Coastal Reserve and the Stewarts Point Ranch Trail. The two coastal scrub riparian communities, red alder forest alliance and wax myrtle scrub, and two of the seasonal wetland types, slough sedge swards and soft rush marshes, and one grassland type, Pacific reed grass meadows, are all identified as special status plant communities based on the CDFW (2010) natural communities list. Any wetland areas that are not identified as CDFW special status vegetation communities are considered as sensitive natural communities because of their habitat values and they fall under the jurisdiction of the USACE, RWQCB and CDFW. In addition, they also meet the definition of environmentally sensitive habitats as defined by the CCC and the Sonoma Local Coastal Plan (see below).

The Bishop pine forest alliance is also a CDFW special status vegetation community type (CDFW 2010). This is a native species and is common within and adjacent to the project area. Locally the pine trees are considered to be invasive taking over coastal terrace prairie grassland communities. At Salt Point State Park the Bishop pine trees are being removed to reduce fire hazard and to open up areas for native coastal terrace prairie grassland. No mitigation is recommended for this type. Some of the smaller pine trees will be removed to provide restoration of coastal terrace prairie grassland habitat. Opening up more area for coastal prairie grassland would also benefit the endangered butterflies and the California red-legged frog.

California Coastal Commission: Environmentally Sensitive Habitat Areas (ESHAs) are based on the presence of sensitive species and habitats, including:

- The list of rare, threatened or endangered species prepared under the California or Federal Endangered Species Act,
- The list of "fully protected species" or "species of special concern" by the California Department of Fish and Wildlife (CDFW),
- The list of "1B" species prepared by the California Native Plant Society, and
- The CDFW List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database.

The California Coastal Act (Public Resources Code Section 30107.5) provides special protections for areas designated as ESHAs, defined as follows: "Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Sonoma County Local Coastal Program: The location of the two trails is within the Stewarts Point-Horseshoe Cove Environmental Resource Area, an area that is relatively unstudied. The Local Coastal Program (LCP) has identified that this area is primarily coastal woodland and grassland. The marine terrace varies in width, is well defined, and separates Highway 1 from the coastal bluff. The area also contains Sanctuary Preservation Areas, including several rare and/or endangered plant sites.

The Sonoma County LCP definitions of potentially sensitive habitat types found on the North Coast Trail study area include:

> Riparian: "Tree and shrub vegetation of freshwater courses. A line or belt of vegetation following the course of a river or stream on the immediate banks and appearing visually and structurally separate from the surrounding landscape. Boundaries are delineated by the outer edge of riparian vegetation. Riparian vegetation consists of that vegetation in or adjacent to permanent or intermittent freshwater streams and other freshwater bodies where at least 50 percent of the cover is made up of species such as alders, willows, cottonwoods, box elders, ferns, and blackberries."

Wetlands (Marshes, Ponds, Reservoirs, Seeps): "Areas where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally are found to grow in water or wet ground. Wetlands are here defined to include marshes, ponds, seeps, and reservoirs, but not the Bodega Harbor tide flats."

Grassland-Coastal Prairie: "Discontinuous grassland usually within 100 km of the coast; usually on southerly facing slopes or terraces. Today is a mixture of heavily grazed, introduced annual grasses and some native perennial grasses. Generally sandy to clay loam surface soils. This mapping category does not indicate pristine coastal prairie."

Coastal Bluffs: Area between the cliff edge and the highest high tide line. Bluffs or cliffs are scarps or steep faces of rock, decomposed rock, sediment, or soil resulting from erosion, faulting, folding, or excavation. When the top edge of the cliff is rounded away from the face of the cliff, the edge shall be defined as that point nearest the cliff beyond which the downward gradient of the land surface increase more or less continuously until it reaches the general gradient of the cliff.

Coastal Woodland. Category grouping the redwood, mixed evergreen, closed cone pine, and oak woodland.

Potentially sensitive areas also include minor or disturbed drainages, coastal bluffs, beaches, windbreaks, known or suspected archaeological sites, and sensitive soils. Given these definitions the coastal terrace grasslands, wetlands, and riparian areas are all considered to be environmentally sensitive areas.

The North Coast coniferous forest, or Bishop pine, is a closed cone pine type and in abundant within and adjacent to the Kashia Coastal Reserved project area. However, within the project area the Bishop pine trees can be considered somewhat invasive. At Salt Point State Park, just south of the Kashia Coastal Reserve, State Parks is removing many of the Bishop pine trees due to fire danger and impacts to the coastal terrace prairie grassland habitat. For this report the Bishop Pine Forest type is not considered to be an ESHA or special status vegetation community type that requires mitigation. Trees within the project area will be removed to create additional coastal terrace prairie grassland habitat. Table 5 presents the Vegetation communities and alliances with their rankings under the ESHA and CDFW. Common velvet grass-sweet vernal grass meadows, tall fescue grassland, and annual dogtail grassland are all non-native vegetation types but they meet the CCC ESHA definition due to presence of special-status species and native species richness.

Table 5. Vegetation Community and Alliances and Rankings Per Trail

Vegetation Community	Vegetation Alliance	ESHA	CDFW Rank
Kashia Coastal Reserve			
Grassland/ coastal terrace prairie	Common velvet grass - sweet vernal grass meadows (*Holcus lanatus – Anthoxanthum odoratum, A. aristatum* Semi-Natural Alliance	Yes	none
	Pacific reed grass meadows (*Calamagrostis nutkaensis* Herbaceous Alliance)	Yes	G4S2
	Tall fescue grassland (*Festuca arundinacea* Semi-Natural Alliance)	Yes	none
Seasonal wetlands	Soft and western rush marshes [*Juncus (effusus, patens)* Provisional Alliance]	Yes	G4S4?
	Slough sedge swards (*Carex obnupta* Herbaceous Alliance)	Yes	G4S3
	California Coastal Commission (CCC) one-parameter wetlands	Yes	none

Vegetation Community	Vegetation Alliance	ESHA	CDFW Rank
North Coast coniferous forest/closed-cone pine forest	Bishop pine forest (*Pinus muricata* Forest Alliance)	Yes	G3S3
Coastal scrub	Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance)	No	G5S5
Coastal riparian scrub	Red alder forest (*Alnus rubra* Forest Alliance)	Yes	G5S4
Stewart's Point Ranch Trail			
Grassland/ coastal terrace prairie	Common velvet grass - sweet vernal grass meadows (*Holcus lanatus – Anthoxanthum odoratum, A. aristatum* Semi-Natural Alliance	Yes	none
	Annual dogtail grasslands [*Cynosurus echinatus* Semi-Natural Alliance; *Cynosurus echinatus – (Danthonia Pilosa [Rytidosperma penicillatum] – Stipa manicata*) Provisional Semi-Natural Association]	Yes	none
	Tufted hair grass meadows (*Deschampsia cespitosa* Alliance)	Yes	G5S4?
Seasonal wetlands	Soft and western rush marshes [*Juncus (effusus, patens)* Provisional Alliance]	Yes	G4S4?
Coastal riparian scrub	Wax myrtle scrub (*Morella californica - Rubus spectabilis* Alliance)	Yes	G3SE

Special Status Plant Species

The CDFW has compiled a list of "Special Plants" (CDFW 2018), which include California Special Concern species. These designations are given to those plant species whose vegetation communities are seriously threatened. Although these species may be abundant elsewhere they are considered to be at some risk of extinction in California. Although Special Concern species are afforded no official legal status under FESA or CESA, they may receive special consideration during the planning stages of certain development projects and adverse impacts may be deemed significant under the California Environmental Quality Act (CEQA).

A total of 33 special status plant species have been reported occurring on the three topographic quadrangles (CNDDB 2018). See Appendix B for a list of the species evaluated. Appendix C, provides an analysis for those species reported on the CNDDB to occur on the two parcels based on the habitats present. Appendix E provides a list of plants species observed, including species identified by PCI from the 2016 surveys. See Appendix I for mapped locations of these species.

The following set of criteria has been used to determine each species' potential for occurrence on the site in Appendix A:

- **Present**: Species is known to occur on the site, based on CNDDB records, and/or was observed onsite during the field survey(s).
- **High**: Species is known to occur on or near the site (based on CNDDB records within 5 miles, and/or based on professional experience) and there is suitable habitat onsite.
- **Moderate/Low**: Species is known to occur in the vicinity of the site, but there is only marginal habitat onsite -OR- species is not known to occur in the vicinity of the site, however, the site is within the species' range and there is suitable habitat onsite.
- **None**: There is no suitable habitat for the species onsite -OR- species was surveyed for during the appropriate season with negative results.

Several species from the data base search are not expected to occur within the project study area due to lack of habitat. The site does not have any serpentine, rhyolitic, sandy or alkaline soils and there are no bogs and

fens, broadleaved upland forest, lower montane coniferous forest, chaparral, or old growth redwood forest within the proposed development area.

Surveys for special status plants were conducted on April 12, May 23, and June 19, 2018 for the Kashia Trail Coastal Reserve and on April 23 and June 19, 2018 for the Stewarts Point Ranch Trail. Additional surveys for special status plants were conducted in 2016 (PCI 2016a). Surveys for special status plants were conducted during the flowering period for special status plants that had the potential to occur within the project area based on the presence of potential habitat. The surveys were conducted in a below normal rainfall year. However, along the coast the rainfall totals likely have less effect due to coastal fog which provides additional moisture beyond direct precipitation.

A total of four (4) special status plants were observed during the appropriately timed surveys. These are coastal bluff morning-glory (*Calystegia purpurata* ssp. *saxicola*), harlequin lotus (*Hosackia gracilis*), purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurata)*, and fringed corn lily (*Veratrum fimbriatum*). Appendix I shows the locations for these species within the project study area. These species are further described below.

Coastal bluff morning-glory (*Calystegia purpurata* ssp*. saxicola*)
Status: CNPS Rank 1B

General Ecology and Distribution: Coastal bluff morning glory is a low-growing, vining perennial herbaceous plant in the morning-glory family or Convolvulaceae and is a CNPS Rank 1B species. This species occurs in coastal bluff scrub, coastal dunes, coastal scrub and North Coast coniferous forest habitats. It has large, showy white to pink flowers with ovate-triangular to kidney shaped leaves with generally rounded to notched tips. The special- status coastal bluff morning glory differs from the more common subspecies, smooth western morning-glory (*Calystegia purpurata* ssp. *purpurata),* in the shape of the leaves which are triangular with acutely pointed tips. The two subspecies are often found together and can intergrade. .

Project Area Occurrence: This species was found in multiple locations within the Kashia Coastal Reserve and Stewarts Point Ranch Trail study areas and is often found in vegetation communities along the coast. Given its status as a CNPS Rank 1B and its limited distribution within the study area, this species should be protected from disturbance during trail construction.

Harlequin lotus **(***Hosackia gracilis*)
Status: CNPS Rank 4

General Ecology and Distribution: Harlequin lotus is a low-growing, perennial rhizomatous herbaceous species in the pea family or Fabaceae and is a CNPS Rank 4 species. This species occurs in a variety of habitats including coastal bluff scrub, coastal prairie, coastal scrub, meadows and seeps, North Coast coniferous forest and valley and foothill grassland. It often occurs in wetlands and along roadsides. It has small but showy pink and yellow flowers.

Project Area Occurrence: This plant species was abundant within the two study areas. In the Stewarts Point Ranch Trail the numbers were in the thousands. It was generally found in wetland areas, including many locations within the proposed trail corridor. Although it is on the CNPS Watch List, it is relatively common on the northern California coast and was particularly abundant in the Stewarts Point Ranch Trail study area. Given the extensiveness of the population on the site, significant impacts to the population from the proposed trail are not expected.

Purple-stemmed checkerbloom (*Sidalcea malviflora* ssp. *purpurata*)
Status: CNPS Rank 1B

General Ecology and Distribution: Purple-stemmed checkerbloom is a low-growing, perennial rhizomatous herbaceous species in the mallow family or Malvaceae and is a CNPS Rank 1B species as is considered to be fairly endangered in California (CNPS 2018). This species occurs in broadleafed upland forests and coastal prairie. It has small bright to dark pink flowers, generally white-veined. The distinguishing feature for this subspecies is that the calyx is generally purple and the flower stalk is generally hair-like. The basal leaf blade is also generally less than 2 to 2.5 cm.

Project Area Occurrence: This species has recorded occurrences near Fort Ross, at Gerstle Cove in Salt Point State Park, and near Stewarts Point. It was found on the Kashia Coastal Reserve in 2018. This was not observed in the Stewarts Point Ranch Trail. This species was not abundant or common on the site. Efforts should be made to avoid impacts to this species

Fringed corn lily (*Veratrum fimbriatum)*
Status: CNPS Rank 4

General Ecology and Distribution: Fringed corn lily is a perennial bulb-forming plant in the false-hellebore family or Melanthiaceae. It has large, pleated basal leaves and a showy spike of frilly cream-colored flowers. It typically occurs in wet meadows in coastal scrub.

Project Area Occurrence: This species is only reported from Sonoma and Mendocino counties. Dozens of individuals were observed in the Stewarts Point Ranch Trail in the wetland south of Drainage D. No individuals of this species were observed in the Kashia Coastal Reserve trail. No project impacts are anticipated in this area.

One other special-status species, salt sedge (*Carex saliniformis,* CNPS Rank 1B), has moderate potential to occur in the study area. During the PCI 2016 field surveys one sedge species which was lacking reproductive parts for identification (due to timing and/or herbivory) was present in the large wetland south of Drainage D in the Stewarts Point Ranch Trail, and *Carex saliniformis* could not be ruled out. This species typically occurs in mesic coastal prairie, scrub, meadows, seeps, and salt marshes. Dozens of plants were present, and they were not in an area of proposed impact. Further study would be needed to confirm its identity, but no impacts are anticipated from this project.

The following species have recorded occurrences close to the project study area but were not observed during the site visits and are therefore considered not likely to occur in the study area:

Blasdale's bent grass (*Agrostis blasdalei*), CNPS 1B: This is a perennial rhizomatous grass that blooms from May to July and occurs in coastal bluff scrub, coastal dunes, coastal prairie.

Woolly-headed gilia (*Gilia capitata ssp. tomentosa),* CNPS 1B: This an annual herb that blooms May to July and occurs in coastal bluff scrub and valley and foothill grasslands in rocky outcrops on the coast on serpentine. There is no serpentine in the study area.

Swamp harebell (*Campanula californica),* CNPS 1B: This is a perennial rhizomatous herb that blooms from June-October and occurs in North Coast coniferous forest, closed-cone coniferous forest, coastal prairie, marshes, fens, meadows and seeps.

Point Reyes checkerbloom (*Sidalcea calycosa ssp. rhizomata),* CNPS 1B. This is a perennial rhizomatous herb that blooms from April-September and occurs in freshwater marshes and swamps near the coast. The typical habitat for this species is lacking in the study area.

Although not a special status plant species, Western dog violet (*Viola adunca*) was observed within the project area for both the Stewarts Point Ranch and Kashia Coastal Reserve trail systems. This species is larval food plant for the Behren's silverspot butterfly, a federally listed endangered species. Please see below for more details.

Special Status Animal Species
Special status animal species include those listed by the USFWS (2018) and the CDFW (2018). The USFWS officially lists species as either Threatened or Endangered, and as candidates for listing. Additional species receive federal protection under the Bald Eagle Protection Act *(e.g*., bald eagle, golden eagle), the Migratory Bird Treaty Act (MBTA), and state protection under CEQA Section 15380(d). The project site is located within Region 32 of the Birds of Conservation Concern (USFWS 2008). All marine mammals are protected under the Marine Mammal Protection Act. Under FESA, the term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct and includes significant habitat modification or degradation that results in significantly impairing essential behavioral patterns including breeding, feeding, or sheltering, as well as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

In addition, many other species are considered by the CDFW to be Species of Special Concern; these are listed in Shuford and Gardali (2008), Williams (1986), and Thomson et al. (2016). Although such species are afforded no official legal status under the California Endangered Species Act, they are on a watch for conservation planning and management as it pertains to the California Environmental Quality Act and as such, they may receive special consideration during the planning and CEQA review stages of certain development projects. The CDFW further classifies some species under the following categories: "fully protected", "protected fur-bearer", "protected amphibian", and "protected reptile". The designation "protected" indicates that a species may not be taken or possessed except under special permit from the CDFW; "fully protected" indicates that a species can be taken for scientific purposes by permit only. ‘Take’ under CESA is defined as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Of the 16 special status animal species identified as potentially occurring in the vicinity of the project area, including within a 3 mile radius (CNDDB 2018), several additional species were evaluated for their potential to occur within the study area, based on: 1) review of the Information for Planning and Conservation (IPaC) for the study area (USFWS 2018), 2) the "Special Animals" list (CDFW 2018) that includes those wildlife species whose breeding populations are in serious decline, and 3) the habitat present on site.

For those species with no suitable potential habitat on the site (i.e. fish), no further analysis was conducted. Species identified as potentially occurring in the area, but for which no habitat occurs (i.e., pelagic habitat or breed elsewhere), are not addressed any further and include the following: green sea turtle (*Chelonia mydas*), short-tailed albatross (*Phoebastria albatrus*), brown pelican (*Pelecanus occidentalis*), common loon (*Gavia immer*), common murre (*Uria aalge*), ring-billed gull (*Larus delawarensis*) and surf scoter (*Melanitta perspicillata*). See Appendix F for a list of the 36 species evaluated. See Appendix H for those species observed on the site. See Appendix G for reported locations in the CNDDB.

The location of the two trails is within the Stewarts Point-Horseshoe Cove Environmental Resource Area, an area that supports several Sanctuary Preservation Areas, including a seabird rookery at Stewarts Point and an osprey nest site.

The following paragraphs discuss the general ecology and distribution of those special status species with suitable potential habitat on the two parcels. We also discuss the project area occurrence for each species.

Western Bumble bee (*Bombus occidentalis*)
Status: CNDDB watch list

General Ecology and Distribution: Formerly common throughout much of its range, populations from central California to southern British Columbia and west of the Sierra-Cascade Ranges have declined sharply since the late 1990s. There have been significant range losses in these regions, particularly from lower elevation sites in California, western Oregon and western Washington. *Bombus occidentalis*, like most other

species of bumble bees, typically nests underground in abandoned rodent burrows or other cavities (Williams, et al. 2014). Availability of nests sites for *B. occidentalis* may depend on rodent abundance. Bumble bees, including B. occidentalis, are generalist foragers and have been reported visiting a wide variety of flowering plants. Bumble bees require plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late November for B. occidentalis (although the actual dates likely vary by elevation). Range-wide, example food plants include *Ceanothus, Centaurea, Chrysothamnus, Cirsium, Geranium, Grindellia, Lupinus, Melilotus, Monardella, Rubus, Solidago,* and *Trifolium* (Williams et al. 2014). The habitat for this species is described as open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows (Williams et al. 2014). .

Project Area Occurrence: No specie specific surveys were conducted for this habitat assessment. Measures to protect wetlands and native plants on the site will protect the bees. No further action is required.

Lotis blue butterfly (*Lycaeides argyrognomon lotis*)
Status: USFWS Listed Endangered

General Ecology and Distribution: In 1985, many of the historical collection sites were identified as being either in, or on the periphery of the Pygmy Forest, in Mendocino County (USFWS 1985). Since then, it has been narrowed down to four populations and they only occur in Mendocino County (USFWS 1985). Habitat occupied by this species includes wet meadows and sphagnum bogs. It is thought that the harlequin lotus (*Hosackia gracilis (Lotus formosissimus)*) is the larval food plant for this species.

Project Area Occurrence: No specie specific surveys were conducted for this habitat assessment. The larval plant was found on the both the Kashia Coastal Reserve Trail and the Stewarts Point Ranch Trail parcel. However, the species has not been observed since 1983, despite extensive surveys in historical and potential sites in 1991, 2003-2004 (USFWS 2007). Measures to protect wetlands and native plants on the two sites will protect the butterfly. No further action is required.

Behren's silverspot butterfly (*Speyeria zerene behrensii)*
Status: USFWS Listed Endangered with a Recovery Plan adopted in 2003 and a Final Implemented in 2015.

General Ecology and Distribution: The Behren's silverspot butterfly is a coastal subspecies of the Zerene silverspot (*Speyeria zerene*) (USFWS 2003). The distribution of each of these eight subspecies is restricted to a limited range. This species occupies early successional coastal terrace prairie habitat that contains the caterpillar's host plant, western dog violet (*Viola adunca*), adult nectar sources, and adult courtship areas (USFWS 2003). Nectar sources, such as thistles (*Cirsium* spp.), rough cat's ear, gumplant (*Grindelia stricata*),and yellow bush lupine (*Lupinus arboreus*), are used by foraging adults during the from early-July possibly to October flight period (USFWS 2015). Occurrences and known habitats are coastal terrace prairie habitat west of the Coast Range in southern Mendocino and northern Sonoma Counties located west of the Coast Range (USFWS 2003). These habitats are strongly influenced by proximity to the ocean, with mild temperatures, moderate to high rainfall, and persistent fog.

Project Area Occurrence: No specie specific surveys were conducted for this habitat assessment. The larval plant, *Viola adunca*, was found on the Stewarts Point Ranch Trail parcel.(See Appendix I). Populations of this species have been reported north and south of the Kashia Coastal Reserve Trail and the Stewarts Point Ranch Trail, with a reported location just south of the Stewarts Point Ranch Trail (CNDDB 2018). See below for further details.

California giant salamander (*Dicamptodon ensatus*)
Status: CDFW Species of Special Concern

General Ecology and Distribution: A salamander of mesic coastal forests, including oak woodland and coniferous forests, this species is highly reliant on cold permanent and semi-permanent streams for breeding (Thomson et al. 2016). Upland habitat used by adults and juveniles consist of habitats that are primarily under objects with a wet or moist substrate (Thomson et al. 2016).

Project Area Occurrence: No specie specific surveys were conducted for this habitat assessment. No suitable habitat occurs on either parcel for this species. The closest reported sighting is along the western portion of Stewarts Creek, located south of the Stewarts Point ranch Trail (CNDDB 2018). No further action is required.

California Red-legged Frog (*Rana draytonii*)
Status. USFWS listed Threatened with Critical Habitat, CDFW Species of Special Concern.

General Ecology and Distribution. California red-legged frogs breed primarily in ponds, but will also breed in slow moving streams, or deep pools in intermittent streams. Inhabited ponds are typically permanent, at least 2 feet (0.6 meters) in depth, and contain emergent and shoreline vegetation. Sufficient pond depth and shoreline cover are both critical, because they provide means of escape from predators of the frogs (Stebbins 2003, Tatarian 2008). Non-breeding California red-legged frogs have been found in both aquatic and upland habitats. Although the majority of individuals prefer dense, shrubby or emergent vegetation, closely associated with deep (>0.7 meters) still, or slow moving water, some individuals use habitats that are removed from aquatic habitats (Tatarian 2008).

Project Area Occurrence. No surveys were conducted for this species as part of this habitat assessment. The proposed project is within the species range. Review of occurrences within a one-mile radius, as required by the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005), reveals no populations have been reported; however, that may mean that not all private lands have been surveyed for this species. This species has not been reported within three miles of either trail (CNDDB 2018). However, individuals in unreported areas may be moving about the landscape during construction. See below for further details.

Development of 0.8 acres of pervious surface trail within the Kashia Coastal Reserve and 0.8 acres of pervious surface trail within the Stewarts Point Ranch Trail grasslands will occur in habitat that may be used as upland habitat for California red-legged frog. However, no loss of upland habitat will occur because the surfaces will be pervious. However, individuals may be moving about the landscape and may be impacted during construction. See below for further details.

Western Pond Turtle (*Emys marmorata*) (WPT)
Status: CDFW Species of Special Concern

General Ecology and Distribution: This medium sized turtle ranges in size to just over 8 inches (21cm) with a low carapace that is generally olive, brownish or blackish (Stebbins 2003, Thomson et al. 2016). Primary habits include permanent water sources such as ponds, streams and rivers. It is often seen basking on logs, mud banks or mats of vegetation, although wild populations are wary and individuals will often plunge for cover after detecting movement from a considerable distance. Although it is an aquatic species with webbed feet, it can move across land in response to fluctuating water level, an apparent adaptation to the variable rainfall and unpredictable flows that occur in many coastal California drainage basins (Rathbun, *et al.* 1993). In addition, it can over-winter on land or in water or remain active in the winter, depending on environmental conditions (Thomson et al. 2016). Females travel from aquatic sites into open, grassy areas to lay eggs in a shallow nest (Holland 1992). Nests have been reported from 2-400 meters or more away from water bodies (Thomson et al. 2016).

Project Area Occurrence: No surveys were conducted for this species as part of this habitat assessment. There are no water bodies of sufficient depth to support this species. The nearest pond is more than 3 miles east (CNDDB 2018). No further action is required.

Nesting Passerines – including grasshopper sparrow and song sparrow, among others
Status: USFWS Migratory Bird Treaty Act and CDFW Code 3503

General Ecology and Distribution: As early as February, passerines begin courtship and once paired, they begin nest building, often around the beginning of March. Nest structures vary in shapes, sizes and composition and can include stick nests, mud nests, matted reeds and cavity nests. For example, black phoebes and barn swallows build nests under the eaves of buildings. Grasshopper sparrows breeding habitat preferences include grasslands of intermediate height mixed with clumped vegetation and interspersed with bare ground (Dechant et al. 2003). Nests are constructed on the ground and made of grasses and forbs. Breeding occurs from early-April through mid-July. Depending on environmental conditions, young birds may fledge from the nest as early as May and, if the prey base is large, the adults may lay a second clutch of eggs.

Project Area Occurrence: No surveys were conducted for these species as part of this habitat assessment. Several passerine (perching birds) species may nest on the site in the various habitats, including, but not limited to, grasshopper sparrow in the grasslands, and white-crowned sparrows in the shrubs, both species observed on the two parcels. A nesting bird survey shall be conducted before removal of any of these habitats, and seasonal restrictions put into place for occupied habitats, to ensure no take of individuals will occur. See below for further details.

Nesting Raptors – white-tailed kite (*Elanus leucurus*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*)
Status: USFWS Migratory Bird Treaty Act and CDFW 3503.5

General Ecology and Distribution: Raptors nest in a variety of substrates including, cavities, ledges and stick nests. For example, Cooper's hawks are small bird hunters, hunting on the edges of forests in broken forest and grassland habitats where passerines forage for seeds and insects. Nests occur in heavily forested areas near a water source. Research sites on nesting Cooper's hawks rarely show the nests more than a quarter of a mile away from water, whether it is a cattle tank, stream or seep (Snyder and Snyder 1975). Trees typically used by Cooper's hawks include coast live oaks, cottonwoods, and black oaks (Call 1978), as well as second growth conifer stands or deciduous riparian areas. Most raptors build stick nests, except for American kestrels that nest in cavities. In general, the breeding season for raptors occurs in late March through June, depending on the climate, with young fledging by early August

Project Area Occurrence: No surveys were conducted for these species as part of this habitat assessment. Foraging habitat for raptors, such as white tailed kite and red-shouldered hawk, among others, occurs throughout the project area. The larger trees on the Kashia Coastal Reserve provide potentially suitable nesting habitat for American kestrels. See below for further details.

Burrowing owl (*Athene cunicularia*)
Status: USFWS Bird of Conservation Concern and CDFW Species of Special Concern

General Ecology and Distribution: Foraging and breeding habitat for burrowing owl includes native and non-native grasslands, deserts, and agricultural areas (Zarn 1974). Three habitat characteristics that comprise burrowing owl habitat include openness (lack of canopy cover), short vegetation, and burrow availability. Suitable habitat may also include areas with trees and shrubs, as long as the canopy covers less than 30 percent of the ground surface (CDFG 1995, CBOC 1993). Vegetation height has been identified as a limiting factor in occupancy (Coulombe 1971,Wesseman 1985). Burrowing owls will utilize edge habitats around agricultural fields, golf courses, and airports where there is little or sparse vegetation and raised elevations, which facilitate hunting of small rodents, birds, lizards and insects, with the main prey being Jerusalem cricket (*Stenopelmatus fuscus*). Owls have been reported foraging up to one mile from breeding areas (Haug and Oliphant 1990).

Burrows are the essential component of burrowing owl habitat (CDFG 1995, CBOC 1993) and are often the limiting factor in occupied habitat (Zarn 1974). Burrows used by burrowing owls are usually dug by small mammals, such as California ground squirrel (*Spermophilus beecheyi*), in loose soil, and are enlarged by the owls for nesting. Burrows are used repeatedly for nesting, but not necessarily by the same pair of owls (Zarn

1974). During the breeding season, several burrows may be renovated, but only one will be used per pair, with non-nest (satellite) burrows created nearby for escaping, perching and observation points (Dechant, et al. 2003). Burrowing owls exhibit high site fidelity, reusing burrows year after year (CBOC 1997).

Project Area Occurrence: No focused surveys were conducted as part of this assessment. Although, no evidence of occupancy was observed during the site visits there is potential for burrowing owls to use the Kashia Coastal Reserve parcel and the Stewarts Point parcel for wintering habitat. The closest report sighting is more than 3 miles south (CNDDB 2018). See below for more details.

American badger – *Taxidea taxus*
Status: CDFW Species of Special Concern

General Ecology and Distribution: A medium-sized carnivore, badgers rely primarily on small burrowing mammals, such as California ground squirrel and Botta's pocket gopher, as a prey source, and badger populations vary with prey availability. Males occupy larger home ranges than females (2.4 versus 1.6 square kilometers). The burrow system of a badger is complex and extensive and burrows can be as large as 9 meters long and 3 meters deep. The burrow entrance is typically about 30 cm (12 inches) wide and 20 cm (8 inches) tall and has a large mound of earth on the doorstep. Mating occurs in the summer, followed by delayed implantation, with young born in March or April of the following year. The average life span is 4-5 years.

Project Area Occurrence: This species has been observed and reported on both the Kashia Coastal Reserve and the Stewarts Point Ranch Trail parcel (CNDDB 2018) (see Appendix I, for mapped locations). See below for further details.

Roosting bats – including Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*).
Status: CDFW Species of Special Concern (SSC), as well as Fish and Wildlife Code Sections 86, 2000, 2014, 3007, Title 14, Sections 15380, 15382

Within California, 25 bats species occur, of which 11 are classified as SSC (CDFW 2018). One SSC bat species that often roosts in structures or suitable trees in those areas where they occur is the pallid bat (*Antrozous pallidus*). Removal of occupied roosts without prior humane eviction or other actions approved by the CDFW would result in "take", defined under the CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill".

In addition to the SSC bat species above, non-SSC species are also afforded consideration under the California Environmental Quality Act (CEQA), primarily when significant local breeding populations may be impacted. This includes two more common and widely-distributed bat species, Yuma myotis (*Myotis yumanensis*) and Brazilian free-tailed bat (*Tadarida brasiliensis*), which can form very large colonies, often in features such as those found in buildings.

General Ecology and Distribution: Bats in this region of California are not active year-round and their activity periods can be split into two distinct seasons, the maternity season and the winter season. During the maternity season, non-volant young (those not capable of flight) of colonial bats remain in the roost until late summer (end of August), after which they may disperse from the natal roost or remain into or throughout the winter. During the winter season, bats typically enter torpor, rousing only occasionally to drink water or opportunistically feed on insects. The onset of torpor is dependent upon environmental conditions, primarily temperature and rainfall.

California bats include colonial and solitary roosting species. Colonial bats are those that roost in groups of dozens to many thousands. *C. townsendii* roosts colonially, and often in the types of structures that occur within the local area. Pallid bats, an SSC species, are eclectic in their roosting habitat selection, and to some extent distribution, and can be found in crevices and small cavities in rock outcrops, tree hollows, mines,

caves, and a wide variety of man-made structures such as buildings, bridges and culverts, generally in lower to mid-elevation sites. This species forms maternity colonies, composed of dozens to sometimes hundreds of females and their young, and smaller bachelor colonies composed of males and not-yet reproductive females. Non-SSC species, include Brazilian free-tailed bats (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), big brown bat (*Eptesicus fuscus*), and other *Myotis* species. These species may form significant local breeding populations in roosts of sufficient size, which usually occur in buildings, bridges or culverts, but occasionally in large tree hollows.

Potential for Occurrence: Pallid bats and Townsend's big-eared bats have potential to roost in the barn structures located on the Kashia Coastal Reserve Trail and Stewarts Point Ranch Trail. However, it is unknown at this time if the barns are proposed for removal or renovation.

Marine Mammals: Pacific harbor seal (*Phoca vitulina*), California sea lion (*Zalophus californianus*) and northern elephant seal (*Mirounga angustirostris*)
Status: NOAA Fisheries Marine Mammal Protection Act

General Ecology and Distribution: The Pacific harbor seal is found all along the West Coast of North America, from Baja California to the Bering Sea. They are considered non-migratory and typically stay within 15 to 31 miles, although they can travel as far as 249 miles along the coast, feeding on fish, shellfish and crustaceans. Females typically give birth in the spring and summer and use rocks, reefs, beaches for haul outs. California sea lions prefer sandy beaches or rocky coves for breeding and haul-out sites. They range from southeast Alaska to the Pacific Coast in central Mexico. Three major rookeries occur within their range: those in the United States, those in western Baja California and those in the Gulf of California. Breeding season lasts from late June to early August. Northern elephant seals range from Baja California to the north into Alaska's Aleutian Islands and spend much of the year, generally about 9 months, in the ocean feeding on squid and fishes. While on land they prefer sandy beaches. Adults return to land between March and August to molt, with males returning later than females.

Potential for Occurrence: No focused surveys were conducted as part of this assessment. The Pacific harbor seal was observed on the Stewarts Point Ranch Trail (PCI 2016a). The beaches below the coastal bluffs on both trails provide suitable haul out sites for all three species.

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TRAIL ALIGNMENT

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1 inch = 1,250 feet
LOCATION MAP

0 625 1,250 2,500 3,750 5,000
Feet

REGIONAL LOCATION MAP

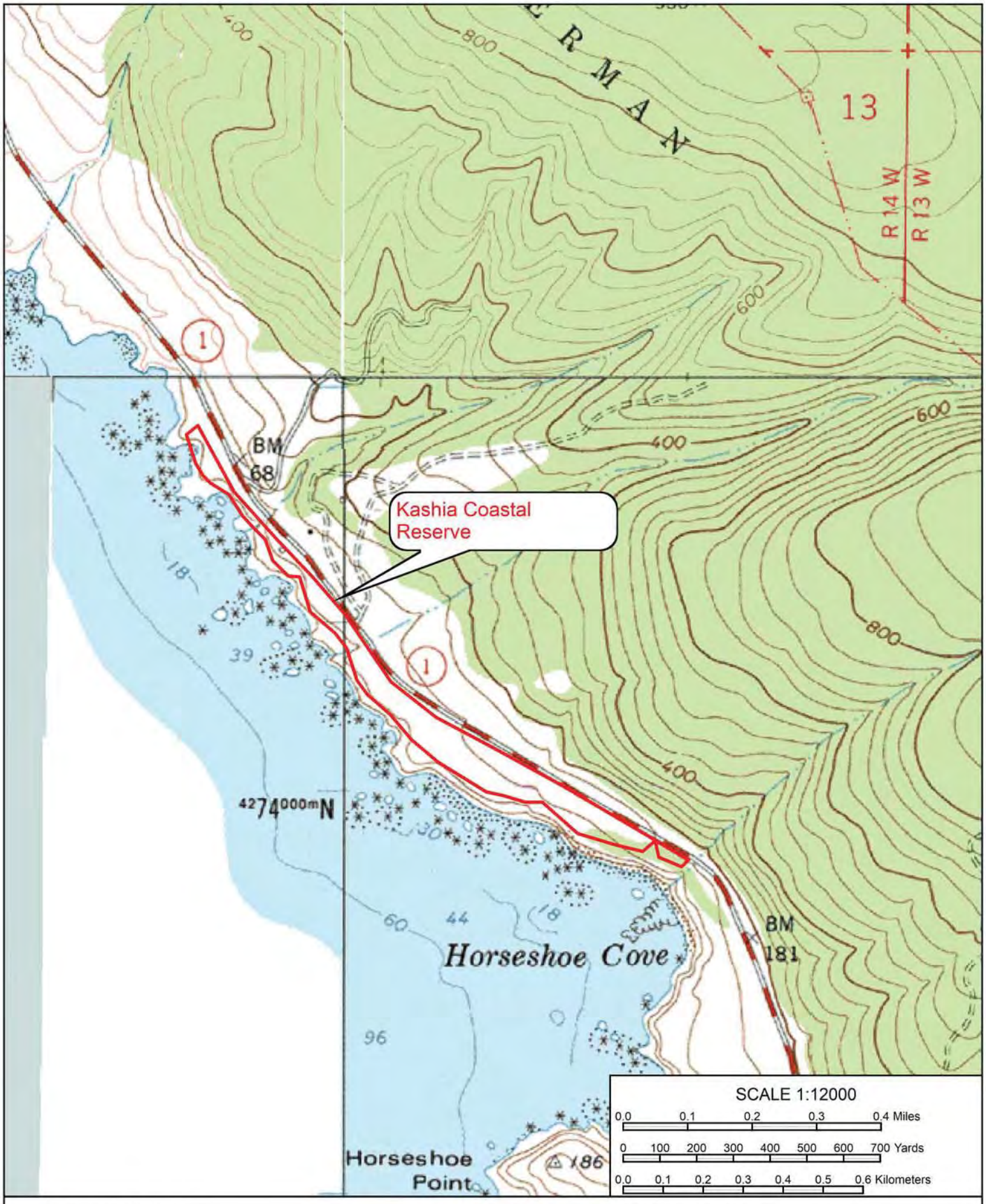
STEWARTS POINT TRAIL

NORTH COAST TRAILS
SONOMA COUNTY, CA

Coastal Conservancy

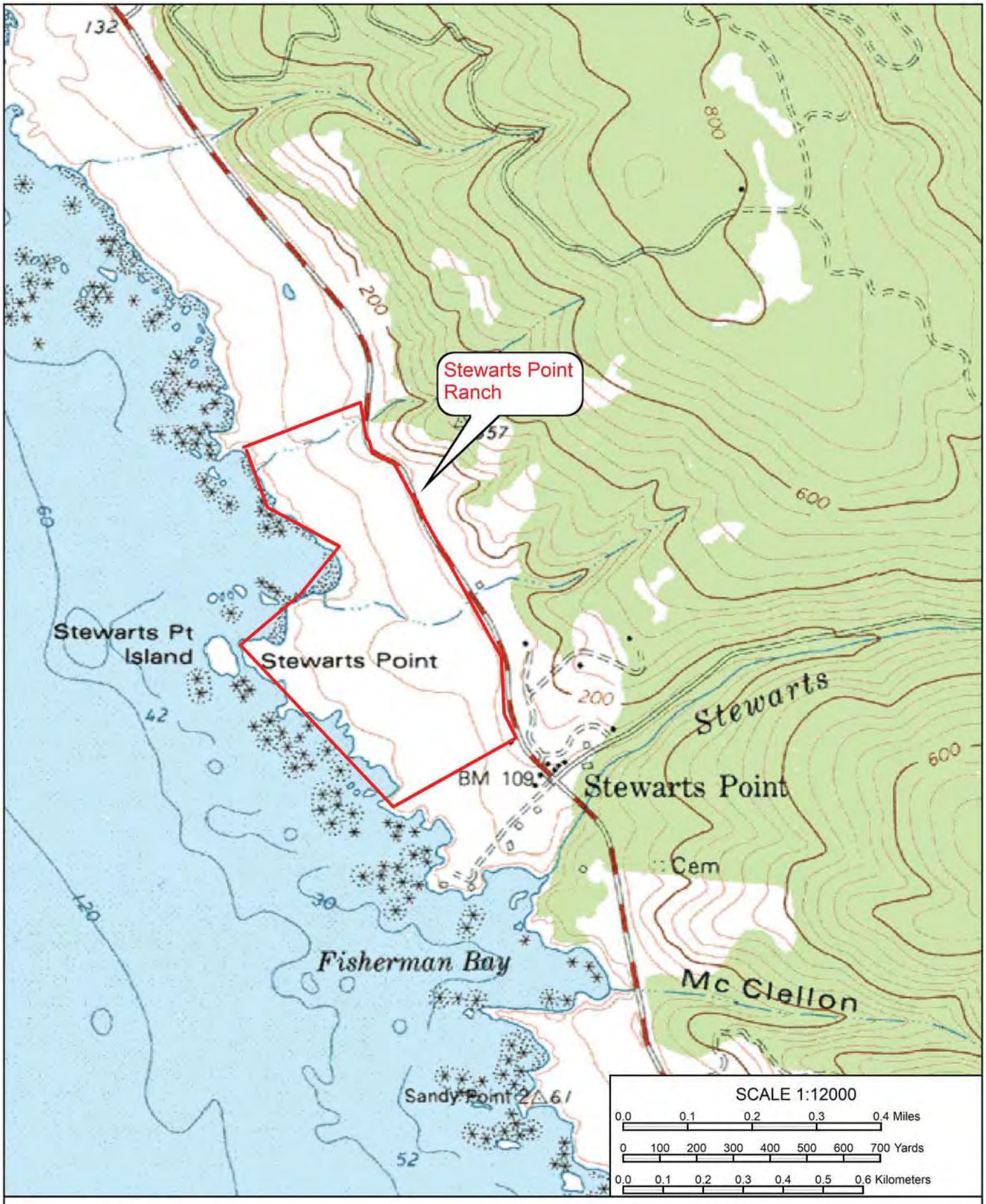
QUESTA ENGINEERING CORP.

FIGURE 1



Name: PLANTATION
Date: 08/10/18
Scale: 1 inch = 1,000 ft.

Location: 10 0467633 E, 4274665 N
Figure 2: Regional Location of Kashia Coastal Reserve



Name: STEWARTS POINT
Date: 08/10/18
Scale: 1 inch = 1,000 ft.

Location: 10 0465091 E, 4278667 N
Figure 3: Regional Location of Stewarts Point Ranch

Representative Photo 1. Ungrazed grassland on Kashia Costal Reserve Trail.

Representative Photo 2. Grazed grassland on Stewarts Point Ranch Trail.

Representative Photo 3. Sedge wetland on Kashia Costal Reserve Trail.

Representative Photo 4. Rush wetland with drainage on Stewarts Point Ranch Trail.

Representative Photo 5. Red alder scrub on Kashia Costal Reserve Trail.

Representative Photo 6. Coastal riparian scrub on Stewarts Point Ranch Trail.

Representative Photo 7. Rocky shore along Kashia Costal Reserve Trail.

Representative Photo 8. Rocky shore along Stewarts Point Ranch Trail.

Federal Endangered Species Act (FESA) - U.S. Fish and Wildlife Service

Pursuant to ESA, the U.S. Fish and Wildlife Service (USFWS) has regulatory authority over federally listed species. Under ESA, a permit to "take" a listed species is required for any federal action that may harm an individual of that species. Take is defined under Section 9 of ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Section 7 of ESA requires all federal agencies to consult with USFWS to ensure that their actions are not likely to "jeopardize the continued existence" of any listed species or "result in the destruction or adverse modification" of designated critical habitat. No federal approvals or other actions are anticipated as being required to implement the project at this time. Therefore, consultation under Section 7 of ESA is not expected. However, if USACE determines that wetlands and/or other waters of the United States on the project site are subject to protection under Section 404 of the CWA, or any other federal action becomes necessary, consultation under Section 7 of ESA would be required.

For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain a permit for incidental take under Section 10(a) of ESA. Section 10(a) of ESA allows USFWS to permit the incidental take of listed species if such take is accompanied by a habitat conservation plan (HCP) that includes components to minimize and mitigate impacts associated with the take. The permit is known as an incidental take permit. The project proponent must obtain a permit before conducting any otherwise-lawful activities that would result in the incidental take of a federally listed species.

Clean Water Act Sections 404 and 401 - U.S. Army Corps of Engineers

USACE regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the CWA. Waters of the United States are defined as waters where use, degradation, or destruction could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are somehow connected to any of these waters or their tributaries. Wetlands are defined as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands falling under USACE jurisdiction must demonstrate the presence of three specific wetland parameters: hydric soils, hydrophytic vegetation, and sufficient wetland hydrology. Generally, wetlands include swamps, marshes, bogs, and similar areas. Lakes, rivers, and streams are defined as "other waters." Jurisdictional limits of these features are typically noted by the ordinary high-water mark (OHWM). The OHWM is the line on the shore or bank that is established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in soils, lack of woody or terrestrial vegetation, the presence of litter or debris, or other characteristics of the surrounding areas.

Isolated ponds or seasonal depressions had been previously regulated as waters of the United States. However, in Solid Waste Agency of Northwestern Cook County (SWANCC) v. United States Army Corps of Engineers et al. (January 8, 2001), the U.S. Supreme Court ruled that certain "isolated" wetlands (e.g., non-navigable, isolated, and intrastate) do not fall under the jurisdiction of the CWA and are no longer under USACE jurisdiction (although isolated wetlands are regulated by the State of California under the Porter-Cologne Water Quality Control Act—see discussion below). Some circuit courts (e.g., U.S. v. Deaton, 2003; U.S. v. Rapanos, 2003; Northern California River Watch v. City of Healdsburg, 2006), however, have ruled that the SWANCC opinion does not prevent CWA jurisdiction if a "significant nexus" such as a hydrologic connection exists, whether it be human-made (e.g., roadside ditch) or natural tributary to navigable waters, or direct seepage from the wetland to the navigable water, a surface or underground hydraulic connection, an ecological connection (e.g., the same bird, mammal, and fish populations are supported by both the wetland and the navigable water), and changes to chemical concentrations in the navigable water due to water from the wetland.

Section 404 prohibits the discharge of dredged or fill material into waters of the United States (including wetlands) without a permit from USACE. With respect to the proposed project, the discharge of dredged or fill material includes the following activities:

- placement of fill that is necessary for the construction of any structure or infrastructure in a water of the United States;
- the building of any structure, infrastructure, or impoundment requiring rock, sand, dirt, or other material for its construction;
- site-development fills for recreational, industrial, commercial, residential, or other uses; and
- construction of causeways or road fills.

The regulations and policies of USACE, the U.S. Environmental Protection Agency (EPA), and USFWS mandate that the filling of wetlands be avoided unless it can be demonstrated that no practicable alternatives (to filling wetlands) exist. If the placement of fill into waters of the U.S., including wetlands, meets certain criteria the project be permitted under one of the Nation Wide Permits (NWP), which is an expedited permit process.

Section 401 of the CWA requires an applicant for any federal permit that may result in a discharge into waters of the United States to obtain a certification from the state that the discharge will comply with provisions of the CWA. The regional water quality control boards (RWQCBs) administer this program. Any condition of water quality certification would be incorporated into the USACE permit. The state has a policy of no net loss of wetlands and typically requires mitigation for impacts on wetlands before it will issue a water quality certification.

Essential Fish Habitat - National Marine Fisheries Service

Essential Fish Habitat (EFH) is regulated through the National Marine Fisheries Service (NMFS), a division of the National Oceanic and Atmospheric Administration (NOAA). Protection of EFH is mandated through changes implemented in 1996 to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to protect the loss of habitat necessary to maintain sustainable fisheries in the United States. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). NMFS further defines essential fish habitat as areas that "contain habitat essential to the long-term survival and health of our nation's fisheries" (NMFS 2007). EFH can include the water column, bottom substrate types such as gravels suitable in size for salmonid spawning, and vegetation and woody structures that provided habitat for rearing. Under regulatory guidelines issued by NMFS, any federal agency that authorizes, funds, or undertakes action that may affect EFH is required to consult with NMFS (50 CFR 600.920).

Marine Mammal Protection Act

The U.S. Marine Mammal Protection Act (MMPA) protects all marine mammals, including cetaceans (whales, dolphins, and porpoises), pinnipeds (seals and sea lions), sirenians (manatees and dugongs), sea otters, and polar bears within the waters of the United States. The Act makes it illegal to "take" marine mammals without a permit. This means people may not harass, feed, hunt, capture, collect, or kill any marine mammal or part of a marine mammal. The MMPA defines harassment as , “any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.” The National Marine Fisheries Service, within the National Oceanic and Atmospheric Administration, is responsible for managing dolphins and whales (cetaceans), eared seals (Otariids) and earless seals (Phocids).

California Environmental Quality Act (CEQA)

CEQA is a California statute passed in 1970, shortly after the United States federal government passed NEPA, to institute a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires state and local agencies within California to follow a protocol of analysis and

public disclosure of environmental impacts of proposed projects and adopt all feasible measures to mitigate those impacts.

The CEQA statute, California Public Resources Code § 21000 et seq., codifies a statewide policy of environmental protection. According to CEQA, all state and local agencies must give major consideration to environmental protection in regulating public and private activities, and should not approve projects for which there exist feasible and environmentally superior mitigation measures or alternatives.

California Endangered Species Act (CESA) – California Department of Fish and Wildlife

The California Endangered Species Act (CESA) (FGC §§ 2050–2116) is administered by the California Department of Fish and Wildlife. The CESA prohibits the "taking" of listed species except as otherwise provided in state law. The CESA includes FGC Sections 2050–2116, and policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat. The CESA requires mitigation measures or alternatives to a proposed project to address impacts to any State listed endangered, threatened or candidate species, or if a project would jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy. Section 86 of the FGC defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Unlike the ESA, CESA applies the take prohibitions to species under petition for listing (state candidates) in addition to listed species. Section 2081 of the FGC expressly allows DFW to authorize the incidental take of endangered, threatened, and candidate species if all of the following conditions are met:

- The take is incidental to an otherwise lawful activity.
- The impacts of the authorized take are minimized and fully mitigated.
- Issuance of the permit will not jeopardize the continued existence of the species.
- The permit is consistent with any regulations adopted in accordance with §§ 2112 and 2114 (legislature-funded recovery strategy pilot programs in the affected area).
- The applicant ensures that adequate funding is provided for implementing mitigation measures and monitoring compliance with these measures and their effectiveness.

The CESA provides that if a person obtains an incidental take permit under specified provisions of the ESA for species also listed under the CESA, no further authorization is necessary under CESA if the federal permit satisfies all the requirements of CESA and the person follows specified steps (FGC § 2080.1).

Species Protection under California Department of Fish and Wildlife

The CDFW is established under the Fish and Game Code (FGC) (FGC § 700) and states that the fish and wildlife resources of the state are held in trust for the people of the state by and through CDFW (FGC § 711.7(a)). All licenses, permits, tag reservations and other entitlements for the take of fish and game authorized by FGC are prepared and issued by CDFW (FGC § 1050 (a)).

Provisions of the FGC provide special protection to certain enumerated species such as:

§ 3503 protects eggs and nests of all birds.
§ 3503.5 protects birds of prey and their nests.
§ 3511 lists fully protected birds.
§ 3513 protects all birds covered under the federal Migratory Bird Treaty Act.
§ 3800 defines nongame birds.
§ 4150 defines nongame mammals.
§ 4700 lists fully protected mammals.
§ 5050 lists fully protected amphibians and reptiles.
§ 5515 lists fully protected fish species.

In addition, the Native Plant Protection Act (NPPA), directs the CDFW to carry out the Legislature's intent to "reserve, protect and enhance rare and endangered plants in this State." As a result, the NPPA allows the

California Fish and Game Commission to designate native plants as endangered or rare, and to require permits for collecting, transporting, or selling such plants.

Waters of the State - California Regional Water Quality Control Board
The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope, but has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the USACE under Section 404. "Waters of the State" are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a USACE permit, or fall under other federal jurisdiction, and have the potential to impact "Waters of the State," are required to comply with the terms of the Water Quality Certification determination.

If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to "Waters of the State," the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements.

Streams, Lakes, and Riparian Habitat - California Department of Fish and Wildlife
Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of the State Fish and Wildlife Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term stream, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG ESD 1994). Riparian is defined as, "on, or pertaining to, the banks of a stream;" therefore, riparian vegetation is defined as, "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG ESD 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

California Native Plant Society (CNPS)
The California Native Plant Society (CNPS) is a statewide non-profit organization dedicated to the monitoring and protection of sensitive species in California. The CNPS publishes and maintains an Inventory of Rare and Endangered Vascular Plants of California, focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by the CDFG. The Inventory assigns plants to the following categories:

A. Presumed Extinct in California
B. Rare or endangered in California and elsewhere
Rare or endangered in California, more common elsewhere
Plants for which more information is needed
Plants of limited distribution.

Additional rarity, endangerment, and distribution codes are assigned to each taxa.

Plants on Ranks 1A, 1B, and 2 of the CNPS Inventory consist of plants that may qualify for listing, and the Department recommends they be addressed in CEQA projects (CEQA Guidelines Section 15380). However, a plant need not be in the Inventory to be considered a rare, threatened, or endangered species under CEQA. In addition, the DFG recommends, and local governments may require, protection of plants which are

regionally significant, such as locally rare species, disjunct populations of more common plants, or plants on the CNPS Ranks 3 and 4.

California Coastal Commission

California Coastal Commission was established by voter initiative in 1972 (Proposition 20) and later made permanent by the Legislature through adoption of the California Coastal Act of 1976.

In partnership with coastal cities and counties, The Coastal Commission plans and regulates the use of land and water in the coastal zone. Development activities, which are broadly defined by the Coastal Act to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the Coastal Commission or the local government.

A Coastal Permit is required for all new access ways within the Coastal Zone and must be obtained prior to development. Coastal Permits are generally issued by the County Board of Zoning Adjustments or the Coastal Commission itself. The Coastal Permit referral process provides a detailed analysis of sensitive resources, necessary improvements, area compatibility, and appropriate use levels. Coastal Permits for accessways are subject to revocation. The CDFW provides assistance as the primary wetland consultant to the State Coastal Commission and only requires the presence of one attribute, either hydric soils, hydrophytic vegetation, or hydrology to qualify an area as a wetland

Sonoma County Local Coastal Plan
Based on a 1975 report for the State Coastal Commission, the Natural Resources of the North Coast Region report forms the foundation of the updated biological resources section of the Local Coastal Plan (PRMD 2001). Within the report are categories of habitats and are as follows:

Wetlands: Areas where the water table is at, near, or above the land surface long enough to bring about the formation of hydric soils or to support the growth of plants which normally are found to grow in water or wet ground. Wetlands are here defined to include marshes, ponds, seeps, and reservoirs, but not the Bodega Harbor tide flats. The upland limit of a wetland is designated as 1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; 2) the boundary between soil that is predominantly hydric and soil that is predominantly non-hydric. Typical wetland vegetation: pickleweed, cordgrass, Jaumea, salt grass, rushes, bulrushes, sedges, cattails, tule, marsh rosemary, marsh grindelia

Riparian: Tree and shrub vegetation of freshwater courses. A line or belt of vegetation following the course of a river or stream on the immediate banks and appearing visually and structurally separate from the surrounding landscape. Boundaries are delineated by the outer edge of riparian vegetation. Riparian vegetation consists of that vegetation in or adjacent to permanent or intermittent freshwater streams and other freshwater bodies where at least 50 percent of the cover is made up of species such as alders, willows, cottonwoods, box elders, ferns, and blackberries.

Coastal Bluffs: Area between the cliff edge and the highest hide tide line. Bluffs or cliffs are scarps or steep faces of rock, decomposed rock, sediment or soil resulting from erosion, faulting, folding or excavation. When the top edge of the cliff is rounded away from the face of the cliff, the edge shall be defined as that point nearest the cliff beyond which the downward gradient of the land surface increase more or less continuously until it reaches the general gradient of the cliff.

Coastal Prairie and Grassland: Discontinuous grassland usually within 100 km of the coast; usually on southerly facing slopes or terraces. Today is a mixture of heavily grazed, introduced annual grasses and some native perennial grasses. Generally sandy to clay loam surface soils. This mapping category does not indicate pristine coastal prairie.

Coastal Woodland: Category grouping the redwood, mixed evergreen, closed cone pine, and oak woodland forests.

Appendix B: Sonoma County Vegetation Map

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_CNDDB_SONOMAVEGMAP_KASHIA.mxd

TRAIL ALIGNMENT
STREAM CENTERLINES
FRESHWATER HERBACEOUS WETLAND
WOODY RIPERIAN

BUILDINGS
DIRT OR GRAVEL ROADS
PAVED ROADS
OTHER IMPERVIOUS

BARREN AND SPARSELY VEGETATED
CONIFER FOREST
DEVELOPED
FOREST SLIVER

HARDWOOD FOREST
HERBACEOUS
MIXED CONIFER AND HARDWOOD FOREST
NON-NATIVE FOREST

NON-NATIVE SHRUB
RIPARIAN FOREST
RIPARIAN SHRUB
SHRUB

DRAWN BY SCOTT YEHL

1 inch = 500 feet

Date Saved: 6/18/2018 2:42:42 PM

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0 250 500 1,000 1,500 2,000

Feet

SONOMA COUNTY VEGMAP

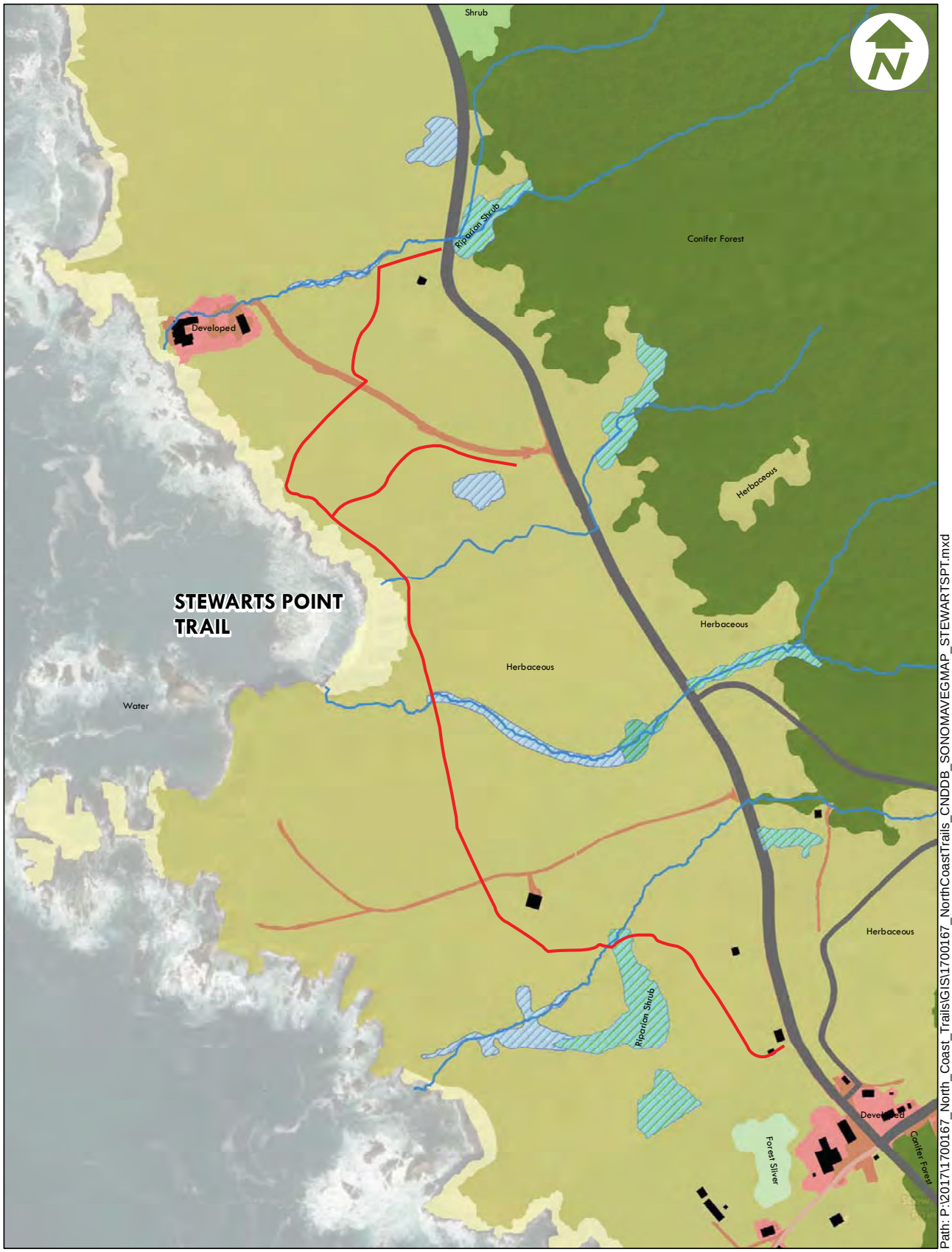
NORTH COAST TRAILS: KASHIA TRAIL

SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE



Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_CNDDB_SONOMAVEGMAP_STEWARTSPT.mxd

TRAIL ALIGNMENT
STREAM CENTERLINES
FRESHWATER HERBACEOUS WETLAND
WOODY RIPERIAN

BUILDINGS
DIRT OR GRAVEL ROADS
PAVED ROADS
OTHER IMPERVIOUS

BARREN AND SPARSELY VEGETATED
CONIFER FOREST
DEVELOPED
FOREST SLIVER

HARDWOOD FOREST
HERBACEOUS
MIXED CONIFER AND HARDWOOD FOREST
NON-NATIVE FOREST

NON-NATIVE SHRUB
RIPARIAN FOREST
RIPARIAN SHRUB
SHRUB

DRAWN BY SCOTT YEHL

1 inch = 300 feet

Date Saved: 6/18/2018 2:33:52 PM

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0 150 300 600 900 1,200
Feet

SONOMA COUNTY VEGMAP

NORTH COAST TRAILS:
STEWARTS POINT TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

Appendix C: Potentially Occurring Special status Plant Species in the Study Area

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS rank**	**Habitat Affinities and Blooming Period/Life Form**	**Potential for Occurrence - Kashia Coastal Reserve**	**Potential for Occurrence - Stewarts Point Ranch**
Agrostis blasdalei Blasdale's bent grass	-/-/1B	Coastal bluff scrub, coastal dunes, coastal prairie. Blooms May to July. Elevation: 0-150m.	None. Potential habitat present. Not observed during surveys. Recorded CNDDB occurrences for Salt Point and nearby areas.	None. Potential habitat present. Not observed during surveys. Recorded CNDDB occurrences south of trail.
Calamagrostis bolanderi Bolander's reed grass	-/-/4	Bogs and fens, broadleafed upland forest, closed-cone coniferous forest, coastal scrub, meadows and seeps (mesic), marshes and swamps (freshwater), North Coast coniferous forest/mesic. Blooms May to August. Elevation: 0-455m.	None. Potential habitat along this trail. Not observed during surveys.	None. Typical habitat not along this trail. Not observed during surveys.
Calochortus uniflorus Pink star-tulip	-/-/4	Coastal prairie, coastal scrub, meadows and seeps, North Coast coniferous forest. Blooms April to June. Elevation: 10-1070m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Calystegia purpurata ssp. *saxicola* Coastal bluff morning glory	-/-/1B	Coastal bluff scrub, coastal dunes, coastal scrub, North Coast coniferous forest. Blooms (March) April to September. Elevation 10-105m.-	Present. Please refer to map and text for details on locations.	Present. Please refer to map and text for details on locations.
Campanula californica Swamp harebell	-/-/1B	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, marshes and swamps (freshwater), North Coast coniferous forest/mesic. Blooms June to October. Elevation: 1-405m.	None. Potential habitat present. Not observed during surveys. Recorded occurrences north of Hwy 1.	None. Potential habitat present. Not observed during surveys. Recorded CNDDB occurrences in the area.
Carex saliniformis Deceiving sedge	-/-/1B	Coastal prairie, coastal scrub, meadows and seeps, coastal salt marshes and swamps. Blooms June (July). Elevation: 3-230m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS rank**	**Habitat Affinities and Blooming Period/Life Form**	**Potential for Occurrence - Kashia Coastal Reserve**	**Potential for Occurrence - Stewarts Point Ranch**
Castilleja ambigua var. *ambigua* Johnny-nip	-/-/4	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pools margins. Blooms March to August. Elevation: 0-435m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Ceanothus gloriosus var. *exaltatus* Glory brush	-/-/4	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub/sandy. Blooms March to May. Elevation: 5-520m.	None. Not observed during surveys.	None. Not observed during surveys.
Ceanothus gloriosus var. *gloriosus* Point Reyes ceanothus	-/-/4	Coastal bluff scrub, closed-cone coniferous forest, coastal dunes, coastal scrub. Blooms March-May. Elevation: 5-520m.	None. Not observed during surveys.	None. Not observed during surveys.
Chorizanthe cuspidata var. *villosa* Woolly-headed spineflower	-/-/4	Coastal dunes, coastal prairie, coastal scrub/sandy. Blooms May to August. Elevation: 3-60m.	None. Not observed during surveys.	None. Not observed during surveys.
Chorzanthe valida Sonoma spineflower	FE/CE/1B	Coastal prairie, sandy. Blooms June to August. Elevation: 10-305m.	None. Not observed during surveys.	None. Not observed during surveys.
Erigeron supplex Supple daisy	-/-/1B	Coastal bluff scrub, coastal prairie. Blooms May to July. Elevation: 10-50m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Erysimum concinnum Bluff wallflower	-/-/1B	Coastal bluff scrub, coastal dunes, coastal prairie. Blooms February to July. Elevation: 0-185m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Gilia capitata ssp. *pacifica* Pacific gilia	-/-/1B	Coastal bluff scrub, chaparral (openings), coastal prairie, valley and foothill grassland. Blooms April to August. Elevation: 5-1665m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS rank**	**Habitat Affinities and Blooming Period/Life Form**	**Potential for Occurrence - Kashia Coastal Reserve**	**Potential for Occurrence - Stewarts Point Ranch**
Gilia capitata ssp. *tomentosa* Woolly-headed gilia	-/-/1B	Valley and foothill grassland on serpentinite, rocky soils and outcrops. Blooms May to July. Elevation: 10-220m.	None. No habitat present. Not observed during surveys.	None. No habitat present. Not observed during surveys.
Glehnia littoralis ssp. *leiocarpa* American glehnia	-/-/4	Coastal dunes. Blooms May to August. Elevation: 0-20m.	None. No habitat on site. Not observed during surveys.	None. No habitat on site. Not observed during surveys.
Hesperevax sparsiflora var. *brevifolia* Short-leaved evax	-/-/1B	Coastal bluff scrub, coastal dunes, coastal prairie. Blooms March to June. Elevation: 0-215m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Hesperocyparis pygmaea Pygmy cypress	-/-/1B	Closed-cone coniferous forest (usually podzol-like soil). Elevation: 30-600m.	None. No habitat on site. Not observed during surveys.	None. No habitat on site. Not observed during surveys.
Horkelia tenuiloba Thin-lobed horkelia	-/-/1B	Broadleafed upland forest, chaparral, valley and foothill grassland/mesic openings, sandy. Blooms May to July (August). Elevation: 50-500m.	None. No habitat on site. Not observed during surveys.	None. No habitat on site. Not observed during surveys.
Hosackia gracilis Harlequin lotus	-/-/4	Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, North Coast coniferous forest, valley and foothill grassland/wetlands, roadside. Blooms March to July. Elevation: 0-700m.	Present. Occurs on site in many locations. Refer to maps and text.	Present. Occurs on site in many locations.. Refer to maps and text.
Iris longipetala Coast iris	-/-/4	Coastal prairie, lower montane coniferous forest, meadows and seeps in mesic sites. Blooms March to May. Elevation 0 -600 m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS rank**	**Habitat Affinities and Blooming Period/Life Form**	**Potential for Occurrence - Kashia Coastal Reserve**	**Potential for Occurrence - Stewarts Point Ranch**
Lasthenia californica ssp. *bakeri* Baker's goldfields	-/-/1B	Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps. Blooms April-October. Elevation: 60-520m.	None. Potential habitat present. Not observed during surveys.	None. No habitat on site. Not observed during surveys.
Lasthenia californica ssp. *macrantha* Perennial goldfields	-/-/1B	Coastal bluff scrub, coastal dunes, coastal scrub. Blooms January to November. Elevation: 5-520m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Lathyrus palustris Marsh pea	-/-/2B	Bogs and fens, coastal prairie, coastal scrub, lower montane coniferous forest, marshes and swamps, North Coast coniferous forest. Blooms March to August. Elevation: 1 to 100 meters.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Leptosiphon rosaceus Rose leptosiphon	-/-/1B	Coastal bluff scrub. Blooms April to July. Elevation: 0-100m.	None. No habitat on site. Not observed during surveys.	None. No habitat on site. Not observed during surveys.
Lilium maritimum Coast lily	-/-/1B	Broadleafed upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, freshwater marshes and swamps, North Coast coniferous forest, sometimes on roadsides. Blooms May to August. Elevation: 5-475m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Perideridia gairdneri ssp. *gairdneri* Gairdner's yampah	-/-/4	Broadleafed upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools/vernally mesic. Blooms June to October. Elevation: 0-610m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Piperia candida White-flowered rein orchid	-/-/1B	Broadleafed upland forest, lower montane coniferous forest, North Coast coniferous forest, sometimes on serpentinite. Blooms (March) May to September. Elevation: 30-1310.	None. Potential habitat present. Not observed during surveys.	None. No habitat on site. Not observed during surveys.

Scientific Name **Common Name**	**Status USFWS/ CDFW/ CNPS rank**	**Habitat Affinities and Blooming Period/Life Form**	**Potential for Occurrence - Kashia Coastal Reserve**	**Potential for Occurrence - Stewarts Point Ranch**
Sidalcea calycosa ssp. *rhizomata* Point Reyes checkerbloom	-/-/1B	Freshwater marshes and swamps near coast. Blooms April-September. Elevation 3-75m.	None. No habitat on site. Not observed during surveys.	None. Typical habitat not on site. Not observed during surveys. Recorded CNDDB occurrences nearby.
Sidalcea malachroides Maple-leaved checkerbloom	-/-/4	Broadleafed upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian woodland, often in disturbed areas. Blooms (March) April to August. Elevation: 0-730m.	None. Potential habitat present. Not observed during surveys.	None. Potential habitat present. Not observed during surveys.
Sidalcea malviflora ssp. *purpurea* Purple-stemmed checkerbloom	-/-/1B	Broadleafed upland forest, coastal prairie. Blooms May to June. Elevation: 15-85m.	Present. Please refer to map and text for locations.	None. Not observed during surveys. Recorded CNDDB occurrences nearby.
Usnea longissima Methuselah's beard	-/-/4	Broadleafed upland forest, North Coast coniferous forest on tree branches, usually on old growth hardwoods and conifers. Elevation: 50-1460m.	None. Typical habitat not present on site. Not observed during surveys.	None. No habitat on site.
Veratrum fimbriatum Fringed false-hellebore	-/-/4	Bogs and fens, coastal scrub, meadows and seeps, North Coast coniferous forest. Blooms July to September. Elevation: 3-300m.	None. Potential habitat present. Not observed during surveys.	Present. Please refer to map and text for locations.

Scientific Name Common Name	Status USFWS/ CDFW/ CNPS rank	Habitat Affinities and Blooming Period/Life Form	Potential for Occurrence - Kashia Coastal Reserve	Potential for Occurrence - Stewarts Point Ranch
Special Status Vegetation				
Coastal Terrace Prairie			Present	Present
Mendocino Pygmy Cypress Forest			None	None

NOTES:

U.S. FISH AND WILDLIFE SERVICE

FE = federally listed Endangered
FT = federally listed Threatened

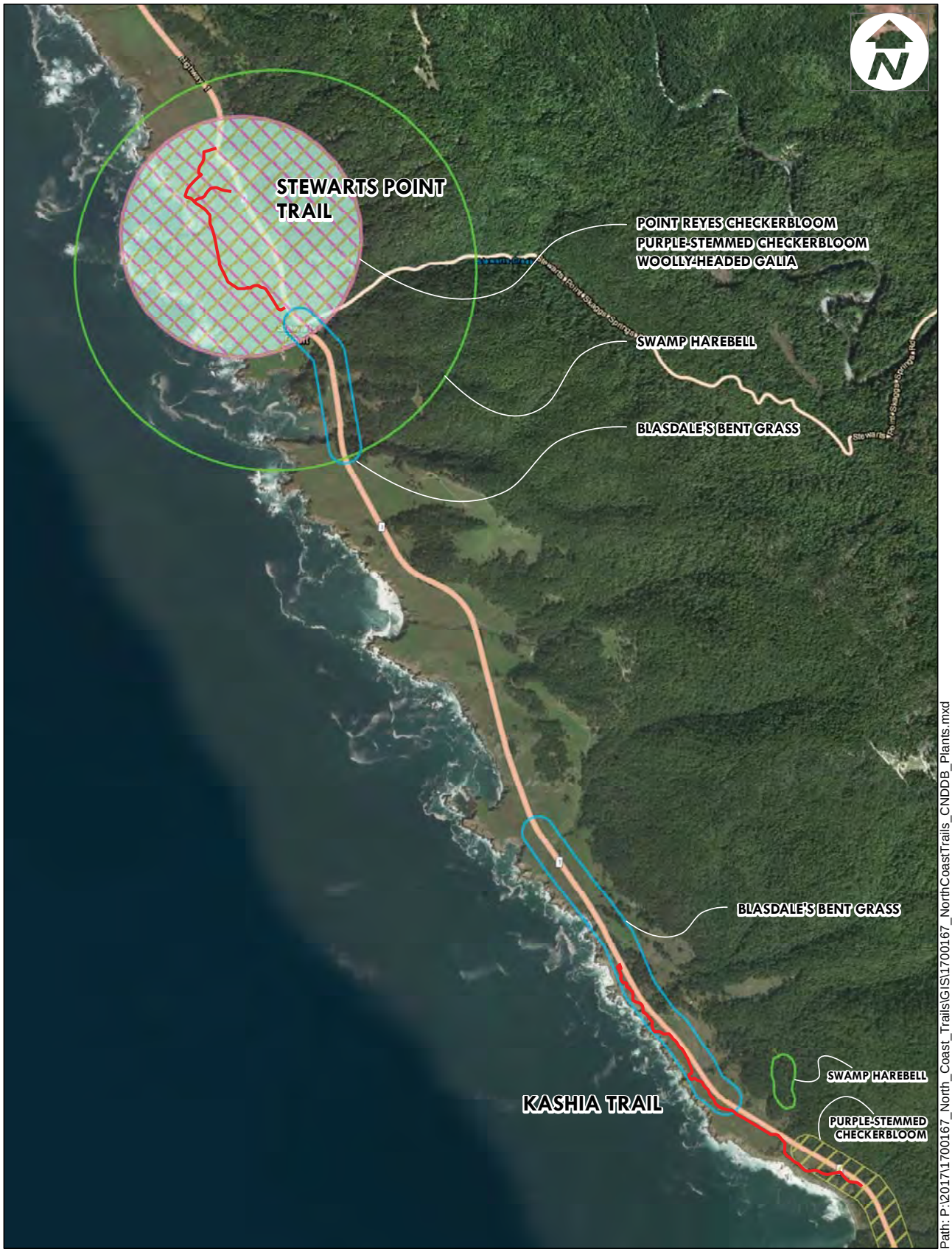
CALIFORNIA DEPT. OF FISH AND WILDLIFE

CE = California listed Endangered
CR = California listed as Rare
CT = California listed as Threatened

CALIFORNIA NATIVE PLANT SOCIETY -

Rank 1B: Plants rare and endangered in California and elsewhere
Rank 2B: Plants rare and endangered in California but more common elsewhere
Rank 4: Plant of limited distribution – a watch list.

Appendix C - MAP: Potentially Occurring Special Status Plant Species in the Study Area



TRAIL ALIGNMENT

Blasdale's Bent Grass (Agrostis blasdalei)

Point Reyes Checkerbloom (Sidalcea calycosa ssp. rhizomata)

Purple-Stemmed Checkerbloom (Sidalcea malviflora ssp. purpurea)

Swamp Harebell (Campanula californica)

Woolly-Headed Gilia (Gilia capitata ssp. tomentosa)

DRAWN BY SCOTT YEHL 1 inch = 1,500 feet

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0 750 1,500 3,000 4,500 6,000

Feet

CNDDB LISTED PLANTS

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL

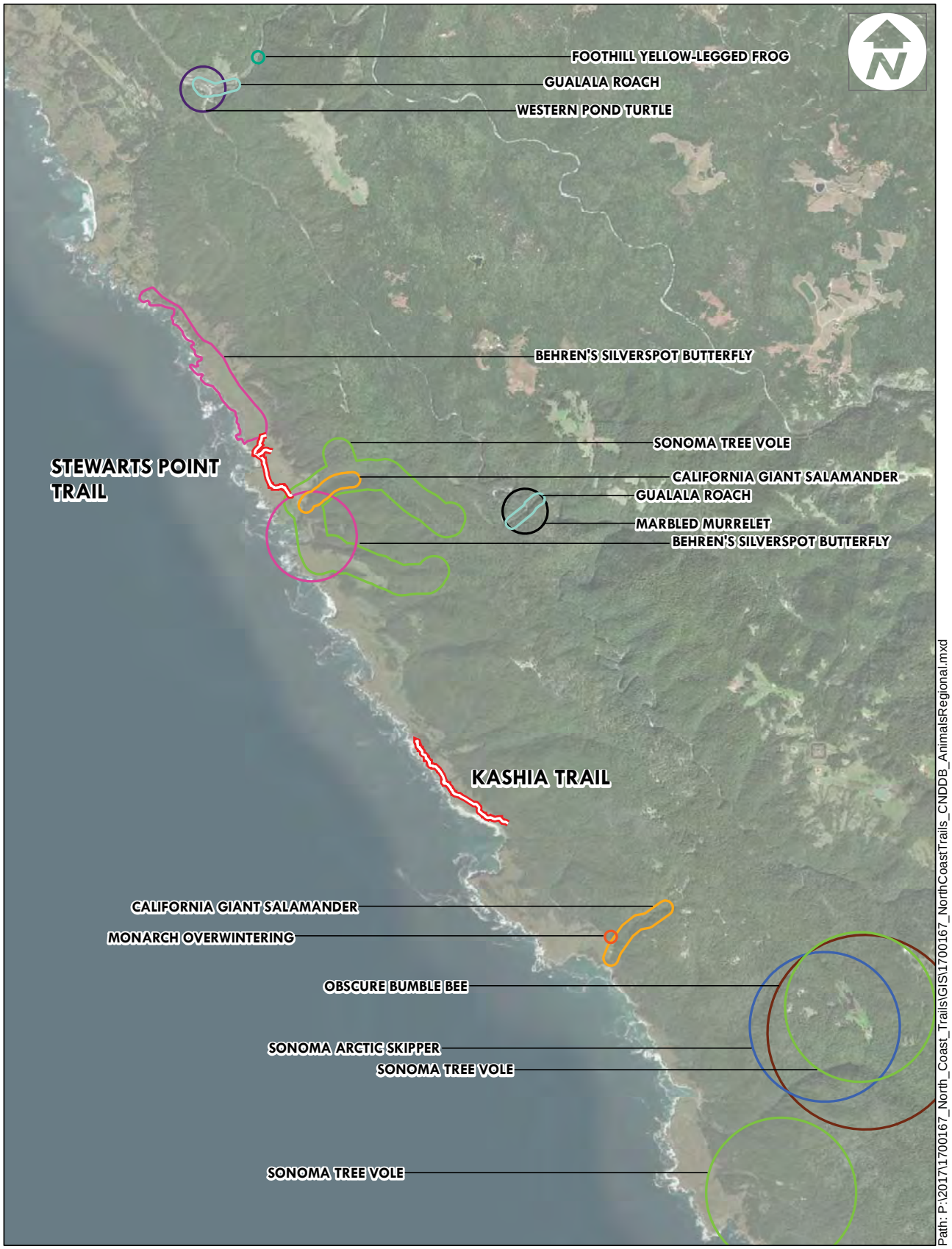
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

Appendix D: CNDDB Plants Mapped



Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_CNDDB_AnimalsRegional.mxd

TRAIL ALIGNMENT
Behren's Silverspot Butterfly
California Giant Salamander
Gualala Roach
Sonoma Arctic Skipper
Sonoma Tree Vole
Foothill Yellow-Legged Frog
Marbled Murrelet
Monarch - California Overwintering Population
Obscure Bumble Bee
Western Pond Turtle

DRAWN BY SCOTT YEHL
Date Saved: 6/18/2018 3:27:08 PM
1 inch = 4,000 feet
PROJECT NO. 1700167
DERIVED FROM THE CALIFORNIA NATURAL DIVERSITY DATABASE (CNDDB) INVENTORY. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE. DATA ACQUIRED 6-18-2018.

0 2,000 4,000 8,000 12,000 16,000
Feet

CNDDB LISTED ANIMALS

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

Appendix E: Plant Species observed on April 12, April 23, May 23 and June 19, 2018 – North Coast Trail.

Scientific Name	Common Name	Native (N)	Non-Native (NN)
Acaena novae-zelandiae	Biddy biddy	N	
Achillea millefolium	Yarrow	N	
Acmispon brachycarpus	Hill lotus	N	
Agrostic densiflora	California bent grass	N	
Agrostis stolonifera	Redtop		NN
Aira caryophyllea	European hairgrass		NN
Allium dichlamydeum	Coast onion	N	
Allium unifolium	One leaf onion	N	
Alnus rubra	Red alder	N	
Anaphalis margaritacea	Pearly everlasting	N	
Anthemis cotula	Stinking chamomile		NN
Anthoxanthum aristatum	Vernal grass		NN
Anthoxanthum odoratum	Sweet vernal grass		NN
Aphanes occidentalis	Ladies' mantle	N	
Armeria maritima	Sea pink	N	
Arrhenatherum elatius	Tall oatgrass		NN
Avena barbata	Wild oats		NN
Baccharis pilularis	Coyote brush	N	
Bellis perennis	English daisy		NN
Briza maxima	Large quaking grass		NN
Briza minor	Small quaking grass		NN
Brodiaea terrestris	Dwarf brodiaea	N	
Bromus carinatus	California brome	N	
Bromus diandrus	Ripgut brome	N	
Bromus hordaeceus	Soft chess		NN
Bromus sp.	Brome		NN
Calamagrostis nutkaensis	Pacific reed grass	N	
Calandrinia ciliata	Red maids	N	
Calochortus tolmei	Hairy star tulip	N	
Calystegia purpurata ssp. *purpurata*	Morning glory	N	
Calystegia purpurata ssp. *saxicola*	Coastal bluff morning glory	N, CNPS 1B	
Capsella bursa-pastoris	Shepherd's purse		NN
Cardionema ramosissimum	Sand mat	N	
Carduus pycnocephalus	Italian thistle		NN
Carex barbarae	Santa Barbara sedge	N	
Carex gynodynama	Olney's hairy sedge	N	
Carex obnupta	Slough sedge	N	
Carex sp.	Short sem sedge	N	
Carpobrotus edulis	Iceplant		NN
Castilleja wightii	Wight's paintbrush	N	
Ceanothus thyrsiflorus var. *griseus*	Blue blossom	N	
Cerastium glomeratum	Chickweed		NN
Cirsium quercetorum	Brownie thistle	N	
Cirsium vulgare	Bull thistle		NN
Clarkia amoena	Farewell-to-spring	N	
Claytonia perfoliata	Miner's lettuce	N	
Cynosurus echinatus	Dogtail grass		NN

Scientific Name	Common Name	Native (N)	Non-Native (NN)
Cyperus eragrostis	Tall flat sedge	N	
Cytissus scoparius	Scotch broom		NN
Dacylis glomerata	Orchard grass		NN
Danthonia californica	California oatgrass	N	
Deinandra corymbosa	Coastal tarweed	N	
Deschampsia caespitosa ssp. *holciformis*	Coastal tufted hairgrass	N	
Dichelostemma congestum	Ookow	N	
Dudleya cymosa	Rock lettuce	N	
Eleocharis macrostachya	Creeping spikerush	N	
Epilobium ciliatum	Northern willow herb	N	
Epilobium sp.	Willow herb	N	
Equisetum arvense	Horsetail	N	
Erigeron glaucus	Seaside daisy	N	
Eriogonum latifolium	Coast buckwheat	N	
Eriophyllum staechadifolium	Lizard-tail	N	
Erodium botrys	Long beaked filaree		NN
Erodium cicutarium	Red-stemmed filaree		NN
Eryngium armatum	Prickly coyote thistle, coastal	N	
Eschscholzia californica	California poppy	N	
Eucalpytus sp.	Eucalyptus		NN
Festuca arundinacea	Tall fescue		NN
Festuca bromoides	Brome fescue		NN
Festuca myuros	Rattail fescue		NN
Festuca perennis	Ryegrass		NN
Fragaria vesca	Wood strawberry	N	
Frangula californica	California coffeeberry	N	
Galium aparine	Bedstraw	N	
Gamochaeta ustulata	Featherweed	N	
Gaultheria shallon	Salal	N	
Genista monspessulana	French broom		NN
Geranium dissectum	Cut-leaf geranium		NN
Geranium molle	Dove-foot geranium		NN
Geranium robertianum	Robert's geranium		NN
Geranium sp.	Garden geranium		NN
Grindelia stricta var. *platyphylla*	Gumplant	N	
Heracleum lanatum	Cow parsnip	N	
Hesperevax sparsiflora var. *sparsiflora*	Short-leaved evax	N	
Holcus lanatus	Velvet grass		NN
Hordeum brachyantherum	Meadow barley	N	
Hordeum murinum ssp. *leporinum*	Hare barley		NN
Horkelia californica	California horkelia	N	
Hosackia gracilis	Harlequin lotus	N-CNPS Rank 4	
Hypochaeris glabra	Smooth cat's-ear		NN
Hypochaeris radicata	Rough cat's-ear		NN
Iris douglasiana	Douglas iris	N	
Isolepis cernua	Low bulrush	N	
Juncus balticus	Wire rush	N	
Juncus bolanderi	Bolander's rush	N	
Juncus bufonius	Toad rush	N	
Juncus effusus	Pacific rush	N	

Scientific Name	Common Name	Native (N)	Non-Native (NN)
Juncus patens	Spreading rush	N	
Juncus phaeocephalus	Brownhead rush	N	
Lagurus ovatus	Harestail grass		NN
Lamium purpureum	Red henbit		NN
Lathyrus tingitanus	Tangier pea		NN
Lathyrus vestitus	Common pacific pea	N	
Leontodon saxatilis	Lesser hawkbit		NN
Lepdium nitidum	Peppergrass	N	
Leptosiphon bicolor	True babystars	N	
Ligustrum sinense	Chinese privet		NN
Linum bienne	Flax		NN
Lomatium sp.	Lomatium	N	
Lonicera hispidula	Pink honeysuckle	N	
Lonicera involucrata	Coast twinberry	N	
Lotus angustissimus	Slender lotus		NN
Lotus corniculatus	Bird's-foot trefoil		NN
Lupinus albifrons var. *albifrons*	Silver bush lupine	N	
Lupinus bicolor	Dwarf lupine	N	
Lysimachia arvensis	Scarlet pimpernel		NN
Lythrum hyssopifolia	Hyssop loosestrife		NN
Marah fabaceus	Man-root	N	
Marrubium vulgare	Horehound		NN
Matricaria discoidea	Pineapple weed		NN
Melilotus indicus	Yellow sweet clover		NN
Mentha pulegium	Pennyroyal		NN
Mimulus aurantiacus	Sticky monkeyflower	N	
Mimulus guttatus	Swamp monkeyflower	N	
Morella californica	California wax myrtle	N	
Myosotis discolor	Blue scorpion-grass, forget me not		NN
Nasturium officinale	Watercress	N	
Notholithocarpus densiflorus	Tanoak	N	
Oenanthe sarmentosa	Water parsley	N	
Oxalis corniculata	Creeping wood sorrel		NN
Oxalis oregana	Redwood sorrel	N	
Oxalis pes-caprae	Bermuda buttercup		NN
Phalaris aquatica	Harding grass		NN
Phleum pretense	Timothy grass		NN
Pinus muricata	Bishop pine	N	
Pinus radiata	Monterey pine		NN
Plagiobothrys sp.	Popcornflower	N	
Plantago coronopus	Cut-leaf plantain		NN
Plantago erecta	California plantain	N	
Plantago lanceolata	English plantain		NN
Plantago subnuda	Mexican plantain	N	
Poa annua	Annual bluegrass		NN
Polypogon australis	Chilean beard grass		NN
Polystichum munitum	Western sword fern	N	
Prunella vulgaris	Self heal	N	
Pseudognalphium lueoalbum	Jersey cudweed		NN
Pseudotsuga menziesii	Douglas fir	N	

Scientific Name	Common Name	Native (N)	Non-Native (NN)
Pteridium aqualinum var. *pubescens*	Bracken fern	N	
Ranunculus californicus	California buttercup	N	
Ranunculus occidentalis	Western buttercup	N	
Raphanus sativus	Wild radish		NN
Rosa nutkana	Nootka rose	N	
Rubus parvifloris	Thimbleberry	N	
Rubus spectabilis	Salmonberry	N	
Rubus ursinus	California blackberry	N	
Rumex acetosella	Sheep sorrel		NN
Rumex conglomeratus	Clustered dock		NN
Rumex crispus	Curly dock		NN
Rytidosperma penicillatum	Purple awned wallaby grass		NN
Salix hookeriana	Coast willow	N	
Salix scouleriana	Scouler's willow	N	
Sanicula arctopoides	Yellow mats	N	
Sanicula crassicaulis	Sanicle	N	
Scirpus microcarpus	Mountain bog bulrush	N	
Scrophularia californica	California bee plant	N	
Senecio vulgaris	Common groundsel		NN
Sidalcea malviflora ssp. *purpurea*	Purple checkerbloom	N, CNPS 1B	
Silene gallica	Common catchfly		NN
Silybum marianum	Milk thistle		NN
Sisrynchium bellum	Blue-eyed grass	N	
Sisyrinchium californicum	California golden eyed grass	N	
Solanum sp.	Nightshade	Varies	
Solanum xanti	Nightshade	N	
Sonchus asper	Sow thistle		NN
Spergularia rubra	Sand spurrey		NN
Stachys ajugoides	Hedge nettle	N	
Stachys rigida var. rigida	Hedge nettle	N	
Stipa lepida	Foorhill needle grass	N	
Stipa manicata	Andean tussockgross		NN
Taraxacum officinale	Dandelion		NN
Taraxia ovata	Sun cups	N	
Tolpis barbata	European milkwort		NN
Toxicodendron diversilobum	Poison oak	N	
Trifolium dubium	Hop clover		NN
Trifolium repens	White clover		NN
Trifolium subterraneum	Subterranean clover		NN
Trifolium wormskioldii	Cow clover	N	
Tripysaria eriantha	Butter'n'eggs	N	
Triteleia hyacinthina	White brodiaea	N	
Triteleia laxa	Ithuriel's spear	N	
Umbellularia californica	California bay laurel	N	
Vaccinium californiucm	Huckleberry	N	
Veratrum fimbritum	Fringed corn lily	N, CNPS Rank 4	
Vicia gigantea	Giant vetch	N	
Vicia lathyroides	Pea vetch		NN
Vicia pannonica	Hungarian vetch		NN
Vicia sativa	Spring vetch		NN
Vinca major	Periwinkle		NN

Scientific Name	Common Name	Native (N)	Non-Native (NN)
Viola adunca	Western dog violet	N	
Watsonia meriana	Bulbil bugle lily		NN, invasive
Woodwardia fimbriata	Western chain fern	N	
Wyethia angustifolia	Narrow-leaved mules ears	N	
Zantedeschia aethiopica	Calla lily		NN

Species with an * are non-native.

Appendix F: Potentially Occurring Special Status Animal Species in the Study Area

Scientific Name Common Name	Status USFWS/ CDFW	Habitat Affinities and Blooming Period/Life Form	Potential for Occurrence -Kashia Coastal Reserve	Potential for Occurrence - Stewarts Point Ranch
Invertebrates				
Obscure Bumble bee *Bombus caliginosus*	-/-	Food plants include Baccharis, Circium, Lupinus, Lotus, Grindelia and Phacelia	Moderate: a diversity of flowering plants occur in the grasslands.	Low: a diversity of flowering plants occur in the grasslands.
Western bumble bee *Bombus occidentalis*	-/-	Bumblebees will visit a range of different plant species and are important generalist pollinators of a wide variety of flowering plants and crops.	Moderate: a diversity of flowering plants occur in the grasslands.	Low: a diversity of flowering plants occur in the grasslands.
Sonoma arctic skipper *Carterocephalus palamon magnus*	-/-	Occurs in deep shade of redwood forest or at the edge of forested clearings.	None: no suitable habitat present	None: no suitable habitat present
monarch butterfly *Danaus plexippus*	-/*	Roosts during winter migration in dense stands of large trees such as eucalyptus and Monterey pines that provide shelter from the wind. Roosts in groves close to nectar and water sources.	Low: several suitable trees occur on the southern portion of the parcel	None: no suitable habitat present
Lotis blue butterfly *Lycaeides argyrognomon lotis*	FE	Wet meadows and sphagnum willow bogs with one known population in Mendocino County.	None: no suitable habitat present	Low: suitable habitat and larval plant present.
Behren's silverspot butterfly *Speyeria zerene behrensii*	FE	Larval host plants include *Viola adunca, V. cuneata, V. lobata, V. nuttallii* and *V. purpurea*.	High: larval plant detected. Please refer to map and text.	High: larval plant detected. . Please refer to map and text.
California freshwater shrimp *Syncaris pacifica*	FE/CE	Endemic to Marin, Napa and Sonoma counties in low elevation and low gradient streams with moderate to heavy riparian cover.	None: no suitable habitat present	None: no suitable habitat present

Scientific Name Common Name	Status USFWS/ CDFW	Habitat Affinities and Blooming Period/Life Form	Potential for Occurrence -Kashia Coastal Reserve	Potential for Occurrence - Stewarts Point Ranch
Fish				
Tidewater goby *Eucyclogobius newberryi*	FE/SSC	Occurs discontinuously throughout California, ranging from Tillas Slough (mouth of the Smith River) in Del Norte County south to Agua Hedionda Lagoon in San Diego County. Areas of precipitous coastlines that preclude the formation of lagoons at stream mouths have created three natural gaps in the distribution of the goby. Gobies are apparently absent from three sections of the coast between: 1) Humboldt Bay and Ten Mile River, 2) Point Arena and Salmon Creek, and 3) Monterey Bay and Arroyo del Oso.	None: no suitable habitat present.	None: no suitable habitat present.
Gualala roach *Lavinia symmetricus parvipinnis*	-/ SSC	Gualala River in Gualala County Park. Found in fine sediment in large rivers with high flows and a water depth over 5 feet.	None: no suitable habitat present	None: no suitable habitat present
Amphibians				
California giant salamander *Dicamptodon ensatus*	-/SSC	Known from wet coastal forests near streams and seeps. Larvae found in cold, clear streams and adults known from wet forests under rocks and logs near streams and lakes.	None: no suitable habitat present	None: no suitable habitat present
foothill yellow-legged frog *Rana boylii*	-/SSC	Prefers permanent stream pools, and creeks with emergent and/or riparian vegetation.	None: no suitable habitat present.	None: no suitable habitat present
California red-legged frog *Rana draytonii*	FT/-	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent and/or riparian vegetation. Occupies upland habitat especially during the wet winter months.	Moderate: suitable dispersal habitat present.	Moderate: suitable dispersal habitat present.
Red-bellied newt *Taricha rivularis*	-/SSC	Spends dry season underground within root channels. Requires rapid streams with temps between 15°C and 26° C and rocky substrate for breeding and egg-laying.	None: no suitable habitat present	None: no suitable habitat present

Scientific Name Common Name	Status USFWS/ CDFW	Habitat Affinities and Blooming Period/Life Form	Potential for Occurrence -Kashia Coastal Reserve	Potential for Occurrence - Stewarts Point Ranch
Reptiles				
Western pond turtle *Emys marmorata*	SC/SPT	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes and irrigation ditches with basking sites and a vegetated shoreline. Requires upland sites for egg-laying.	None: no suitable habitat present	None: no suitable habitat present
Birds				
Cooper's hawk *Accipiter cooperi*	MB/ SSC	Nests primarily in deciduous riparian forests. May also occupy dense canopied forests from gray pine-oak woodland to ponderosa pine. Forages in open woodlands.	Moderate: Suitable nesting habitat present.	Low: foraging habitat present.
grasshopper sparrow *Ammodramus savannarum*	BCC/SSC	Typically found in tall, dense grass, nesting on the ground at the base of grass tuft. Reported in area (CNDDB 2018).	Present: observed pairs on site.	Present: observed pairs on site.
Black turnstone *Arenaria melanocephala*	BCC	Winters along high-energy rocky shorelines, on beaches near rocky coasts, and on jetties and piers	High: wintering habitat on rocky shore.	High: wintering habitat on rocky shore.
burrowing owl *Athene cunicularia hypugea*	BCC/ SSC	Nests in open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned small mammal burrows. Prefers short grasses and moderate inclined hills.	Moderate: suitable wintering habitat present.	Moderate: suitable wintering habitat present.
Oak titmouse *Baeolophus inornatus*	BCC/ SSC	Breeds in cavities in oak woodlands, gleaning insects from the bark. Occurs from southern Oregon to northern Mexico along the Central Valley and xeric coastal foothills.	Low; suitable nesting habitat occurs on southern portion of parcel.	None: no suitable habitat present
marbled murrelet *Brachyramphus marmoratus*	FT/SE	Nests in old growth forests and can migrate up to 20 miles inland. This species nests in mature conifer forests with open crown canopies or slopes to provide easy access, and large limbs in trees such as Douglas-fir, western hemlock, Sitka spruce, coastal redwood and mountain hemlock.	None: no suitable nesting habitat present	None: no suitable nesting habitat present
Western snowy plover *Charadrius alexandrinus nivosus*	FT/-	Nests on sandy, gravelly or friable soils on beaches, salt pond levees and shores of large alkaline lakes.	None: no suitable habitat present	None: no suitable habitat present

Scientific Name Common Name	Status USFWS/ CDFW	Habitat Affinities and Blooming Period/Life Form	Potential for Occurrence -Kashia Coastal Reserve	Potential for Occurrence - Stewarts Point Ranch
Black oystercatcher *Haematopus bachmani*	BCC	Nests on the ground on rocky seacoasts and islands, less commonly on sandy beaches.	High: suitable nesting habitat present.	Present: Observed pair along coast.
Osprey *Pandion haliaetus*	-/WL	Nests in large trees within 15 miles of good fish-producing water body.	Low: suitable nesting habitat present on southern portion of parcel.	None: no suitable nesting habitat present
rufous hummingbird *Selasphorus rufus*	BCC/-	Nests in chaparral, coniferous forest, scrub habitats and riparian habitats in Canada and winters in Mexico. Nests are placed on a downward drooping structure.	None: no suitable nesting habitat present	None: no suitable nesting habitat present
Allen's hummingbird *Selasphorus sasin*	BCC/-	Nests in wooded areas, meadows, or thickets along shaded streams, on a branch low down on stem, although placement height varies between 10 inches and 90 feet.	None: no suitable nesting habitat present	None: no suitable nesting habitat present
northern spotted owl *Strix occidentalis caurina*	FT, BCC/CT	Dense coniferous and hardwood forest, shaded, steep sided canyons.	None: no suitable nesting habitat present	None: no suitable nesting habitat present
Mammals				
Pallid bat *Antrozous pallidus*	-/SSC	Day roosts in crevices and cavities in rock outcrops, mines, caves, buildings, bridges, properly-designed bat houses, as well as hollows and cavities in a wide variety of tree species. May roost alone, in small groups (2 to 20 bats), or in 100s in maternity roosts, with males and non-reproductive subadults in other, smaller roosts.	Low: suitable roosting habitat present in barn.	Moderate: suitable roosting habitat present in barn.
Sonoma tree vole *Arborimus pomo*	SC/SSC	Inhabits old growth, North Coast coniferous forests, redwood forests, and montane hardwood coniferous forests. Is found in the North Coast fog belt from Oregon to Sonoma County. Feeds almost exclusively on Douglas fir needles.	None: no suitable habitat present	None: no suitable habitat present
Townsend's big-eared bat *Corynorhinus townsendii townsendii*	-/SSC, WBWG:H	Day roosts in cave analogs; mines, buildings, bridges, sometimes large tree hollows. Females form maternity colonies, males roost singly, and all disperse widely after maternity season. During winter, roosts in cold, but non-freezing roosts, which may include man-made structures.	High: suitable roosting habitat occurs in the barns.	High: suitable roosting habitat occurs in the barns.

Scientific Name Common Name	Status USFWS/ CDFW	Habitat Affinities and Blooming Period/Life Form	Potential for Occurrence -Kashia Coastal Reserve	Potential for Occurrence - Stewarts Point Ranch
Western red bat *Lasiurus blossevillii*	-/SSC, WBWG:H	Solitary roosting, except when females are with young (from 2 to 6 are born). Roosts almost exclusively in foliage, under overhanging leaves, in woodland borders, rivers, agricultural areas including orchards, and urban areas with mature trees.	None: no suitable habitat present	None: no suitable habitat present
Hoary bat *Lasiurus cinereus*	-/-, WBWG:M	Roosts singly except when females are with young (from 2 to 4 are born) in dense foliage of medium to large coniferous and deciduous trees. Highly migratory, occurs from sea level to tree line in Sierra Nevada.	None: no suitable habitat present	None: no suitable habitat present
Northern elephant seal *Mirounga angustirostris*	MMPA	Occurs from southeast Alaska to the Pacific Coast in central Mexico. Breeding season lasts from late June to early August.	High: suitable basking habitat occurs on the beaches	High: suitable basking habitat occurs on the beaches
California myotis *Myotis californicus*	-/-	Typically roosts alone or in small groups in almost every habitat from desert to mountains. Roosts in crevices in rocks, slabs, hollow trees, exfoliating bark, buildings, mines. In trees may exhibit low roost fidelity, switching frequently	High: suitable roosting habitat occurs in the barns	High: suitable roosting habitat occurs in the barns
Yuma myotis *Myotis yumanensis*	-/-, WBWG:M	Forms often large maternity colonies, females giving birth to one young. Males roost singly. Primarily a crevice roosting species in natural habitat, forms large maternity colonies in large spaces in man-made roosts, e.g. buildings. Also uses bridges, caves, mines, tree cavities, bat houses, abandoned swallow nests, exfoliating bark.	High: suitable roosting habitat occurs in the barns	High: suitable roosting habitat occurs in the barns
Pacific harbor seal *Phoca vitulina*	MMPA	Occurs from Baja California to the Bering Sea. Females typically give birth in the spring and summer and use rocks, reefs, beaches for haul outs.	High: suitable basking habitat occurs on the beaches	High: suitable basking habitat occurs on the beaches
American badger *Taxidea taxus*	-/SSC, WBWG:H	Inhabits open grasslands, savannas and mountain meadows near timberline. Requires abundant burrowing mammals, their principal food source, and loose, friable soils.	Present: Observed on parcel.	Present: Observed on parcel.
California sea lion *Zalophus californianus*	MMPA	Occurs from central Mexico to the north into southeast Alaska. Adults return to beaches between June and August for pupping.	High: suitable basking habitat occurs on the beaches	High: suitable basking habitat occurs on the beaches

U.S. FISH AND WILDLIFE SERVICE (USFWS)

FE = federally listed Endangered

FT = federally listed Threatened
FC = federal candidate for listing
BCC = Bird of Conservation Concern
MBTA = Migratory Bird Treaty Act.
MMPA = Marine Mammal Protection Act

CALIFORNIA DEPT. OF FISH AND WILDLIFE (CDFW)

CE = California listed Endangered
CT = California listed as Threatened
SSC = California Special Concern species

WESTERN BAT WORK GROUP (WBWG)- PRIORITY

California includes multiple regions where a species may have different WBWG Priority ranks, therefore the CNNDB includes categories for Medium-High, and Low-Medium Priority.

Appendix F: MAP – Potentially Occurring Special Status Animal Species in the Study Area.

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_CNDDB_Animals.mxd

TRAIL ALIGNMENT

Behren's Silverspot Butterfly (Speyeria zerene behrensii)

California Giant Salamander (Dicamptodon ensatus)

Sonoma Tree Vole (Arborimus pomo)

DRAWN BY SCOTT YEHL

Date Saved: 6/18/2018 12:45:02 PM

1 inch = 1,500 feet

PROJECT NO. 1700167

DERIVED FROM THE CALIFORNIA NATURAL DIVERSITY DATABASE (CNDDB) INVENTORY. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE. DATA ACQUIRED 6-18-2018.

0 750 1,500 3,000 4,500 6,000

Feet

CNDDB LISTED ANIMALS

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL

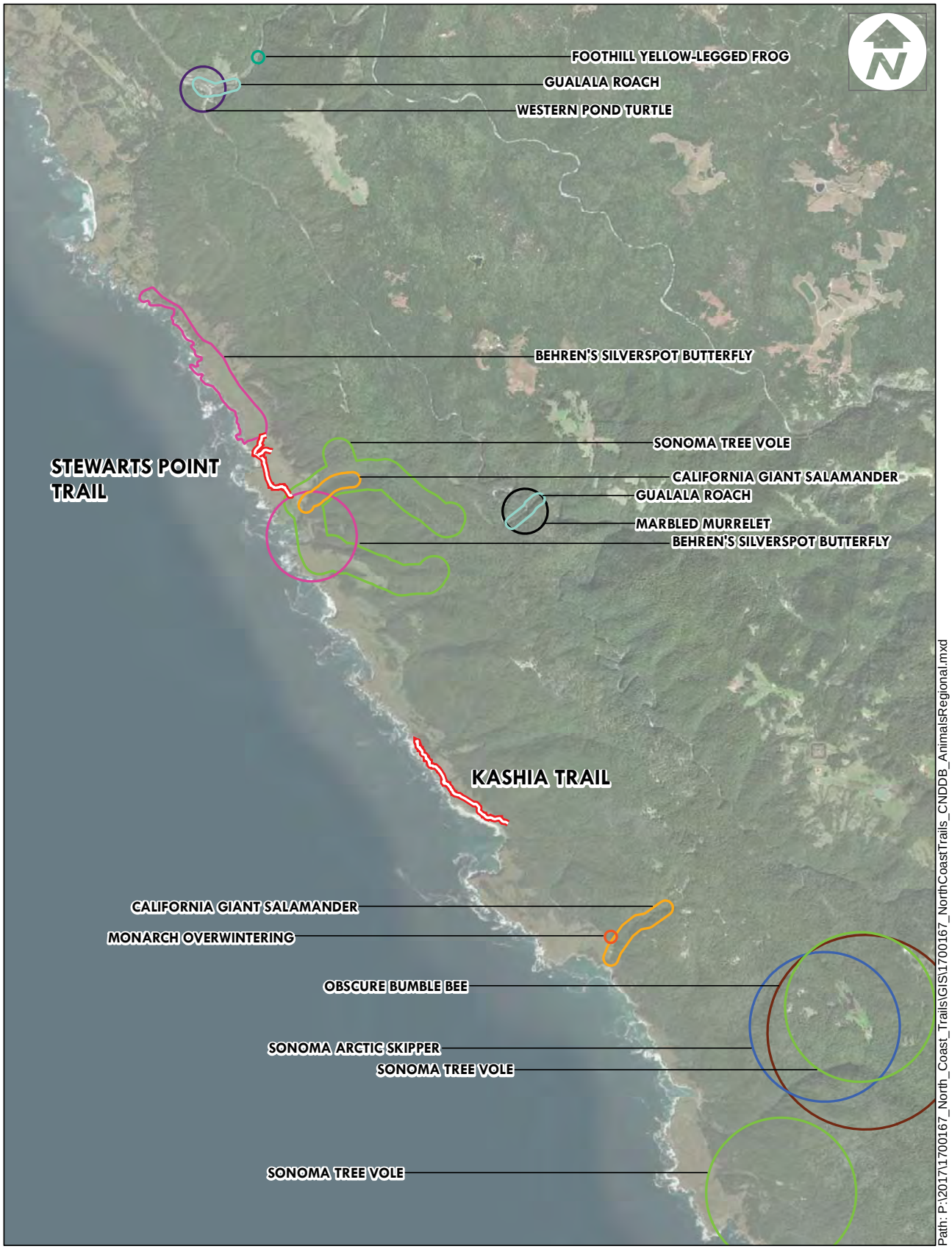
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

Appendix G: CNDDB Regional Mapped Animals



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TRAIL ALIGNMENT
Behren's Silverspot Butterfly
California Giant Salamander
Gualala Roach
Sonoma Arctic Skipper
Sonoma Tree Vole
Foothill Yellow-Legged Frog
Marbled Murrelet
Monarch - California Overwintering Population
Obscure Bumble Bee
Western Pond Turtle

DRAWN BY SCOTT YEHL
Date Saved: 6/18/2018 3:27:08 PM
1 inch = 4,000 feet
PROJECT NO. 1700167
DERIVED FROM THE CALIFORNIA NATURAL DIVERSITY DATABASE (CNDDB) INVENTORY. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE. DATA ACQUIRED 6-18-2018.

0 2,000 4,000 8,000 12,000 16,000
Feet

CNDDB LISTED ANIMALS

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

Appendix H: Wildlife species observed on April 12 and 22, 2018.
Species Detected and Habitat

Scientific Name	Common Name	NNG	Riparian	Emergent Wetland	Coastal Bluff	Coastal scrub	Structures
Amphibians							
Pseudacris regilla	Chorus frog		X	X			
Reptiles							
Sceloporus occidentalis	Western fence lizard	X				X	X
Thamnophis elegans	Western terrestrial garter snake	X	X	X		X	
Birds							
Ammodramus savannarum	Grasshopper sparrow	X					
Aphelocoma californica	Western Scrub-Jay		X	X		X	
Branta canadensis	Canada goose	X					
Buteo jamaicensis	Red-tailed hawk	X					
Cathartes aura	Turkey Vulture	X					
Corvus corax	Common raven	X	X	X		X	
Empidonax difficilis	Pacific slope flycatcher		X			X	
Euphagus cyanocephalus	Brewer's blackbird	X	X	X	X	X	X
Haematopus bachmani	Black oystercatcher				X		
Larus occidentalis	Western gull				X		
Melospiza melodia	Song sparrow		X			X	
Pandion haliaetus	Osprey				X		
Petrochelidon pyrrhonota	Cliff swallows						X
Pipilo crissalis	California towhee		X		X		
Psaltriparus minimus	Bushtit		X		X		
Sayornis nigricans	Black phoebe						X
Sialia mexicana	Western bluebird	X					X
Spinus tristis	American goldfinch	X	X			X	
Thryomanes bewickii	Bewick's wren		X			X	
Zonotrichia leucophrys	White-crowned sparrow		X			X	
Mammals							
Microtus californicus	California vole	X					
Neotoma fuscipes	Wood rat						X
Odoicoileus hemionius californicus	Black-tailed deer	X	X			X	
Taxidea taxus	American badger (dens and scat)	X					
Thomomys bottae	Botta's pocket gopher	X				X	
Urocyon cinereoargenteus	Gray fox (scat)	X	X			X	

Appendix I: Biological Resources Maps

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_StewartsPoint_BiologicalResourcesMap.mxd

- STUDY AREA
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- ESHA DRAINAGE/ WETLANDS
- BADGER ACTIVITY
- HARLEQUIN LOTUS AREA
- STREAM/ DRAINAGE CENTERLINES
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS
- PARKING LOT
- PCI DATA POINTS
- BADGER BURROW
- CROSSING
- CULVERT
- PLANT LOCATION
- NESTING LOCATION
- ARMORED CROSSING
- BRIDGE CROSSING
- PUNCHEON CROSSING
- RELIC RAILROAD BED

0 50 100 200 300 400
Feet

DATA ACQUIRED FROM CNDDB REPORT (AUGUST 2016), SONOMA VEGMAP(APRIL 5 2018), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

BIOLOGICAL RESOURCES MAP

NORTH COAST TRAIL *SONOMA COUNTY, CA*

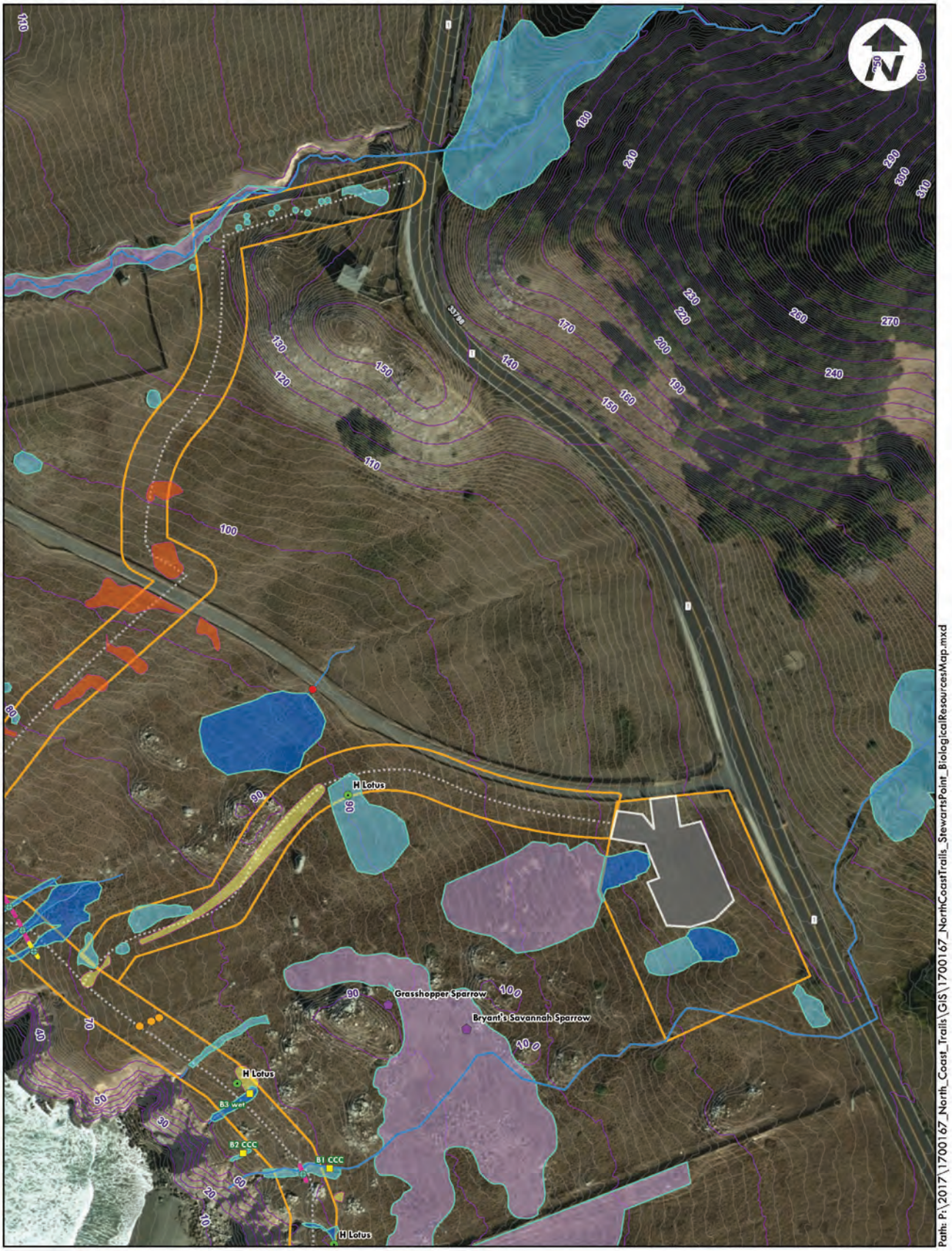
DRAWN BY SCOTT YEHL
Date Saved: 8/16/2018 1:55:57 PM

1 inch = 100 feet
BIOLOGICAL RESOURCES

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 1



BIOLOGICAL RESOURCES MAP

NORTH COAST TRAIL — SONOMA COUNTY, CA

DRAWN BY SCOTT YEHL — 1 inch = 100 feet

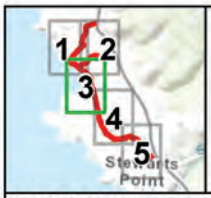
Date Saved: 8/16/2018 1:55:57 PM — BIOLOGICAL RESOURCES

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 2

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_StewartsPoint_BiologicalResourcesMap.mxd



STUDY AREA
CCC WETLANDS
CORPS AND CCC WETLANDS
ESHA DRAINAGE/ WETLANDS
BADGER ACTIVITY
HARLEQUIN LOTUS AREA

STREAM/ DRAINAGE CENTERLINES
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS
PARKING LOT
PCI DATA POINTS

BADGER BURROW
CROSSING
CULVERT
PLANT LOCATION
NESTING LOCATION

ARMORED CROSSING
BRIDGE CROSSING
PUNCHEON CROSSING
RELIC RAILROAD BED

0 50 100 200 300 400
Feet

DATA ACQUIRED FROM CNDDB REPORT (AUGUST 2016), SONOMA VEGMAP(APRIL 5 2018), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

BIOLOGICAL RESOURCES MAP

NORTH COAST TRAIL — SONOMA COUNTY, CA

DRAWN BY SCOTT YEHL
Date Saved: 8/16/2018 1:55:57 PM

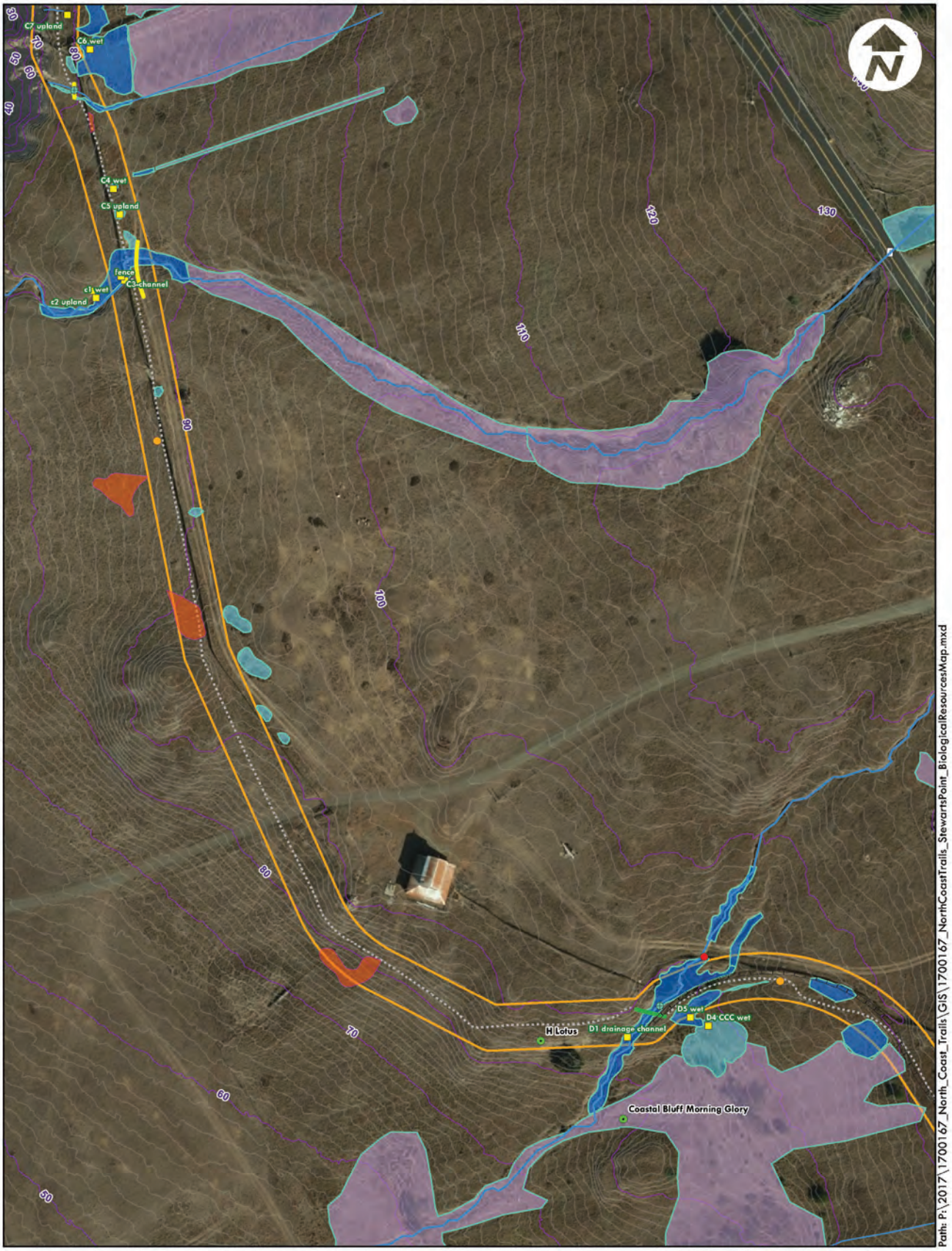
1 inch = 100 feet
BIOLOGICAL RESOURCES

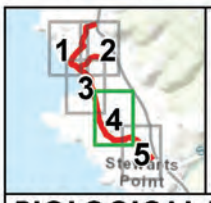
Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 3

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_StewartsPoint_BiologicalResourcesMap.mxd





STUDY AREA
CCC WETLANDS
CORPS AND CCC WETLANDS
ESHA DRAINAGE/ WETLANDS
BADGER ACTIVITY
HARLEQUIN LOTUS AREA
STREAM/ DRAINAGE CENTERLINES
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS
PARKING LOT
PCI DATA POINTS
BADGER BURROW
CROSSING
CULVERT
PLANT LOCATION
NESTING LOCATION
ARMORED CROSSING
BRIDGE CROSSING
PUNCHEON CROSSING
RELIC RAILROAD BED

0 50 100 200 300 400
Feet

DATA ACQUIRED FROM CNDDB REPORT (AUGUST 2016), SONOMA VEGMAP(APRIL 5 2018), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

BIOLOGICAL RESOURCES MAP

NORTH COAST TRAIL — SONOMA COUNTY, CA

DRAWN BY SCOTT YEHL
Date Saved: 8/16/2018 1:55:57 PM

1 inch = 100 feet
BIOLOGICAL RESOURCES

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 4

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_StewartsPoint_BiologicalResourcesMap.mxd

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_StewartsPoint_BiologicalResourcesMap.mxd

- STUDY AREA
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- ESHA DRAINAGE/ WETLANDS
- BADGER ACTIVITY
- HARLEQUIN LOTUS AREA
- STREAM/ DRAINAGE CENTERLINES
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS
- PARKING LOT
- PCI DATA POINTS
- BADGER BURROW
- CROSSING
- CULVERT
- PLANT LOCATION
- NESTING LOCATION
- ARMORED CROSSING
- BRIDGE CROSSING
- PUNCHEON CROSSING
- RELIC RAILROAD BED

0 50 100 200 300 400 Feet

DATA ACQUIRED FROM CNDDB REPORT (AUGUST 2016), SONOMA VEGMAP(APRIL 5 2018), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

BIOLOGICAL RESOURCES MAP

NORTH COAST TRAIL — SONOMA COUNTY, CA

DRAWN BY SCOTT YEHL — 1 inch = 100 feet

Date Saved: 8/16/2018 1:55:57 PM — BIOLOGICAL RESOURCES

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 5

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Kashia_BiologicalResourcesMap.mxd

- DATA POINTS
- PLANT LOCATIONS
- CULVERTS
- ACTIVE BADGER BURROWS
- PROPOSED CROSSING LOCATIONS
- EXISTING BRIDGE LOCATIONS
- STREAM CENTERLINES
- FENCE
- BADGER HABITIAT
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- STUDY AREA
- PARKING LOT
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 6

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Kashia_BiologicalResourcesMap.mxd

- DATA POINTS
- PLANT LOCATIONS
- CULVERTS
- ACTIVE BADGER BURROWS
- PROPOSED CROSSING LOCATIONS
- EXISTING BRIDGE LOCATIONS
- STREAM CENTERLINES
- FENCE
- BADGER HABITIAT
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- STUDY AREA
- PARKING LOT
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 7

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Kashia_BiologicalResourcesMap.mxd

- DATA POINTS
- PLANT LOCATIONS
- CULVERTS
- ACTIVE BADGER BURROWS
- PROPOSED CROSSING LOCATIONS
- EXISTING BRIDGE LOCATIONS
- STREAM CENTERLINES
- FENCE
- BADGER HABITIAT
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- STUDY AREA
- PARKING LOT
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 8

Path: P:\201711700167_North_Coast_Trails\GIS\11700167_NorthCoastTrails_Kashia_BiologicalResourcesMap.mxd

- DATA POINTS
- PLANT LOCATIONS
- CULVERTS
- ACTIVE BADGER BURROWS
- PROPOSED CROSSING LOCATIONS
- EXISTING BRIDGE LOCATIONS
- STREAM CENTERLINES
- FENCE
- BADGER HABITIAT
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- STUDY AREA
- PARKING LOT
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

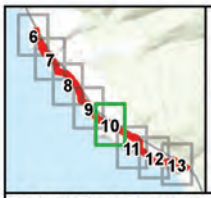
NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 9

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Kashia_BiologicalResourcesMap.mxd



- DATA POINTS
- PLANT LOCATIONS
- CULVERTS
- ACTIVE BADGER BURROWS
- PROPOSED CROSSING LOCATIONS
- EXISTING BRIDGE LOCATIONS
- STREAM CENTERLINES
- FENCE
- BADGER HABITIAT
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- STUDY AREA
- PARKING LOT
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 10

DATA POINTS
PLANT LOCATIONS
CULVERTS
ACTIVE BADGER BURROWS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
BADGER HABITIAT
CCC WETLANDS
CORPS AND CCC WETLANDS
STUDY AREA
PARKING LOT
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 11

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Kashia_BiologicalResourcesMap.mxd

- DATA POINTS
- PLANT LOCATIONS
- CULVERTS
- ACTIVE BADGER BURROWS
- PROPOSED CROSSING LOCATIONS
- EXISTING BRIDGE LOCATIONS
- STREAM CENTERLINES
- FENCE
- BADGER HABITIAT
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- STUDY AREA
- PARKING LOT
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 12

Path: P:\201711700167_North_Coast_Trails\GIS\11700167_NorthCoastTrails_Kashia_BiologicalResourcesMap.mxd

- DATA POINTS
- PLANT LOCATIONS
- CULVERTS
- ACTIVE BADGER BURROWS
- PROPOSED CROSSING LOCATIONS
- EXISTING BRIDGE LOCATIONS
- STREAM CENTERLINES
- FENCE
- BADGER HABITIAT
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- STUDY AREA
- PARKING LOT
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 3:31:16 PM

1 inch = 100 feet
BIOLOGY

0 50 100 200 300 400
Feet

BIOLOGICAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 13

Appendix C

Wetlands Jurisdictional Delineation

Delineation of Wetlands Waters of the U.S. and State, Including California Coastal Commission Wetlands for the Kashia Coastal Reserve Trail Project Sonoma County, CA

Prepared for

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And

Sonoma County Regional Parks
2300 County Center Drive, Suite 120A
Santa Rosa, CA 95403

Prepared by

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Sebastopol, CA 95472

August 13, 2018

Kashia Coastal Reserve Trail

Delineation of wetlands waters of the U.S. and State, Including California Coastal Commission Wetlands

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Regulatory Background 3
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B Wetland Data Sheets
C Soils Information
D Plant Species Observed

INTRODUCTION

Questa Engineering Corp. contracted with Jane Valerius Environmental Consulting to conduct a delineation of wetlands and waters of the U.S. and State, including California Coastal Commission wetlands, for the Kashia Coastal Reserve Trail for the Sonoma County Regional Parks. The Kashia Coastal Reserve Trail is one of two trail systems that are proposed for construction as part of the North Coast Trail project by the Sonoma County Regional Parks. A separate delineation was conducted by Prunuske Chatham, Inc. (PCI) for the Stewarts Point Coastal Access Project (PCI 2016). **Figure 1** is a street-based map showing the regional location of the project site. **Figure 2** is a USGS quadrangle-based map showing the project site vicinity.

This delineation was conducted to assist the Sonoma County Regional Parks in identifying the type and extent of waters subject to both the U.S. Army Corps of Engineers (USACE) regulation under Section 404 of the federal Clean Water Act and under the California Coastal Commission (CCC) definition and Sonoma County Local Coastal Plan. The delineation field work was conducted by Jane Valerius, botanist and wetland ecologist, on April 12 and May 23, 2018. The field work was conducted using the routine on-site determination method described in the *1987 U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and using the procedures and technical criteria described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers 2010).

This report was prepared in accordance with the USACE San Francisco District's *Information Requested for Verification of Corps Jurisdiction* (U.S. Army Corps of Engineers San Francisco District 2007). All jurisdictional boundaries and determinations presented in this report are preliminary and are subject to verification by the USACE San Francisco District for USACE wetlands and waters and to the CCC for any CCC only wetlands. The delineation maps are provided as Appendix A.

Site Location

The Kashia Coastal Reserve (APN 122-290-001) project area is located on the west side of Highway 1, north of Salt Point State Parks and south of Stewarts Point on the Plantation 7.5-minute topographic quadrangle, within Township 10N and Range 14W (**Figure 2**).

Regulatory Background

U.S. Army Corps of Engineers (USACE)

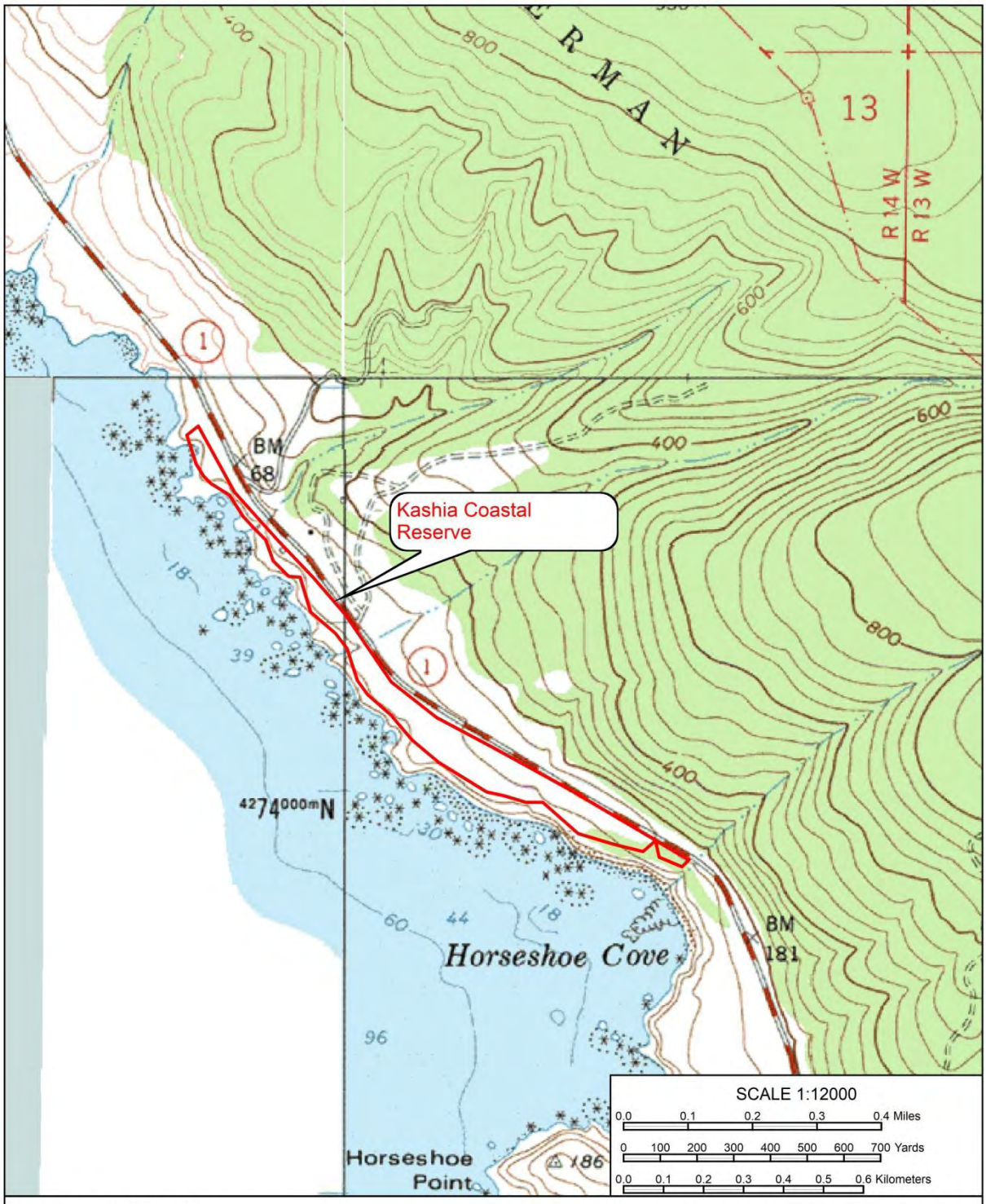
The Corps takes jurisdiction over the territorial seas. The limit in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. For tidal waters, the Corps jurisdiction extends to the high tide line or when adjacent non-tidal waters of the U.S. are present, the jurisdiction extends to the limits identified for non-tidal waters of the U.S.

For non-tidal waters, the Corps jurisdiction extends to the ordinary high water mark or, if wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands. When the water of the US consists only of wetlands the jurisdiction extends to the limit of the wetland.

Under Section 404 of the Clean Water Act the Corps regulates the disposal of dredge or fill material into waters of the U.S. This includes all filling activities such as utility lines, outfall structures, road crossings, beach nourishment, riprap, jetties, and some excavation activities.

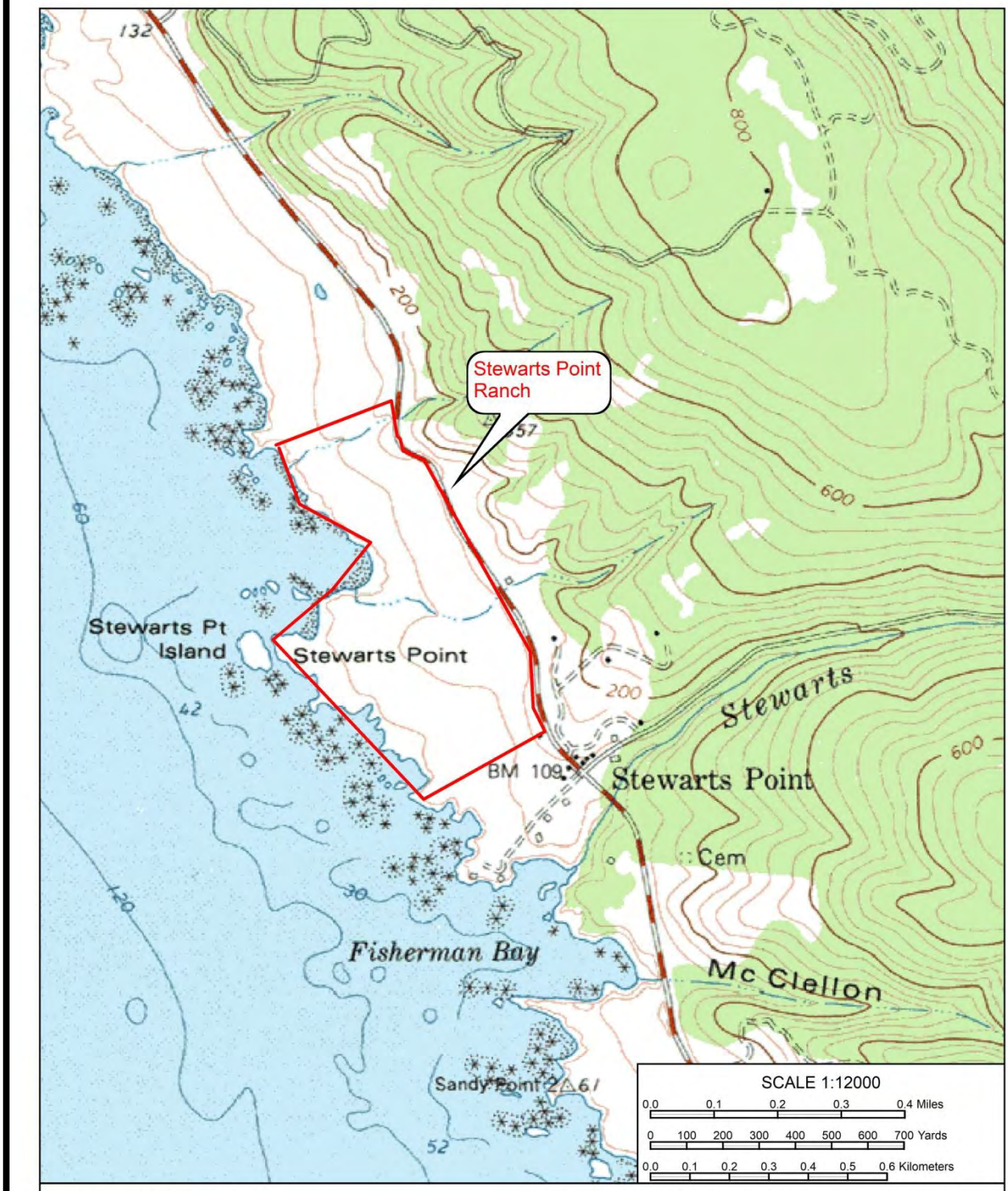
Under Section 10 of the Rivers and Harbors Act of 1899 the Corps regulates all structures and work within tidal waters and freshwaters that involve dredging, marinas, piers, wharves, floats, intake and outtake pipes, pilings, bulkheads, ramps, fills, overhead transmission lines, etc.

Under Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 the Corps regulates ocean discharge of dredged materials.



Name: PLANTATION
Date: 08/10/18
Scale: 1 inch = 1,000 ft.

Location: 10 0467633 E, 4274665 N
Figure 1: Regional Location of Kashia Coastal Reserve



Name: STEWARTS POINT
Date: 08/10/18
Scale: 1 inch = 1,000 ft.

Location: 10 0465091 E, 4278667 N
Figure 2: Regional Location of Stewarts Point Ranch

California Coastal Commission (CCC)
The following information was extracted from the California Coastal Commission November 16, 2006 workshop on the Definition and Delineation of Wetlands in the Coastal Zone (California Coastal Commission 2006).

Coastal Act Section 30121 defines the term "wetland" as: "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens. The Coastal Commission's regulations (California Code of Regulations Title 14 (14 CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions:

> *Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats. (14 CCR Section 13577)*

The Commission's one parameter definition is similar to the U.S. Fish & Wildlife Service (USFWS) wetlands classification system, which states that wetlands must have one or more of the following three attributes:

(1) at least periodically the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

As opposed to wetlands definitions, which describe the general parameters that must be shown to establish wetland conditions (hydrology, soils, and vegetation), the delineation of wetlands in the field typically requires substantial evidence of indicators, which are the physical, chemical, or biological features of an area that can be easily observed or assayed and that are usually correlated with the presence of a wetland parameter; and methodologies that guide the process of distinguishing wetland from non-wetland conditions. Such field tools are needed because the various characteristics of wetlands typically occur on physical gradients (i.e., wet to dry conditions, hydric to nonhydric soils, and hydrophytic to meso/xerophytic vegetation). The Coastal Commission's regulations acknowledge these distinctions by specifying some general decision rules for establishing the upland boundary of wetlands:

> *…the upland limit of a wetland shall be defined as:*
> *a. the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;*
> *b. the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or*
> *c. in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not. (14 CCR Section 13577)*

METHODS

Literature Review

Prior to the delineation field survey, literature pertinent to identifying potential wetlands and other waters of the United States in the project area was reviewed, including the USGS 7.5 minute topographic quadrangle maps for the area, the detailed topographic/aerial photograph base map prepared for the project area, the soil survey report, and the county hydric soils list.

Field Survey and Map Preparation

A formal delineation was conducted by Jane Valerius, botanist and wetland ecologist on April 12 and May 23, 2018. During the April 12 site visit areas identified as potential wetlands were GPS'd by Scott Yehl with Questa Engineering. A Garmin GPS unit was used during the May 23, 2018 site visit. Areas in which the topography or vegetation suggested that wetlands could exist were sampled using the routine onsite determination method procedures described in the 1987 Corps of Engineers *Wetlands Delineation Manual* (Environmental Laboratory 1987). The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* U.S. Army Corps of Engineers (2010), U.S. Army Corps of Engineers, San Francisco District (2000) delineation guidelines and the U.S. Army Corps of Engineers San Francisco District November 2007 *Information Requested for Verification of Corps Jurisdiction* guidance was also used as part of the on-site wetlands analysis and report preparation.

USACE wetland jurisdiction is based on a three parameter definition that requires a site have all three wetland criteria present. These criteria are: presence of wetland hydrology, hydric soils, and a dominance of hydrophytic vegetation (USACE 1987, 2010). The CCC requires that only one of those same three parameters be met for a location to be considered wetland by the CCC (CCC 1994).

The State of California Regional 2016 Wetland Plant List (Lichvar et. al. 2016) was used to determine the wetland status for the plant species for the sample data points. A soil pit was excavated at each of the seventeen (17) delineation sample points (Appendix B) to a depth of 12 inches. The sample points were established in representative wetlands and adjoining non-wetlands. In most cases an adjoining nonwetland sample point was established near the wetland data point to "bracket" the wetland data point, as a means to identify the wetland-non-wetland boundary. Soils information is provided in Appendix C with maps going from north to south. Appendix D is a list of plant species observed.

Drainages within the project area designated as other waters of the United States and State have an ordinary high water mark (OHWM) that defines the extent of the Corps' jurisdiction of that feature. An OHWM refers to "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area" (33 CFR Section 328.3[e]). The width of the drainage was visually estimated and the average width of the OHWM was recorded for areas designated as other waters.

EXISTING CONDITIONS

The project area is located within the North Coast Province (CDFW 2015). This province is located along the Pacific coast from the California-Oregon border to the San Francisco Bay watershed in the south (CDFW 2015). The eastern boundary includes the Cascade Range along the northern portion of the province and the transition to the Sacramento Valley along the southern portion. The coastal mountain ranges within the province are aligned somewhat parallel and rise from low to moderate elevation (i.e., up to about 7,500 feet) (CDFW 2015). The climate varies considerably across the province, with high precipitation levels and moderate temperatures in many coastal areas, and dry conditions with rain shadow effects and more extreme temperatures in some inland valleys. Overall, the province has a fairly wet climate and receives more rainfall than any other part of the state, feeding more than ten river systems (CDFW 2015).

The linear +/-1-mile trail ranges in elevation between 140 feet in the east, along Highway 1, and 50 feet in the west, along the bluffs of the Pacific Ocean. A total of eight (8) unnamed creeks flow from east to west across the Kashia Coastal Preserve parcels, only 2 of which are identified as blue lines on the topographic map. Several wetlands and seeps also occur on the two parcels. Surrounding land uses consist of mainly of open space lands consisting of ranches and rural residences located along Highway 1.

Vegetation Communities

A total of five main vegetation communities occur on the two parcels: coastal terrace prairie grassland, seasonal wetlands, North Coast coniferous forest, coastal scrub and coastal riparian scrub. The coastal terrace prairie grassland consists of three main grassland alliances: common velvet grass –sweet vernal grass meadows, tall fescue semi-natural alliance, and Pacific reedgrass swards (Sawyer et. al. 2008). Velvet grass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*, *A. aristatum*) and tall fescue (*Festuca arundinaceae*) are all non-native grass species. Pacific reedgrass (*Calamagrostis nutkaensis*) is a native grass and is a facultative wetland (FACW). Small areas of tufted hair grass (*Deschampsia caespitosa*) were also observed. The seasonal wetland type includes a rush dominated wetland, a slough sedge (*Carex obnupta)* dominated wetland and CCC wetlands that meet only one or more of the three wetland criteria but not all three as required for USACE wetlands. A more detailed description of these communities is provided below:

Coastal Terrace Prairie Grasslands:

Common velvet grass-sweet vernal grass meadows (Holcus lanatus-Anthoxanthum odoratum, A. aristatum Semi-Natural Alliance): The northern portion of the Kashia Coastal Reserve is comprised of this non-native grassland vegetation type. Within this community type, velvet grass is co-dominant with sweet vernal grass and includes other non-native grasses such as large quaking grass (*Briza maxima*), European hairgrass (*Aira caryophyllea*), dogtail grass (*Cynosurus echinatus*), ryegrass (*Festuca perennis*), wild oats (*Avena barbata*), bromes (*Bromus diandrus, B. hordaeceus*), and hare barley (*Hordeum murinum* ssp. *leporinum*). Non-native forbs are also common and include English plantain (*Plantago lanceolata*), rough cat's-ear (*Hypochaeris radicata*), flax (*Linum bienne*), English daisy (*Bellis perennis*), bull thistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*) and milk thistle (*Silybum marianum*). Velvet grass is a facultative (FAC) plant species but the co-dominants are non-wetland or upland species so this is not a wetland type.

Pacific reed grass meadows (Calamagrostis nutkaensis Herbaceous Alliance): This native coastal terrace prairie grassland type occurs only within the Kashia Coastal Reserve at the southern end of the trail and also occurs as an understory grassland type for the North Coast coniferous forest type, or Bishop pine forest Pacific reed grass is also a facultative wetland (FACW) plant species and the area where this grass is dominant qualifies as a CCC wetland area since there is a dominance of a wetland species. Although the grassland is a mesic type there was no evidence of wetland soils or wetland hydrology so this area does not qualify as a USACE wetland. Other species noted within this type include sweet vernal grass, tall fescue, velvet grass, large quaking grass, bracken fern, California blackberry, salal (*Gaultheria shallon*) and cow parsnip (*Heracleum lanatum*). Also common within the grassland was biddy biddy (*Acaena novae-zelandiae*), yarrow, hedge nettle (*Stachys ajugoides*), honeysuckle (*Lonicera hispidula*), blue-eyed grass (*Sisrynchium bellum*) and self-heal (*Prunella vulgaris).*

Tall fescue grassland (Festuca arundinacea Semi-Natural Alliance): This is a non-native grassland type and occurs only in the Kashia Coastal Reserve project area. Tall fescue forms very dense stands in the middle portion of the proposed trail system. Other non-native grasses include velvet grass, sweet vernal grass, wild oats, large quaking grass and ryegrass. Within this type there are also small patches of native tufted hairgrass (*Deschampsia caespitosa* ssp. *holciformis*). A variety of non-native species occur in this type including sheep sorrel (*Rumex acetosella*), milk thistle, wild radish (*Raphanus sativus*), filaree (*Erodium* sp.), and scarlet pimpernel (*Lysimachia arvensis*). Native forb species include red maids (*Calandrinia ciliata*), California poppy (*Eschscholzia californica*), common coastal morning-glory, and hedge nettle. Tall fescue has no wetland status and even though there were small patches of tufted hair grass, which is a facultative wetland (FACW) species, there was not a dominance of wetland plants and there were no wetland soils or wetland hydrology, which the except of Wetland Drainage D-2.

Seasonal Wetlands:
Soft and western rush marshes [Juncus (effusus, patens) Provisional Alliance]: This vegetation type occurs within both the Kashia Coastal Reserve and the Stewarts Point Trail. Within the Kashia Coastal Reserve it occurs at data points 4, 7, 9 and 17. Within the Stewarts Point Trail is occurs in all the areas identified as USACE jurisdiction wetlands (PCI 2016b). Wetland plants associated with this type include several species of rush including soft rush (*Juncus effusus*), spreading rush (*Juncus patens*), iris-leaved rush (*Juncus phaeocephalus*), wire rush (*Juncus balticus*) and toad rush (*Juncus bufonius*).

Slough sedge swards (Carex obnupta Herbaceous Alliance): This wetland type occurs in one area in the northern portion of the Kashia Coastal Reserved at data point 10 near drainage D-8 (see map). Slough sedge occurs as a large wetland seep area near a rocky outcrop. Other wetland plants noted include spreading rush and velvet grass. California blackberry, which is not a wetland plant, was also common in this area.

California Coastal Commission (CCC) one-parameter wetlands: Three areas were delineated as CCC only wetlands. These area typically had a dominance of wetland plants such as Pacific reed grass, velvet grass and/or soft rush but generally lacked wetland soils and sometime wetland hydrology. In one location the wetland designation is based primarily on wetland hydrology at data point 7. This area had standing water that was also seeping but the dominant plant species is an invasive iris called bulbil bugle lily (*Watsonia meriana*),which has become very invasive along the coast.

North Coast coniferous forest *or Bishop pine forest (Pinus muricata Forest Alliance):* This vegetation type is mapped mainly in the southern portion of the Kashia Coastal Reserve and is common along the coast highway within the project study area. The dominant tree species is the native Bishop pine and also includes some Douglas fir (*Pseudotsuga menziesii*), and non-native Monterey pine (*Pinus radiata*). Understory shrubs include poison oak (*Toxicodendron diversilobum*), salal (*Gaultheria shallon*), coyote brush (*Baccharis pilularis*), blue blossom (*Ceanothus thyrsiflorus* var. *griseus*), twinberry (*Lonicera involucrata*), coffeeberry (*Frangula califonica*) and native blackberry. Bracken fern (*Pteridium aquilinum*) and sword fern (*Polystichum munitum*) are also common in the understory. Grasses include the native Pacific reed grass described above and non-native grasses such as velvet grass, sweet vernal grass, and large quaking grass. A variety of native forbs were also noted including hedge nettle, self-heal, honeysuckle, coast onion (*Allium dichlamydeum*), and yarrow.

Coastal Scrub*/Coyote brush scrub (Baccharis pilularis Shrubland Alliance):* This vegetation type is mapped for the Kashia Coastal Reserve and occurs between the road shoulder and the slope leading down to the property. Only one area was mapped as coastal scrub or coyote brush scrub as the same plant species occur as understory to the North Coast coniferous forest type. Species noted within this type include sticky monkeyflower (*Mimulus aurantiacus*), California blackberry, bracken fern, sword fern, salal, and California bee plant (*Scrophularia californica*).

Coastal Riparian Scrub*/Red alder forest (Alnus rubra Forest Alliance):* This vegetation type is mapped for the Kashia Coastal Reserve at drainage D-5 which is marked as mile marker 45.17 along the coast highway. The drainage extends north with a very dense riparian canopy cover. This vegetation type is dominated by red alder and includes twinberry, California blackberry, coast willow (*Salix hookeriana*), and wax myrtle (*Morella californica*). Within the project study area there is just a small, thin band between the culvert for the creek drainage and the edge of the highway. Red alder is a facultative (FAC) species. This area qualifies as a CCC wetland type but does not meet the USACE 3-parameter test.

A total of eight drainages, labeled as D-1 to D-8, going from south to north, were mapped for the Kashia Coastal Reserve Trail. A more detailed description of the wetlands and drainages is provided in the Results section.

Soils

Three soils types occur within the project study area (Appendix C). These include Maymen gravelly sandy loam, 30 to 50 percent slopes; Rohnerville loam, 9 to 15 percent slopes and terrace escarpments (Appendix B). Maymen gravelly sandy loam, 30 to 50 percent slopes is the most common soil type within the study area. Maymen series soils consist of well-drained gravelly sandy loams. They are underlain at a depth of 10 to 20 inches by sandstone and shale bedrock (USDA 1990). This type is prevalent in the northern portion of the trail.

Rohnerville loam series soils consist of moderately well drained loams that have a subsoil of mainly sandy clay. The formed in material weathered from soft sandstone and occur on marine and bench terraces (USCA 1990).

Terrace escarpments consist of long, narrow, rocky areas that rise abruptly from the mean tide line to the coastal plain terraces of plateaus. This land type consists of steep faces that separate the terraces from the lower lying sand. The faces are composed of soft costal sandstone, hard shale, or hard, weather-resistant, fine-grained sandstone (USDA 1990). This type occurs outside of the delineation study area but with the Kashia Coastal Reserve in the southern portion of the reserve near Horseshoe Cove.

Hydrology

Drainages D-5 and D-6 flow down from the eastern side of Highway 1 and are blue line drainages. All of the drainages, with the exception of D-7 extend to the eastern side of Highway 1 but are not identified as blue-line drainages on the USGS quadrangle. Water flows from the eastern hills and goes under culverts under Highway 1 to the western side and the drainages all flow into the Pacific Ocean. Most of the areas identified as wetlands are either associated with a drainage or occur as seeps.

RESULTS

Six USACE wetlands and three additional CCD wetlands were mapped for the delineation study area in addition to eight drainages, one of which is also a wetland. Table 1 lists each area and provides a brief description of each type. A total of XX acres of USACE wetland were delineated for the study area along with XX acres of waters for a total of XX acres of wetlands and waters. An additional XX acres of CCC wetlands were also delineated.

Table 1: Delineated area label and number with description and acreage.

Delineated Area Label/Number	Description of Area	Square feet or Acres
USACE Wetlands		
USACE-W-1	Small rush-type wetland. See DP-4.	66.9
USACE-W-2	Seasonal wetland dominated by velvet grass and buttercup. See DP-6.	864.6
USACE-W-3	Small rush-type wetland.	106.1
USACE-W-4	Rush type wetland.	79.8
USACE-W-5	Rush type wetland. See DP 9	1488.2
USACE-W-6	Dominated by slough sedge, an obligate wetland plant. See DP-10.	2070.8
Total USACE wetlands		**4676.4**
CCC Wetlands		
CCC-W-1	This wetland is dominated by Pacific reed grass which is a native grass species that is a FACW species. This area lacked any wetland soils or hydrology. See DP-11.	12955.7
CCC-W-2	Dominated by non-native weedy species, *Watsonia meriana*, a non-wetland plant species with other wetland plants such as hyssop loosestrife, tufted hairgrass, and spreading rush. Water was seeping from road in this area and very wet. No redox in soils.See DP-7.	1806.7
CCC-W-3	Wetland plants but no hydric soil or wetland hydrology indicators. See DP-17.	160.5
Total CCC wetlands		**14,922.9**
Waters of the U.S. and State		
D-1	Width at the ordinary high water mark (OHWM) is approximately 1 to 2 feet wide; this is a narrow, deeply incised drainage with a North Coast coniferous forest canopy	167.0
D-2	Width at the ordinary high water mark (OHWM) is approximately 1 to 2 wide; this is a narrow, incised drainage ditch-like channel that supports wetland vegetation and lacks any tree canopy.	123.3
D-3	Width at the ordinary high water mark (OHWM) is approximately 1 to 2 feet wide; this is a narrow, deeply incised drainage with a North Coast coniferous forest canopy	71.0
D-4	Width at the ordinary high water mark (OHWM) is approximately 1 to 2 feet wide; this is a narrow, incised drainage ditch-like channel with no tree canopy and non-native upland grassland vegetation.	133.7

Delineated Area Label/Number	Description of Area	Square feet or Acres
D-5	Width at the ordinary high water mark (OHWM) is approximately 9 to 10 feet wide along most of the channel. At the culvert there is an approximate 15-foot wide pool. Above the culvert there is an alder riparian forest community type. Below the culvert there is no tree or shrub canopy and there is a fringe of wetland vegetation along the OHWM. A dilapidated bridge occurs along at the bottom of this drainage.	1468.2
D-6	Width at the ordinary high water mark (OHWM) is approximately 1 to 2 feet wide; this is a narrow, deeply incised drainage with no tree or shrub canopy. The bed is comprised of rock. A narrow, wooden bridge crosses this drainage.	41.4
D-7	Width at the ordinary high water mark (OHWM) is approximately 1 to 2 feet wide; this is a narrow, incised ditch-like drainage that is associated with USACE-W-5. It has not tree or shrub canopy but native California blackberry is common along with rushes along the edges.	117.0
D-8	Width at the ordinary high water mark (OHWM) is approximately 1 to 2 feet wide; this is a narrow, incised drainage associated with USACE-W-6 with slough sedge as a dominant species.	206.2
Total Waters		**2327.8**

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SITE PHOTOGRAPHS

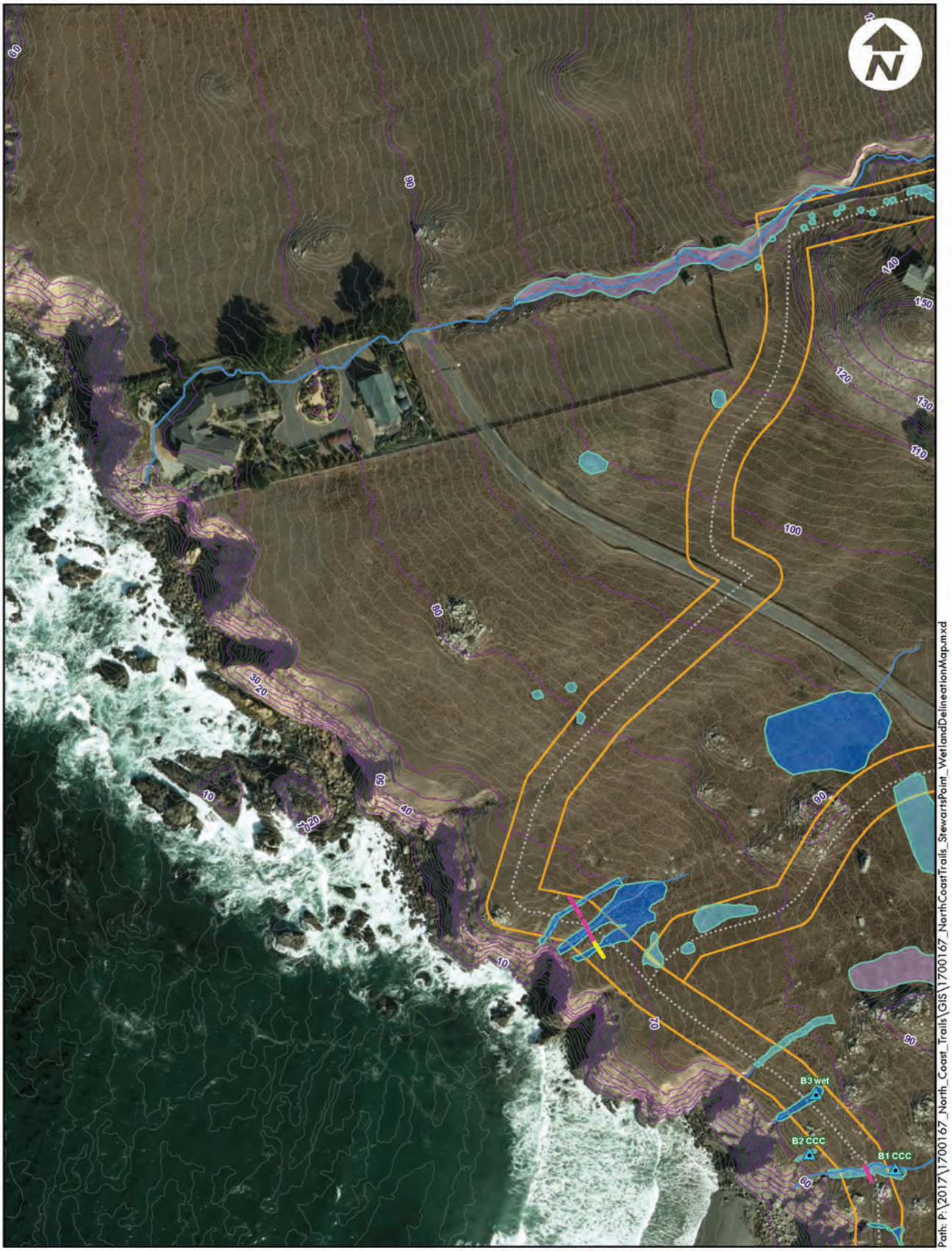
PHOTO 1: DRAINAGE D-1 WITH PINE OVERSTORY LOOKING WESTERLY FROM TOP OF CULVERT AT HWY 1.

PHOTO 2: DRAINAGE D-5 WITH FRINGE WETLANDS LOOKING WEST TOWARDS OCEAN. COLLASPED OLD WOODEN BRIDGE IN BACKGROUND.

PHOTO 3: EXAMPLE OF SEASONAL WETLANDS LOOKING SOUTHEASTERLY TOWARDS TRAIL.

PHOTO 4: CCC WETLAND DOMINATED BY *WASTONIA MERIANA*, A NON-NATIVE INVASIVE SPECIES. WATER WAS SEEPING FROM THE ROAD. PHOTO IS LOOKING EASTERLY TOWARDS HWY 1.

Appendix A –
Wetlands Delineation Maps



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STUDY AREA
CCC WETLANDS
CORPS AND CCC WETLANDS
ESHA DRAINAGE/ WETLANDS
PCI DATA POINTS

STREAM/ DRAINAGE CENTERLINES
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS
PARKING LOT

ARMORED CROSSING
BRIDGE CROSSING
PUNCHEON CROSSING
OLD RAILROAD BED

0 50 100 200 300 400
Feet

DATA ACQUIRED FROM SONOMA VEGMAP(APRIL 5 2016), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

DRAWN BY SCOTT YEHL
1 inch = 100 feet
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WETLANDS

WETLAND DELINEATION MAP

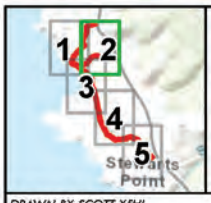
STEWARTS POINT TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 1



STUDY AREA
CCC WETLANDS
CORPS AND CCC WETLANDS
ESHA DRAINAGE/ WETLANDS
PCI DATA POINTS

STREAM/ DRAINAGE CENTERLINES
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS
PARKING LOT

ARMORED CROSSING
BRIDGE CROSSING
PUNCHEON CROSSING
OLD RAILROAD BED

0 50 100 200 300 400
Feet

DATA ACQUIRED FROM SONOMA VEGMAP(APRIL 5 2016), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

DRAWN BY SCOTT YEHL
1 inch = 100 feet
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WETLANDS

WETLAND DELINEATION MAP

STEWARTS POINT TRAIL

NORTH COAST TRAIL *SONOMA COUNTY, CA*

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 2

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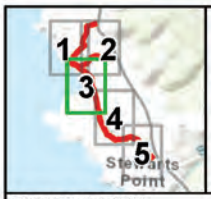

STUDY AREA
CCC WETLANDS
CORPS AND CCC WETLANDS
ESHA DRAINAGE/ WETLANDS
PCI DATA POINTS

STREAM/ DRAINAGE CENTERLINES
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS
PARKING LOT

ARMORED CROSSING
BRIDGE CROSSING
PUNCHEON CROSSING
OLD RAILROAD BED

0 50 100 200 300 400
Feet

DATA ACQUIRED FROM SONOMA VEGMAP(APRIL 5 2016), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

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1 inch = 100 feet
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WETLANDS

WETLAND DELINEATION MAP

STEWARTS POINT TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 3

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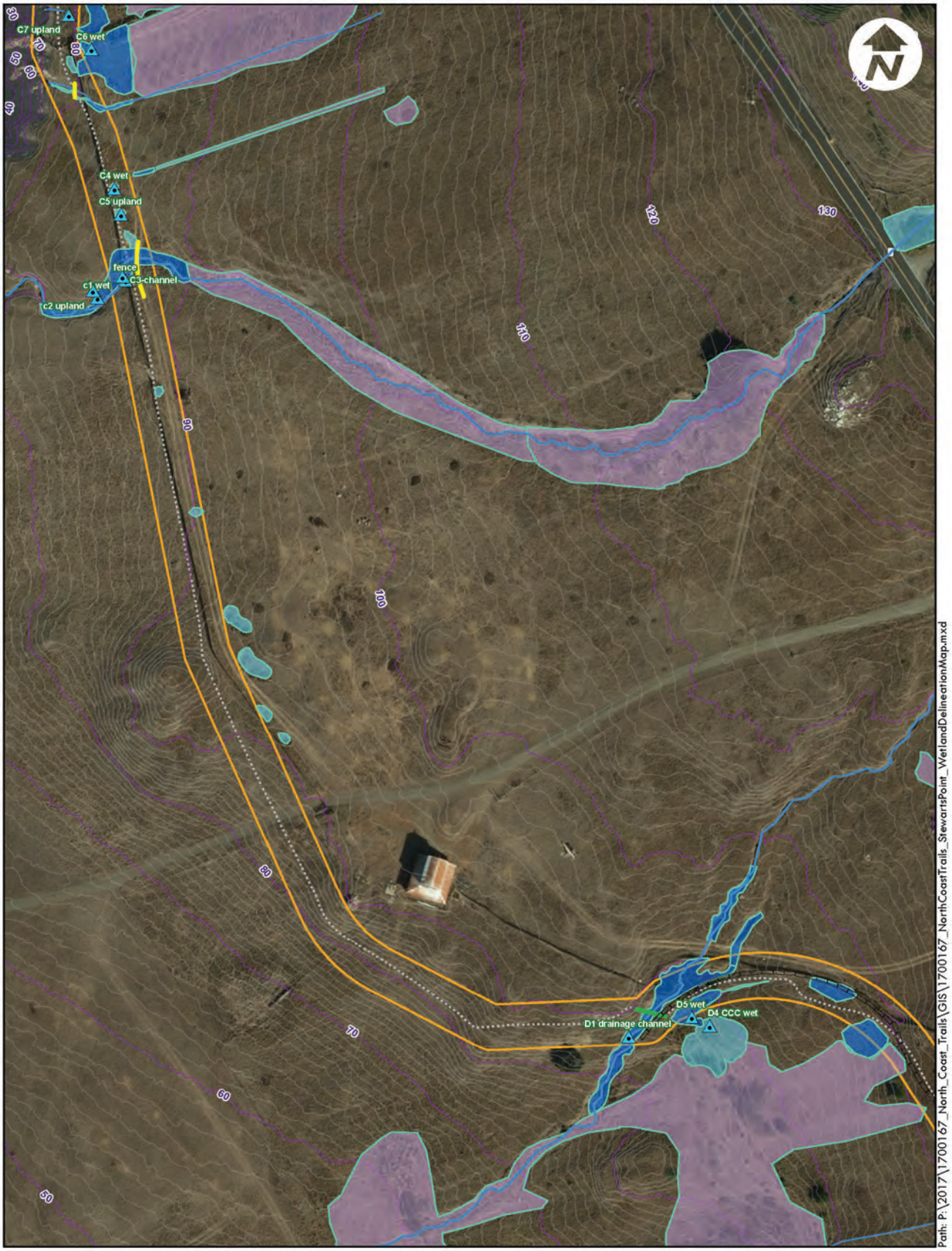

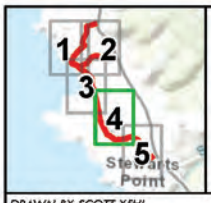

STUDY AREA
CCC WETLANDS
CORPS AND CCC WETLANDS
ESHA DRAINAGE/ WETLANDS
PCI DATA POINTS
STREAM/ DRAINAGE CENTERLINES
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS
PARKING LOT
ARMORED CROSSING
BRIDGE CROSSING
PUNCHEON CROSSING
OLD RAILROAD BED

0 50 100 200 300 400
Feet

DATA ACQUIRED FROM SONOMA VEGMAP(APRIL 5 2016), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

DRAWN BY SCOTT YEHL
1 inch = 100 feet
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WETLANDS

WETLAND DELINEATION MAP

STEWARTS POINT TRAIL

NORTH COAST TRAIL *SONOMA COUNTY, CA*

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 4

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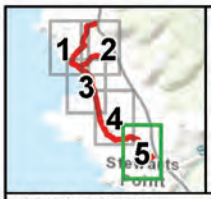

- STUDY AREA
- CCC WETLANDS
- CORPS AND CCC WETLANDS
- ESHA DRAINAGE/ WETLANDS
- PCI DATA POINTS
- STREAM/ DRAINAGE CENTERLINES
- TRAIL ALIGNMENT
- 10 FOOT CONTOURS
- 1 FOOT CONTOURS
- PARKING LOT
- ARMORED CROSSING
- BRIDGE CROSSING
- PUNCHEON CROSSING
- OLD RAILROAD BED

0 50 100 200 300 400 Feet

DATA ACQUIRED FROM SONOMA VEGMAP(APRIL 5 2016), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

DRAWN BY SCOTT YEHL

1 inch = 100 feet

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WETLANDS

WETLAND DELINEATION MAP

STEWARTS POINT TRAIL

NORTH COAST TRAIL SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 5

DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
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1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

WETLAND DELINEATION MAP

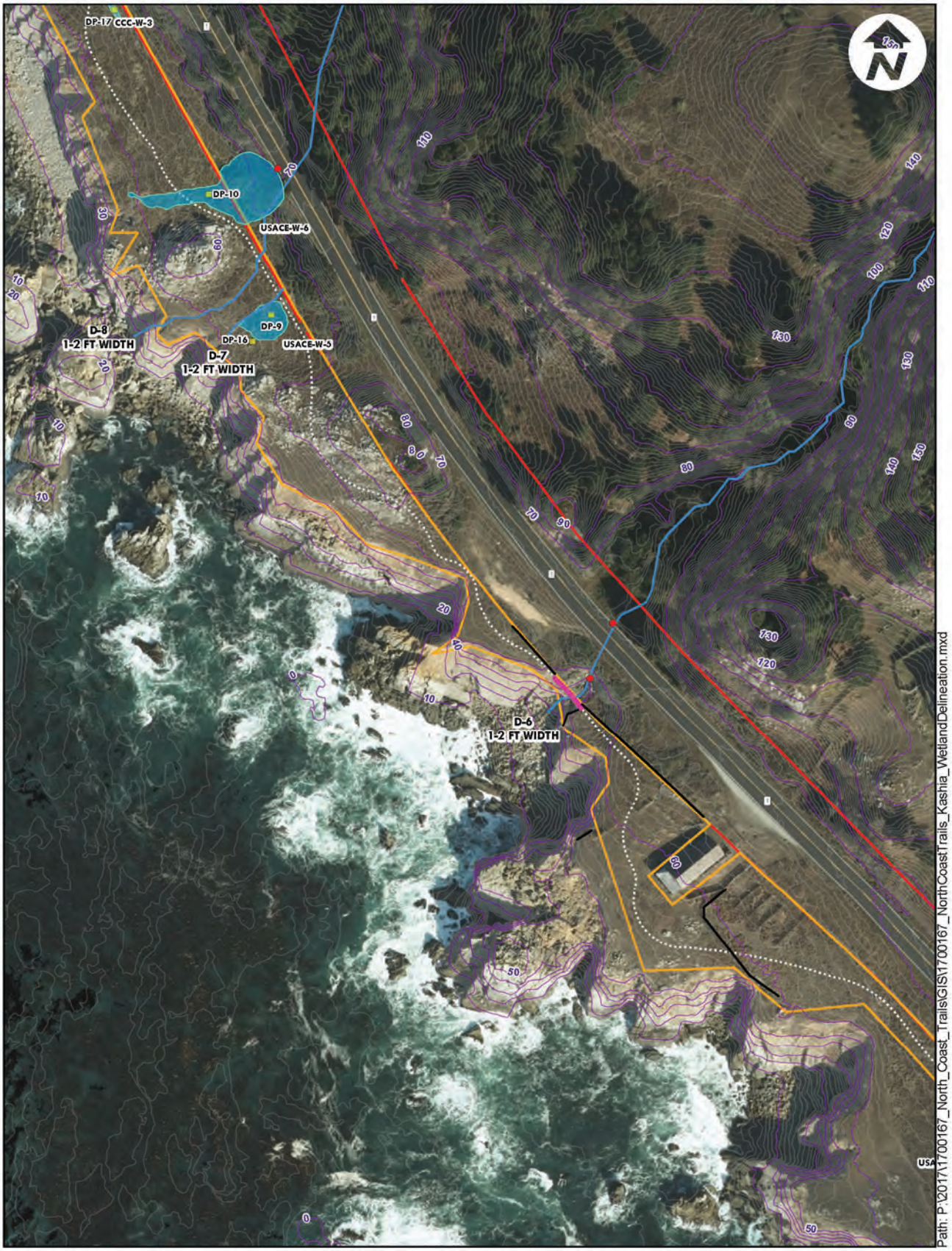
KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 6



DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

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1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

WETLAND DELINEATION MAP

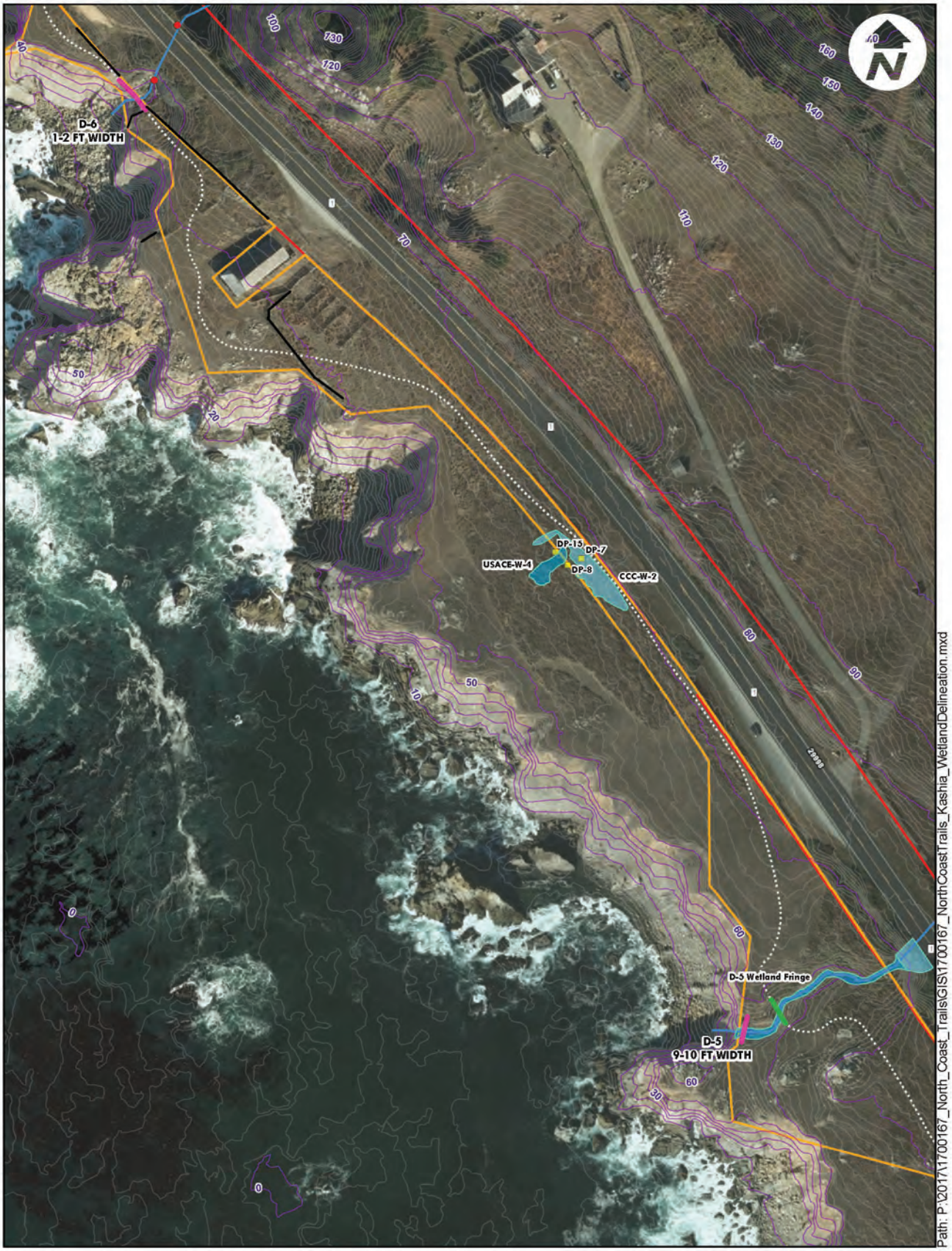
KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 7



DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
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1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

WETLAND DELINEATION MAP

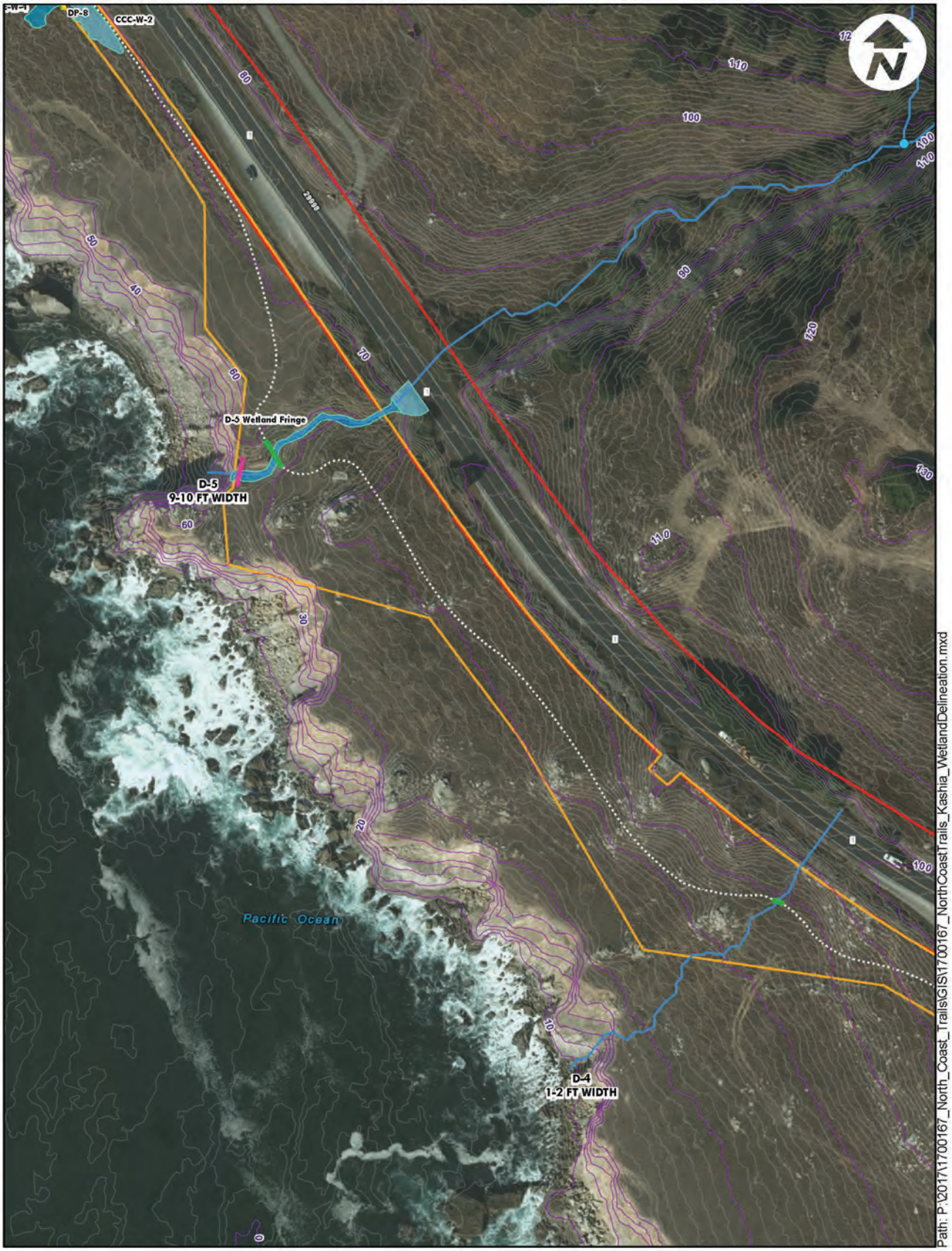
KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 8



DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

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1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

WETLAND DELINEATION MAP

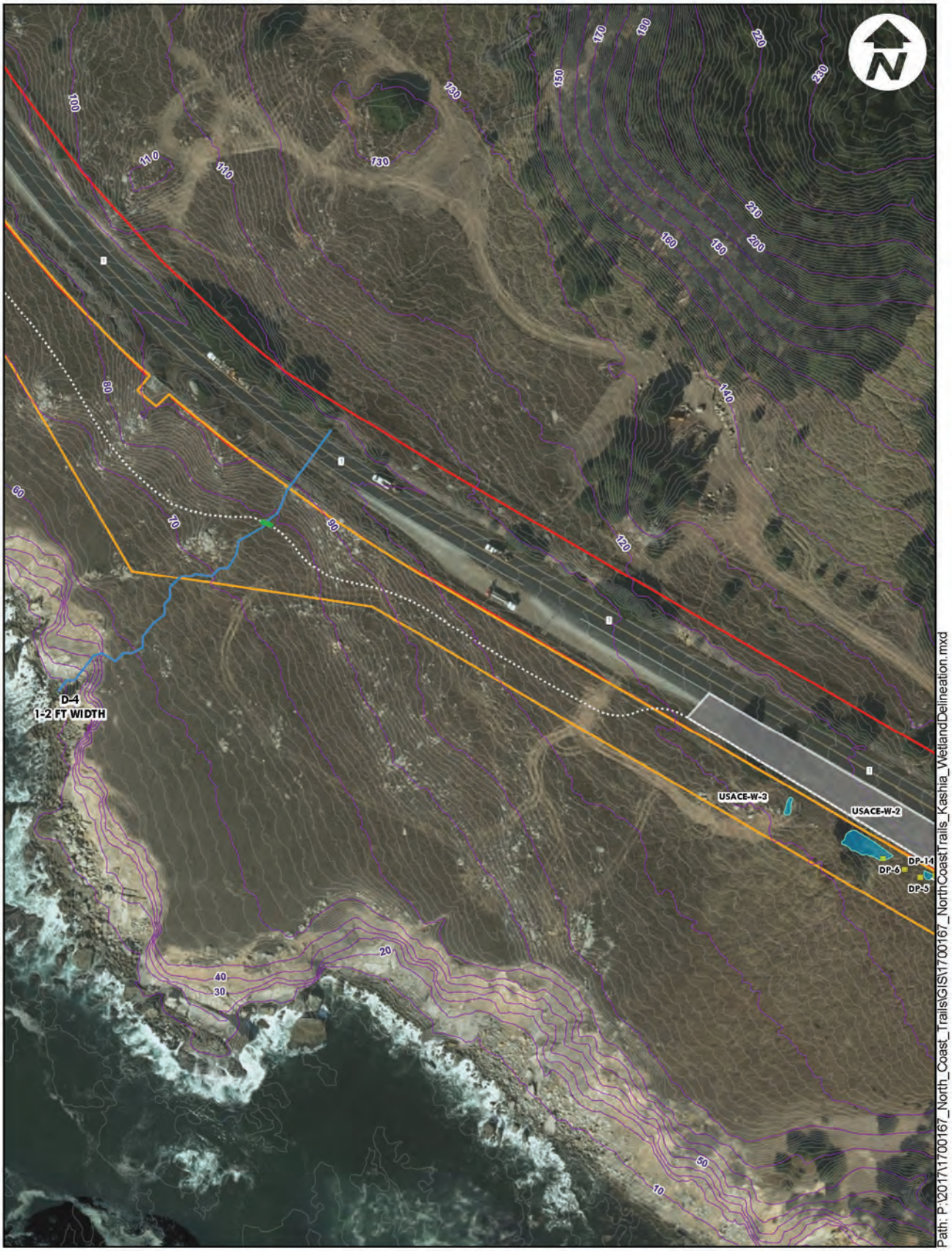
KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 9



DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
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1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

WETLAND DELINEATION MAP

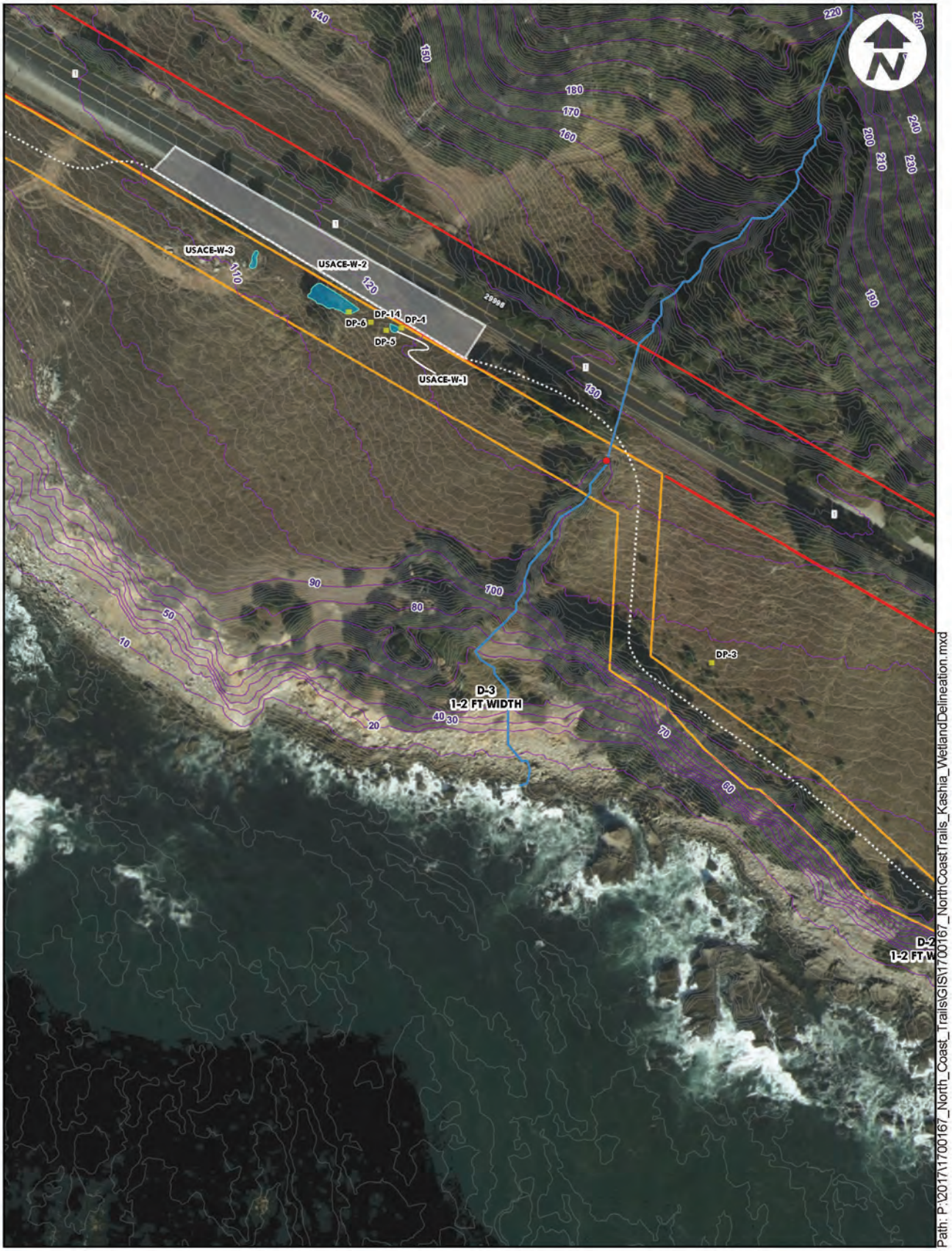
KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 10



Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Kashia_WetlandDelineation.mxd

DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 2:50:49 PM

1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

WETLAND DELINEATION MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 11

DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 2:50:49 PM

1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

WETLAND DELINEATION MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 12

DATA POINTS
CULVERTS
PROPOSED CROSSING LOCATIONS
EXISTING BRIDGE LOCATIONS
STREAM CENTERLINES
FENCE
PARKING LOT
CCC WETLANDS
CORPS AND CCC WETLANDS
TRAIL ALIGNMENT
EASEMENT BOUNDARY
CALTRANS ROW
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 8/14/2018 2:50:49 PM

1 inch = 100 feet
WETLANDS

0 50 100 200 300 400
Feet

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Kashia_WetlandDelineation.mxd

WETLAND DELINEATION MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP

FIGURE 13

Appendix B -
Wetland Data Sheets

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 1

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9-15%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

Near culvert at 44[63]; there were saturated soils but this appears to be an ephemeral hydrology. It started immediately before the site no. 4

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Festuca arundinacea	30	Y	N.L
2. Briza maxima	20	Y	N.L
3. Vinca major	20	Y	N.L
4. Trifolium sp.	10	N	Unkn
5. Juncus patens	5	N	FACW
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species ___	x 1 =	___
FACW species ___	x 2 =	___
FAC species ___	x 3 =	___
FACU species ___	x 4 =	___
UPL species ___	x 5 =	___
Column Totals: ___ (A)		___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100						Mixed Soils
6-12	10YR 5/8	100						=> Urban Soils from
								Hwy Construction

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ✓ No ___ Depth (inches): 10

Saturation Present? Yes ✓ No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent rains likely responsible for hydrology and not a true reflection of wetland hydrology. Data point is next to the highway and a culvert.

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 2

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 15%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

At Drainage D-2 ⇒ wetland drainage

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Festuca arundinacea	40	Y	N.L.
2. Equisetum arvense	20	Y	FAC
3. Cyperus eragrostis	20	Y	FACW
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	90	10YR 3/2	10	C	M	Silty	depositional

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? Yes ✓ No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Ditch-like drainage

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 3

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9-15%

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation , Soil , or Hydrology naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No ✓ Hydric Soil Present? Yes No ✓ Wetland Hydrology Present? Yes No ✓	**Is the Sampled Area within a Wetland?** Yes No ✓

Remarks:

VEGETATION

Tree Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus muricata	10	N	UPL
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Festuca arundinacea	55	Y	NL
2. Holcus lanatus	5	N	FACU
3. Holcus lanatus	20	Y	FAC
4. Anthoxanthum aristatum	20	Y	FACU
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No ✓

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? Yes ___ No ✓ Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 4

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9-15 %

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	

Remarks:

USACE-W-1

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___	= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. Festuca crondinacea	40	Y	NL
2. Briza maxima	20	Y	NL
3. Juncus bufonius	20	Y	FACW
4. Juncus patens	20	Y	FACW
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___	= Total Cover	

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	80	5YR 4/6	20	C	M	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 0

Water Table Present? Yes ✓ No ____ Depth (inches): 0

Saturation Present? Yes ✓ No ____ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 5

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No ✓ Hydric Soil Present? Yes ___ No ✓ Wetland Hydrology Present? Yes ___ No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓

Remarks:

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Festuca arundinacea	100	Y	NL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	mixed soils					loam	No redox
0-12	7.5YR 4/6							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

Mixed soils may be due to past disturbance

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? Yes ___ No ✓ Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 6

Investigator(s): Jane Valerius Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9-15

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	

Remarks:

USACE-W-2

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Festuca eumadinacea	55	Y	NL
2. Ranunculus occidentalis	20	Y	FACW
3. Geranium dissectum	5	N	NL
4. Holcus lanatus	20	Y	FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	80	5YR 4/6	20	C	M	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): _____

Saturation Present? Yes ✓ No _____ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 7

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 30

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Maymen gravelly sandy loam, 30 to 50 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

CCC Wetland; not USACE
CCC-W-2

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Watsonia meriana	30	Y	UPL
2. Lythrum hyssopifolia	5	N	FACW
3. Deschampsia cespitosa	20	Y	FACW
4. Plantago lanceolata	10	N	FACU
5. Juncus patens	20	Y	FACW
6. Phalaris aquatica	10	N	FACU
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					Sandy loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? Yes ✓ No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water was seeping from bed

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 8

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 30

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Maymen gravelly sandy loam, 30 to 50 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present? Yes ___ No ✓	
Wetland Hydrology Present? Yes ___ No ✓	

Remarks:

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Phalaris aquatica	30	Y	FACU
2. Festuca arundinacea	30	Y	NL
3. Plantago lanceolata	20	Y	FACU
4. Geranium dissectum	10	N	NL
5. Lysimachia arvensis	5	N	
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					Sandy loam - no redox	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? Yes ___ No ✓ Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 9

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 30

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Maymen gravelly sandy loam, 30 to 50 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓	No ___	
Wetland Hydrology Present?	Yes ✓	No ___	

Remarks:

USACE-W-4

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Hydrocotyle ranunculoides	30	Y	FACW
2. Plantago lanceolata	25	Y	FACU
3. Juncus effusus	40	Y	FACW
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	95	10YR 4/6	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 1

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? Yes ✓ No ___ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: April 12, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 10

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 30

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Maymen gravelly sandy loam, 30 to 50 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

USACE-W-6

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Carex obnupta	50	Y	OBL
2. Rubus ursinus	20	Y	FACU
3. Juncus patens	20	Y	FACW
4. Holcus lanatus	10	N	FAC
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	95	10YR 4/6	5	C	M	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): _____

Water Table Present? Yes ✓ No _____ Depth (inches): _____

Saturation Present? Yes ✓ No _____ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: May 23, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 11

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar/slope Slope (%): 9-15

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:

CCC Wetland - Pacific reedgrass

CCC-W-1

VEGETATION

Tree Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus muricata	10	N	UPL
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Calamagrostis nutkaensis	75	Y	FACW
2. Lonicera involucrata	5	N	FAC
3. Achillea millefolium	5	N	FACU
4. Anthoxanthum odoratum	10	N	FACU
5. Sonchus asper	5	N	FACU
6.			
7.			
8.			
	___ = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/1	100					loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: May 23, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 12

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9-15

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ___ No ✓	

Remarks:

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Anthoxanthum aristatum/odoratum	40	Y	FACU
2. Holcus lanatus	20	Y	FAC
3. Briza maxima	20	Y	UPL
4. Pteridium aquilinum	20	Y	FACU
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: May 23, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 13

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9-15

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ___ No ✓	

Remarks:

Next to drainage D-2 and DP-2

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5')			
1. Morella californica	10	Y	FACW
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Festuca arundinacea	50	Y	N.L.
2. Vicia sp.	5	N	UPL
3. Lotus sp.	5	N	UPL
4. Equisetum arvense	5	N	FAC
5. Fragaria vesca	5	N	FACU
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/4	100					Sandy	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? Yes ___ No ✓ Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: May 23, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 14

Investigator(s): Jane Valerius Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 9-15

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Rohnerville loam, 9 to 15 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:

Next to DP 5

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Bromus diandrus	50	Y	UPL
2. Hordeum Lanatus	20	Y	FAC
3. Lithum bicense	5		
4. Anthoxanthum odoratum	20	Y	FACU
5. Juncus bufonius	5		
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: May 23, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 15

Investigator(s): Jane Valerius Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 30

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Maymen gravelly sandy loam, 30 to 50 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:

Near DP-7

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___	= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. Plantago lanceolata	30	Y	FACU
2. Festuca arundinacea	30	Y	NL
3. Briza maxima	30	Y	UPL
4. Hordeum lanatus	10	N	FAC
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___	= Total Cover	

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					Wan	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: May 23, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 16

Investigator(s): Jane Valerius Section, Township, Range: _____

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 30

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Maymen gravelly sandy loam, 30 to 50 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? (no) Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (no) (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___	No ✓	
Wetland Hydrology Present?	Yes ___	No ✓	

Remarks:

Next to DP-9

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___	= Total Cover	
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. Plantago lanceolata	40	Y	FACU
2. Holcus lanatus	40	Y	FAC
3. Bromus hordaceus	10	N	FACU
4. Bromus diandrus	10	N	NL
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___	= Total Cover	

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	0	x 2 =	
FAC species	40	x 3 =	120
FACU species	50	x 4 =	200
UPL species	10	x 5 =	50
Column Totals:	100	(A)	370 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM

Project/Site: Kashia Coastal Reserve Trail City/County: Sonoma Sampling Date: May 23, 2018

Applicant/Owner: Sonoma County Regional Parks State: CA Sampling Point: 17

Investigator(s): Jane Valerius Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): planar Slope (%): 30

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Maymen gravelly sandy loam, 30 to 50 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? no Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? no (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** Yes ___ No ✓
Hydric Soil Present?	Yes ___ No ✓	
Wetland Hydrology Present?	Yes ___ No ✓	

Remarks:

CCC wetland - 3

VEGETATION

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft radius)			
1. Juncus effusus	25	Y	FACW
2. Holcus lanatus	20	Y	FAC
3. Rubus ursinus	20	Y	FACU
4. Anthoxanthum odoratum	20	Y	FACU
5. Plantago lanceolata	10	N	FACU
6. Armeria maritima	5	N	FAC
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					loam	no redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): none

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

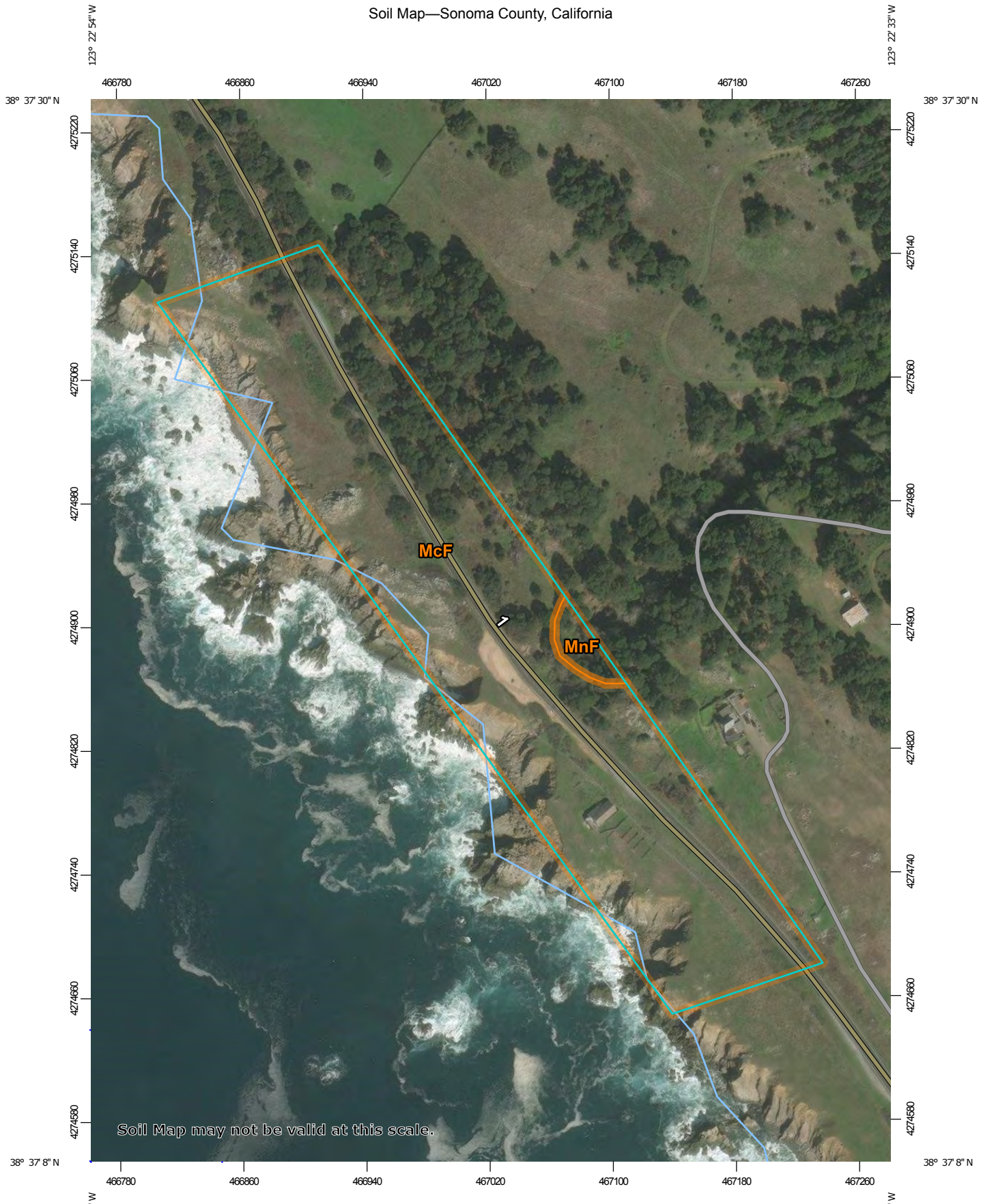
Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C -
Soils Information



Map Scale: 1:3,350 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sonoma County, California
Survey Area Data: Version 11, Sep 21, 2017

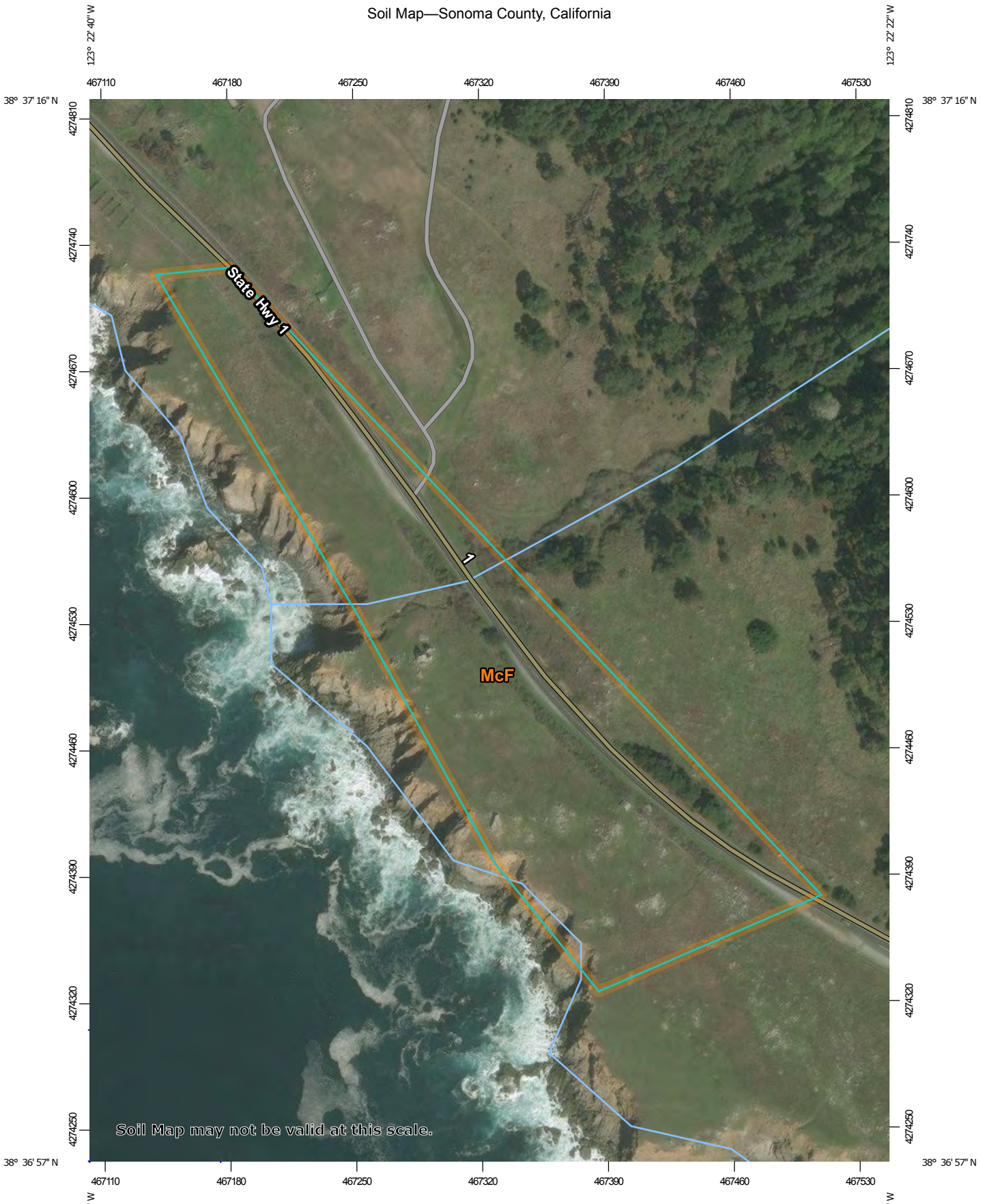
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Jan 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
McF	Maymen gravelly sandy loam, 30 to 50 percent slopes	14.2	98.0%
MnF	Mendocino-Empire complex, 0 to 50 percent slopes	0.3	2.0%
Totals for Area of Interest		**14.5**	**100.0%**



Map Scale: 1:2,870 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sonoma County, California
Survey Area Data: Version 11, Sep 21, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Jan 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
McF	Maymen gravelly sandy loam, 30 to 50 percent slopes	10.2	100.0%
Totals for Area of Interest		**10.2**	**100.0%**

Map Scale: 1:3,540 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Date(s) aerial images were photographed: Dec 31, 2009—Jan 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
McF	Maymen gravelly sandy loam, 30 to 50 percent slopes	8.8	37.9%
RrD	Rohnerville loam, 9 to 15 percent slopes	12.0	51.7%
TeG	Terrace escarpments	2.4	10.4%
Totals for Area of Interest		**23.2**	**100.0%**

Appendix D -
Plant Species List

Plant species observed along the Kashia Trail April 12, May 23 and June 19, 2018

Scientific Name	**Common Name**	**Native (N)/Non-Native (NN)**
Acaena novae-zelandiae	Biddy biddy	N
Achillea millefolium	Yarrow	N
Acmispon brachycarpus	Hill lotus	N
Aira caryophyllea	European hairgrass	NN
Agrostis densiflora	California bent grass	N
Agrostis stolonifera	Red top	NN
Allium dichlamydeum	Coast onion	N
Alnus rubra	Red alder	N
Anaphalis margaritacea	Pearly everlasting	N
Anthoxanthum aristatum	Vernal grass	NN
Armeria maritima	Sea pink	N
Arrhenatherum elatius	Tall oatgrass	NN
Avena barbata	Wild oats	NN
Baccharis pilularis	Coyote brush	N
Bellis perennis	English daisy	NN
Briza maxima	Large quaking grass	NN
Briza minor	Small quaking grass	NN
Brodiaea terrestris	Dwarf brodiaea	N
Bromus carinatus	California brome	N
Bromus diandrus	Ripgut brome	N
Bromus hordaeceus	Soft chess	NN
Calamagrostis nutkaesis	Pacific reed grass	N
Calandrinia ciliata	Red maids	N
Calochortus tolmei	Hairy star tulip	N
Calystegia purpurata ssp. *purpurata*	Morning glory	N
Calystegia purpurata ssp. *saxicola*	Coastal bluff morning glory	N, CNPS 1B
Carex gynodynama	Olney's hairy sedge	N
Carex obnupta	Slough sedge	N
Carpobrotus edulis	Iceplant	NN
Castilleja wightii	Wight's paintbrush	N
Ceanothus thyrsiflorus var. *griseus*	Blue blossom	N
Cerastium glomeratum	Chickweed	NN
Circium quercetorum	Brownie thistle	N
Cirsium vulgare	Bull thistle	NN
Claytonia perfoliata	Miner's lettuce	N
Cynosurus echinatus	Dogtail grass	NN
Cyperus eragrostis	Tall flat sedge	N
Cytissus scoparius	Scotch broom	NN
Dacylis glomerata	Orchard grass	NN
Danthonia californica	California oatgrass	N
Deinandra corymbosa	Coastal tarweed	N
Deschampsia caespitosa ssp. *holciformis*	Coastal tufted harigrass	N

Scientific Name	**Common Name**	**Native (N)/Non-Native (NN)**
Dudleya cymosa	Rock lettuce	N
Equisetum arvense	Horsetail	N
Erigeron glaucus	Seaside daisy	N
Eriogonum latifolium	Coast buckwheat	N
Eriophyllum staechadifolium	Lizard-tail	N
Erodium botrys	Big heron bill	NN
Erodium cicutarium	Red-stemmed filaree	NN
Eschscholzia californica	California poppy	N
Festuca arundinacea	Tall fescue	NN
Festuca myuros	Rattail fescue	NN
Festuca perennis	Ryegrass	NN
Fragaria vesca	Wood strawberry	N
Frangula californica	California coffeeberry	N
Galium aparine	Bedstraw	N
Gamochaeta ustulata	Featherweed	N
Gaultheria shallon	Salal	N
Genista monspessulana	French broom	NN
Geranium dissectum	Cut-leaf geranium	NN
Geranium molle	Dove-foot geranium	NN
Geranium robertianum	Robert's geranium	NN
Geranium sp.	Garden geranium	NN
Heracleum lanatum	Cow parsnip	N
Hesperevax sparsiflora var. *sparsiflora*	Short-leaved evax	N
Holcus lanatus	Velvet grass	NN
Hordeum murinum ssp. *leporinum*	Hare barley	NN
Hosackia gracilis	Harlequin lotus	N-CNPS Rank 4
Hypochaeris glabra	Smooth cat's-ear	NN
Hypochaeris radicata	Rough cat's-ear	NN
Iris douglasii	Douglas iris	N
Juncus balticus	Wire rush	N
Juncus bolanderi	Bolander's rush	N
Juncus bufonius	Toad rush	N
Juncus effusus	Pacific rush	N
Juncus patens	Spreading rush	N
Juncus phaeocephalus	Brownhead rush	N
Lamium purpureum	Red henbit	NN
Lathyrus tingitanus	Tangier pea	NN
Lathyrus vestitus	Comnon pacific pea	N
Lepdium nitidum	Peppergrass	N
Ligustrum sinense	Chinese privet	NN
Linum bienne	Flax	NN
Lonicera hispidula	Pink honeysuckle	N
Lonicera involucrata	Coast twinberry	N
Lotus angustissimus	Slender lotsu	NN

Scientific Name	**Common Name**	**Native (N)/Non-Native (NN)**
Lotus corniculatus	Bird's-foot trefoil	NN
Lupinus albifrons var. *albifrons*	Silver bush lupine	N
Lupinus bicolor	Dwarf lupine	N
Lupinus nanus	Sky lupine	N
Lysimachia arvensis	Scarlet pimpernel	NN
Lythrum hyssopifolia	Hyssop loosestrife	NN
Marah fabaceus	Man-root	N
Matricaria discoidea	Pineapple weed	NN
Melilotus indicus	Yellow sweet clover	NN
Mentha pulegium	Pennyroyal	NN
Mimulus aurantiacus	Sticky monkeyflower	N
Morella californica	Californa wax myrtle	N
Myosotis discolor	Blue scorpion-grass, forget me not	NN
Notholithocarpus densiflorus	Tanoak	N
Oenanthe sarmentosa	Water parsley	N
Oxalis corniculata	Creeping wood sorrel	NN
Oxalis pes-caprae	Bermuda buttercup	NN
Phalaris aquatica	Harding grass	NN
Phleum pretense	Timothy grass	NN
Pinus muricata	Bishop pine	N
Plagiobothrys sp.	Popcornflower	N
Plantago coronopus	Cut-leaf plantain	NN
Plantago lanceolata	English plantain	NN
Poa annua	Annual bluegrass	NN
Poa annua	Annual bluegrass	NN
Polypogon australis	Chilean beard grass	NN
Polystichum munitum	Western sword fern	N
Prunella vulgaris	Self heal	N
Pseudognalphium lueoalbum	Jersey cudweed	NN
Pteridium aqualinum	Bracken fern	N
Ranunculus californica	California buttercup	N
Ranunculus occidentalis	Western buttercup	N
Raphanus sativus	Wild radish	NN
Rosa nutkana	Nootka rose	N
Rubus ursinus	California blackberry	N
Rumex acetosella	Sheep sorrel	NN
Rumex crispus	Curly dock	NN
Sanicula arctopoides	Yellow mats	N
Sanicula crassicaulis	Sanicle	N
Scrophularia californica	California bee plant	N
Senecio vulgaris	Common groundsel	NN
Sidalcea malviflora ssp. *purpurea*	Purple checkerbloom	N, CNPS 1B
Silene gallica	Common catchfly	NN
Silybum marianum	Milk thistle	NN

Scientific Name	**Common Name**	**Native (N)/Non-Native (NN)**
Sisrynchium bellum	Blue-eyed grass	N
Sisyrinchium californicum	California golden eyed grass	N
Solanum sp.	Solanum	
Solanum xanti	Nightshade	N
Sonchus asper	Sow thistle	NN
Spergularia rubra	Red sand spurrey	NN
Stachys ajugoides	Hedge nettle	N
Taraxacum officinale	Dandelion	NN
Taraxia ovata	Sun cups	N
Toppis barbata	European milkwort	NN
Toxicodendron diversilobum	Poison oak	N
Trifolium dubium	Hop clover	NN
Trifolium repens	White clover	NN
Trifolium subterraneum	Subterranean clover	NN
Trifolium wormskioldii	Cow clover	N
Vaccinium californiucm	Huckleberry	N
Vicia gigantea	Giant vetch	N
Vicia lathyroides	Pea vetch	NN
Vicia pannonica	Hungarian vetch	NN
Vicia sativa	Spring vetch	NN
Vinca major	Periwinkle	NN
Viola adunca	Western dog violet	N
Watsonia meriana	Bulbil bugle lily	NN, invasive
Wyethia angustifolia	Narrow-leaved mules ears	N
Zantedeschia aethiopica	Calla lily	NN

Appendix D

Cultural Resources Assessment

July 10, 2018

Tom Hawbaker
Questa Engineering Corporation
1220 Brickyard Cove Road, Suite 206
Point Richmond, CA 94801

RE: Archival Research Results and Initial Plan Review for the North Coast Trail & Facilities Project, Sonoma County, California.

Dear Mr. Hawbaker:

At your request, we completed a record search for the North Coast Trail & Facilities Project, Sonoma County, California. Research was conducted at the Northwest Information Center (NWIC File No. 17-2132) of the California Historical Information System (CHRIS) on February 26, 2018 by Eileen Barrow and encompassed lands within a quarter-mile of the portions of the two properties, Kashia Coastal Preserve & Stewarts Point Ranch, which make up the study area. In addition, we reviewed documents and maps pertinent to this project that are on file at our offices.

Archival research included an examination of historical maps to gain insight into the nature and extent of historical development in the general vicinity, and especially within the study area. Maps ranged from hand-drawn maps of the 1800s (e.g., GLO plats) to topographic maps issued by the United States Geological Survey (USGS) and the Army Corps of Engineers (USACE) from the early to the middle 20th century.

Environmental Setting

The study area is located on the Sonoma County coast and consists of the land on the west side of Highway 1 of both properties. Geology within the study area consists of alluvial and marine terrace deposits at the Stewarts Point Ranch and German Rancho Formation at Kashia Coastal Preserve (Blake *et al*. 2002; Wagner and Bortugno 1982). These formation dates to the Pleistocene (2.58 million to 11,700 years ago) and the Eocene and Paleocene (66 to 33.9 million years ago) respectively.

The soils in the study area are from the Rohnerville and Maymen series, as well as terrace escarpments (Miller 1972: Sheets 24 insert and 43). Rohnerville soils are moderately well drained loams with a sandy clay subsoil. These soils are found on marine and bench terraces on slopes of 0-15 percent. The native vegetation is primarily annual and perennial grasses and legumes. Historically, these soils were used for sheep and cattle grazing, with a few areas on low slopes used for dryland pasture or hay (Miller 1972:73). Maymen series soils are well-drained gravelly sandy loams underlain by sandstone and shale bedrock. These soils are found on mountainous uplands on slopes of 30-75 percent. Vegetation is chiefly shrubs such as manzanita, chamise, and ceanothus with scattered clumps of scrub oak with a sparse understory of annual grasses and forbs in a few areas. Historically, these soils were used mainly for watershed and

recreation and as wildlife habitat (Miller 1972:62). Terrace escarpments consist of long, narrow rocky areas that rise abruptly from the mean tide line to the coastal plain terraces or plateaus. This land type consists of steep faces that separate the terraces from the lower lying land. Vegetation is sparse and consists of dwarfed shrubs, a few patches of grass, lichens, and moss (Miller 1972: 84).

Several unnamed seasonal drainages cross through the study area. The nearest perennial fresh water sources are Stewarts Creek, approximately 250 meters south of the Stewarts Point Ranch, and Deadman Gulch, approximately 1.2 kilometers south of Kashia Coastal Preserve.

Ethnographic Research

Archaeological evidence indicates that human occupation of California began at least 11,000 years ago (Erlandson *et al.* 2007). Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to be coeval with the development of sedentism and population growth and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems.

At the time of European settlement, the study area was within territory controlled by the Kashia Pomo (Barrett 1908; McLendon and Oswalt 1978). This group lived in rich environments that allowed for dense populations with complex social structures. They settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Primary village sites were occupied throughout the year and other sites were visited in order to procure particular resources that were especially abundant or available only during certain seasons. Sites often were situated near sources of fresh water and in ecotones where plant life and animal life were diverse and abundant. For more information about the Pomo, see Bean and Theodoratus (1978), Kniffen (1939), and Stewart (1943).

The closest ethnographic villages to the study areas are *dana'ga* and *kapa'cīnal*. These villages are described as located "just south of the store at Stewarts Point" and "about two miles northwest of Fisk's Mills and near the shoreline", respectively (Barrett 1908:229-230). The imprecision of Barrett's locational information makes it difficult to pinpoint exactly where these villages are, however, *dana'ga* is clearly described at a location outside of the study area.

Native American Contact

A request was sent to the State of California's Native American Heritage Commission (NAHC) seeking information from the sacred lands files and the names of Native American individuals and groups that would be appropriate to contact regarding this project. No response has been received as of the date of this report.

Historical Review

The study area lies is within the bounds of the Rancho German, a grant made to Ernest Rufus in 1846 (Cowan 1977:37). When granted, it comprised five leagues and extended along the coast from Plantation in Sonoma County into Mendocino County (Cowan 1977:37). A group of six men were claimants for 12,580 acres, which was patented in 1872 (Cowan 1977:37; Hoover *et al.* 1966:536).

Archival Review

Archival research found that both the Kashia Coastal Preserve and the Stewarts Point Ranch have been previously surveyed (see Table 1), and the right of way on the west side of Highway 1 has also been surveyed (Dowdall, 1993; Gardner 1981; Kelly and Buss 1987; Thompson 2008; Thompson and Dowdall 2001). Additionally, multiple studies have been conducted within a quarter mile of the study area (see Table 2).

Table 1. Studies within project area

Trail Segment	Author(s)	Date	S#
Stewarts Point	Alshuth *et al*.	2016	48415
Stewarts Point	Del Bondio and Origer	2010	-
Stewarts Point and Kashia Coastal Preserve	Loyd and Origer	2004	29179
Stewarts Point	Origer	1994	15854
Kashia Coastal Preserve	Origer	2015	-

Table 2. Studies within ¼ miles of the study area

Author(s)	Date	S#
Bramlette and Fredrickson	1990	12189
Gary	1991	12471
Hovland	2014a	44426
Kent	2000	27489
Martin	2002	26381
Origer	2011	-
Peterson	1996	17906
Porter	1985	9398
Thompson	2013a	42237

Within the Kashia Coastal Preserve, three archaeological resources and one archaeologically sensitive area were recorded by Tom Origer & Associates (2015). Within the Stewarts Point Ranch, one archaeological resource and three built environment resources have been recorded (Alshuth 2016a, 2016b, 2016c; Hennessy and Alshuth 2016). Buildings associated with the Richardson Ranch dating roughly to the turn of the 20th century are found within the study area are found on the Historic Properties Directory (Peterson 1981). Resources recorded within a quarter mile of the study area are listed in Table 3.

Table 3. Resources within 1/4 mile of study area

Nearest Trail Segment	Recorded by	Date	Trinomial	P#
Stewarts Point Ranch	Alshuth	2016d	-	49-005337
Kashia Preserve	Bauer	1949a	CA-SON-138	49-000138
Kashia Preserve	Bauer	1949b	CA-SON-257	49-000229
Kashia Preserve	Bauer	1949c	CA-SON-258	49-000230
Kashia Preserve	Bauer	1949d	CA-SON-260	49-000232
Kashia Preserve	Bauer	1949e	CA-SON-261	49-000233
Kashia Preserve	Bauer	1949f	CA-SON-262	49-000234
Kashia Preserve	Bauer	1949g	CA-SON-263	49-000235
Kashia Preserve	Bauer	1950a	CA-SON-188	49-000163
Stewarts Point Ranch	Bauer	1950b	CA-SON-192	49-002068
Kashia Preserve	Dowdall	1997	CA-SON-2218	49-001851
Kashia Preserve	Ferneau *et al*.	1987a	CA-SON-1618	49-002174
Kashia Preserve	Ferneau *et al.*	1987b	CA-SON-1619	49-002175
Kashia Preserve	Hovland	2014b	CA-SON-264	49-000236
Kashia Preserve	Hovland	2014c	-	49-004724
Kashia Preserve	Keswick	1987	CA-SON-193	49-000166
Stewarts Point Ranch	Painter	2008	-	49-001967
Stewarts Point Ranch	Richardson	2001a	-	49-003114
Stewarts Point Ranch	Richardson	2001b	-	49-003115
Stewarts Point Ranch	Richardson	2001c	-	49-003116
Stewarts Point Ranch	Thompson	1997	CA-SON-2236	49-001952
Kashia Preserve	Thompson	2013b	CA-SON-256	49-000228

Review of historical maps and atlases show that buildings appear within the area of the Stewarts Point Ranch as early as 1864, though it is not clear from these early maps if these buildings are within the current study area (Bell and Heymans 1888; Bowers 1867; GLO 1861; McIntire and Lewis 1908; Reynolds and Proctor 1898; Thompson 1877; USACE 1921, 1944a, 1944b; USCGS 1887, 1929; USGS 1943, 1943b, 1977, 1978). However, a building on the USACE 1921 map is clearly observed within the current study area. This building is recorded as P-49-005334 and is directly within the trail alignment as shown on project plans dated to April 2018.

Survey Procedures and Results

As previously stated, archival research showed that the entirety of both properties had been recently surveyed. However, the right of way along the west side of Highway 1 had not been surveyed as recently. Julia Franco surveyed the right of way on the west side of Highway 1 on June 19, 2018, for the entire length of both properties. Lorin Smith, Kashia Band of Pomo Indians of the Stewarts Point Rancheria, was present during the survey. Visibility ranged from excellent to poor, with vegetation being the chief hindrance. A hoe was used to clear patches of vegetation as needed. No archaeological resources were observed within the right of way.

Buried Resources Sensitivity

This record search included review and analysis of various environmental and cultural factors, including soil surveys, geological data, property history, and the locations of known archaeological sites in the

vicinity of the study area. The study area is located on nearly level terrain, perennial freshwater sources are at least 250 meters away, and the geology is older than 11,700 years old. The geologic deposits within the study area predate human arrival and occupation of California. Therefore, it appears that there is a very low probability of identifying a buried prehistoric archaeological site within the study area.

Recommendations
No further survey work is recommended.

Examination of project plans dated April 2018 show that the trail alignment on the Stewarts Point Ranch will go through resource P-49-005334. If the trail alignment cannot be redesigned to avoid it, this resource will need to be evaluated.

Please contact us if we can be of further assistance or if you have questions.

Sincerely,

Julia Franco
Associate

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Cultural Resource Sites EASEMENT BOUNDARY

DATA ACQUIRED FROM TOM ORIGER AND ASSOCIATES

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1 inch = 400 feet
CULTURAL RESOURCES

0 200 400 800 1,200 1,600
Feet

CULTURAL RESOURCES MAP

KASHIA TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

Path: C:\Users\Iain Farstrider\Box\1700167_NorthCoastTrails\GIS\1700167_NorthCoastTrails_Kashia_CulturalResources.mxd

Path: C:\Users\Iain Farstrider\Box\1700167_NorthCoastTrails\GIS\1700167_NorthCoastTrails_Stewarts_CulturalResources.mxd

Cultural Resource Sites EASEMENT BOUNDARY

DATA ACQUIRED FROM TOM ORIGER AND ASSOCIATES

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1 inch = 200 feet
CULTURAL RESOURCES

0 100 200 400 600 800
Feet

CULTURAL RESOURCES MAP

STEWARTS POINT TRAIL

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

Appendix E

Geotechnical Report

North Coast Trails Preliminary Geotechnical Report

Prepared for:

Sonoma County Regional Parks
2300 County Center Dr. 120A
Santa Rosa, CA 95403

Submitted by:

Questa Engineering Corporation
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Point Richmond, California 94807
(510) 236-6114

August 2018

North Coast Trails

Preliminary Geotechnical Report

Prepared for:

Sonoma County Regional Parks
2300 County Center Dr. 120A
Santa Rosa, CA 95403

Submitted by:

Questa Engineering Corporation
1220 Brickyard Cove Road, Suite 206
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Questa Project Number 1700167

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Senior Engineering Geologist

August 2018

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INTRODUCTION

This report presents the results of the Preliminary Geotechnical Investigation for trails and bridge facilities for the North Coast Trails project located in Sonoma County, California (**Figure 1a**). The project area evaluated in this preliminary investigation is divided into two separate sites. The first site (called in this investigation the Stewarts Point Trail) is located approximately 500 feet north (at its southernmost point) of the Route 1 and Skaggs Springs Road intersection. **Figure 1b** presents a site overview of this project area. The other section (called in this investigation the Kashia Trail) is located approximately 2 (northernmost point) to 3 miles (southernmost point) south of the Route 1 and Skaggs Springs Road intersection. The southern end of this proposed trail alignment is situated on the southwest boundary of Route 1 near the cliffs of Horseshoe Cove. **Figure 1c** presents a site overview of this project area.

The primary focus of the investigation was to evaluate the geotechnical conditions for three proposed bridge installations along a future trail system. These bridge sites were numbered Bridges 1 through 3, as shown in **Figures 2** to **4**. Dynamic Cone Penetrometer (DCP) tests were performed in the vicinity of each bridge abutment, and cliff stability concern areas surrounding the proposed Bridge 2 location were assessed. The geotechnical conditions of two other cliff stability concern areas, shown in **Figures 5** and **6**, were additionally evaluated.

Bridge Descriptions

The proposed Bridge 1 crossing (**Figure 2**) is located along the Kashia Trail, approximately 175 feet southwest of Route 1 Caltrans postmile marker SON 45. A photograph of the site (**Appendix A**, **Figure A-1**) is shown on the following page. An existing, unusable bridge is situated approximately 45 feet southwest from the proposed bridge crossing. The proposed bridge is intended to provide hiker access across a small NE-SW running drainage. The bridge is anticipated to be approximately 30 feet long and 6 feet wide. The drainage bed at this crossing is no deeper than 4 feet below the top of the bank in this area. Equipment access is not anticipated to be a concern for this bridge location.

The proposed Bridge 2 crossing (**Figure 3**) is located along the Kashia Trail, approximately 0.25 miles north-northwest from Bridge 1, and approximately 60 feet southwest from Route 1 Caltrans postmile SON 45.75. An existing historic barn is situated approximately 200 feet southeast from the crossing. A traversable bridge structure already exists at the proposed crossing area, though it has fallen into disrepair. A photograph of the site is shown on the following page (**Appendix A**, **Figure A-2**). It is anticipated to be approximately 30 to 40 feet long and 6 feet wide. Bridge 2 is intended to provide pedestrian access across a steep NE-SW running drainage, fed by a culvert under Route 1. The creek bed is no deeper than 5 feet below the creek bank at the proposed crossing location. Access to the site is very limited, particularly on the north abutment of the proposed bridge. Access to the site from the south, though feasible, may have limitations depending on the cultural resource status of the structures in the area.

The proposed Bridge 3 crossing (**Figure 4**) is located along the Stewarts Point Trail, approximately 515 feet west of Route 1 Caltrans postmile SON 48.25. A barn is located approximately 250 feet northwest of the proposed crossing. A photograph of the site is shown in **Appendix A**, **Figure A-3**. The bridge is anticipated to be approximately 30 feet long and 6 feet wide, spanning a NE-SW running drainage. Bridge 3 is intended to provide pedestrian access for

maintenance. The drainage bed at this crossing is no deeper than 4 feet below the top of the bank in this area. Access to this site is not anticipated to be a concern.

REGIONAL SEISMICITY

The project site lies in the tectonically active Coast Ranges Geomorphic Province of Northern California. The geologic and geomorphic structure of the northwest trending ridges and valleys in the region, including the Sonoma Mountains and adjacent low lying areas, are controlled by active tectonism along the boundary between the North American and Pacific Tectonic Plates, defined by the San Andreas Fault System. Regional faults have predominantly right-lateral strike-slip (horizontal) movement, with lesser dip-slip (vertical) components of displacement. Horizontal and vertical movement is distributed on the various fault strands within a fault zone. Throughout geologic time the fault strands experiencing active deformation change in response to regional shifts in stress and strain from plate motions.

The nearest known active fault is the San Andreas Fault, with several mapped fault traces located approximately 1 mile northeast of the proposed Stewarts Point and Kashia Trail project site improvements[1]. The northernmost 2,750 feet of the proposed Kashia Trail alignment is located within the mapped boundary of an Alquist-Priolo Earthquake Fault Zone for a local, subsidiary fault to the San Andreas Fault, as shown on (**Figure 7**). Bridges 1 and 2 are located within this zone.

Other nearby active faults include the Green Valley fault located approximately 24 miles to the east, the Maacama fault located approximately 25 miles to the northeast, and the Rodgers Creek Fault located approximately 29 miles to the southeast (CDMG 1994)[2]. A listing of active earthquake faults located in the project vicinity is presented in **Table 1**, below. The locations of these faults are shown on **Figure 8**.

Table 1: Major Active Faults within 60 Miles of the Project Site

Fault Name	Distance from Project Site (mi.)	Direction	Last Surface Rupture	Status*	Maximum Moment Magnitude
San Andreas	1	E	Historic	Active	7.9
Green Valley	24	E	Holocene	Active	6.6
Maacama	25	NE	Holocene	Active	7.3
Rodgers Creek	29	SE	Holocene	Active	6.9
Maacama	32	NE	Historic	Active	7.3
Big Valley	36	NE	Historic	Active	6.9
Bartlett Springs	51	NE	Holocene	Active	--
Hunting Creek	58	E	Historic	Active	6.9
West Napa	58	SE	Holocene	Active	6.5

*Faults showing displacement during Holocene time are considered active.

1 California Division of Mines and Geology, 1974, Alquist-Priolo Earthquake Fault Zone Maps of the Plantation, Annapolis and Stewarts Point Quadrangles, California, 1:24,000.
2 California Geological Survey, 2010, Fault Activity Map of California and Adjacent Areas.

Seismicity of the project region has resulted in several major earthquakes during the historic period, including the 1969 Santa Rosa Earthquakes and the 1906 San Francisco Earthquake. Given this history, it is likely that major earthquakes will occur in the region in the future. Small earthquakes occur in the San Francisco Bay and Northern California regions on a continuing basis and are associated with active faults including the San Andreas Fault Zone.

REGIONAL GEOLOGY

This area is characterized by northwest trending mountain ranges and valleys oriented sub-parallel to faults of the San Andreas Fault System. The project site is regionally dominated by the San Andreas Fault itself. Over at least the last 25 million years, cumulative offsets have transported some rocks west of the fault trace (those that compose the project site) approximately 350 miles northwestward relative to those on the east side of the fault trace[3,4]. The strata in the project area contain clasts believed to derive from sources in the San Emigdio Mountains, part of the Transverse Ranges in Kern County, California.

The interfingering Stewarts Point and Anchor Bay members of the Gualala formation and the German Rancho formation are the primary rocks exposed in the project area (**Figure 9**). Much of this bedrock is blanketed by a discontinuous veneer of marine terrace deposits along the coastline.

SITE TOPOGRAPHY AND GEOLOGY

Site Topography

The project area is comprised of a gently sloping coastal terrace landward of a sea cliff ranging from thirty to one hundred feet above sea level. The coastal terrace area can be broadly classified as a grass-covered surface interspersed with knobs and ridges of bedrock[4]. Only the southern section of the Kashia Trail (approximately 1,000 feet of trail alignment starting from the southern end of the trail) is wooded. The terrace is bounded on its inland side by coastal slope terrain, which exhibits a moderately sloping topography cut by steep-sided southwest-trending canyons.

Site Geology

Large sections of the proposed Stewarts Point and Kashia Trail alignments are most immediately situated on a marine terrace deposit surface. The coastal terrace is a wave-eroded surface created between 80 to 120 thousand years ago. This surface was subsequently uplifted by crustal movements to its present elevation. Much of the terrace is still covered by this marine terrace material, but interruptions in this deposit have occurred where erosion has removed them. While much of the marine terrace in the project area exhibits an average thickness of 5 to 12 feet, there may be areas where it extends up to 30 feet BGS (Below Ground Surface).

In the vicinity of the proposed Stewarts Point Trail alignment, the marine terrace deposits are underlain by the strata of Stewarts Point (Ks). Part of the Gualala formation, the strata of

3 California Division of Mines and Geology, Geology for Planning in Sonoma County, Special Report 120, 1980.
4 California Division of Mines and Geology, Geology for Planning on the Sonoma County Coast between the Russian and Gualala Rivers. Preliminary Report 16, 1972.

Stewarts Point are characterized by marine sandstone and conglomerate interbedded with shale, and thinly to thickly interbedded sandstone and shale[3].

Stewarts Point member bedrock is conformably overlain by the strata of Anchor Bay (Ka), which only outcrops in the southernmost extent of the proposed Stewarts Point Trail alignment. The strata of Anchor Bay are characterized by thinly to thickly interbedded marine sandstone and shale, interspersed with massive sandstone and conglomerate.

Anchor Bay member bedrock is overlain by the German Rancho formation (Tg), which is composed of massive marine sandstone, conglomerate and thinly- to thickly-interbedded sandstone and shale. The Kashia Trail alignment is entirely underlain by this formation.

SITE SOILS

Shallow soils include Clayey Sand, Clayey Sand with Gravel, Sandy Clay, Sandy Clay with Gravel, Gravelly Clay, and Gravelly Clay with Sand. According to the USDA Soil Survey of Sonoma County, California[5], the predominant soil type in the Stewarts Point Trail area is Rohnerville Loam (**Figure 10**). The Kashia Trail soils include Rohnerville Loam, Maymen gravelly sandy loam, and terrace escarpments (**Figure 11**).

FIELD INVESTIGATION

Questa Engineering performed a subsurface investigation which included: (1) seven Dynamic Cone Penetrometer tests with depths up to 11.5 feet BGS, (2) two hand auger holes with depths up to 5 feet BGS, and; (3) soil horizon and bedrock sampling and profiling to a depth of 5 feet BGS at the site of the north bridge abutment at the proposed Bridge 2 crossing location.

Dynamic Cone Penetrometer Boreholes

Dynamic Cone Penetrometer (DCP) test holes using the Triggs Wildcat Dynamic Cone system were completed at the locations shown on **Figures 2, 3** and **4**. They are labeled in the order of execution. The Triggs Wildcat utilizes a 35-pound hammer to drive cone tips connected by steel rods. The DCP data is in blows per 4 inches, which is equivalent to the Standard Penetration Test which utilizes a 140-pound hammer dropped from 30 inches and provides blow counts per 12 inches, which is known as the N-value. The N-value is indicative of the strength of the material being penetrated.

The locations shown in **Figures 2, 3** and **4** were chosen to assess the consistency of shallow materials at each end of the three proposed bridge alignments. The DCP logs are presented in **Appendix B**.

At the proposed Bridge 1 location (**Figure 2**), three DCP test holes were completed. Two tests were attempted on the north bank of the crossing area (T-5a and T-5b) to ensure the depth to resistant material was accurate. Beneath approximately 5 inches of organic soils, T-5a penetrated medium dense clayey sand with gravel to a depth of 1 foot BGS, and encountered refusal in a

5 US Department of Agriculture, National Conservation Service Web Soil Survey. Soil Survey of Sonoma County, California. Data acquired 6-4-2018.

very dense, hard material at 1.5 feet BGS (apparently bedrock). Test T-5b penetrated loose organic soils to a depth of 6 inches (0.5 feet), and was similarly underlain by medium dense clayey sand with gravel to a depth of 1 foot BGS. Refusal was encountered at 1.5 feet BGS (interpreted as bedrock). On the south bank of the crossing area (T-6), loose to medium dense sandy clay with gravel was penetrated to a depth of 2 feet BGS. Refusal was encountered at 2.5 feet BGS at this location. Observations of the cliff face and the stream bed in the vicinity of the tests indicate that these tests reflect the thickness of the soils and marine terrace deposits in this area. Well-indurated bedrock is interpreted at a depth of approximately 1.5 to 3 feet BGS.

At the proposed Bridge 2 location (**Figure 3**), two DCP test holes were completed. On the south bank of the crossing area (T-3), very stiff sandy clay with gravel was penetrated to a depth of 1 foot BGS. This was underlain by loose to medium dense clayey gravel with sand to a depth of 3 feet BGS, at which depth refusal occurred (interpreted as bedrock). Observations of the cliff face and depth to bedrock outcrops beneath the existing bridge structure on the south side indicate that this test reflects the thickness of the soils and marine terrace deposits above well-indurated bedrock on the south side of this crossing. On the north side of the crossing (T-4), dense to very dense sandy gravel with clay was almost immediately penetrated. Several unsuccessful attempts were made to penetrate the gravel terrace deposit. The deepest of these penetrated to a depth of 2 feet BGS. Observations of the cliff face on this side of the crossing indicate that the thickness of the terrace deposit in this area may be up to 7 feet, overlying well-indurated bedrock. The terrace deposit contains significant gravel lenses that were not able to be penetrated.

At the proposed Bridge 3 location (**Figure 4**), two DCP test holes were completed. On the west bank of the bridge crossing area, loose to medium dense sandy clay with gravel was penetrated to a depth of 1 foot BGS. From 1 to 3.5 feet BGS, dense clayey sand with gravel was penetrated. This was underlain by what appeared to be medium stiff to stiff sandy clay to a depth of 6 feet BGS, where refusal was encountered. On the east bank of the crossing area, medium dense clayey sand with gravel fill was penetrated to a depth of 2 feet BGS. This was underlain by stiff to medium stiff sandy clay with gravel to a depth of 3 feet BGS. From 3 to 6 feet BGS, soft lean sandy clay was encountered, and from 6 to 8 feet BGS, medium stiff lean sandy clay was penetrated. This was underlain by stiff to very stiff sandy clay to a depth of 10.5 feet BGS. From 10.5 to the base of the hole at 11.5 feet BGS, very dense/ hard material was penetrated. Refusal was encountered at 11.5 feet BGS (interpreted as bedrock).

GEOMORPHIC HAZARDS

Geomorphic phenomena are naturally-occurring, surficial processes that contribute to the small- and large-scale shaping of landscapes. In particularly dynamic and unstable landscapes, these processes can result in hazardous conditions. Such hazards can be exacerbated by human activity. The most significant geomorphic hazard to the proposed trail alignments and the bridge locations are cliff instabilities, rockfall and landsliding along the cliff face.

Cliff Instability and Landslides

The cliff face along the Kashia Trail is mapped by the California Division of Mines and Geology as either an unstable cliff zone or a cliff zone of very low stability (**Figure 12**). The thinly interbedded sandstone and shale bedrock (German Rancho formation) in the vicinity of the

proposed Bridge 2 location strikes nearly parallel with the cliff face and dips steeply (approximately 50 degrees) towards the ocean and shoreline. This composition and orientation is conducive to rockslides and rockfall, potentially within the lifetime of the structure. Pieces of bedrock can be cleanly separated from the rock mass along the bedding surface by hand (**Appendix A**, **Figure A-4**). The bedrock additionally exhibits two well-defined systematic joint sets that also contribute to its low stability. Large storm events, wave undercutting, earthquakes, fires and human activity all contribute to cliff instability. Seismically-induced cliff failure is specifically addressed in the next section of this report.

The area immediately north of the proposed Bridge 2 crossing is composed of 5 to 7 feet of marine terrace deposits overlying bedrock. The proposed trail alignment in this area is constrained on its inland side by an existing fence, and the cliff face on its ocean side. For approximately 15 feet extending north beyond the bridge abutment, the maximum width of traversable land is 6 feet (**Figure 3**, Concern Area 3). Field observation of this section indicates that slides within the marine terrace deposit occur readily and regularly. The introduction of trails with moderate human traffic makes this area particularly susceptible to rapid erosion and shallow cliff failure.

An area approximately 45 feet southeast of the proposed Bridge 2 crossing, designated as Concern Area 2, may also be susceptible to cliff instabilities. This section of trail is constrained to a width of approximately 20 feet by a northwest-southeast running fence line on the trail's northeast side and the cliff face on its southwest side. It is recommended that the setback of the trail alignment from cliff face should be maximized based on the easement boundary.

Due to potential cultural resource restrictions around the historic structure south of the proposed Bridge 2 crossing and Concern Area 2, the proposed Kashia Trail alignment delineated in this section may be forced to significantly deviate from the course displayed in **Figure 5**. In order to avoid and preserve the historic structures in the area, the alignment would have to approach the cliff face and pass behind the southeastern end of an existing fence. This is designated as Concern Area 1 on **Figure 5**. The alignment would be constrained to a width of approximately 5 feet (by the fence on its northeastern side and the cliff face on its southwestern side) for a stretch of approximately 25 feet. The cliff face in this area was mapped by the California Division of Mines and Geology as a zone of very low stability (**Figure 12**). Field observations of the cliff face indicate that the marine terrace deposits along this section of cliff face range in thickness from 2 to 5 feet. Relatively fresh, sparsely-vegetated sections of terrace deposit were also observed on the cliff face, indicating recent small-scale slide activity. The introduction of a trail with moderate human traffic through such a narrow area could make the marine terrace on the cliff face particularly susceptible to rapid erosion and possible failure. It is not recommended that the trail alignment pass through this area. Should the trail alignment be required to thread behind the fence line due to cultural resource restrictions, Questa recommends additional geotechnical assessments be performed and that the area be evaluated for crossing structure feasibility.

The section of the proposed Stewarts Point Trail alignment shown in **Figure 6** also approaches the cliff face, and is the final section of cliff stability concern evaluated in this geotechnical investigation. At its narrowest, this section of trail is constrained to a width of approximately 15 feet by a fence to the east and the cliff face to the west. The cliff face along this section of trail

was mapped by the California Division of Mines and Geology as a zone of low stability (**Figure 12**). The massive marine sandstone and conglomerate bedrock (Gualala formation, Stewarts Point member) that underlies the trail section is less susceptible to cliff instability than the bedrock observed at the Bridge 2 location and the concern area shown in **Figure 5**. However, these cliffs are still considered to exhibit a relatively low stability. It is recommended that the trail alignment for this section hugs the eastern fence line at the maximum feasible setback from the cliff face.

Questa reviewed and analyzed historic aerial imagery of the project sites from 1953 and 1965 to assess cliff erosion and retreat at the Bridge 2 location (**Figure 3**) and at potentially sensitive areas shown on **Figures 5** and **6** where the trail alignments approach the modern day cliff face (**Appendix C**). While it was found that measureable retreat has occurred in places along the cliff face, retreat at the Bridge 2 location and in these potentially sensitive areas has occurred at too small of a scale to be accurately measured using this technique. Despite 65 years of relatively little change, the cliffs are still highly susceptible to landslide events.

Slope Instability and Landslides

The majority of both trail alignments do not approach the cliff face. These sections are situated in areas with gentle slopes and on bedrock with shallow soils (Slope Stability Class A), areas of gentle slopes on terrace deposits or alluvium (Slope Stability Class B), and areas of moderate slopes on strong rocks (Slope Stability Class C). These areas are shown on **Figure 13**. Class A areas are stable, and landsliding is unlikely. Class B areas are stable, but may exhibit some local bank slumps along gullies and streams. Class C areas are relatively stable, where landslides are infrequent and unlikely except on the steepest slopes.

A fill slope for highway Route 1 begins approximately 20 feet northeast of the proposed Bridge 2 location (**Figure 3**). The slope runs parallel and upslope to the proposed crossing. A culvert constructed of corrugated metal pipe outlets from this fill slope, crossing underneath Route 1 to feed the drainage that the proposed crossing spans. Review of historic aerial imagery at this location indicates that highway Route 1 adopted much of its present alignment between 1953 and 1965 (**Appendix C**). Fill slopes constructed during this time were often under-engineered, and are susceptible to failure. The culvert appears to be highly corroded and in poor condition (**Appendix** A, **Figure A-5**). Should the culvert deteriorate beyond functionality, unmanaged subsurface water conditions could destabilize the slope.

Stream Channel and Bank Erosion

The stream channels crossed at the proposed bridge locations have relatively gentle down channel gradients. Flows at each crossing are controlled by upstream culverts. Out of the proposed bridge locations, the north abutment of Bridge 2 is most susceptible to bank erosion. The easily-eroded marine terrace deposits on this side may be subject to bank erosion during high flow events. Well-indurated, resistant bedrock is much shallower on the south side of the crossing, and large riprap boulders protect erosion of the cliff downstream. Significant channel and bank erosion at Bridges 1 and 3 is not anticipated.

Expansive Soils

Expansive soils are those that shrink and swell in response to changes in moisture content. Native soils encountered at Bridges 1 and 2 consist of soils with low expansion potential. Clay soils encountered in these areas exhibited no visual evidence of high shrink-swell capability. Native soils encountered on the west side of Bridge 3 (HA-2 vicinity) between 2.5 to 6 feet BGS (beneath the historic railroad fill materials) consist of lean clays. The plasticity of these soils were evaluated in the laboratory, and found to have plasticity index and liquid limit values that suggest a low to medium expansion potential.

GEOLOGIC SEISMIC HAZARDS

Fault Rupture

Fault rupture is a primary seismic hazard that affects structures situated above an active fault. The hazard from fault rupture is the movement of the ground surface along a fault. Typically, this movement takes place during the short time of an earthquake, but can also occur slowly over many years in a process known as fault creep. As shown on the Earthquake Fault Zone (EFZ) map of the Stewarts Point and Plantation Quadrangles[6], the project sites do not lie within the Alquist-Priolo Earthquake Fault Zone Boundary for the main San Andreas Fault. However, the northernmost 2,750 feet of the proposed Kashia Trail alignment, which includes the Bridge 1 and Bridge 2 locations, is situated within the Alquist-Priolo EFZ Boundary for a local subsidiary fault to the San Andreas. The locations of the Alquist-Priolo EFZ Boundary for the San Andreas Fault and the subsidiary fault relative to the project sites are shown on **Figure 7**.

According to the Alquist-Priolo Earthquake Fault Zone Act of 1972[7], properties within EFZs are subject to State regulations that include prohibiting structures for human occupancy being sited within 50 feet of an active fault, geologic reports addressing surface fault hazard, and geologic review of fault reports, among other provisions. A significant portion of the proposed Kashia Trail alignment is situated within an EFZ boundary. However, there is no definitive evidence of historic activity and surface rupture along the subsidiary fault segment mapped in the vicinity of the northern 2,750 feet of the proposed Kashia Trail alignment. Though Alquist-Priolo EFZ boundaries are governed by state law, a USGS study completed in 2002 does not map any active fault traces in this area (**Figure 9**, magenta fault traces denote Quaternary activity)[8]. The EFZ designation given to this subsidiary fault seems to originate from a California Division of Mines and Geology preliminary report completed two years prior to the EFZ maps' publication[9]. In this report, this fault is designated as a "possible recently active break" where "geologic features permit interpretation as [a] recently active break but other explanation[s] [are] possible. Further investigation [is] required for certain designation."

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6 California Division of Mines and Geology, 2000, Digital Images of Alquist-Priolo Earthquake Fault Zone Map of the Stewarts Point and Plantation Quadrangles, California, 1974, 1:24,000.

7 California Division of Mines and Geology, 1997 (revised), Fault-Rupture Hazard Zones in California, CDMG Special Publication 42.

8 United States Geological Survey, 2002, Geologic Map and Map Database of Western Sonoma, Northernmost Marin, and Southernmost Mendocino Counties, California, Miscellaneous Field Studies Map MF-2402.

9 California Division of Mines and Geology, 1972, Geology for Planning on the Sonoma County Coast Between the Russian and Gualala Rivers, Preliminary Report 16.

A subsequent report completed in 1980 designated the subsidiary fault as a "potentially active fault" with "features indicative of geologically young (Quaternary) surface rupture". It is therefore "considered to be capable of renewed surface movement"[10]. Neither this report nor the preliminary report from 1972 constrains surface fault rupture along this fault to a historic or Holocene time frame. Both reports additionally fail to definitively designate the feature as an active fault trace. Finally, the inferred trace delineated in both reports terminates approximately 1,500 feet northwest of the northernmost extent of the proposed Kashia Trail alignment (as shown on **Figure 14**). This deviates significantly from the trace delineation on the Plantation Quadrangle EFZ map. On the Plantation quadrangle map, this fault's EFZ designation is accompanied by the note "projected from the adjacent [Stewarts Point] quadrangle" (**Appendix D**, **Figure D-1**). Questa's field observation in this area and literature review was unable to find substantiating evidence to merit this projected extension.

Ground Shaking

Strong ground, or seismic, shaking is a secondary seismic hazard that exists throughout the Northern California Region. The severity of ground shaking at any location depends on several variables such as earthquake magnitude, epicenter distance, local bedrock geology, thickness and seismic response of soil and sediment materials, groundwater conditions, and topographic relief.

The US Geological Survey Seismic Design maps indicate that a peak ground acceleration of 0.832 gravity (G) may occur at the site during seismic events along the San Andreas Fault at the project site. Generalized areas throughout the project site that are more susceptible to severe ground shaking are shown in **Figure 14**. Any areas throughout the project site covered by relatively thick marine terrace deposits or alluvium are subject to severe ground shaking.

Seismically Induced Ground Failure

Seismically induced ground failure refers to a loss of ground strength and/or cohesion as a result of seismically induced ground shaking (generated by an earthquake). There are multiple types of ground failure hazards, including liquefaction, differential settlement, lurch cracking, lateral spreading and seismically induced landslides.

Seismically-Induced Landslides

Seismically-induced landslides are mass downward and outward movements of rock, soils, and artificial fills that result from seismic activity. Landslides along the cliff face are the main seismic hazard to project sections near the cliff along the proposed Stewarts Point and Kashia Trails **(Figures 3, 5** and **6**).

Movement of nearby the San Andreas Fault is the most likely cause of both small- and large-scale cliff failures. A large earthquake event is likely to generate numerous shallow failures and debris slides along the cliff face throughout the project area, especially where marine terrace deposits are thickest and relatively unsupported by the underlying bedrock. The zones of lowest cliff stability, as shown in **Figure 12**, are most prone to such failures.

10 California Division of Mines and Geology, 1980, Geology for Planning in Sonoma County, Special Report 120.

Deep-seated landslides may also occur as a result of a large earthquake event. These often occur along pre-existing planes of weakness in the bedrock, such as bedding surfaces. Much of the project area is situated on bedrock whose bedding surfaces steeply dip towards the shoreline and into the ocean. This makes the cliffs throughout this site highly susceptible to such failures. Seismically-induced landslides are particularly hazardous to the proposed Bridge 2 location (**Figure 3**), where deep-seated bedrock failure could occur at the proposed crossing along the steeply dipping bedding surfaces.

The aforementioned fill slope for highway Route 1, constructed between 1953 and 1965, begins approximately 20 feet northeast of the proposed Bridge 2 location. Fill slopes from this period predate many modern road construction standards, making them susceptible to failure. Even if additional subgrade improvements have been completed since the road's initial construction, an earthquake event could cause debris slides or flows of the fill material upslope of the proposed crossing.

Liquefaction

Liquefaction is a process in which uniform, clean, loose, fine sandy and silty sand sediments below the water table temporarily lose strength during an earthquake and behave as a viscous liquid rather than a solid. Uniformly graded sands and silty sands susceptible to liquefaction were not found at the project site during the subsurface investigation. Potentially liquefiable sands, although unlikely, could be present in terrace deposits not evaluated during this investigation, but would be unlikely to affect bridge crossings that would span across stream deposits.

LABORATORY TESTING

Laboratory testing was performed on selected samples from the hand auger holes and cliff face samples. Laboratory testing was performed in Questa's laboratory in general accordance with American Society for Testing and Materials (ASTM) standards for particle size analysis, and liquid and plastic limits (including plasticity index, PI).

Particle Size Analysis

Particle size analysis testing was performed in accordance with ASTM D 422. Samples were collected at varying depths in HA-2 and a cliff face sample of in-situ material 2 to 5 feet BGS north of the proposed Bridge 2 crossing, and were tested for grain size using the dry sieve method to determine sand and gravel fraction percentages. Testing included a wash through the number 200 sieve to determine silt plus clay fraction percentages. Results are presented on **Figure 15**.

Liquid Limit, Plastic Limit and Plasticity Index

Testing of liquid limit, plastic limit and plasticity index were performed on a sample from HA-2 at 3 to 3.5 feet BGS in accordance with ASTM D 4318. Results are presented on **Figure 16**. The material was found to have a medium plasticity (PI = 17). While anticipated to be minimal, some lean clays in this area may exhibit moderate swell capacity.

SEISMIC DESIGN CRITERIA

The site facilities should be designed in conformance with current applicable standards for seismic stability as presented in the 2016 California Building Code. The average soil conditions indicate Site Class C, dense soil and soft rock. The occupancy category for the structures is III. These parameters indicate a Seismic Design Category D. This information is summarized in **Table 2**, along with seismic design criteria for design of the project in accordance with the 2016 California Building Code, ASCE 7-10 Standard.

Table 2. Seismic Design Criteria in accordance with the 2016 California Building Code

Site Class	C
Soil Profile Name	Dense soil and soft rock
Occupancy Category	III
Seismic Design Category	E
Peak Ground Acceleration (PGA)	0.832 g
Site Coefficient F_{PGA}	1.0
Mapped Spectral Response for Short Periods - 0.2 Sec (S_s)	2.138 g
Mapped Spectral Response for Long Periods - 1 Sec (S_1)	1.016 g
Site Coefficient- Fa, based on the mapped spectral response for short periods	1.0
Site Coefficient- Fv, based on the mapped spectral response for long periods	1.3
Adjusted Maximum Considered EQ Spectral Response for Short Periods (S_{MS})	2. 138
Adjusted Maximum Considered EQ Spectral Response for Long Periods (S_{M1})	1.320
Design (5-percent damped) Spectral Response Acceleration Parameters at short periods (S_{DS})	1.425
Design (5-percent damped) Spectral Response Acceleration Parameters at long periods (S_{D1})	0.880
Design Response Spectrum T_L	12 seconds
C_{RS}	0.878
C_{R1}	0.861

GEOTECHNICAL RECOMMENDATIONS

The project is feasible from a geotechnical standpoint, provided that our recommendations are followed during design and construction of the project. The high, unstable cliffs present a unique construction hazard throughout the project area. As such, the contractor is required to provide a safety access plan for trail sections adjacent to the cliff face. These include, but are not limited to, the cliff stability concern areas addressed in **Figures 3**, **5**, and **6**. Some trail sections located very close to cliff hazard zones are recommended to be constructed using small, walk-behind equipment and hand tools. Equipment used for the construction of the proposed Bridge 2 crossing must be carefully selected. Wherever possible, setbacks of the proposed trail alignment

from the cliff face should be maximized. Provided that the site is properly prepared and the structures and foundations are designed and constructed as recommended, the unavoidable seismic and geomorphic hazards of the area will be minimized.

Bridges

Based on results of our geotechnical investigation, the shallow soils at the proposed bridge abutment locations have relatively poor supporting characteristics for shallow bridge foundations, but underlying bedrock and firm soil materials can provide adequate support. Two types of abutment foundations are considered appropriate for the bridges. Abutments can be supported on cast-in-place drilled piles extending into underlying supporting bedrock or firm soil materials. Alternatively, in many of the locations abutments can be supported on footings which are deepened to penetrate bedrock or firm supporting soil materials connected by pile caps or grade beams at the bridge support. The deepened footing excavations can be partially backfilled with non-expansive fill, such as Class 2 aggregate base, to create a solid bearing surface for the footings. Non-expansive fill or Class 2 Aggregate Base should be a minimum of 12 inches in thickness and be compacted to 95 percent of the maximum dry density at moisture contents within 2 percent of optimum as determined in the laboratory in accordance with ASTM D 1557. Alternatively, the footings can be underlain by Controlled Low Strength Material (CLSM) or lean cement concrete. The CLSM should have a minimum strength of 90 psi at 28 days.

Bridge 1

Bridge 1 is a minor stream crossing approximately 30 feet in length with a shallow creek bank. Access to this location is moderately limited. Shallow bedrock within 3 to 4 feet of ground surface was present on both sides of the stream crossing. Based on the subsurface investigation results, spread footing foundations deepened into the bedrock can be used for abutment support. Alternatively, drilled piers extending into the underlying bedrock could be completed.

Bridge 2

Bridge 2 would be approximately 30 feet long spanning a gently sloping drainage that dramatically steepens approximately 5 feet downstream from the proposed crossing location. Direct access to this location with heavy machinery is very limited. Shallow bedrock is present within 3 to 3.5 feet at the southern proposed abutment locations (T-3). While the Dynamic Cone Penetrometer test at T-4 was unable penetrate the ground deeper than 2.5 feet BGS, cliff face observations indicate that bedrock is likely greater than 5 feet BGS at the northern proposed abutment location. Drilled piers extending into the underlying bedrock is the recommended foundation type for this bridge. It is important that the contractor provides a safety access plan specific to this location before construction.

Bridge 3

Bridge 3 would be approximately 30 feet long spanning a minor stream. Access to this location has few limitations. At the eastern proposed abutment location (T-2), resistant material was encountered approximately 11 feet BGS (presumed bedrock). At the western proposed abutment location, the Dynamic Cone Penetrometer test at T-1 was unable to penetrate the ground deeper than 6 feet BGS (possibly bedrock, but refusal may be from hard or dense gravels of marine terrace deposits). The recommended abutment foundations in this area would be supported on

cast-in-place drilled piers extending through the overlying terrace, fluvial and fill deposits into underlying bedrock.

Foundation Design Recommendations

Spread Footings

For spread footings founded on bedrock, or on Class 2 AB over bedrock, allowable bearing pressure of 3,000 pounds per square foot (psf) can be used for dead plus live loads, and can be increased by 33 percent for total loads, including wind or seismic forces to a maximum total of 4,000 psf. Resistance to lateral loads should be computed using a passive pressure equivalent to a fluid weight of 300 pounds per cubic foot (pcf). In addition, a friction coefficient of 0.35 can be used on the base of the footing. If water is present in footings, it should be pumped out prior to placement of the concrete.

Drilled Piers

For bridges founded on abutments supported on cast-in-place drilled piles, piles should penetrate the variable surface soils into the underlying bedrock a minimum of 6 feet. Drilled cast-in-place concrete piers should be a minimum of 12 inches in diameter and should be designed to support vertical and uplift loads based on a skin friction of 500 psf in surface soils, neglecting the upper three feet of soils, and 1,000 psf in bedrock materials. The recommended skin friction is for dead plus long-term live loads and can be increased by 33 percent for total loads including wind or seismic forces to a maximum of 1,200 psf. End bearing should be neglected due to the difficulty in cleaning out small diameter pier holes. Resistance to lateral loads should be based on passive pressures using an equivalent fluid weight of 300 pcf over a width of two pier diameters on the portion of the piers extending into firm supporting bedrock.

The pier holes should be straight and free of loose soil and debris. Groundwater was not present during the subsurface investigation in the auger and DCP holes, but could be present during pier drilling. If groundwater is present during pier construction, then the water should be pumped out prior to pouring of the concrete and the concrete should be tremied into place. There should be no over-pouring (mushrooming) of the concrete at the surface.

The pier reinforcements should be placed with a minimum of 3 inches clearance from the bottom and sidewalls of the pier holes using dobees or other approved spacers. Concrete should be Type II/V, a corrosion resistant concrete.

Minor Wetland Crossings

There are several locations were the proposed trail alignments pass through areas designated as coastal wetland areas, as shown in the Wetland Delineation Report. From a geotechnical standpoint, the soils encountered in these areas pose no special concerns outside of drainage, wetness, and low to medium expansion potential. The near surface soils encountered in these areas have suitable conditions to support lightweight pedestrian structures such as puncheons or turnpikes. Armored crossings that implement the use of geosynthetics such as geocells are similarly feasible at these locations.

Site Preparation and Grading

Areas to be graded for trail construction should be cleared and grubbed to a minimum depth of 3 to 6 inches to remove vegetation and surface organic soils. Special care should be taken in subgrade soil preparation; the base of the structural section of the trail should be scarified to a depth of ten (10) inches, moisture conditioned (wetted or dried) to a moisture content of 1 to 4 percent above the optimum, and recompacted to a minimum of 90 percent of the maximum dry density. Native sub-soil material exposed during trail grading and construction is expected to be generally satisfactory as a trail surface. If the native material locally consists of large amounts of topsoil or organic matter, it should be set aside for later use as a cover and planting media for exposed subsoil areas. Wet areas and areas with saturated soils for extended periods will need trail drainage structures (as mentioned in the previous section) and/or crushed rock. For the 6-foot section of proposed trail leading to a tie in with a bridge, a 10-inch thick layer of Class 2 AB or cement treated Class 2 AB should be used. These materials should be compacted to a minimum of 95 percent of the maximum dry density at moisture contents within 2 percent of the optimum. The underlying subgrade should be scarified to a minimum of 10 inches and recompacted to a minimum of 90 percent of the maximum dry density at moisture contents of 1 to 4 percent above the optimum. On top of the Class 2 AB, a 3-inch thick layer of decomposed granite or quarry fines should be placed and compacted to a minimum of 95 percent of the maximum dry density. All material compaction characteristics should be verified in accordance with ASTM D 1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort. During construction compaction should be verified in the field in accordance with ASTM D 6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods.

Parking Lots

Areas to be graded for parking lot construction should be cleared and grubbed to a minimum depth of 6 inches to remove vegetation and surface organic soils. Native subgrade soils should be scarified to a depth of 10 inches; moisture conditioned, and recompacted to a minimum of 90 percent of the maximum dry density. For asphalt concrete paved parking lots, a minimum 12-inch (1 foot) layer of Class 2 AB or cement treated Class 2 AB should overly the compacted native soil. These materials should be compacted to a minimum of 95 percent of the maximum dry density at moisture contents within 3 percent of the optimum. The asphalt concrete section should be a minimum of 4.0 inches (0.33 feet) thick.

Parking lots should be graded to ensure positive drainage. Ponding of water in the parking lot area can lead to shortened pavement and subgrade life.

LIMITATIONS

This investigation was performed in accordance with present geotechnical and engineering geologic standards applicable to this project. In our opinion, the scope of services adequately supports the conclusions and recommendations presented. The findings are valid now, but should not be relied upon after three years without our review.

The recommendations of this report are based upon the assumption that the conditions do not deviate from those interpreted from the surface observations of this investigation and review of available information developed by others. If any variation or undesirable conditions are

encountered during construction, or if the proposed construction differs from that planned at the present time, we should be notified so that supplemental recommendations can be given. The recommendations of this report are intended for the site described only, and must not be extended to adjacent areas.

This report is issued with the understanding that it is the responsibility of the owner to ensure that contractors and subcontractors carry out the recommendations presented.

CONSTRUCTION SERVICES

During construction, work by the contractor should be observed and tested by qualified geotechnical personnel to ensure conformance with design standards. This will allow actual subsurface conditions to be observed. If conditions differ from those anticipated by this report then supplemental recommendations may be needed. We should be consulted during construction to provide these supplemental recommendations.

Geotechnical services during construction should include:

- Observation and testing of site preparation and grading, including fill placement and compaction.
- Observation of drilled piles to confirm that firm supporting materials are encountered and to verify depth criteria.
- Observations of footing excavations to verify that firm supporting materials are penetrated and to confirm depth criteria.
- If groundwater is present, observations to confirm that water is removed prior to placement of concrete and that concrete is tremied into pier holes if necessary.

FIGURES

CLIFF STABILITY CONCERN AREA 4 (FIGURE 6)

STEWARTS POINT TRAIL

BRIDGE 3 (FIGURE 4)

CLIFF STABILITY CONCERN AREAS 2 AND 3 (FIGURE 3)

CLIFF STABILITY CONCERN AREA 1 (FIGURE 5)

BRIDGE 2 (FIGURE 3)

BRIDGE 1 (FIGURE 2)

KASHIA TRAIL

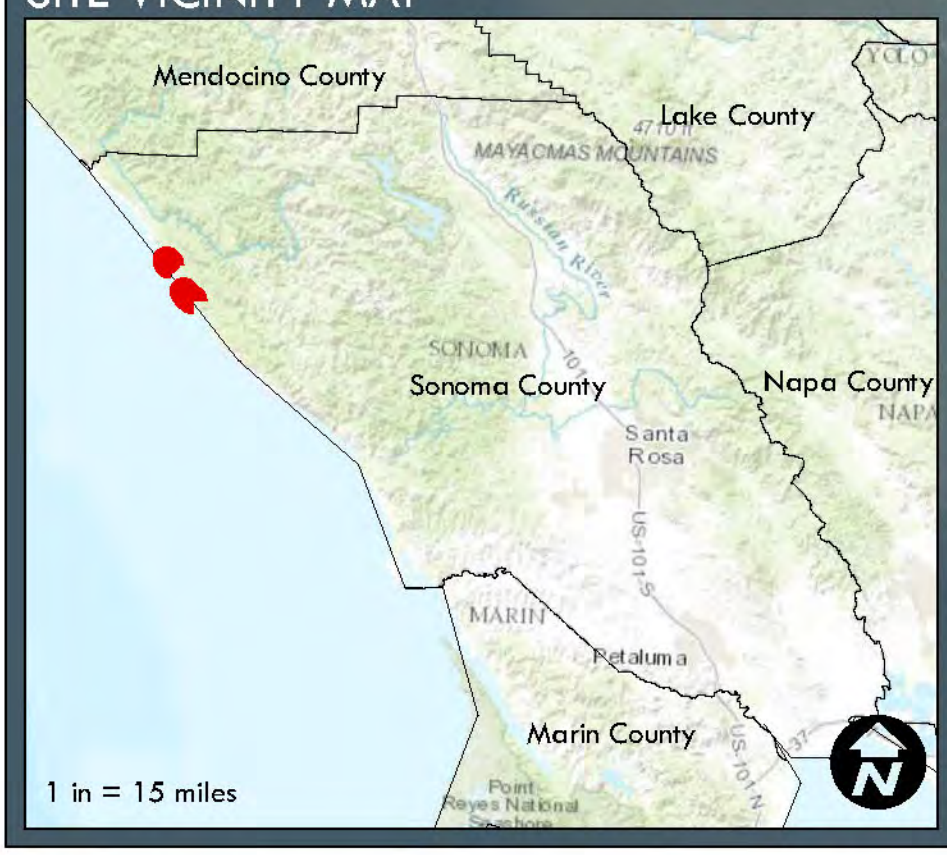
Stewarts Point

Stewarts Point Skaggs Springs Rd

Stewarts Creek

Highway 1

SITE VICINITY MAP



TRAIL ALIGNMENT

FIGURE LOCATIONS

DRAWN BY SCOTT YEHL

Date Saved: 8/16/2018 1:06:39 PM

1 inch = 1,500 feet

PROJECT NO. 1700167

0 750 1,500 3,000 4,500 6,000

Feet

SITE OVERVIEW MAP

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL

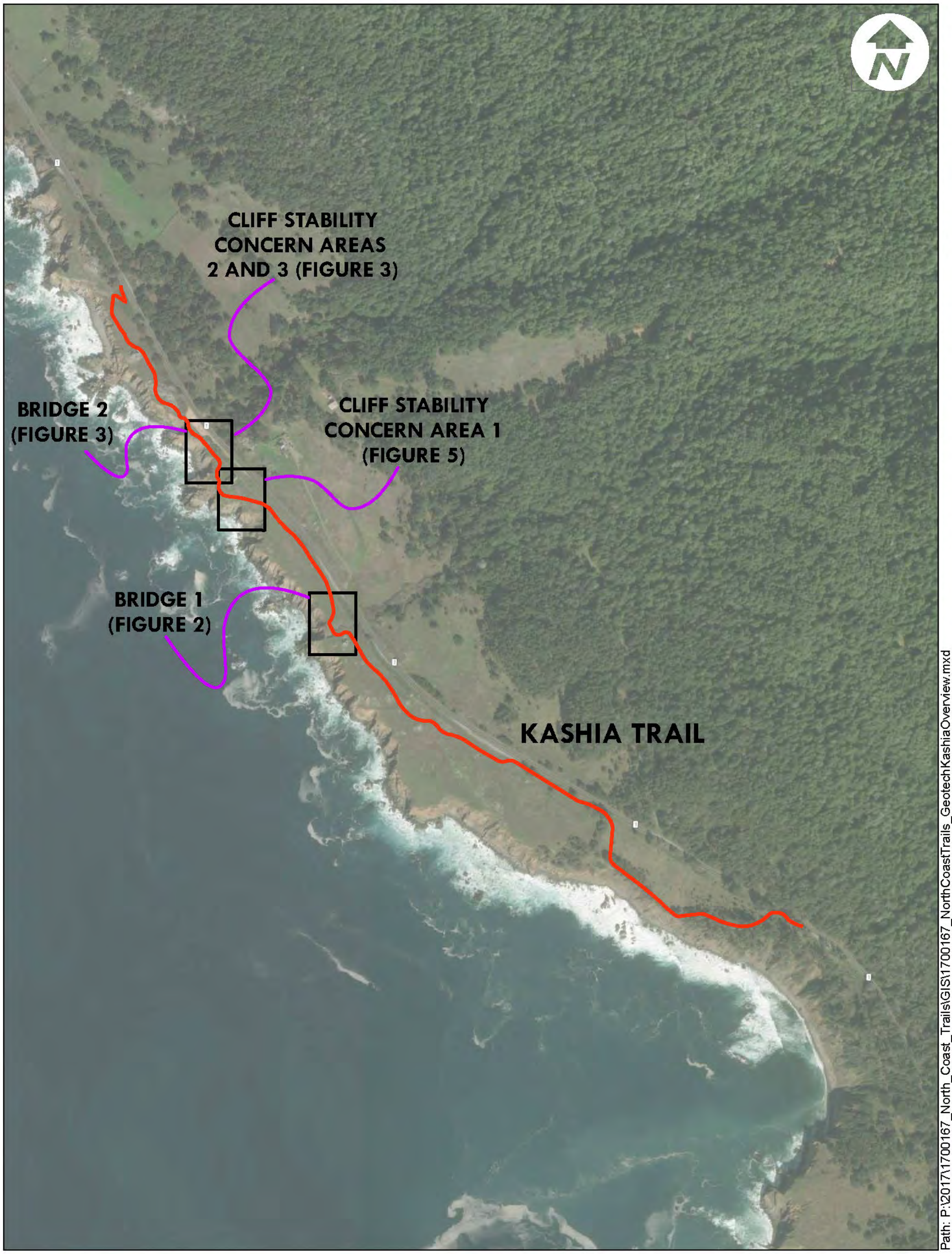
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 1a

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_GeotechOverview.mxd



TRAIL ALIGNMENT

FIGURE LOCATIONS

DRAWN BY SCOTT YEHL

Date Saved: 8/16/2018 1:11:50 PM

1 inch = 500 feet

PROJECT NO. 1700167

0 250 500 1,000 1,500 2,000

Feet

SITE OVERVIEW MAP

NORTH COAST TRAILS: KASHIA TRAIL

SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 1b

TRAIL ALIGNMENT

FIGURE LOCATIONS

DRAWN BY SCOTT YEHL

Date Saved: 6/28/2018 2:11:49 PM

1 inch = 250 feet

PROJECT NO. 1700167

0 125 250 500 750 1,000

Feet

SITE OVERVIEW MAP

NORTH COAST TRAILS: STEWARTS PT TRAIL

SONOMA COUNTY, CA

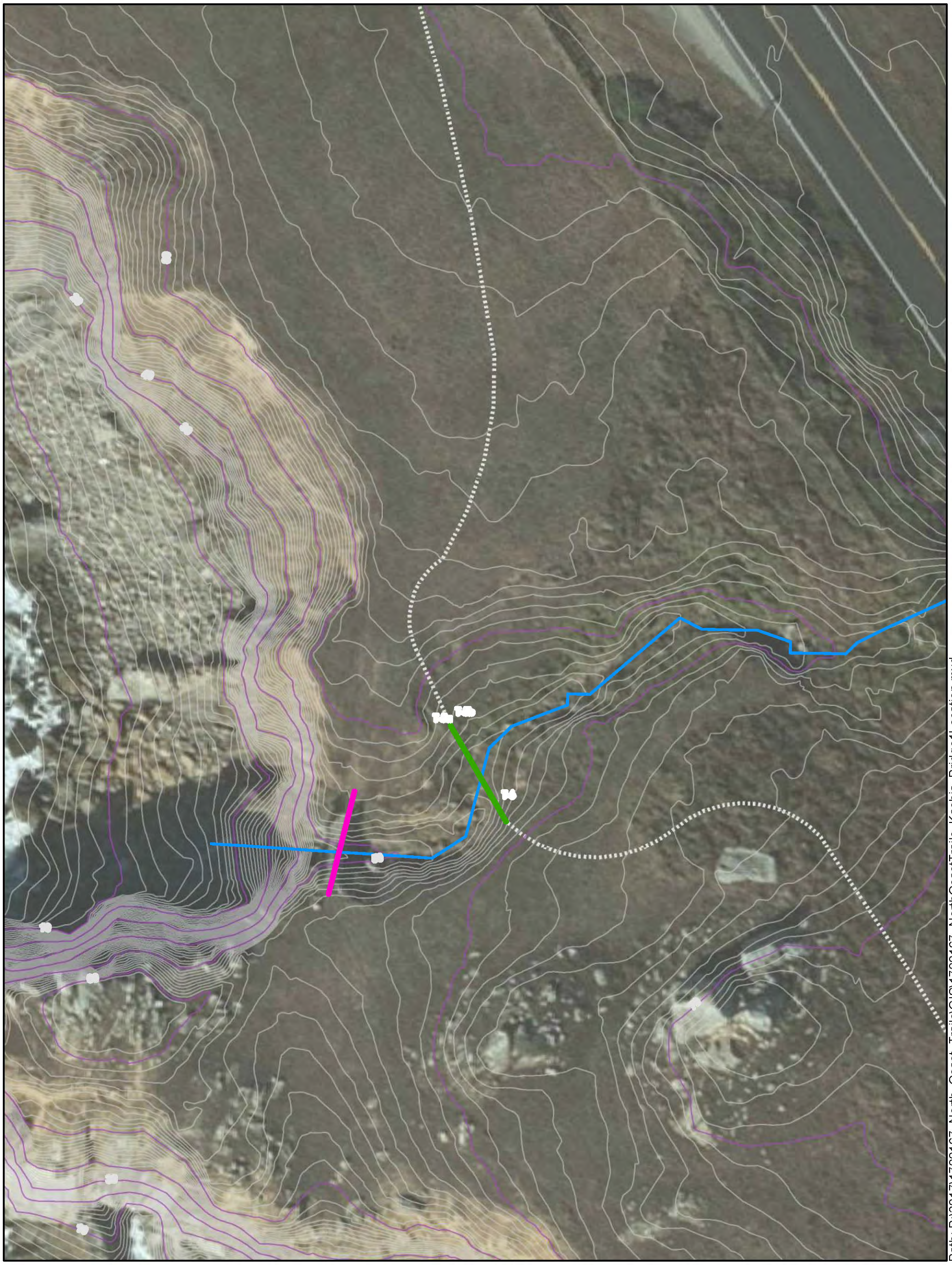
Coastal Conservancy

REGIONAL PARKS SONOMA COUNTY

QUESTA ENGINEERING CORP.

FIGURE 1c

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_GeotechStewartsPtOverview.mxd



DYNAMIC CONE PENETROMETER LOCATION
EXISTING BRIDGE LOCATION
10 FOOT CONTOURS
PROPOSED CROSSING LOCATION
STREAM CENTERLINE
1 FOOT CONTOURS
TRAIL ALIGNMENT

DRAWN BY SCOTT YEHL
Date Saved: 8/16/2018 1:09:28 PM

1 inch = 25 feet
PROJECT NO. 1700167

0 12.5 25 50 75 100
Feet

KASHIA COASTAL RESERVE

BRIDGE 1 *GEOTECHNICAL INVESTIGATION*

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 2

CULVERTS
DYNAMIC CONE PENETROMETER LOCATION
EXISTING BRIDGE LOCATION
STREAM CENTERLINES
FENCE
TRAIL ALIGNMENT
CLIFF EROSION CONCERN AREAS 2 AND 3
10 FOOT CONTOURS
1 FOOT CONTOURS

DRAWN BY SCOTT YEHL
Date Saved: 6/26/2018 2:21:45 PM

1 inch = 25 feet
PROJECT NO. 1700167

0 12.5 25 50 75 100
Feet

KASHIA COASTAL RESERVE

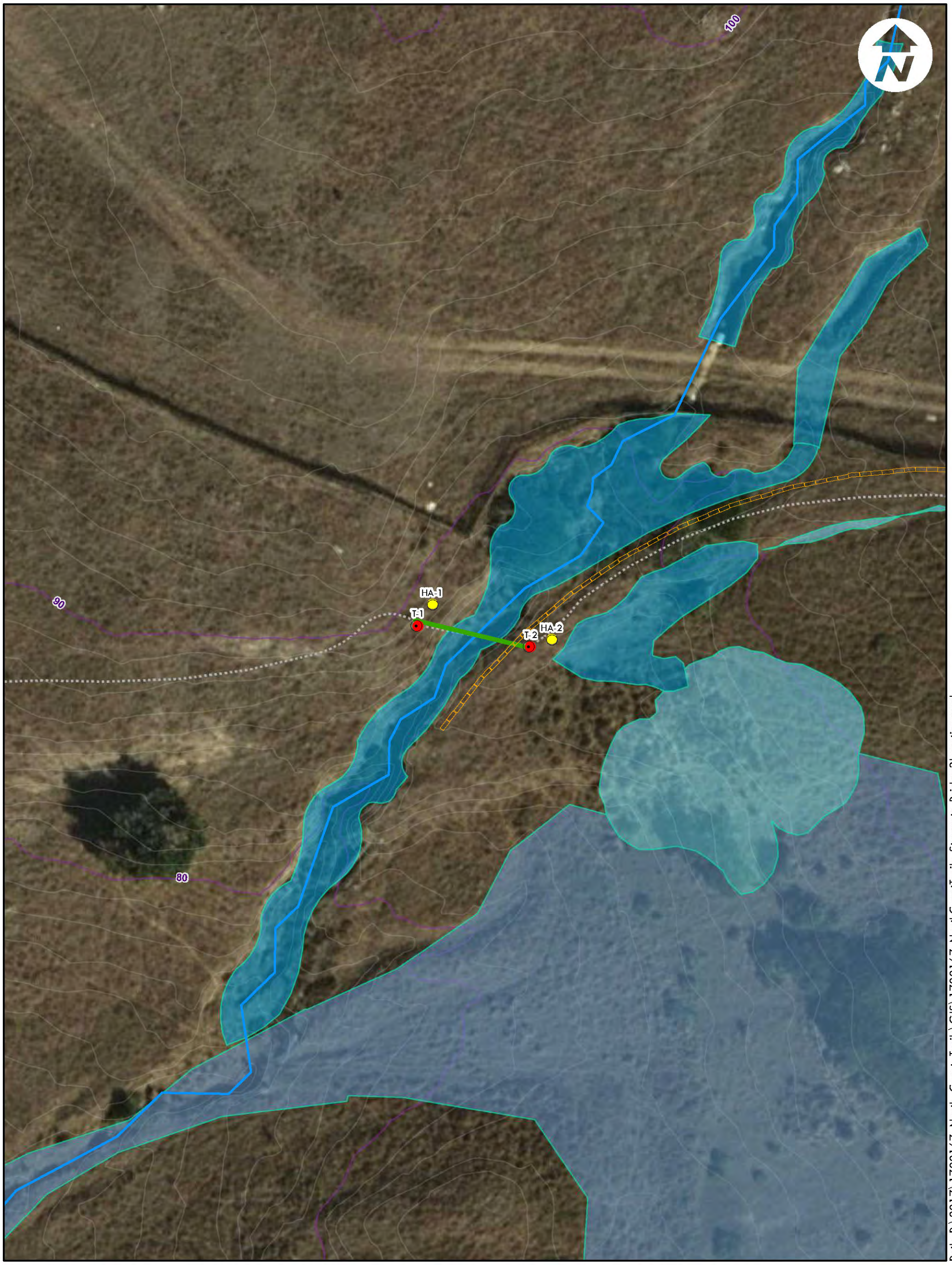
BRIDGE 2 *GEOTECHNICAL INVESTIGATION*

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 3



DYNAMIC CONE PENETROMETER LOCATION
HANF AUGER LOCATION
BRIDGE CROSSING
RELIC RAILROAD BED

CCC
CORPS
ESHA DRAINAGE/ WETLAND

STREAM/ DRAINAGE CENTERLINES
TRAIL ALIGNMENT
10 FOOT CONTOURS
1 FOOT CONTOURS

DATA ACQUIRED FROM SONOMA VEGMAP(APRIL 5 2018), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

0 12.5 25 50 75 100
Feet

DRAWN BY SCOTT YEHL
Date Saved: 8/16/2018 3:11:39 PM

1 inch = 25 feet
PROJECT NO. 1700167

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_Stewarts_Bridge3Location.mxd

STEWARTS POINT TRAIL

BRIDGE 3 *GEOTECHNICAL INVESTIGATION*

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 4

Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_KashiaConcernArea1.mxd

FENCE

TRAIL ALIGNMENT

CLIFF EROSION CONCERN AREA 1

10 FOOT CONTOURS

1 FOOT CONTOURS

DRAWN BY SCOTT YEHL

Date Saved: 6/29/2018 11:57:01 AM

1 inch = 25 feet

PROJECT NO. 1700167

0 12.5 25 50 75 100

Feet

KASHIA COASTAL RESERVE

CLIFF EROSION CONCERN AREA 1

GEOTECHNICAL INVESTIGATION

NORTH COAST TRAIL

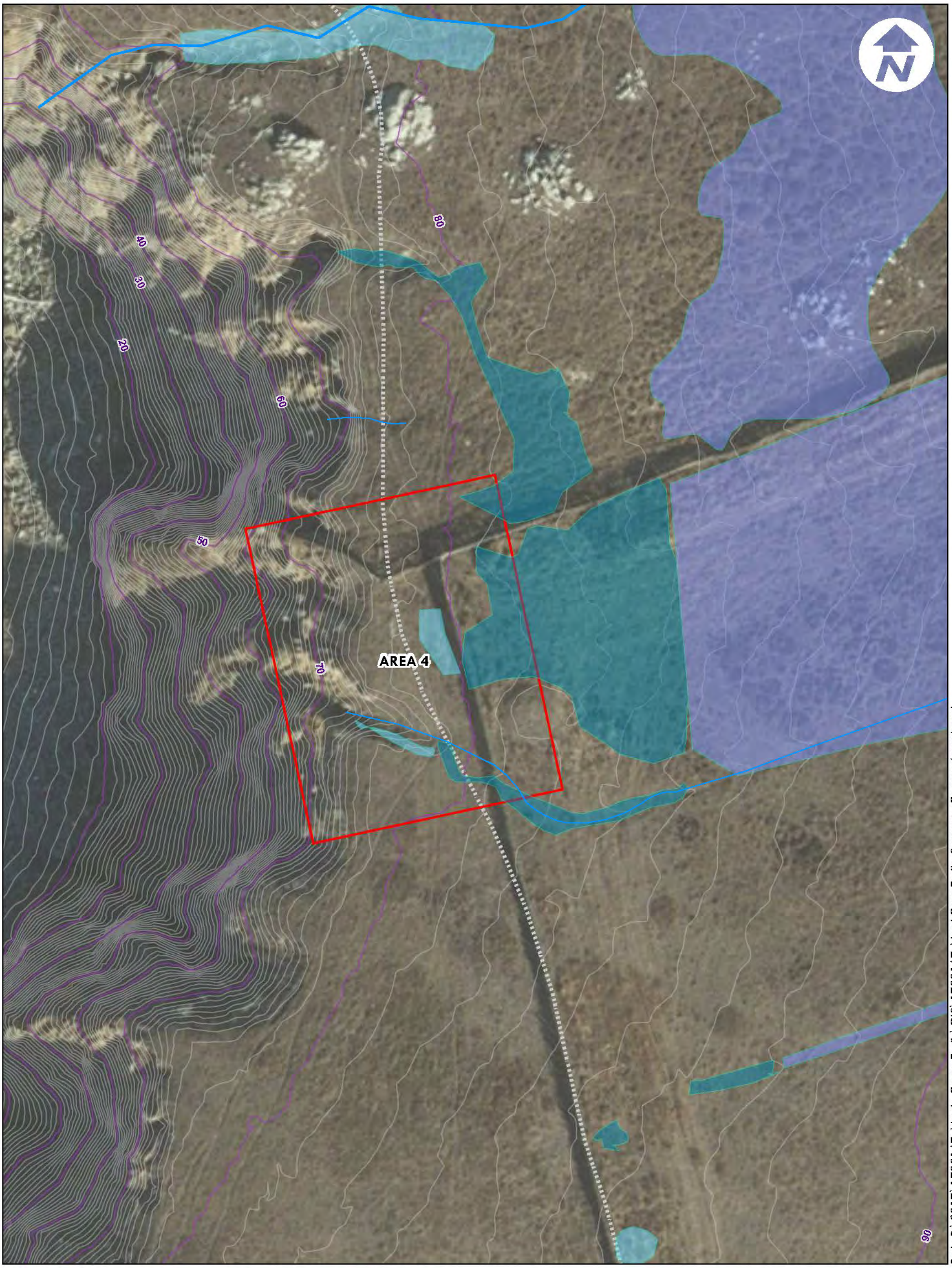
SONOMA COUNTY, CA

Coastal Conservancy

REGIONAL PARKS SONOMA COUNTY

QUESTA ENGINEERING CORP.

FIGURE 5



TRAIL ALIGNMENT

CLIFF EROSION CONCERN AREA 4

CCC

CORPS

ESHA DRAINAGE/ WETLAND

10 FOOT CONTOURS

1 FOOT CONTOURS

STREAM/ DRAINAGE CENTERLINES

DRAWN BY SCOTT YEHL

Date Saved: 8/16/2018 1:01:08 PM

1 inch = 25 feet

PROJECT NO. 1700167

DATA ACQUIRED FROM SONOMA VEGMAP(APRIL 5 2018), PCI CONSULTANTS (APRIL 19 2018), AND FIELD MAPPING BY QUESTA ENGINEERING AND JV ENVIRONMENTAL USING ESRI COLLECTOR SOFTWARE (APRIL 23 2018).

0 12.5 25 50 75 100

Feet

STEWARTS POINT TRAIL

CLIFF EROSION CONERN AREA 4

GEOTECHNICAL INVESTIGATION

NORTH COAST TRAIL

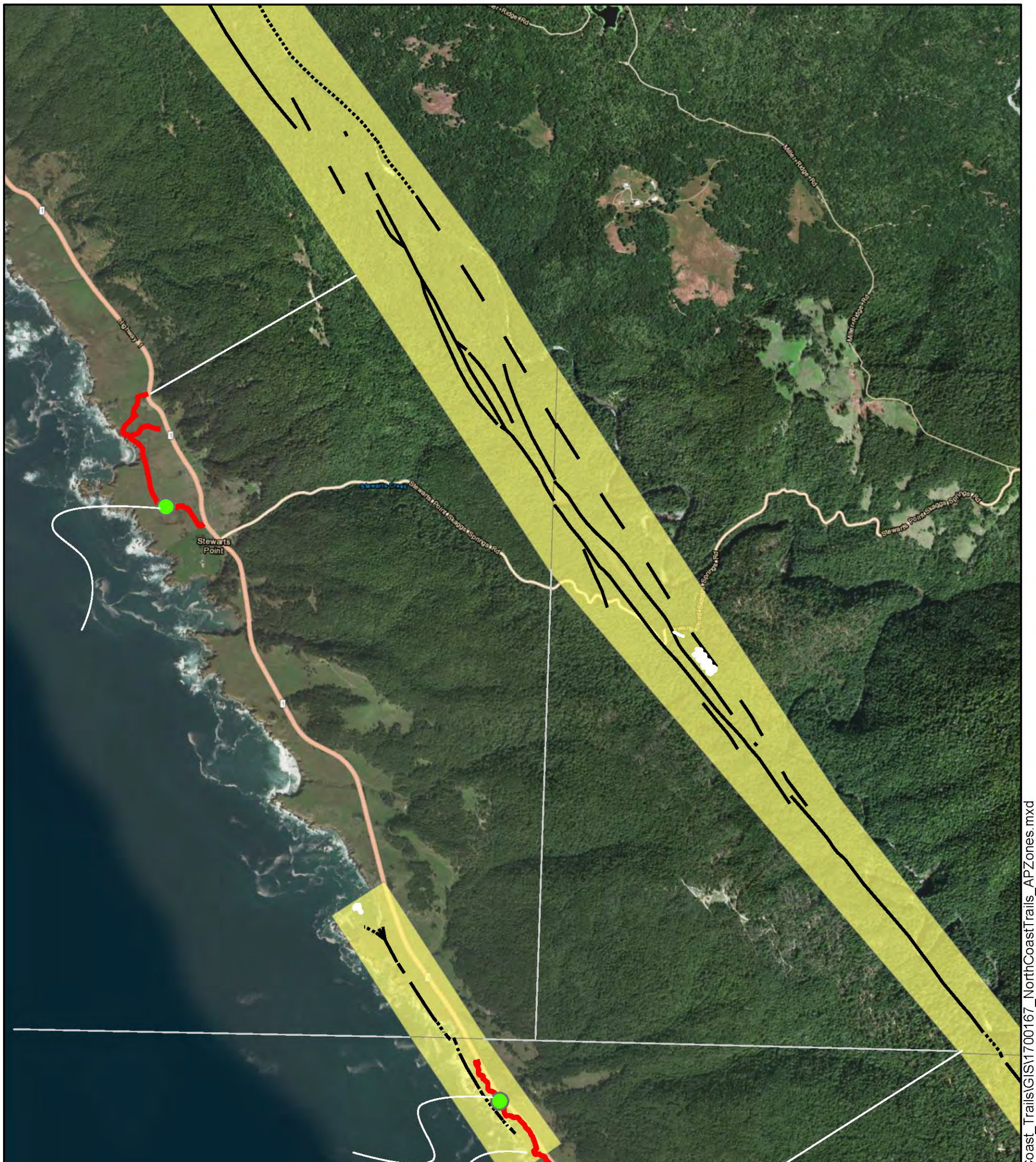
SONOMA COUNTY, CA

Coastal Conservancy

REGIONAL PARKS SONOMA COUNTY

QUESTA ENGINEERING CORP.

FIGURE 6



TRAIL ALIGNMENT ····· CONCEALED —— APPROXIMATELY LOCATED

SAN ANDREAS FAULT ZONE – – - INFERRED —— ACCURATELY LOCATED

DRAWN BY SCOTT YEHL 1 inch = 2,000 feet

Date Saved: 6/28/2018 2:47:25 PM *PROJECT NO. 1700167*

DERIVED FROM THE STATE OF CALIFORNIA SPECIAL STUDIES ZONES OFFICIAL MAPS FOR THE STEWARTS POINT, ANNAPOLIS AND PLANTATION QUADRANGLES (1974).

0 1,000 2,000 4,000 6,000 8,000

Feet

ALQUIST-PRIOLO FAULT ZONES

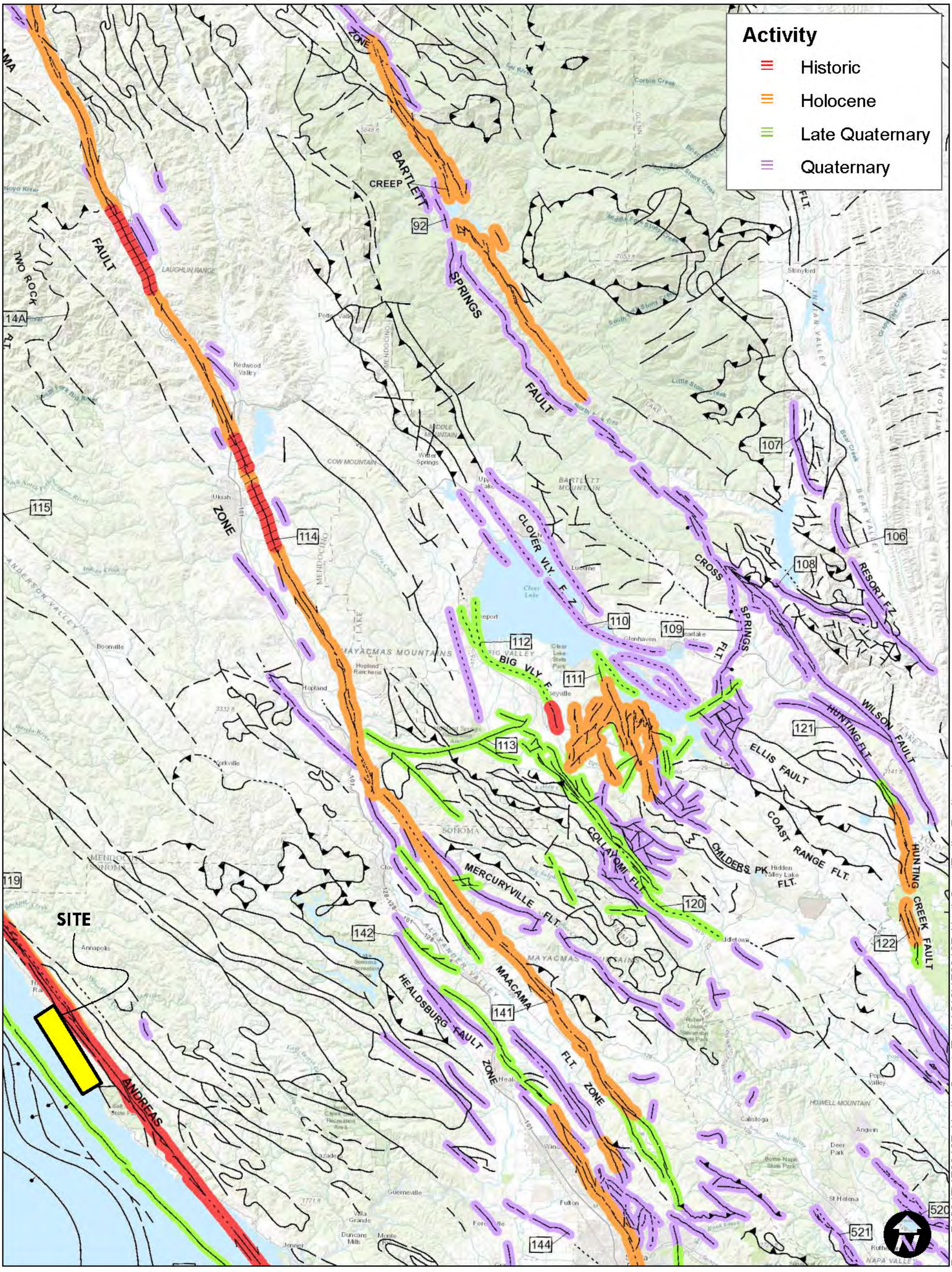
NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL

SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 7



FAULT ACTIVITY MAP OF CALIFORNIA. REVISED 2010.

DRAWN BY SCOTT YEHL
Date Saved: 6/28/2018 2:50:43 PM

1 inch = 6 miles
PROJECT NO. 1700167

DERIVED FROM THE STATE OF CALIFORNIA SPECIAL STUDIES ZONES OFFICIAL MAPS FOR THE STEWARTS POINT, ANNAPOLIS AND PLANTATION QUADRANGLES (1974).

0 3 6 12 18 24
Miles

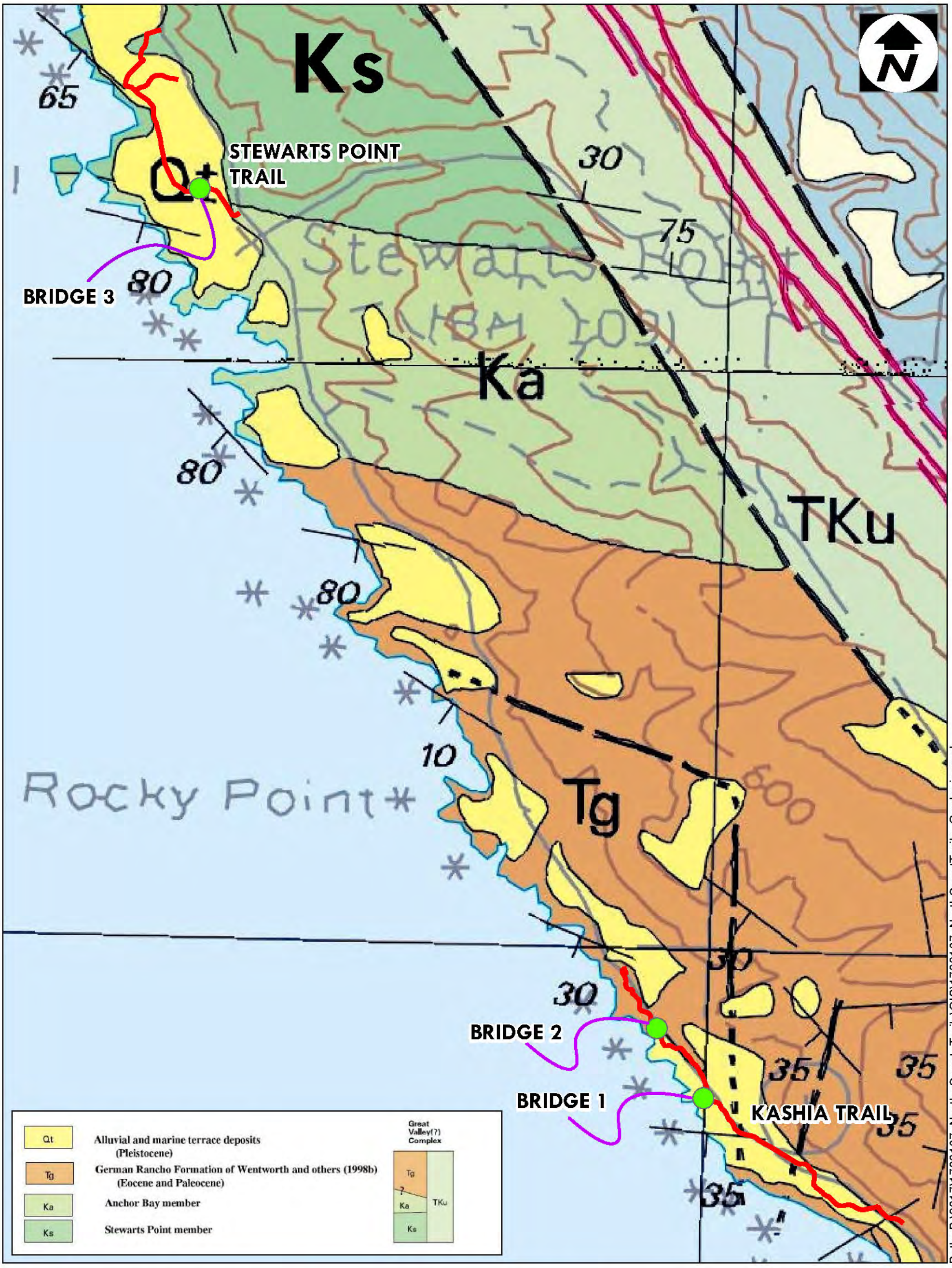
FAULT MAP

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 8



BRIDGE LOCATIONS — PROPOSED TRAIL ALIGNMENTS

DRAWN BY SCOTT YEHL
Date Saved: 6/28/2018 3:06:07 PM

1 inch = 0 miles
PROJECT NO. 1700167

DERIVED FROM THE GEOLOGIC MAP AND MAP DATABASE OF WESTERN SONOMA, NORTHERNMOST MARIN, AND SOUTHERNMOST MENDOCINO COUNTIES, CA, USGS MISCELLANEOUS FIELD STUDIES MAP MF-2402 VERSION 1.0.

Miles 0 0.125 0.25 0.5 0.75 1

GEOLOGIC MAP

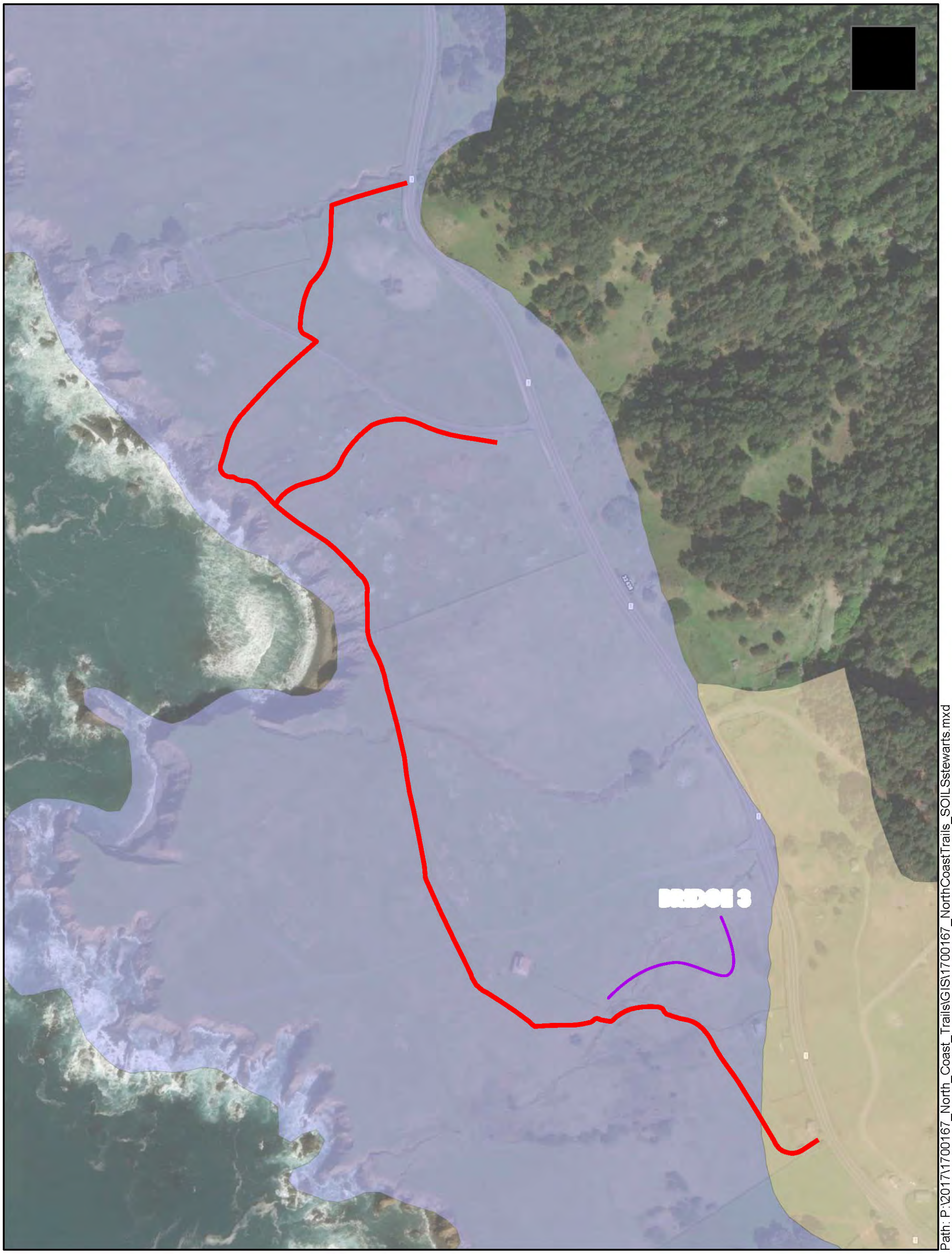
NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL

SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 9



SOIL MAP UNITS

KnF: KNEELAND LOAM, 30 to 50% SLOPES

RrD: ROHNERVILLE LOAM, 9 to 15% SLOPES

BRIDGE LOCATIONS

PROPOSED TRAIL ALIGNMENTS

DRAWN BY SCOTT YEHL

Date Saved: 6/28/2018 3:18:34 PM

1 inch = 250 feet

PROJECT NO. 1700167

SOILS DATA ACQUIRED FROM USDA WEB SOIL SURVEY, JUNE 4 2018.

0 125 250 500 750 1,000

Feet

SOILS MAP

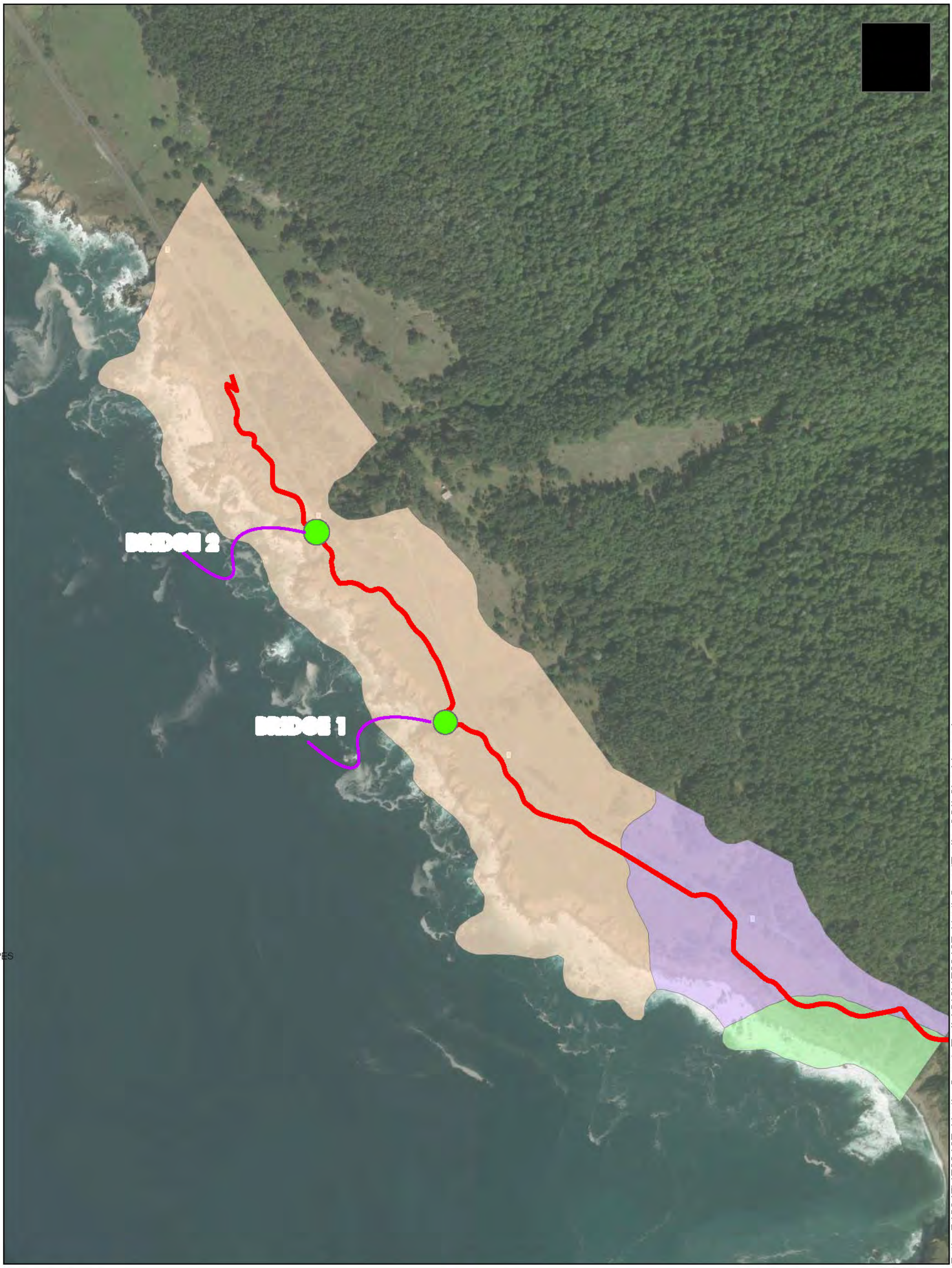
NORTH COAST TRAILS:
STEWARTS POINT TRAIL

SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 10



SOIL MAP UNITS

- McF: MAYMEN GRAVELLY SANDY LOAM, 30 to 50% SLOPES
- RrD: ROHNERVILLE LOAM, 9 to 15% SLOPES
- TeG: TERRACE ESCARPMENTS

BRIDGE LOCATIONS

PROPOSED TRAIL ALIGNMENTS

DRAWN BY SCOTT YEHL

1 inch = 500 feet

Date Saved: 6/28/2018 3:30:30 PM

PROJECT NO. 1700167

SOILS DATA ACQUIRED FROM USDA WEB SOIL SURVEY, JUNE 4 2018.

0 250 500 1,000 1,500 2,000

Feet

SOILS MAP

NORTH COAST TRAILS: KASHIA TRAIL

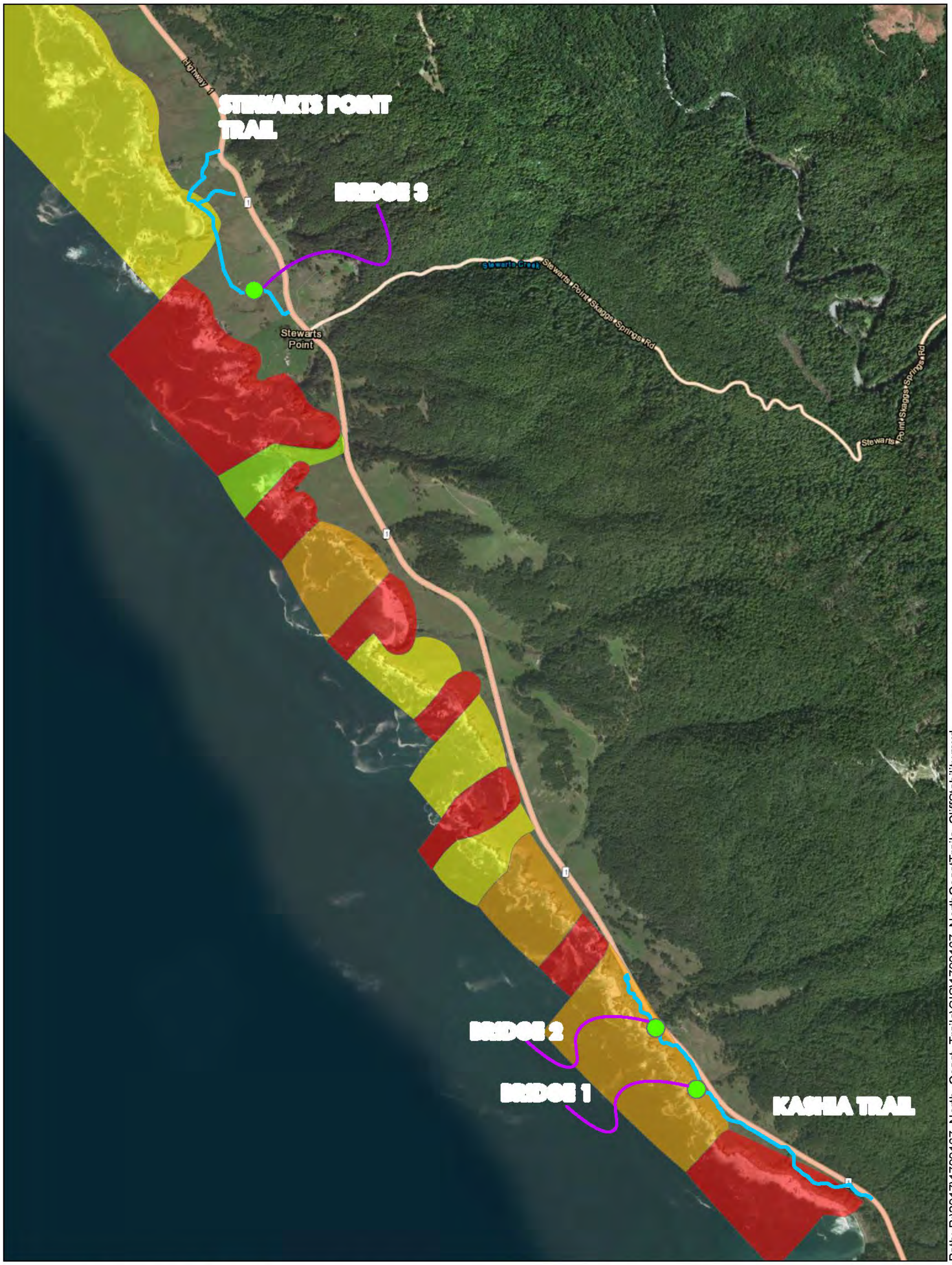
SONOMA COUNTY, CA

Coastal Conservancy

REGIONAL PARKS SONOMA COUNTY

QUESTA ENGINEERING CORP.

FIGURE 11



TRAIL ALIGNMENT
BRIDGE LOCATIONS
U: UNSTABLE CLIFF ZONE
Z: ZONE OF VERY LOW STABILITY
Y: ZONE OF LOW STABILITY
X: ZONE OF MODERATELY LOW STABILITY

DRAWN BY SCOTT YEHL
Date Saved: 6/28/2018 2:21:04 PM
1 inch = 1,500 feet
PROJECT NO. 1700167
DERIVED FROM THE CALIFORNIA DEVISION OF MINES AND GEOLOGY SLOPE STABILITY EVALUATION. PRELIMINARY REPORT 16, PLATE 1 (1972).

0 750 1,500 3,000 4,500 6,000
Feet

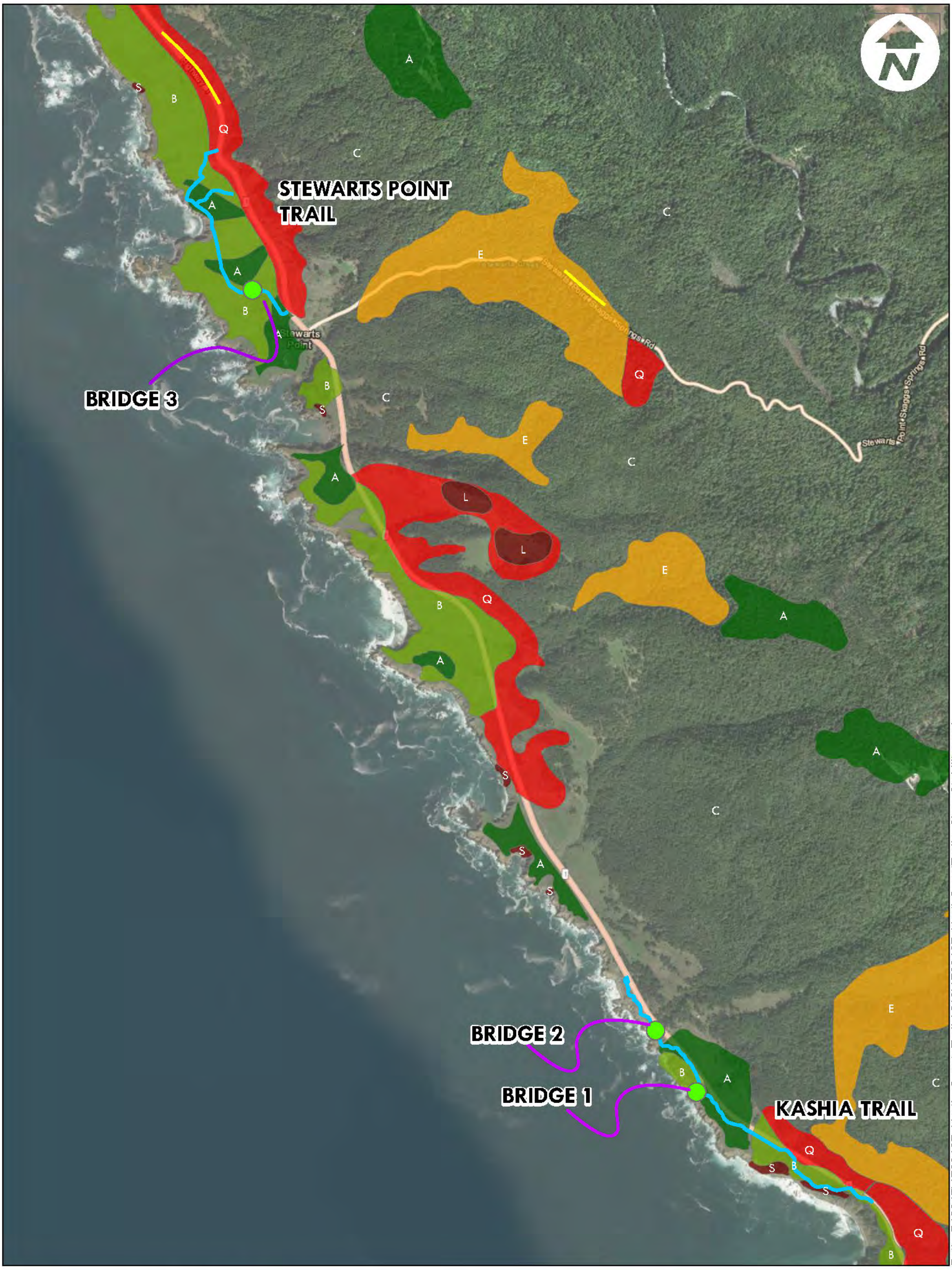
CLIFF STABILITY MAP

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 12



ZONE CONTAINING SEVERAL CUT SLUMPS
TRAIL ALIGNMENT
BRIDGE LOCATIONS

A: AREAS OF GENTLE SLOPES ON BEDROCK AND SHALLOW SOIL
B AREAS OF GENTLE SLOPES ON ALLUVIUM, COLLUVIUM AND TERRACE DEPOSITS
C: AREAS OF MODERATE SLOPES ON STRONG ROCKS
E: AREAS OF STEEP SLOPES ON RELATIVELY STRONG ROCKS

L: RECENT LANDSLIDE
Q: AREAS OF NEAR THE LIMITS OF STABILITY
S: SLUMPS AND SLIDES

DRAWN BY SCOTT YEHL
Date Saved: 6/28/2018 2:38:29 PM

1 inch = 1,500 feet
PROJECT NO. 1700167

DERIVED FROM THE CALIFORNIA DEVISION OF MINES AND GEOLOGY SLOPE STABILITY EVALUATION. PRELIMINARY REPORT 16, PLATE 1 (1972).

0 750 1,500 3,000 4,500 6,000
Feet

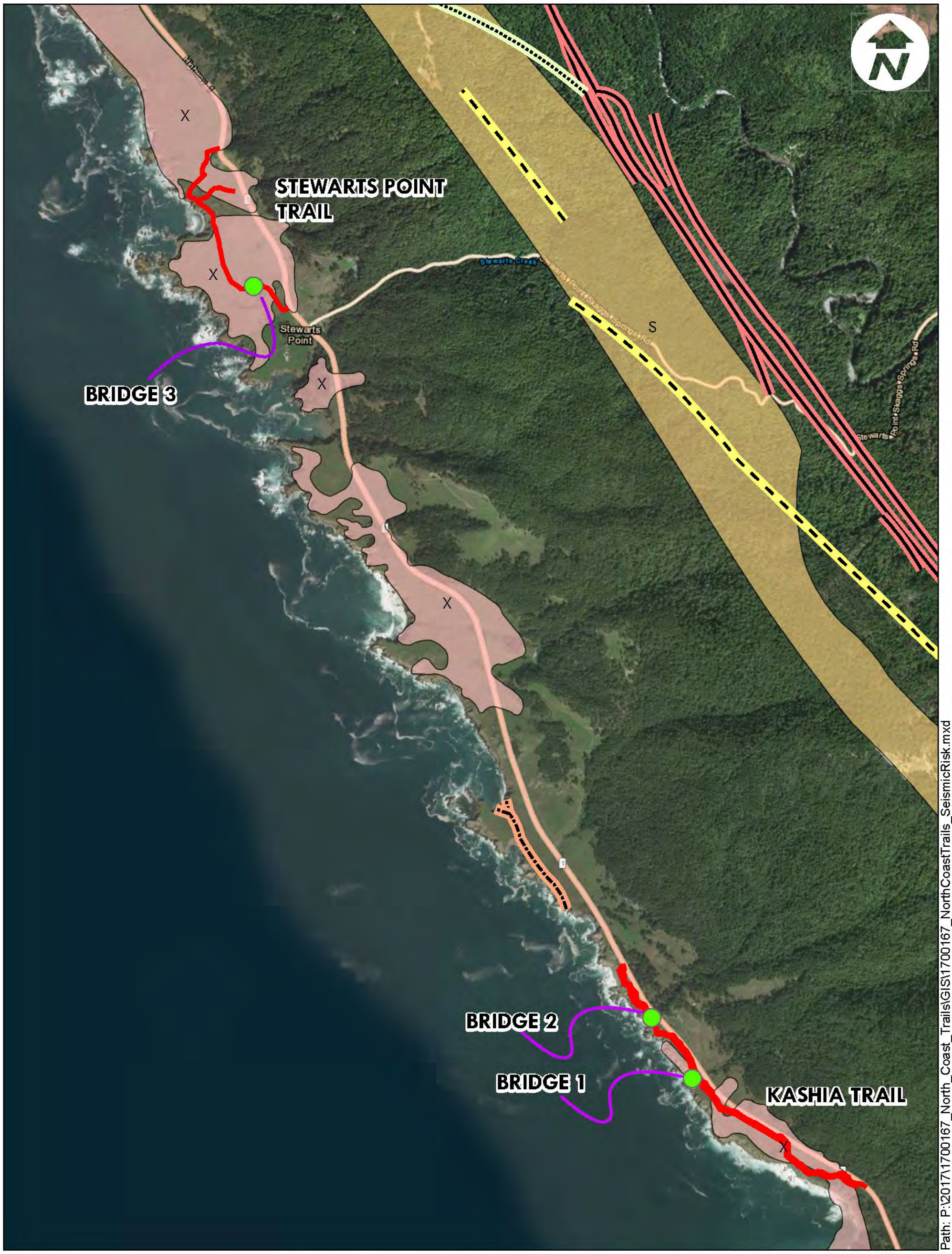
SLOPE STABILITY MAP

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE 13



RECENTLY ACTIVE FAULTING
POSSIBLE RECENTLY ACTIVE FAULTING
PROBABLE FAULT
POSSIBLE FAULT
TRAIL ALIGNMENT
BRIDGE LOCATIONS
S: AREAS OF UNCERTAIN RISK
X: AREAS OF RELATIVELY MORE SEVERE GROUND SHAKING

DRAWN BY SCOTT YEHL
Date Saved: 6/28/2018 3:33:43 PM

1 inch = 1,500 feet
PROJECT NO. 1700167

DERIVED FROM THE CALIFORNIA DEVISION OF MINES AND GEOLOGY SEISMIC RISK EVALUATION. PRELIMINARY REPORT 16, PLATE 2 (1972).

0 750 1,500 3,000 4,500 6,000
Feet

SEISMIC RISK MAP

NORTH COAST TRAILS: KASHIA TRAIL AND STEWARTS POINT TRAIL
SONOMA COUNTY, CA

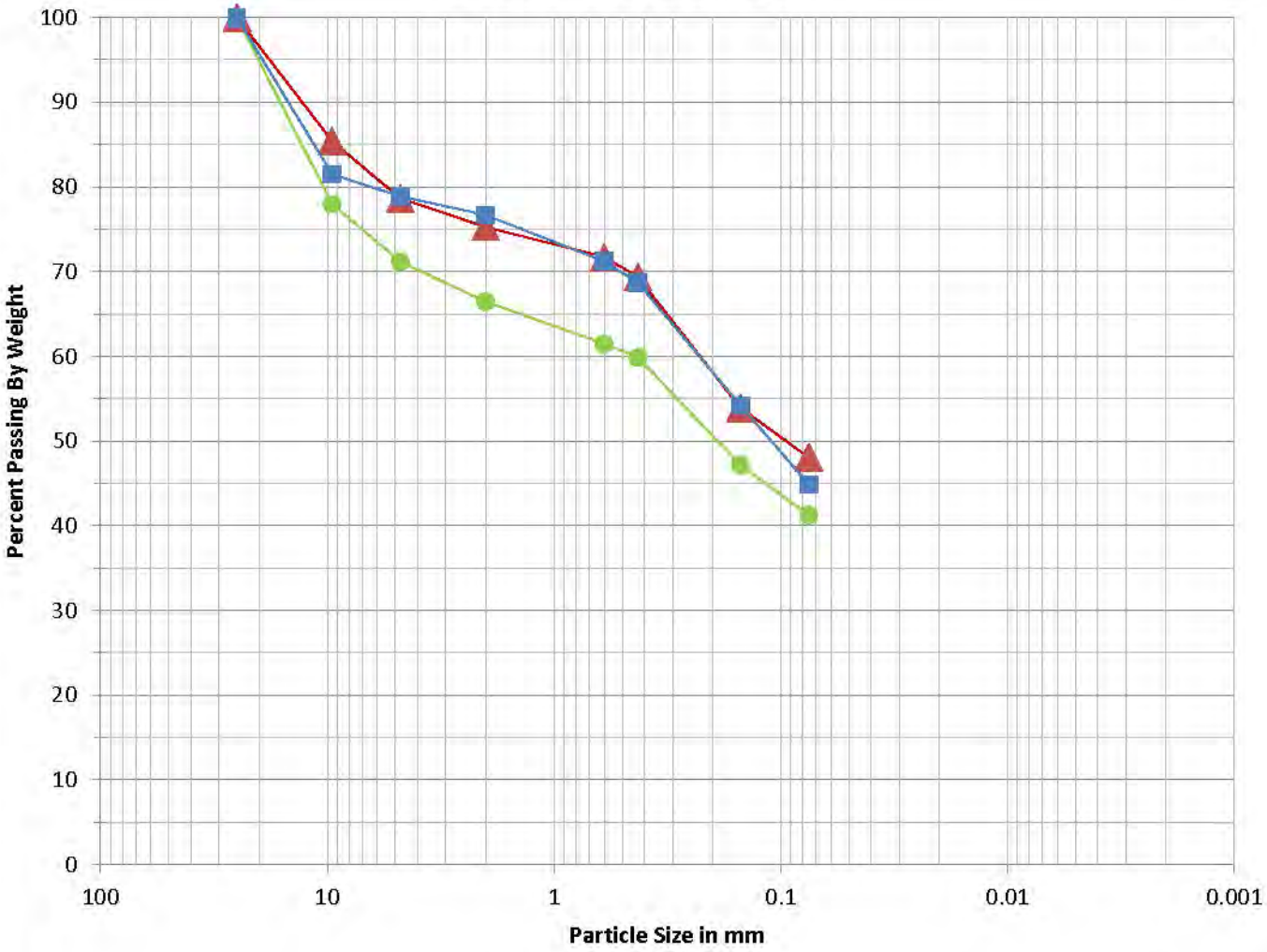
Coastal Conservancy

REGIONAL PARKS SONOMA COUNTY

QUESTA ENGINEERING CORP.

FIGURE 14

Particle Size Analysis



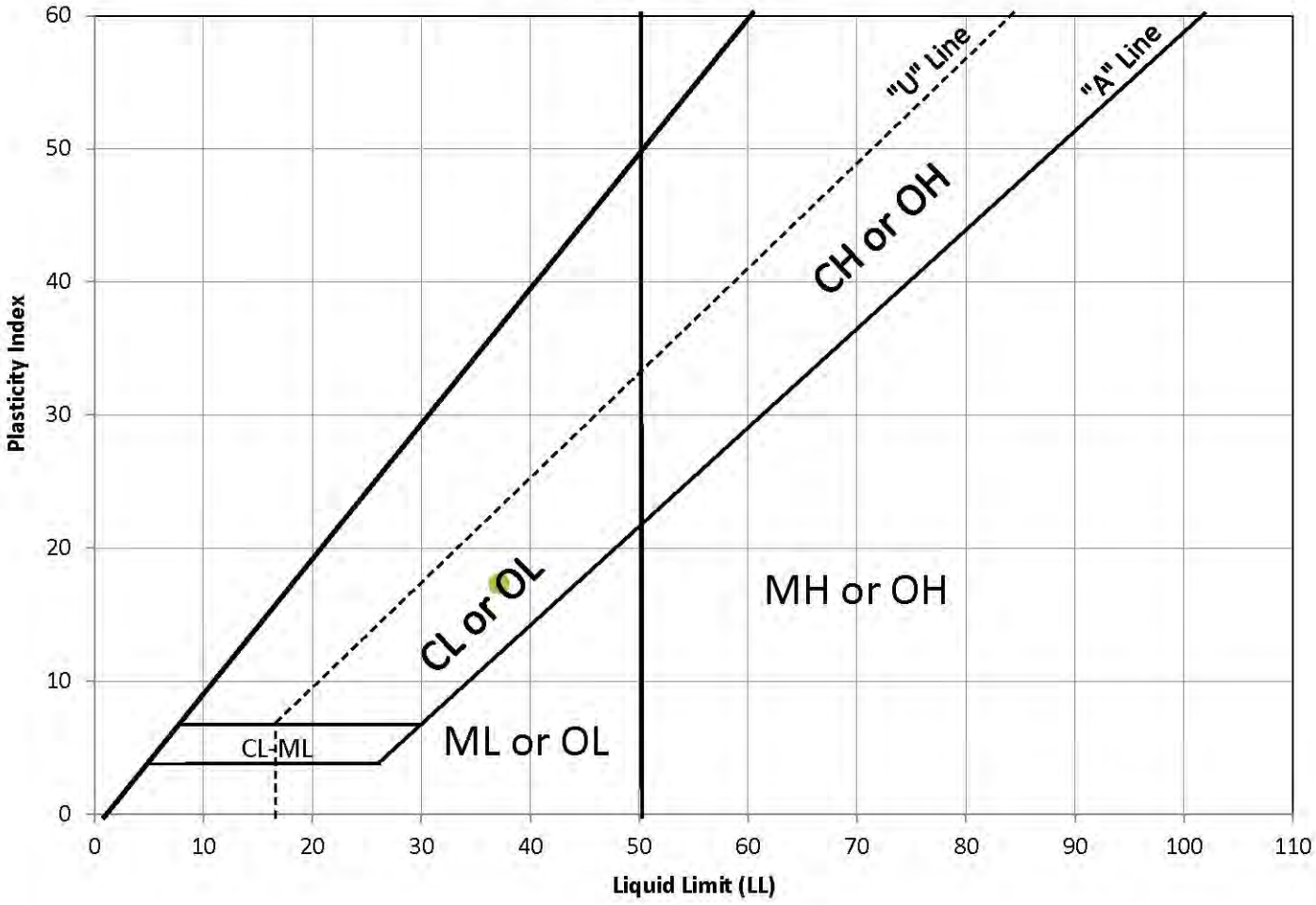
Gravel		Sand			Silt	Clay
Coarse	Fine	Coarse	Medium	Fine		

Symbol	Source
●	HA-2 1-1.5' Very Dark Brown Clayey Gravel w/ Sand
▲	HA-2 3-3.5' Black Sandy Lean Clay w/ Gravel
■	Bridge 2 North Abutment Cliff Face 2-5', Yellowish Brown Clayey Sand w/ Gravel

QUESTA ENGINEERING CORP
Civil, Environmental & Water Resources
PO Box 70356 1220 Blueyard Cove Road Point Richmond CA 94807

Particle Size Analysis	Figure
Geotechnical Investigation North Coast Trails	15

Atterberg Limits



Symbol	Classification & Source	Liquid Limit	Plastic Limit	Plasticity Index	% Passing #200 Sieve
●	HA-2 3-3.5' Black Sandy Lean Clay w/ Gravel	37	20	17	48.1
▲					
■					

	Atterberg Limits (ASTM D4318)	Figure
QUESTA ENGINEERING CORP. Civil Environmental & Water Resources	North Coast Trails Bridge 3	16

APPENDIX A

BRIDGE 1 LOCATION, LOOKING EAST

BRIDGE 2 LOCATION, LOOKING SOUTH

BRIDGE 2 NORTH ABUTMENT, LOOKING NORTH

BRIDGE 3 LOCATION, LOOKING SOUTHEAST

APPENDIX B

WILDCAT DYNAMIC CONE LOG

Questa Engineering
1220 Brickyard Cove Road
Pt Richmond, CA 94801

PROJECT NUMBER: 1700167
DATE STARTED: 05-23-2018
DATE COMPLETED: 05-23-2018

HOLE #: T-1
CREW: STY, CN
PROJECT: North Coast Trails
ADDRESS: Stewarts Pt W Side
LOCATION: Sonoma County RP

SURFACE ELEVATION: 89 feet
WATER ON COMPLETION: NO
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
	7	31.1	•••••••••	8	LOOSE	MEDIUM STIFF
	14	62.2	••••••••••••••••••	17	MEDIUM DENSE	VERY STIFF
1 ft	18	79.9	••••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
	25	111.0	•••••••••••••••••••••••••••••••	25+	DENSE	HARD
	30	133.2	••••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
2 ft	31	137.6	••••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
	27	119.9	•••••••••••••••••••••••••••••••	25+	DENSE	HARD
	27	119.9	•••••••••••••••••••••••••••••••	25+	DENSE	HARD
3 ft	25	111.0	•••••••••••••••••••••••••••••••	25+	DENSE	HARD
1 m	20	88.8	••••••••••••••••••••••••	25	MEDIUM DENSE	VERY STIFF
	10	38.6	••••••••••••	11	MEDIUM DENSE	STIFF
4 ft	8	30.9	••••••••	8	LOOSE	MEDIUM STIFF
	7	27.0	•••••••	7	LOOSE	MEDIUM STIFF
	7	27.0	•••••••	7	LOOSE	MEDIUM STIFF
5 ft	9	34.7	•••••••••	9	LOOSE	STIFF
	13	50.2	••••••••••••••	14	MEDIUM DENSE	STIFF
	7	27.0	•••••••	7	LOOSE	MEDIUM STIFF
6 ft	71	274.1	••	25+	VERY DENSE	HARD
2 m						
7 ft						
8 ft						
9 ft						
3 m 10 ft						
11 ft						
12 ft						
4 m 13 ft						

WILDCAT DYNAMIC CONE LOG

Questa Engineering
1220 Brickyard Cove Road
Pt Richmond, CA 94801

PROJECT NUMBER: 1700167
DATE STARTED: 05-23-2018
DATE COMPLETED: 05-23-2018

HOLE #: T-2
CREW: STY, CN
PROJECT: North Coast Trails
ADDRESS: Stewarts Pt E Side
LOCATION: Sonoma County RP

SURFACE ELEVATION: 88 feet
WATER ON COMPLETION: NO
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
-	15	66.6	••••••••••••••••••	19	MEDIUM DENSE	VERY STIFF
-	24	106.6	••••••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
- 1 ft	23	102.1	••••••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
-	18	79.9	••••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
-	14	62.2	••••••••••••••••••	17	MEDIUM DENSE	VERY STIFF
- 2 ft	10	44.4	••••••••••••	12	MEDIUM DENSE	STIFF
-	7	31.1	•••••••••	8	LOOSE	MEDIUM STIFF
-	8	35.5	•••••••••••	10	LOOSE	STIFF
- 3 ft	5	22.2	••••••	6	LOOSE	MEDIUM STIFF
- 1 m	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
-	4	15.4	••••	4	VERY LOOSE	SOFT
- 4 ft	3	11.6	•••	3	VERY LOOSE	SOFT
-	3	11.6	•••	3	VERY LOOSE	SOFT
-	4	15.4	••••	4	VERY LOOSE	SOFT
- 5 ft	4	15.4	••••	4	VERY LOOSE	SOFT
-	4	15.4	••••	4	VERY LOOSE	SOFT
-	4	15.4	••••	4	VERY LOOSE	SOFT
- 6 ft	2	7.7	••	2	VERY LOOSE	SOFT
-	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
- 2 m	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
- 7 ft	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
-	7	23.9	••••••	6	LOOSE	MEDIUM STIFF
-	8	27.4	•••••••	7	LOOSE	MEDIUM STIFF
- 8 ft	12	41.0	•••••••••••	11	MEDIUM DENSE	STIFF
-	20	68.4	••••••••••••••••••••	19	MEDIUM DENSE	VERY STIFF
-	16	54.7	••••••••••••••••	15	MEDIUM DENSE	STIFF
- 9 ft	12	41.0	•••••••••••	11	MEDIUM DENSE	STIFF
-	10	34.2	•••••••••	9	LOOSE	STIFF
-	14	47.9	••••••••••••••	13	MEDIUM DENSE	STIFF
- 3 m 10 ft	16	54.7	••••••••••••••••	15	MEDIUM DENSE	STIFF
-	16	49.0	••••••••••••••••	13	MEDIUM DENSE	STIFF
-	21	64.3	••••••••••••••••••	18	MEDIUM DENSE	VERY STIFF
-	43	131.6	••••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
- 11 ft	78	238.7	••	25+	VERY DENSE	HARD
-	100	306.0	••	25+	VERY DENSE	HARD
-						
- 12 ft						
-						
-						
- 4 m 13 ft						

WILDCAT DYNAMIC CONE LOG

Questa Engineering
1220 Brickyard Cove Road
Pt Richmond, CA 94801

PROJECT NUMBER: 1700167
DATE STARTED: 05-23-2018
DATE COMPLETED: 05-23-2018

HOLE #: T-3
CREW: STY, CN
PROJECT: North Coast Trails
ADDRESS: Kashia Existing S Side
LOCATION: Sonoma County RP

SURFACE ELEVATION: 51 feet
WATER ON COMPLETION: NO
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
-	18	79.9	••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
-	17	75.5	•••••••••••••••••••••	21	MEDIUM DENSE	VERY STIFF
- 1 ft	8	35.5	••••••••••	10	LOOSE	STIFF
-	8	35.5	••••••••••	10	LOOSE	STIFF
-	8	35.5	••••••••••	10	LOOSE	STIFF
- 2 ft	11	48.8	••••••••••••••	13	MEDIUM DENSE	STIFF
-	11	48.8	••••••••••••••	13	MEDIUM DENSE	STIFF
-	20	88.8	•••••••••••••••••••••••••	25	MEDIUM DENSE	VERY STIFF
- 3 ft	100	444.0	••	25+	VERY DENSE	HARD
- 1 m						
-						
- 4 ft						
-						
-						
- 5 ft						
-						
-						
- 6 ft						
-						
- 2 m						
- 7 ft						
-						
-						
- 8 ft						
-						
-						
- 9 ft						
-						
-						
- 3 m 10 ft						
-						
-						
-						
- 11 ft						
-						
-						
- 12 ft						
-						
-						
- 4 m 13 ft						

T-3: Kashia Existing Bridge Crossing, South Side, 7.5' S of Bridge Deck

WILDCAT DYNAMIC CONE LOG

Questa Engineering
1220 Brickyard Cove Road
Pt Richmond, CA 94801

PROJECT NUMBER: 1700167
DATE STARTED: 05-23-2018
DATE COMPLETED: 05-23-2018

HOLE #: T-4
CREW: STY, CN
PROJECT: North Coast Trails
ADDRESS: Kashia Existing S Side
LOCATION: Sonoma County RP

SURFACE ELEVATION: 55 feet
WATER ON COMPLETION: NO
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	TESTED CONSISTENCY COHESIVE
	20	88.8	••••••••••••••••••••••	25	MEDIUM DENSE	VERY STIFF
	25	111.0	••••••••••••••••••••••••••••	25+	DENSE	HARD
1 ft	60	266.4	••	25+	VERY DENSE	HARD
	40	177.6	••	25+	DENSE	HARD
	40	177.6	••	25+	DENSE	HARD
2 ft	65	288.6	••	25+	VERY DENSE	HARD
	70	310.8	••	25+	VERY DENSE	HARD
3 ft						
1 m						
4 ft						
5 ft						
6 ft						
2 m						
7 ft						
8 ft						
9 ft						
3 m 10 ft						
11 ft						
12 ft						
4 m 13 ft						

T-4: Kashia Existing Bridge Crossing, North Side, 10' N of Bridge Deck

WILDCAT DYNAMIC CONE LOG

Questa Engineering
1220 Brickyard Cove Road
Pt Richmond, CA 94801

PROJECT NUMBER: 1700167
DATE STARTED: 05-23-2018
DATE COMPLETED: 05-23-2018

HOLE #: T-5a
CREW: STY, CN
PROJECT: North Coast Trails
ADDRESS: Kashia Existing S Side
LOCATION: Sonoma County RP

SURFACE ELEVATION: 57 feet
WATER ON COMPLETION: NO
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
-	10	44.4		12	MEDIUM DENSE	STIFF
-	23	102.1		25+	MEDIUM DENSE	VERY STIFF
- 1 ft	23	102.1		25+	MEDIUM DENSE	VERY STIFF
-	160	710.4		25+	VERY DENSE	HARD
-						
- 2 ft						
-						
-						
- 3 ft						
- 1 m						
-						
- 4 ft						
-						
-						
- 5 ft						
-						
-						
- 6 ft						
-						
- 2 m						
- 7 ft						
-						
-						
- 8 ft						
-						
-						
- 9 ft						
-						
-						
- 3 m 10 ft						
-						
-						
-						
- 11 ft						
-						
-						
- 12 ft						
-						
-						
- 4 m 13 ft						

WILDCAT DYNAMIC CONE LOG

Questa Engineering
1220 Brickyard Cove Road
Pt Richmond, CA 94801

PROJECT NUMBER: 1700167
DATE STARTED: 05-23-2018
DATE COMPLETED: 05-23-2018

HOLE #: T-5b
CREW: STY, CN
PROJECT: North Coast Trails
ADDRESS: Kashia Existing S Side
LOCATION: Sonoma County RP

SURFACE ELEVATION: 57 feet
WATER ON COMPLETION: NO
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	TESTED CONSISTENCY COHESIVE
	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
	15	66.6	••••••••••••••••••	19	MEDIUM DENSE	VERY STIFF
1 ft	23	102.1	••••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
	78	346.3	••	25+	VERY DENSE	HARD
	200	888.0	••	25+	VERY DENSE	HARD
2 ft						
3 ft						
1 m						
4 ft						
5 ft						
6 ft						
2 m						
7 ft						
8 ft						
9 ft						
3 m 10 ft						
11 ft						
12 ft						
4 m 13 ft						

WILDCAT DYNAMIC CONE LOG

Questa Engineering
1220 Brickyard Cove Road
Pt Richmond, CA 94801

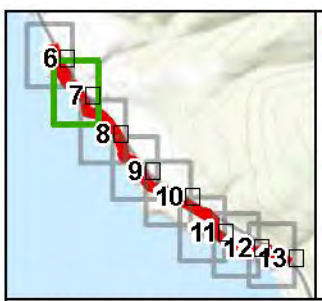
PROJECT NUMBER: 1700167
DATE STARTED: 05-23-2018
DATE COMPLETED: 05-23-2018

HOLE #: T-6
CREW: STY, CN
PROJECT: North Coast Trails
ADDRESS: Kashia Existing S Side
LOCATION: Sonoma County RP

SURFACE ELEVATION: 57 feet
WATER ON COMPLETION: NO
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	TESTED CONSISTENCY COHESIVE
	3	13.3	•••	3	VERY LOOSE	SOFT
	9	40.0	••••••••••	11	MEDIUM DENSE	STIFF
1 ft	8	35.5	•••••••••	10	LOOSE	STIFF
	9	40.0	••••••••••	11	MEDIUM DENSE	STIFF
	11	48.8	••••••••••••	13	MEDIUM DENSE	STIFF
2 ft	40	177.6	••	25+	DENSE	HARD
	200	888.0	••	25+	VERY DENSE	HARD
3 ft						
1 m						
4 ft						
5 ft						
6 ft						
2 m						
7 ft						
8 ft						
9 ft						
3 m 10 ft						
11 ft						
12 ft						
4 m 13 ft						

APPENDIX C



EXISTING BRIDGE LOCATIONS

FENCE

TRAIL ALIGNMENT

IMAGERY ACQUIRED FROM UC SANTA BARBARA MAP AND IMAGERY LABORATORY, APRIL 2018. FLIGHT NUMBER CSH-1953, FRAME 7k-4.

DRAWN BY SCOTT YEHL

Date Saved: 8/16/2018 2:00:07 PM

1 inch = 100 feet

PROJECT NO. 1700167

0 50 100 200 300 400

Feet

KASHIA COASTAL RESERVE

HISTORICAL AERIAL IMAGERY (1953)

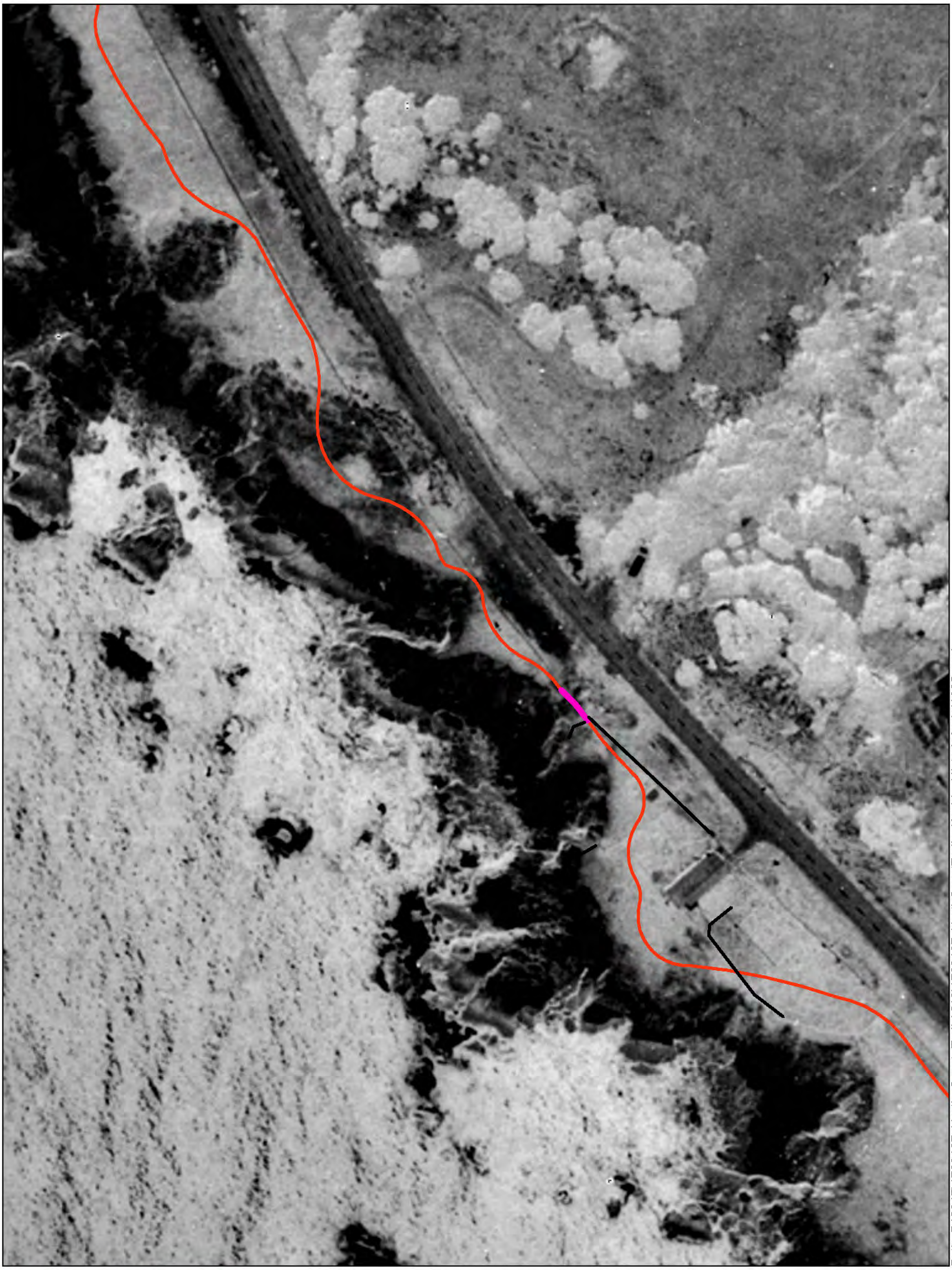
NORTH COAST TRAIL
SONOMA COUNTY, CA

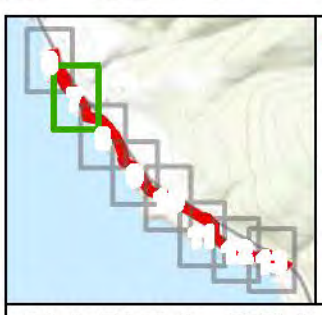
Coastal Conservancy

REGIONAL PARKS SONOMA COUNTY

QUESTA ENGINEERING CORP.

FIGURE C-1





EXISTING BRIDGE LOCATIONS

FENCE

TRAIL ALIGNMENT

IMAGERY ACQUIRED FROM UC SANTA BARBARA MAP AND IMAGERY LABORATORY, APRIL 2018. FLIGHT NUMBER cas-65-130, FRAME 21-112.

IMAGERY COLORS ARE INVERTED FOR CLIFF VISIBILITY

DRAWN BY SCOTT YEHL

Date Saved: 8/16/2018 2:02:06 PM

1 inch = 100 feet

PROJECT NO. 1700167

0 50 100 200 300 400

Feet

KASHIA COASTAL RESERVE

HISTORICAL AERIAL IMAGERY (1965)

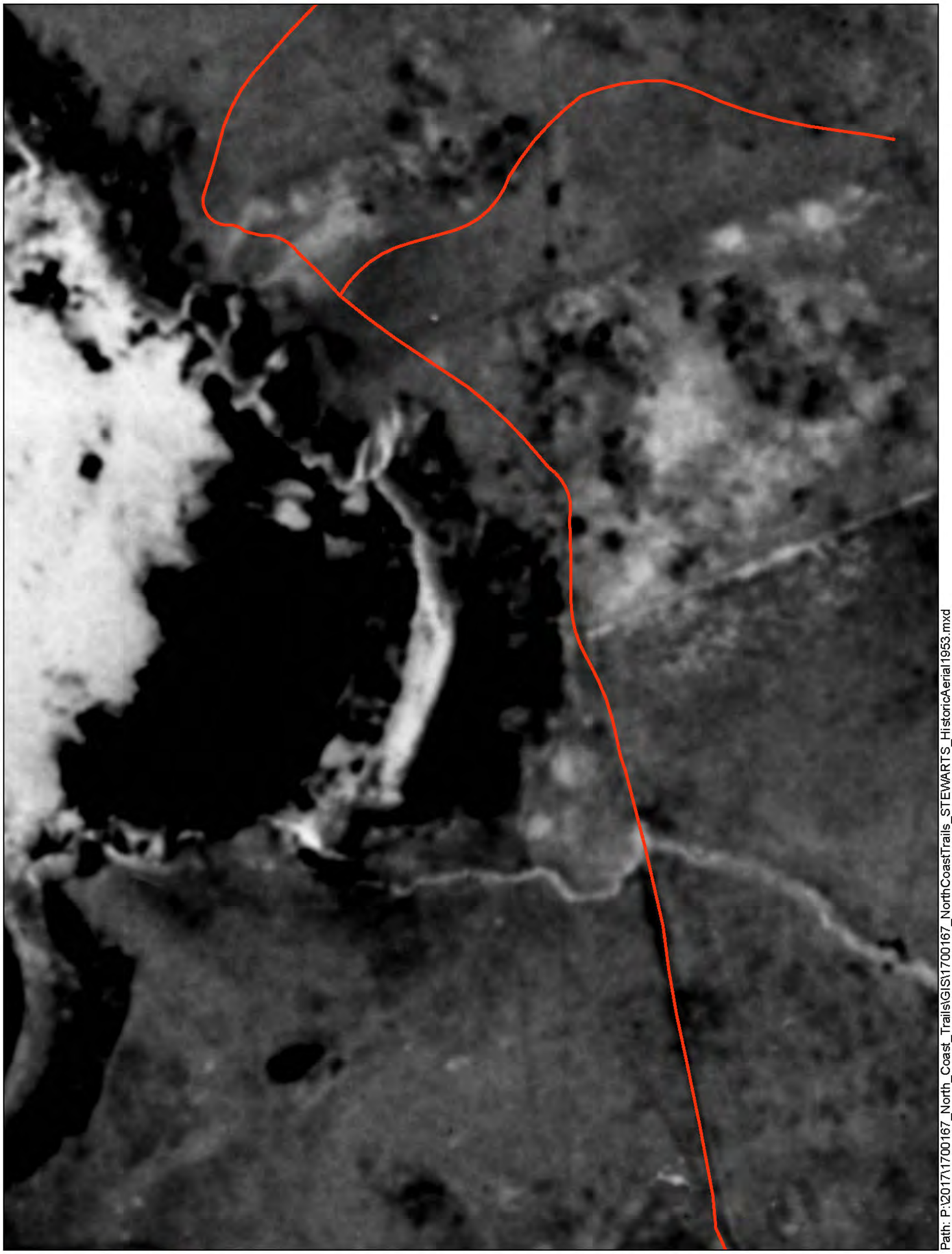
NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE

C-2



Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_STEWARTS_HistoricAerial1953.mxd

TRAIL ALIGNMENT

IMAGERY ACQUIRED FROM UC SANTA BARBARA MAP AND IMAGERY LABORATORY, APRIL 2018. FLIGHT NUMBER CSH-1953, FRAME 9k-32.

IMAGERY COLORS ARE INVERTED FOR CLIFF VISIBILITY

DRAWN BY SCOTT YEHL
Date Saved: 8/16/2018 1:36:07 PM

1 inch = 100 feet
PROJECT NO. 1700167

0 50 100 200 300 400
Feet

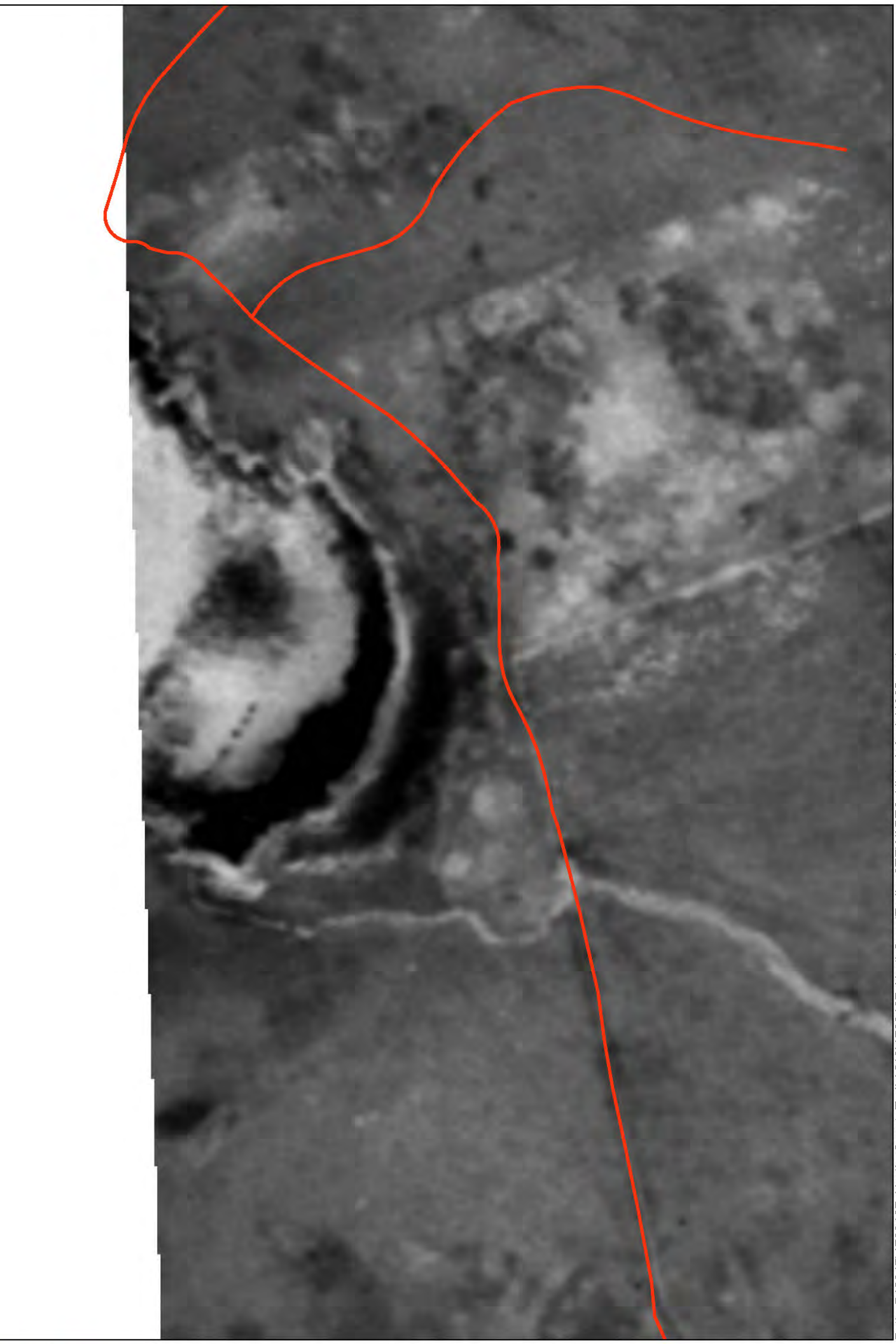
STEWARTS POINT TRAIL
HISTORICAL AERIAL IMAGERY (1953)

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE C-3



TRAIL ALIGNMENT

IMAGERY ACQUIRED FROM UC SANTA BARBARA MAP AND IMAGERY LABORATORY, APRIL 2018. FLIGHT NUMBER cas-65-130, FRAME 21-172.

IMAGERY COLORS ARE INVERTED FOR CLIFF VISIBILITY

DRAWN BY SCOTT YEHL
Date Saved: 8/16/2018 1:58:57 PM

1 inch = 100 feet
PROJECT NO. 1700167

0 50 100 200 300 400
Feet

STEWARTS POINT TRAIL
HISTORICAL AERIAL IMAGERY (1965)

NORTH COAST TRAIL
SONOMA COUNTY, CA

Coastal Conservancy

QUESTA ENGINEERING CORP.

FIGURE
C-4

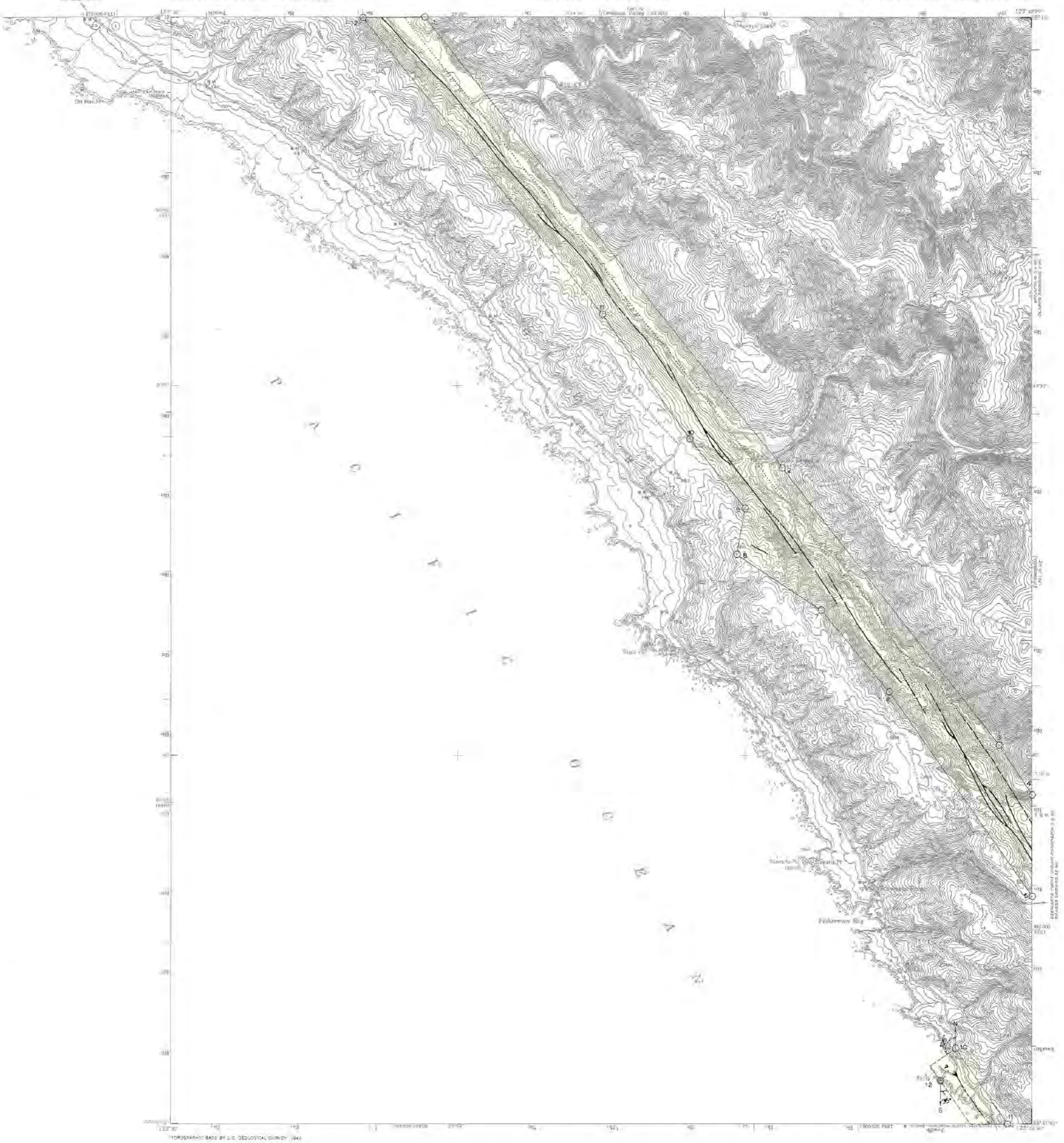
Path: P:\2017\1700167_North_Coast_Trails\GIS\1700167_NorthCoastTrails_STEWARTS_HistoricAerial1965.mxd

APPENDIX D

CALIFORNIA DIVISION OF MINES AND GEOLOGY
JAMES E. SLOSSON, STATE GEOLOGIST

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

STEWARTS POINT QUADRANGLE



TOPOGRAPHIC BASE BY U.S. GEOLOGICAL SURVEY 1968

SCALE 1:24,000

1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER

Contour interval 25 feet
Datum is mean sea level

MAP EXPLANATION

Potentially Active Faults

Faults considered to have been active during Quaternary time; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Aerial photo lineaments (not field checked); based on youthful geomorphic and other features believed to be the results of Quaternary faulting.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect consecutively numbered turning points so as to define one or more special studies zone segments.

Seaward projection of zone boundary.

STATE OF CALIFORNIA

SPECIAL STUDIES ZONES

Delineated in compliance with Chapter 7.5, Division 2 of the California Public Resources Code

STEWARTS POINT QUADRANGLE

OFFICIAL MAP

Effective : July 1, 1974

State Geologist

IMPORTANT - PLEASE NOTE

1) *This map may not show all potentially active faults, either within the special studies zones or outside their boundaries.*

2) Faults shown are the basis for establishing the boundaries of the special studies zones.

3) The identification of these potentially active faults and the location of such fault traces are based on the best available data. Traces have been drawn as accurately as possible at this map scale, however, the quality of data used is highly varied. The faults shown have not been field checked during this map compilation.

4) Fault information on this map is not sufficient to serve as a substitute for information developed by the special studies that may be required under Chapter 7.5, Division 2, Section 2623 of the California Public Resources Code.

REFERENCES USED TO COMPILE FAULT DATA

Stewarts Point Quadrangle

Blake, M.C., Jr., Smith, J.T., Wentworth, C.M., Wright, R.H., 1971, Preliminary geologic map of western Sonoma County and northernmost Marin County, California: U.S. Geological Survey-HUD Basic Data Contribution 12

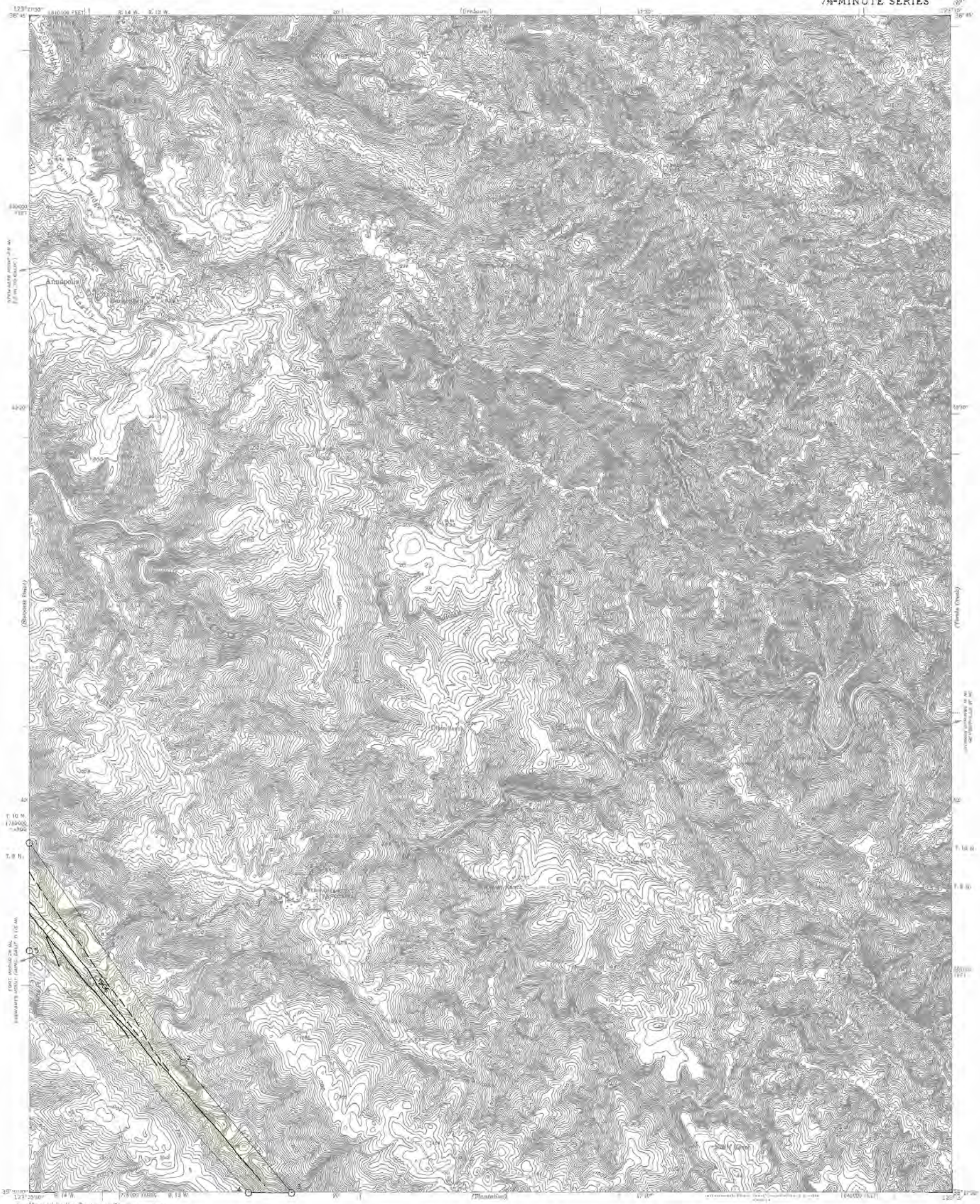
Brown, R.D., Jr. and Wolfe, E.W., 1972, Map showing active breaks along the San Andreas fault between Point Delgada and Bolinas Bay, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-692

Huffman, M.E., 1972, Geology for planning on the Sonoma County coast between the Russian and Gualala Rivers, California: Division of Mines and Geology, Preliminary Report 16, 38 p., 4 pl.

CALIFORNIA DIVISION OF MINES AND GEOLOGY
JAMES E. SLOSSON, STATE GEOLOGIST

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

CALIFORNIA
(SONOMA COUNTY)
ANNAPOLIS QUADRANGLE
7½-MINUTE SERIES



SCALE 1:24,000

1 MILE
1/2
0
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEAL LEVEL

MAP EXPLANATION

Potentially Active Faults

1906 C — Faults considered to have been active during Quaternary time; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Aerial photo lineaments (not field checked); based on youthful geomorphic and other features believed to be the results of Quaternary faulting.

Special Studies Zone Boundaries

3 — 4 These are delineated as straight-line segments that connect consecutively numbered turning points so as to define one or more special studies zone segments.

1 Seaward projection of zone boundary.

STATE OF CALIFORNIA
SPECIAL STUDIES ZONES

Delineated in compliance with Chapter 7.5, Division 2 of the California Public Resources Code

ANNAPOLIS QUADRANGLE

OFFICIAL MAP

Effective: July 1, 1974

State Geologist

IMPORTANT - PLEASE NOTE

1) *This map may not show all potentially active faults, either within the special studies zones or outside their boundaries.*

2) Faults shown are the basis for establishing the boundaries of the special studies zones.

3) The identification of these potentially active faults and the location of such fault traces are based on the best available data. Traces have been drawn as accurately as possible at this map scale, however, the quality of data used is highly varied. The faults shown have not been field checked during this map compilation.

4) Fault information on this map is not sufficient to serve as a substitute for information developed by the special studies that may be required under Chapter 7.5, Division 2, Section 2623 of the California Public Resources Code.

REFERENCES USED TO COMPILE FAULT DATA

Annapolis Quadrangle

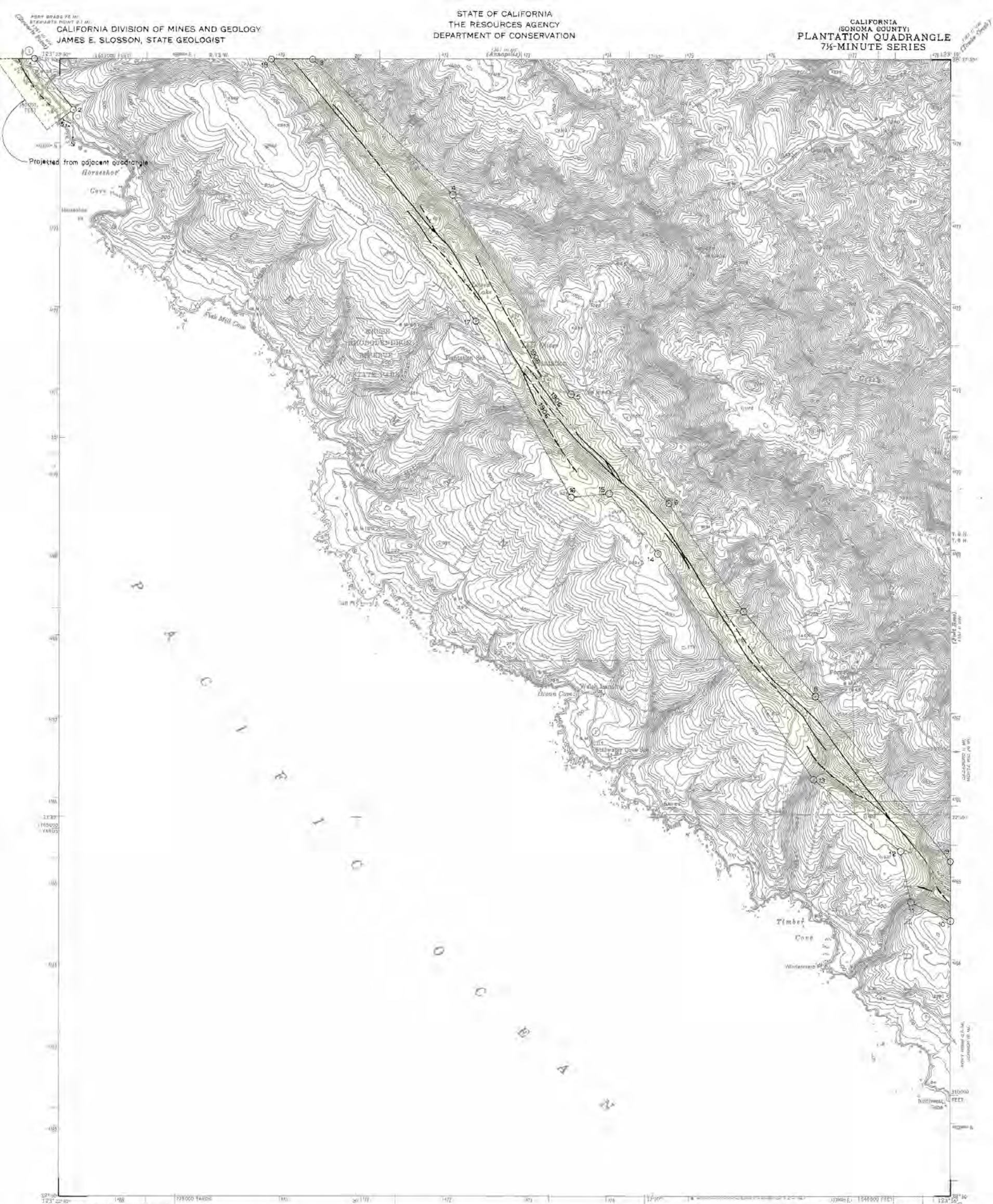
Brown, R.D., Jr. and Wolfe, E.W., 1972, Map showing active breaks along the San Andreas fault between Point Delgada and Bolinas Bay, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-692.

Huffman, M.E., 1972, Geology for planning on the Sonoma County coast between the Russian and Gualala Rivers, California: Division of Mines and Geology, Preliminary Report 16, 38 p., 4 pl.

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF CONSERVATION

CALIFORNIA DIVISION OF MINES AND GEOLOGY
JAMES E. SLOSSON, STATE GEOLOGIST

CALIFORNIA
(SONOMA COUNTY)
PLANTATION QUADRANGLE
7½-MINUTE SERIES



Topography by photogrammetric methods from aerial photographs taken 1942–1943
Polyconic projection. 1927 North American datum
10,000 foot grid based on U. S. zone system (G)

SCALE 1:24,000

1 MILE
1/2
0
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEAL LEVEL

MAP EXPLANATION

Potentially Active Faults

Faults considered to have been active during Quaternary time; solid line where accurately located, long dash where approximately located, short dash where inferred, dotted where concealed; query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by creep or possible creep.

Aerial photo lineaments (not field checked), based on youthful geomorphic and other features believed to be the results of Quaternary faulting.

Special Studies Zone Boundaries

These are delineated as straight-line segments that connect consecutively numbered turning points so as to define one or more special studies zone segments.

Seaward projection of zone boundary.

STATE OF CALIFORNIA
SPECIAL STUDIES ZONES

Delineated in compliance with Chapter 7.5, Division 2 of the California Public Resources Code

PLANTATION QUADRANGLE

OFFICIAL MAP

Effective: July 1, 1974

James E. Slosson State Geologist

IMPORTANT - PLEASE NOTE

1) *This map may not show all potentially active faults, either within the special studies zones or outside their boundaries.*

2) Faults shown are the basis for establishing the boundaries of the special studies zones.

3) The identification of these potentially active faults and the location of such fault traces are based on the best available data. Traces have been drawn as accurately as possible at this map scale, however, the quality of data used is highly varied. The faults shown have not been field checked during this map compilation.

4) Fault information on this map is not sufficient to serve as a substitute for information developed by the special studies that may be required under Chapter 7.5, Division 2, Section 2623 of the California Public Resources Code.

REFERENCES USED TO COMPILE FAULT DATA

Plantation Quadrangle

Brown, R.D., Jr. and Wolfe, E.W., 1972, Map showing active breaks along the San Andreas fault between Point Delgada and Bolinas Bay, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-692.

Hoffman, M.E., 1972, Geology for planning on the Sonoma County coast between the Russian and Gualala Rivers: California Division of Mines and Geology, Preliminary Report 16, 38 p., 4 pl.

Appendix F

Traffic Study

September 18, 2018

Mr. Scott Yehl, GIT
Questa Engineering Corp.
1220 Brickyard Cove Road, Suite 203
Pr. Richmond, CA 94801

Focused Traffic Study for the Kashia Coastal Preserve and Stewarts Point Ranch Trail and Facilities Plan

Dear Mr. Scott Yehl;

W-Trans has completed a focused traffic analysis for the Kashia Coastal Preserve and Stewarts Point Ranch Trail in the County of Sonoma. The purpose of this analysis was to evaluate the potential traffic impacts of the project on State Route (SR) 1 and to evaluate access and circulation at the proposed parking areas.

Project Description

The proposed project would add 13.3 acres of hiking-only trail in Stewarts Point Ranch and 10.3 acres of multi-use trail in the Kashia Coastal Preserve. As part of the project, new parking areas would be constructed at either trailhead. The northern parking lot would take access from the existing residential driveway. The southern parking lot would convert an existing shoulder pull-out area on the west side of SR 1. The southern lot would have a one-way circulation pattern, with a designated entrance on the northern end and an exit on the southern end.

Trip Generation

The anticipated trip generation for a project is generally estimated using standard rates published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual, 10th Edition, 2017. This publication includes information for a Public Park (ITE LU # 411) which would be the closest land use category to the proposed project. However, the data for that park use generally represents active park activities such as sports, developed picnic facilities, boating, etc., most of which are more active than anticipated for the proposed project. Due to limitations of this data, surveys were conducted in the summer of 2017 to establish vehicle trip rates for trailhead parking lots in Sonoma County. The surveys were conducted at three separate County Parks including Shell Beach, Laguna Wetlands Preserve, and Taylor Mountain Regional Park.

Shell beach is off SR 1, south of SR 116, with a lot that provides access to trailheads on both sides of SR 1 covering an estimated 500 acres. It should be noted that trip rates from data collection at Shell Beach in 2013 had been used for other open space/trailhead traffic studies in the area, such as the Calabasas Creek open space preserve off SR 12 and Jenner Headlands between Jenner and Russian Gulch. These rates were updated in the 2017 surveys. Based on the new 2017 surveys, the Shell Beach parking lot generates traffic at a rate of 0.044 trips/acre of park during the weekday p.m. peak hour and 0.172 trips/acre of park during the Saturday midday peak hour.

Laguna De Santa Rosa Trail in the Laguna Wetlands Preserve has entrances on SR 12, east of SR 116 and on Occidental Road, east of SR 116 in the City of Sebastopol. This 400-acre trail area wraps around ponds, marshes and the largest freshwater complex on the Northern California Coast, the Laguna channel. The Laguna De Santa Rosa Trail parking lot generates traffic at a rate of 0.068 trips/acre of park during the weekday p.m. peak hour and 0.060 trips/acre of park during the Saturday midday peak hour.

Taylor Mountain Regional Park is located on Kawana Terrace outside the City of Santa Rosa. This 1,100-acre park and open space preserve contains 5.5 miles of trails for hiking, biking and horseback riding with panoramic views of the City of Santa Rosa at the summit. Taylor Mountain Regional Park generates traffic at a rate of 0.044 trips/acre of park during the weekday p.m. peak hour and 0.025 trips/acre of park during the Saturday midday peak hour.

The proposed project is like these three County park projects as opposed to the land uses studied in the ITE *Trip Generation Manual* because all these park properties have a portion of the space dedicated to trail easements but are on a larger acreage of open space or privately-owned property. In other words, public access is restricted on most of the property, with only a portion dedicated to trails for public use. The Kashia Preserve and Stewarts Point Trails are contained within approximately 210 acres of open space and private property. For the purposes of this study, the average rates of the three surveyed parks were applied to the overall acreage, rather than just the acreage of the trail easements, and used to estimate the trips for the project. Based on these surveyed rates, the proposed project would be expected to generate 11 weekday p.m. peak hour trips and 18 weekend midday peak hour trips. These vehicle trip estimates are summarized in Table 1.

Table 1 – Trip Generation Summary

Land Use	Units	Weekday PM Peak Hour				Weekend MD Peak Hour			
		Rate	Trips	In	Out	Rate	Trips	In	Out
Surveyed									
Taylor Mountain Regional Park	1,100 acres	0.044	48	26	22	0.025	28	14	14
Laguna Wetlands Preserve	400 acres	0.068	27	16	11	0.060	24	12	12
Shell Beach (2017)	500 acres	0.044	22	14	8	0.172	86	40	46
Kashia & Stewarts Point Trail	**210 acres**	**0.052**	**11**	**6**	**5**	**0.086**	**18**	**9**	**9**

Note: Acres based on total area of park and not just areas serving the trails

Trip Distribution

The pattern used to allocate new project trips to the proposed parking areas was determined based on familiarity with the area and surrounding region. The applied distribution assumptions and resulting trips are shown in Table 2.

Table 2 – Trip Distribution Assumptions

Route	Percent	Weekday PM Trips	Weekend MD Trips
To/From the north via SR 1	40%	4	7
To/From the south via SR 1	60%	7	11
TOTAL	**100%**	**11**	**18**

Access Analysis

The proposed trailhead parking areas would be accessed via two driveways along SR 1. The northern driveway would be located a half-mile north of the SR 1/Stewarts Point-Skaggs Point Road intersection and the southern driveway would be located approximately three miles south of the same intersection. The existing northern driveway currently serves a residence. The southern driveway would include converting the existing dirt shoulder pull-out area along SR 1 to a parking area with a one-way circulation scheme from the entrance at the north end to the exit at the south end.

Sight Distance

At driveways, a substantially clear line of sight should be maintained between the driver of a vehicle waiting on the driveway and the driver of an approaching vehicle. Sight distances along SR 1 at the project driveways were evaluated based on stopping sight distance criteria contained in the Caltrans *Highway Design Manual* as measured

from a 3.5-foot height at the location of the driver on the minor road to a 4.25-foot object height in the center of the approaching lane of the major road. Set-back on the crossroad was 15 feet, measured from the edge of the traveled way.

The study segment of SR 1 is generally winding with rolling terrain. There are no posted speed limits near the project driveways; however, advisory speed limits of 35 and 40 mph are posted near curves in the roadway. Stopping sight distance at both driveways was evaluated based on the highest observed 95th-percentile speed of 63 mph. This data was collected for a period of three days in August 2018 and is enclosed.

Based on a speed of 65 mph, the minimum stopping sight distance needed is 660 feet. Sight lines along SR 1 at the location of the northern driveway extend approximately 700 feet north, up to the horizontal curve that is on a downward slope approaching the driveway. Sight lines to the south are also clear for 750 feet, which is adequate for speeds over 65 mph. Approaching vehicles traveling on SR 1 have clear sight lines to the driveway and of anyone exiting it.

Drivers exiting the proposed southern driveway would have sight lines that are unobstructed for more than 660 feet in both directions, which is adequate for speeds up to 65 mph.

Finding – Sight distances from the project driveways on SR 1 are adequate.

Left-Turn Lane Warrants

The need for left-turn lanes on SR 1 at the project driveways was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as a more recent update of the methodology developed by the Washington State Department of Transportation. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues. Existing plus Project weekend midday peak hour volumes as well as safety criteria were evaluated. For the purposes of evaluating the need for a left-turn lane, all nine inbound trips were conservatively assigned to each driveway. Based on these conditions, which are representative of the highest number of project-generated trips and therefore worst-case conditions, a left-turn lane is not warranted on SR 1 at either project driveway. A copy of the warrant analysis is enclosed.

Parking Area Circulation

The proposed parking area at the southern end of the trail would have a designated entrance and exit. To ensure visitors do not pull into and out of the parking area at any point between the two driveways, the applicant should provide a raised landscaped median between the parking area and the roadway.

Finding – The proposed southern parking area which would be located on the shoulder of SR 1 has the potential to create multiple points of conflict if unrestricted access is allowed from SR 1.

Recommendation – A raised median should be installed between the parking area and the roadway with channelization at the northern entry and southern exit. In order to maintain clear sight lines to the southern driveway, the median should not be landscaped and should not exceed 3.5-feet in height. Striping and signage should be provided at the driveways including "Do Not Enter" signs at the southern exit-only driveway and striped directional arrows identifying the entry and exit driveways.

Conclusions and Recommendations

- The Kashia Preserve and Stewarts Point Trail project is expected to generate 11 new trips during the weekday p.m. peak hour and 18 trips during the weekend midday peak hour.

- Both access driveways are expected to operate acceptably, with adequate sight lines. Vegetation and trees near driveways should be trimmed so they do not block sight lines.

- Left-turn lanes are not warranted on SR 1 at the project driveways.

- To minimize the conflict points for vehicles entering and exiting the proposed southern parking area, a raised median should be installed between the parking area and the roadway with channelization at the driveways. The median should not be landscaped nor should it exceed 3.5-feet in height in order to maintain adequate sight distance at the southern driveway.

- "Do Not Enter" signs should be installed at the southern exit-only driveway and striped arrows marked at the driveways indicating the entrance/exit locations.

Thank you for giving us the opportunity to provide these services.

Sincerely,

Kevin Rangel, EIT
Assistant Engineer

Steve Weinberger, PE, PTOE
Principal

SJW/kr/SOX624.L1

Enclosures: Traffic Counts and Speed Surveys
Left-Turn Lane Warrants

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SR 1 (0.4mi) N/O Stewarts Point - Skaggs Springs Rd

Day: Thursday
Date: 8/23/2018

City: Stewarts Point
Project #: CA18_8405_001

DAILY TOTALS	NB	SB	EB	WB	Total
	1,098	1,023	0	0	2,121

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	0		0		0	0			12:00	17		16		0	0	33	
00:15	0		0		0	0			12:15	20		34		0	0	54	
00:30	0		0		0	0			12:30	18		27		0	0	45	
00:45	0		0		0	0			12:45	16	71	27	104	0	0	43	175
01:00	0		0		0	0			13:00	26		20		0	0	46	
01:15	0		0		0	0			13:15	27		11		0	0	38	
01:30	0		0		0	0			13:30	25		23		0	0	48	
01:45	1	1	0		0	0	1	1	13:45	22	100	19	73	0	0	41	173
02:00	0		2		0	0	2		14:00	17		23		0	0	40	
02:15	0		0		0	0			14:15	27		15		0	0	42	
02:30	0		0		0	0			14:30	26		13		0	0	39	
02:45	0		0	2	0	0		2	14:45	29	99	23	74	0	0	52	173
03:00	1		0		0	0	1		15:00	30		24		0	0	54	
03:15	0		2		0	0	2		15:15	29		18		0	0	47	
03:30	1		0		0	0	1		15:30	26		18		0	0	44	
03:45	0	2	0	2	0	0		4	15:45	19	104	20	80	0	0	39	184
04:00	1		0		0	0	1		16:00	28		20		0	0	48	
04:15	2		1		0	0	3		16:15	31		27		0	0	58	
04:30	0		4		0	0	4		16:30	26		22		0	0	48	
04:45	1	4	5	10	0	0	6	14	16:45	29	114	13	82	0	0	42	196
05:00	0		1		0	0	1		17:00	27		8		0	0	35	
05:15	2		4		0	0	6		17:15	21		16		0	0	37	
05:30	2		1		0	0	3		17:30	27		9		0	0	36	
05:45	0	4	6	12	0	0	6	16	17:45	26	101	12	45	0	0	38	146
06:00	1		6		0	0	7		18:00	28		15		0	0	43	
06:15	3		10		0	0	13		18:15	15		9		0	0	24	
06:30	4		4		0	0	8		18:30	15		13		0	0	28	
06:45	9	17	9	29	0	0	18	46	18:45	13	71	12	49	0	0	25	120
07:00	3		14		0	0	17		19:00	21		8		0	0	29	
07:15	9		8		0	0	17		19:15	12		5		0	0	17	
07:30	8		15		0	0	23		19:30	14		4		0	0	18	
07:45	7	27	13	50	0	0	20	77	19:45	14	61	2	19	0	0	16	80
08:00	11		14		0	0	25		20:00	17		3		0	0	20	
08:15	17		20		0	0	37		20:15	11		1		0	0	12	
08:30	18		16		0	0	34		20:30	8		3		0	0	11	
08:45	16	62	24	74	0	0	40	136	20:45	4	40	2	9	0	0	6	49
09:00	8		21		0	0	29		21:00	5		1		0	0	6	
09:15	19		32		0	0	51		21:15	8		2		0	0	10	
09:30	8		22		0	0	30		21:30	7		3		0	0	10	
09:45	17	52	21	96	0	0	38	148	21:45	4	24	0	6	0	0	4	30
10:00	17		16		0	0	33		22:00	5		0		0	0	5	
10:15	22		27		0	0	49		22:15	3		1		0	0	4	
10:30	19		30		0	0	49		22:30	7		1		0	0	8	
10:45	3	61	27	100	0	0	30	161	22:45	0	15	1	3	0	0	1	18
11:00	12		22		0	0	34		23:00	1		0		0	0	1	
11:15	16		32		0	0	48		23:15	4		0		0	0	4	
11:30	15		18		0	0	33		23:30	3		0		0	0	3	
11:45	16	59	32	104	0	0	48	163	23:45	1	9	0		0	0	1	9
TOTALS		289		479				**768**	**TOTALS**		809		544				**1353**
SPLIT %		37.6%		62.4%				**36.2%**	**SPLIT %**		59.8%		40.2%				**63.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	1,098	1,023	0	0	2,121

AM Peak Hour	09:45	10:30				**11:45**	**PM Peak Hour**	14:30	12:15				**14:45**
AM Pk Volume	75	111				**180**	**PM Pk Volume**	114	108				**197**
Pk Hr Factor	0.852	0.867				**0.833**	**Pk Hr Factor**	0.950	0.794				**0.912**
7 - 9 Volume	89	124	0	0		**213**	**4 - 6 Volume**	215	127	0	0		**342**
7 - 9 Peak Hour	08:00	08:00				**08:00**	**4 - 6 Peak Hour**	16:00	16:00				**16:00**
7 - 9 Pk Volume	62	74	0	0		**136**	**4 - 6 Pk Volume**	114	82	0	0		**196**
Pk Hr Factor	0.861	0.771	0.000	0.000		**0.850**	**Pk Hr Factor**	0.919	0.759	0.000	0.000		**0.845**

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SR 1 (0.4mi) N/O Stewarts Point - Skaggs Springs Rd

Day: Friday
Date: 8/24/2018

City: Stewarts Point
Project #: CA18_8405_001

DAILY TOTALS	NB	SB	EB	WB	Total
	1,491	986	0	0	2,477

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	2		0		0	0	2		12:00	19		26		0	0	45	
00:15	1		0		0	0	1		12:15	17		26		0	0	43	
00:30	1		1		0	0	2		12:30	22		19		0	0	41	
00:45	0	4	1	2	0	0	1	6	12:45	19	77	21	92	0	0	40	169
01:00	0		0		0	0			13:00	30		27		0	0	57	
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01:30	0		0		0	0			13:30	40		23		0	0	63	
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02:45	0	1	0	1	0	0		2	14:45	36	141	17	67	0	0	53	208
03:00	0		0		0	0			15:00	45		11		0	0	56	
03:15	0		0		0	0			15:15	35		25		0	0	60	
03:30	1		0		0	0	1		15:30	36		22		0	0	58	
03:45	0	1	0		0	0		1	15:45	39	155	10	68	0	0	49	223
04:00	0		0		0	0			16:00	33		15		0	0	48	
04:15	4		0		0	0	4		16:15	48		9		0	0	57	
04:30	0		1		0	0	1		16:30	32		16		0	0	48	
04:45	0	4	4	5	0	0	4	9	16:45	33	146	20	60	0	0	53	206
05:00	1		1		0	0	2		17:00	43		22		0	0	65	
05:15	0		3		0	0	3		17:15	46		27		0	0	73	
05:30	0		6		0	0	6		17:30	38		16		0	0	54	
05:45	0	1	2	12	0	0	2	13	17:45	29	156	18	83	0	0	47	239
06:00	0		2		0	0	2		18:00	30		13		0	0	43	
06:15	3		7		0	0	10		18:15	32		8		0	0	40	
06:30	7		5		0	0	12		18:30	22		8		0	0	30	
06:45	8	18	8	22	0	0	16	40	18:45	26	110	17	46	0	0	43	156
07:00	4		3		0	0	7		19:00	41		11		0	0	52	
07:15	11		12		0	0	23		19:15	32		10		0	0	42	
07:30	7		9		0	0	16		19:30	23		5		0	0	28	
07:45	11	33	17	41	0	0	28	74	19:45	21	117	4	30	0	0	25	147
08:00	5		16		0	0	21		20:00	23		5		0	0	28	
08:15	15		18		0	0	33		20:15	31		0		0	0	31	
08:30	3		16		0	0	19		20:30	19		5		0	0	24	
08:45	9	32	16	66	0	0	25	98	20:45	22	95	4	14	0	0	26	109
09:00	8		13		0	0	21		21:00	7		0		0	0	7	
09:15	6		20		0	0	26		21:15	12		1		0	0	13	
09:30	12		16		0	0	28		21:30	11		3		0	0	14	
09:45	16	42	28	77	0	0	44	119	21:45	7	37	3	7	0	0	10	44
10:00	10		22		0	0	32		22:00	13		5		0	0	18	
10:15	11		20		0	0	31		22:15	11		1		0	0	12	
10:30	11		19		0	0	30		22:30	7		3		0	0	10	
10:45	10	42	35	96	0	0	45	138	22:45	15	46	1	10	0	0	16	56
11:00	21		29		0	0	50		23:00	7		0		0	0	7	
11:15	24		17		0	0	41		23:15	3		3		0	0	6	
11:30	18		26		0	0	44		23:30	2		1		0	0	3	
11:45	16	79	21	93	0	0	37	172	23:45	3	15	1	5	0	0	4	20
TOTALS		261		415				676	TOTALS		1230		571				1801
SPLIT %		38.6%		61.4%				27.3%	SPLIT %		68.3%		31.7%				72.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,491	986	0	0	2,477

AM Peak Hour	11:00	10:45			10:45	PM Peak Hour	14:15	12:15			16:45
AM Pk Volume	79	107			180	PM Pk Volume	163	93			245
Pk Hr Factor	0.823	0.764			0.900	Pk Hr Factor	0.906	0.861			0.839
7 - 9 Volume	65	107	0	0	172	4 - 6 Volume	302	143	0	0	445
7 - 9 Peak Hour	07:30	07:45			07:45	4 - 6 Peak Hour	16:45	16:30			16:45
7 - 9 Pk Volume	38	67	0	0	101	4 - 6 Pk Volume	160	85	0	0	245
Pk Hr Factor	0.633	0.931	0.000	0.000	0.765	Pk Hr Factor	0.870	0.787	0.000	0.000	0.839

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

SR 1 (0.4mi) N/O Stewarts Point - Skaggs Springs Rd

Day: Saturday
Date: 8/25/2018

City: Stewarts Point
Project #: CA18_8405_001

DAILY TOTALS	NB	SB	EB	WB	Total
	1,101	915	0	0	2,016

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	0		0		0	0			12:00	31		26		0	0	57	
00:15	2		0		0	0	2		12:15	16		16		0	0	32	
00:30	3		0		0	0	3		12:30	38		18		0	0	56	
00:45	3	8	0		0	0	3	8	12:45	17	102	29	89	0	0	46	191
01:00	1		0		0	0	1		13:00	25		20		0	0	45	
01:15	1		1		0	0	2		13:15	29		25		0	0	54	
01:30	3		0		0	0	3		13:30	25		13		0	0	38	
01:45	1	6	0	1	0	0	1	7	13:45	31	110	13	71	0	0	44	181
02:00	3		2		0	0	5		14:00	21		26		0	0	47	
02:15	0		1		0	0	1		14:15	25		10		0	0	35	
02:30	1		0		0	0	1		14:30	30		14		0	0	44	
02:45	0	4	0	3	0	0		7	14:45	32	108	17	67	0	0	49	175
03:00	1		1		0	0	2		15:00	37		10		0	0	47	
03:15	1		0		0	0	1		15:15	22		25		0	0	47	
03:30	1		1		0	0	2		15:30	38		24		0	0	62	
03:45	0	3	0	2	0	0		5	15:45	32	129	15	74	0	0	47	203
04:00	0		0		0	0			16:00	18		18		0	0	36	
04:15	0		0		0	0			16:15	24		18		0	0	42	
04:30	0		0		0	0			16:30	21		16		0	0	37	
04:45	0		1	1	0	0	1	1	16:45	21	84	18	70	0	0	39	154
05:00	1		3		0	0	4		17:00	33		15		0	0	48	
05:15	1		0		0	0	1		17:15	21		20		0	0	41	
05:30	0		4		0	0	4		17:30	14		13		0	0	27	
05:45	1	3	4	11	0	0	5	14	17:45	28	96	18	66	0	0	46	162
06:00	2		5		0	0	7		18:00	17		14		0	0	31	
06:15	0		4		0	0	4		18:15	20		9		0	0	29	
06:30	0		3		0	0	3		18:30	21		7		0	0	28	
06:45	3	5	4	16	0	0	7	21	18:45	12	70	6	36	0	0	18	106
07:00	4		3		0	0	7		19:00	11		9		0	0	20	
07:15	4		16		0	0	20		19:15	12		7		0	0	19	
07:30	11		13		0	0	24		19:30	7		6		0	0	13	
07:45	5	24	12	44	0	0	17	68	19:45	6	36	13	35	0	0	19	71
08:00	7		12		0	0	19		20:00	10		10		0	0	20	
08:15	8		11		0	0	19		20:15	6		9		0	0	15	
08:30	8		12		0	0	20		20:30	7		1		0	0	8	
08:45	7	30	15	50	0	0	22	80	20:45	4	27	3	23	0	0	7	50
09:00	5		10		0	0	15		21:00	10		2		0	0	12	
09:15	7		16		0	0	23		21:15	4		2		0	0	6	
09:30	17		18		0	0	35		21:30	1		3		0	0	4	
09:45	12	41	25	69	0	0	37	110	21:45	5	20	0	7	0	0	5	27
10:00	18		18		0	0	36		22:00	3		4		0	0	7	
10:15	10		22		0	0	32		22:15	7		2		0	0	9	
10:30	24		20		0	0	44		22:30	4		2		0	0	6	
10:45	26	78	27	87	0	0	53	165	22:45	1	15	3	11	0	0	4	26
11:00	24		21		0	0	45		23:00	1		1		0	0	2	
11:15	16		17		0	0	33		23:15	2		1		0	0	3	
11:30	19		23		0	0	42		23:30	1		0		0	0	1	
11:45	39	98	18	79	0	0	57	177	23:45	0	4	1	3	0	0	1	7
TOTALS		300		363				663	TOTALS		801		552				1353
SPLIT %		45.2%		54.8%				32.9%	SPLIT %		59.2%		40.8%				67.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,101	915	0	0	2,016

AM Peak Hour	11:45	10:15					11:45	PM Peak Hour	14:45	12:30					14:45
AM Pk Volume	124	90					202	PM Pk Volume	129	92					205
Pk Hr Factor	0.795	0.833					0.886	Pk Hr Factor	0.849	0.793					0.827
7 - 9 Volume	54	94	0	0			148	4 - 6 Volume	180	136	0	0			316
7 - 9 Peak Hour	07:30	07:15					07:15	4 - 6 Peak Hour	16:15	16:00					16:15
7 - 9 Pk Volume	31	53	0	0			80	4 - 6 Pk Volume	99	70	0	0			166
Pk Hr Factor	0.705	0.828	0.000	0.000			0.833	Pk Hr Factor	0.750	0.972	0.000	0.000			0.865

SPEED

SR 1 (0.4mi) N/O Stewarts Point - Skaggs Springs Rd

Day: Thursday
Date: 8/23/2018

City: Stewarts Point
Project #: CA18_8405_001

Summary

Time	< 15	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 +	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
02:00	0	0	0	0	0	0	1	1	0	0	0	0	0	2
03:00	0	0	0	0	0	0	1	0	0	2	1	0	0	4
04:00	0	0	0	0	0	0	1	3	5	3	2	0	0	14
05:00	0	0	0	0	0	0	2	4	7	2	0	1	0	16
06:00	0	0	0	0	1	0	11	7	10	9	5	2	1	46
07:00	0	0	0	0	0	2	4	9	24	20	14	3	1	77
08:00	0	1	0	0	1	1	5	48	39	34	5	2	0	136
09:00	0	0	1	0	0	3	16	49	42	25	4	7	1	148
10:00	0	0	0	0	1	3	25	56	42	20	10	3	1	161
11:00	0	0	0	0	2	4	13	49	58	28	8	1	0	163
12:00 PM	0	0	0	0	0	3	20	46	51	45	9	1	0	175
13:00	0	1	0	0	3	2	24	45	68	27	3	0	0	173
14:00	0	0	0	0	1	4	23	48	53	30	10	4	0	173
15:00	0	0	1	1	0	4	13	49	63	33	13	6	1	184
16:00	0	0	0	0	0	2	13	61	69	37	12	1	1	196
17:00	0	0	0	0	0	3	8	29	53	37	9	7	0	146
18:00	0	0	0	0	0	2	10	25	40	34	6	3	0	120
19:00	0	0	0	0	0	0	2	15	24	25	11	2	1	80
20:00	0	0	0	0	0	2	3	7	20	10	4	1	2	49
21:00	0	0	0	1	0	0	6	6	5	7	4	1	0	30
22:00	0	0	0	0	0	0	0	4	7	5	1	1	0	18
23:00	0	0	0	0	0	0	1	2	2	2	2	0	0	9
Totals		2	2	2	9	35	202	564	682	435	133	46	9	2121
% of Totals		0%	0%	0%	0%	2%	10%	27%	32%	21%	6%	2%	0%	100%

AM Volumes	0	1	1	0	5	13	79	227	227	143	49	19	4	768
% AM		0%	0%		0%	1%	4%	11%	11%	7%	2%	1%	0%	36%
AM Peak Hour		08:00	09:00		11:00	11:00	10:00	10:00	11:00	08:00	07:00	09:00	06:00	11:00
Volume		1	1		2	4	25	56	58	34	14	7	1	163
PM Volumes	0	1	1	2	4	22	123	337	455	292	84	27	5	1353
% PM		0%	0%	0%	0%	1%	6%	16%	21%	14%	4%	1%	0%	64%
PM Peak Hour		13:00	15:00	15:00	13:00	14:00	13:00	16:00	16:00	12:00	15:00	17:00	20:00	16:00
Volume		1	1	1	3	4	24	61	69	45	13	7	2	196

Directional Peak Periods All Speeds	AM 7-9 Volume		AM 7-9 %	NOON 12-2 Volume		NOON 12-2 %	PM 4-6 Volume		PM 4-6 %	Off Peak Volumes Volume		Off Peak Volumes %
	213	⟷	10%	348	⟷	16%	342	⟷	16%	1218	⟷	57%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SR 1	Summary	46	52	52	59	63	2121

SPEED

SR 1 (0.4mi) N/O Stewarts Point - Skaggs Springs Rd

Day: Friday
Date: 8/24/2018

City: Stewarts Point
Project #: CA18_8405_001

Summary

Time	< 15	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 +	Total
00:00 AM	0	0	0	0	0	0	1	2	2	1	0	0	0	6
01:00	0	0	0	0	0	0	1	2	1	0	0	0	0	4
02:00	0	0	0	0	0	0	0	1	1	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1
04:00	0	0	0	0	0	0	1	0	5	3	0	0	0	9
05:00	0	0	0	0	0	0	1	3	4	4	0	1	0	13
06:00	0	0	0	0	1	0	5	8	14	3	6	3	0	40
07:00	0	0	0	0	0	2	9	13	27	15	5	1	2	74
08:00	0	0	0	0	1	7	13	22	33	17	5	0	0	98
09:00	0	0	0	0	0	1	14	29	40	27	6	2	0	119
10:00	0	0	0	0	1	3	14	56	40	15	8	1	0	138
11:00	0	0	0	0	2	2	22	48	67	21	6	2	2	172
12:00 PM	0	0	1	0	1	3	18	60	54	29	3	0	0	169
13:00	0	0	0	0	0	5	37	75	72	26	6	3	0	224
14:00	0	0	0	0	2	4	29	81	63	26	3	0	0	208
15:00	0	0	0	0	2	4	31	56	85	37	6	1	1	223
16:00	0	0	0	0	3	5	13	55	82	38	9	1	0	206
17:00	0	0	0	0	1	4	14	81	73	48	13	3	2	239
18:00	0	0	0	0	3	4	10	43	56	27	9	4	0	156
19:00	0	0	0	0	0	3	21	41	42	27	11	1	1	147
20:00	0	0	0	0	0	4	7	39	31	14	10	4	0	109
21:00	0	0	0	0	0	0	10	7	16	10	1	0	0	44
22:00	0	0	0	0	0	2	4	10	23	8	7	2	0	56
23:00	0	0	0	0	0	0	3	6	3	4	4	0	0	20
Totals			1		17	53	278	738	834	401	118	29	8	2477
% of Totals			0%		1%	2%	11%	30%	34%	16%	5%	1%	0%	100%

AM Volumes	0	0	0	0	5	15	81	184	234	107	36	10	4	676
% AM					0%	1%	3%	7%	9%	4%	1%	0%	0%	27%
AM Peak Hour					11:00	08:00	11:00	10:00	11:00	09:00	10:00	06:00	07:00	11:00
Volume					2	7	22	56	67	27	8	3	2	172
PM Volumes	0	0	1	0	12	38	197	554	600	294	82	19	4	1801
% PM			0%		0%	2%	8%	22%	24%	12%	3%	1%	0%	73%
PM Peak Hour			12:00		16:00	13:00	13:00	14:00	15:00	17:00	17:00	18:00	17:00	17:00
Volume			1		3	5	37	81	85	48	13	4	2	239

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	↔	%	Volume	↔	%	Volume	↔	%	Volume	↔	%
	172		7%	393		16%	445		18%	1467		59%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SR 1	Summary	45	51	51	57	61	2477

Prepared by National Data & Surveying Services

SPEED

SR 1 (0.4mi) N/O Stewarts Point - Skaggs Springs Rd

Day: Saturday
Date: 8/25/2018

City: Stewarts Point
Project #: CA18_8405_001

Summary

Time	< 15	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 +	Total
00:00 AM	0	0	0	0	0	0	0	2	1	3	1	1	0	8
01:00	0	0	0	0	0	0	1	1	2	2	1	0	0	7
02:00	0	0	0	0	0	0	1	1	1	2	1	1	0	7
03:00	0	0	0	0	0	0	0	3	1	1	0	0	0	5
04:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
05:00	0	0	0	0	0	0	2	4	4	4	0	0	0	14
06:00	0	0	0	0	0	0	1	5	5	5	4	1	0	21
07:00	0	0	0	0	0	2	6	14	29	11	4	2	0	68
08:00	0	0	0	0	1	1	6	17	26	19	6	3	1	80
09:00	0	0	0	1	1	3	11	26	35	17	13	3	0	110
10:00	0	0	0	0	1	5	17	37	60	28	11	6	0	165
11:00	0	0	0	0	0	6	17	62	67	17	7	1	0	177
12:00 PM	0	0	0	0	0	2	23	73	61	17	9	4	2	191
13:00	0	0	0	0	3	3	27	64	64	12	6	1	1	181
14:00	0	0	0	0	2	1	18	61	45	36	11	1	0	175
15:00	0	0	0	1	1	3	19	78	55	35	9	2	0	203
16:00	0	0	0	0	0	1	7	53	47	31	9	4	2	154
17:00	0	0	0	0	0	2	16	43	55	28	12	6	0	162
18:00	0	0	0	0	1	0	3	30	36	21	10	5	0	106
19:00	0	0	0	0	0	2	4	22	16	15	7	3	2	71
20:00	0	0	0	0	0	3	12	17	12	6	0	0	0	50
21:00	0	0	0	1	3	1	6	5	6	3	1	0	1	27
22:00	0	0	0	0	2	0	7	8	7	0	2	0	0	26
23:00	0	0	0	0	0	0	2	2	2	1	0	0	0	7
Totals				3	15	35	206	629	637	314	124	44	9	2016
% of Totals				0%	1%	2%	10%	31%	32%	16%	6%	2%	0%	100%

AM Volumes	0	0	0	1	3	17	62	173	231	109	48	18	1	663
% AM				0%	0%	1%	3%	9%	11%	5%	2%	1%	0%	33%
AM Peak Hour				09:00	08:00	11:00	10:00	11:00	11:00	10:00	09:00	10:00	08:00	11:00
Volume				1	1	6	17	62	67	28	13	6	1	177
PM Volumes	0	0	0	2	12	18	144	456	406	205	76	26	8	1353
% PM				0%	1%	1%	7%	23%	20%	10%	4%	1%	0%	67%
PM Peak Hour				15:00	13:00	13:00	13:00	15:00	13:00	14:00	17:00	17:00	12:00	15:00
Volume				1	3	3	27	78	64	36	12	6	2	203

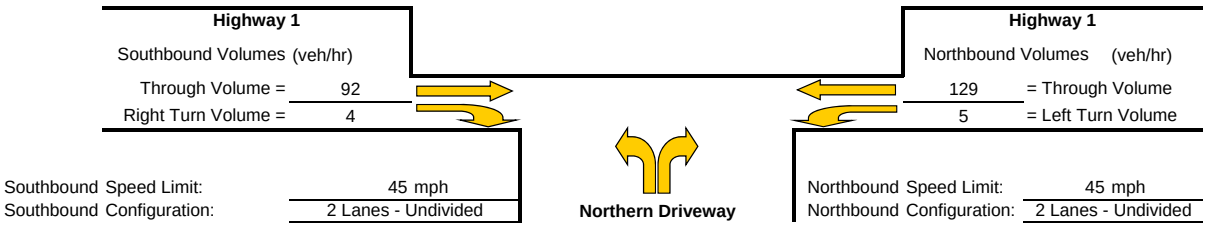
Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Speeds	Volume	%	Volume	%	Volume	%	Volume	%
	148	7%	372	18%	316	16%	1180	59%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SR 1	Summary	45	51	51	58	63	2016

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Highway 1/Northern Driveway
Study Scenario: Weekend Existing + Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 45 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 45 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	96
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

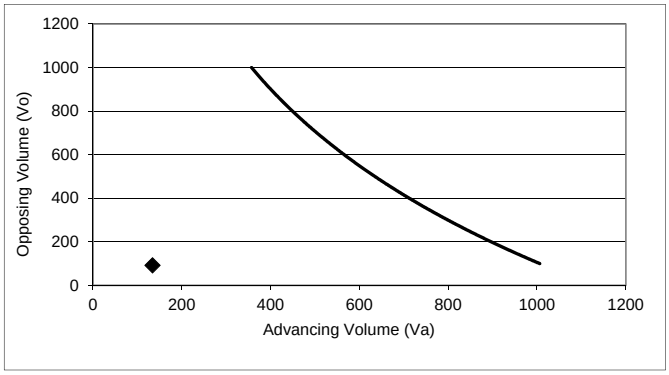
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	96
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns	%lt	3.7 %
Advancing Volume Threshold	AV	1015 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

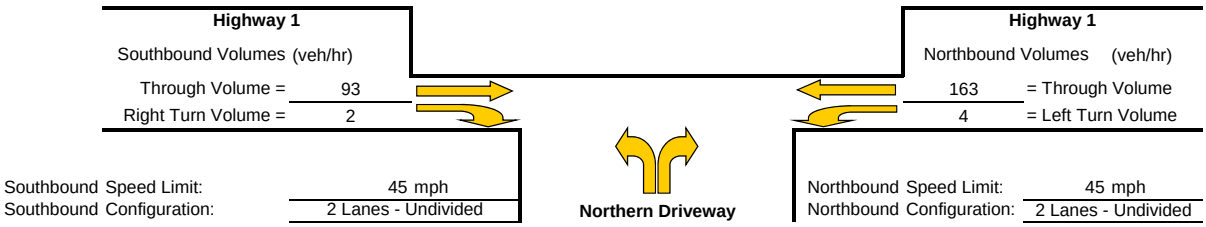
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Highway 1/Northern Driveway
Study Scenario: Weekday PM Existing + Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the West



Southbound Speed Limit: 45 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Speed Limit: 45 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	95
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

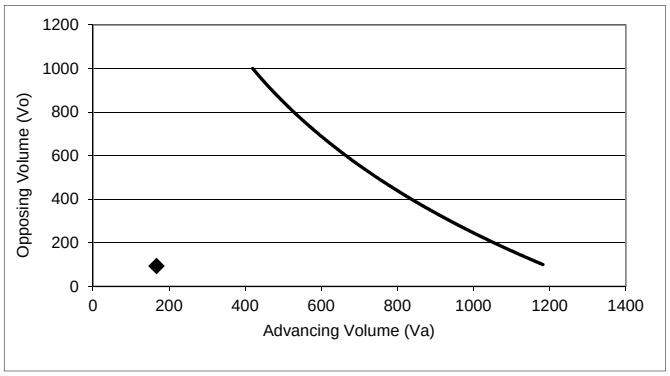
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	95
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Northbound Left Turn Lane Warrants

Percentage Left Turns	%lt	2.4 %
Advancing Volume Threshold	AV	1192 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Appendix G

Mitigation Monitoring and Reporting Program

APPENDIX G

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation and Monitoring Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the proposed North Coast Trails Project (proposed project). The purpose of the MMRP is to ensure the implementation of mitigation measures identified as part of the environmental review for the project. The MMRP includes the following information:

- A list of mitigation measures;
- The party responsible for implementing the mitigation measure;
- The timing for implementation of the mitigation measure;
- The agency/city department responsible for monitoring the implementation; and
- The monitoring action and frequency.

If the IS/MND is adopted, and if the County approved the project, including the mitigation measures as conditions of approval, then Sonoma County Regional Parks (SCRP) must adopt this MMRP, or an equally effective program.

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
I. AESTHETICS				
There are no significant impacts related to aesthetics.				
II. AGRICULTURAL RESOURCES				
There are no significant impacts related to agricultural resources.				
III. AIR QUALITY				

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure AQ-1: The Project Contractor and SCRP shall construct and conduct needed maintenance activities on the Project site to control dust from leaving the site. Specific control measures include the following**:** 1. The Contractor will be required to spray water or dust palliative on unpaved construction, staging areas, and to stockpiles of soil as needed to control dust during construction. SCRP staff will be required to spray water or dust palliative on unpaved areas as needed during maintenance activities. 2. The Contractor will be required to cover loads of soil, sand, and other loose materials over public roads, keep the loads at least two feet below the level of the sides of the hauling container, and wet the load sufficiently to prevent dust emissions during construction of the proposed Project. SCRP staff will be required to cover loads of soil, sand, and other loose materials over public roads, keep the loads at least two feet below the level of the sides of the hauling container, and wet the load efficiently to prevent dust emissions as needed during maintenance activities. 3. The Contractor will be required to sweep paved roads as needed to remove soil that has been carried onto them from the Project site during construction. SCRP staff will be required to sweep paved roads as needed to remove soil that has been carried onto them from the Project site due to maintenance activities The Contractor will be required to operate all construction vehicles and equipment with emission levels that meet current air quality standards and to minimize idling time for all heavy equipment to reduce on-site emissions during construction. SCRP staff will be required to operate all construction vehicles and equipment with emission levels that meet current air quality standards and to minimize idling time for all heavy equipment to reduce on-site emissions during maintenance activities.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation. SCRP shall implement and oversee maintenance projects that would potentially generate dust.	• SCRP is responsible for incorporating measure into contract specifications and for ensuring compliance during construction. The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation. SCRP shall implement and oversee maintenance projects that would potentially generate dust.	
IV. BIOLOGICAL RESOURCES				

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-1 - Contractor/Worker Awareness Training All construction workers shall receive environmental awareness training to be conducted by a qualified biologist. The training may also be conducted with a site -specific electronic presentation. Training shall include how to recognize all special-status plant/wildlife species, their preferred habitat potentially present in the Project site, applicable laws and regulations regarding each species, actions to take if a special-status species is observed during construction activities (including contact information of the monitoring biologist, purpose of protective measures and documentation of best management practices (BMPs) and other required mitigation measures that were used). They shall also be instructed as to sensitive resource areas, including wetlands and waters of the U.S., to avoid within the Project site other than where impacts have been authorized, and relevant laws and regulations for each resource.	• Include measure as Condition of Approval. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified professional biologist is responsible for conducting training sessions. • The Project Contractor is responsible for ensuring work is stopped if species are observed within the Project site.	Review and verification prior to construction.	
Mitigation Measure BIO-2 - Trail Alignment Fencing and Interpretive Signage Fencing shall be used in strategic areas to protect sensitive biological resources. The monitoring biologist will provide recommendations for where fencing should be placed to protect sensitive resources. Fencing would be used to minimize trampling and disturbance to on-site special-status plant populations, harassment, disturbance, injury and/or mortality to on-site special-status wildlife species, degradation to aquatic/riparian features; and/or disturbance to nesting native bird species. New or relocated fencing and gates would only be located where trails are adjacent to sensitive biological habitats or areas where special-status plant and/or wildlife species are known to occur. Fencing will be designed and reviewed by the monitoring biologist to allow movement of wildlife species. Interpretive signage will be provided in the staging areas to provide information about staying on the trail and avoiding damaging sensitive plant and wildlife species and other sensitive resources.	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications.	• SCRP is responsible for incorporating measure into contract specifications and for ensuring compliance during construction. .	Review of construction schedule and confirmation by biological monitor prior to start of construction; SCRP shall ensure compliance with project design.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-3 - Construction Schedule SCRP will structure the Project construction schedule to minimize and avoid impacts to special-status species and sensitive habitats, to the greatest extent possible. The conceptual construction schedule is based upon the avoidance periods for each species and habitat of concern, as well as regulatory constraints. The conceptual construction schedule may change based on completion of the CEQA processes, the construction bid process, regulatory permit conditions, and special conditions contained within the regulatory permits. SCRP will remove trees and shrubs in advance of bird-nesting season. Implement appropriate measures in the storm water pollution prevention plan and install exclusionary fencing to prevent CA red-legged frog and other sensitive species from entering/ re-entering work areas. SCRP will conduct ground-disturbing construction activities associated with the Project during this timeframe with the exception of vegetation removal, which will be conducted to avoid impacts to sensitive animal species. Construction activities that are not ground disturbing may occur before and after this timeframe.	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications.	• SCRP is responsible for incorporating measure into contract specifications and for ensuring compliance during construction. .	Review of construction schedule and confirmation by biological monitor prior to start of construction.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-4 - Special Status Species Butterflies To avoid/minimize direct and indirect impacts to special status butterfly species within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented. A pre-construction survey shall be performed no sooner than 30 days prior to the onset of construction to identify the presence of host plant species along both trail corridors, and staging areas. If any host plants are observed within areas proposed for ground disturbance, they shall be marked with pin flags and surveyed to determine if any butterfly eggs, larva or pupa are attached to the plants. If any of these life stages of the butterfly are observed attached to the plants, the plants shall be avoided until the pupa has metamorphosed into adult butterflies and are no longer attached to the host plants. If avoidance of host plants is not considered possible, a qualified botanist shall be consulted to prepare a translocation plan to transplant the plants, once any pre-adult life stages of the butterfly are determined not to be present, to a suitable location on the Project site. The plan shall contain, at a minimum, the following: (a) goals and objectives of the transplantation; (b) methods of collection and transplantation; (c) location of the area(s) on site in which the plants will be transplanted; (d) monitoring methods and timing; (e) success criteria; and (f) measures to be taken in the event that the transplantation is not successful. In addition, the plan shall be approved by the County and by the USFWS since these butterfly species are federally listed as endangered.	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys, monitoring vegetation removal, overseeing fence installation, and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-5 - California Red-legged Frog To avoid/minimize direct and indirect impacts to California red-legged frog (CRLF) within or adjacent to the proposed trails as a result of Project implementation, the following measures shall be implemented: 1. SCRP will design the trail and associated facilities with appropriate spanning structures (bridges/boardwalks) to avoid foot traffic in sensitive wetland and riparian habitats. 2. The Contractor will perform major ground-disturbing work, such as excavation, grading and pier installation, during the dry-season to minimize impact to California red-legged frog (CRLF). The dry-season is typically May 15 – November 30, when rainwater has receded and standing water is not present. 3. SCRP will conduct a pre-construction survey for CRLF 48-hours prior to the onset of construction activities. Construction activities will only be allowed in areas that have been surveyed. 4. SCRP will conduct a pre-construction training session for all construction crew members. The training will include discussion of the sensitive biological resources within the Project area and the potential presence of special-status species. A discussion of CRLF status, life history characteristics, protection measures to ensure CRLF and other sensitive resources are not impacted by construction activities and the work area boundaries will also be included. 5. The Contractor will install and properly maintain temporary wildlife exclusionary fencing around the work area in sensitive wetland and riparian habitats to preclude CRLF from entering the construction area following the pre-construction survey. Exclusionary fencing should include all sensitive wetland areas, including US Army Corps of Engineers, CDFW, and California Coastal Commission jurisdictional wetlands. 6. SCRP will conduct regular assessments of the work area during construction activities to ensure no CRLF or other species have entered the work area and are being impacted by construction activities. If CRLF are	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys, monitoring vegetation removal, overseeing fence installation, and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-6 - Burrowing Owl To avoid/minimize direct and indirect impacts on burrowing owls as a result of Project implementation, the following measures shall be implemented: 1. Protocol-level surveys for burrowing owls shall be conducted 30 days prior to scheduled construction activity that is conducted during the breeding season (March through August) to determine whether burrowing owls are present on site and, if so, their breeding status. Surveys shall be conducted by a qualified biologist with experience conducting such surveys. 2. If during surveys, burrows are observed being used by non-nesting burrowing owls within the construction footprint, construction work shall cease until owls are evacuated from any such burrow using a California Department of Fish and Wildlife-approved burrow closure procedure in accordance with the California Department of Fish and Game "Staff Report on Burrowing Owl Mitigation" (CDFW 2012) and by a qualified biologist. Once owls from any such burrow have been successfully evacuated, the burrow can be collapsed and construction work can proceed. **3.** If nesting burrowing owls are observed during these surveys, construction work within 300 feet of active nest burrows shall be delayed until young have fledged and are independent of the nest burrow, as determined by a qualified biologist. The qualified biologist may reduce the 300-foot setback based on the type, timing, extent, and intensity of the construction activity and other factors such as site topography and vegetation cover between the construction activity and the burrow. Once any young have fledged and are no longer dependent upon the nest burrow, the same burrow closure procedure described above shall be used to confirm the burrow is inactive before ground disturbance activities can continue near the burrow.	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-7 - American Badger The Construction Bid Documents will specify that the Contractor conduct ground-disturbing activities, including vegetation removal in habitat areas only between September 1 and February 28 to avoid the natal season for American badger. If it is not feasible to conduct ground-disturbing activities, including vegetation removal and grading to avoid natal season for the American badger in these habitat areas then SCRP will complete the following: 1. To ensure there are not direct impacts to American badger, a qualified biologist shall conduct a pre-construction den survey no more than 21 days prior to site grading. The area to be surveyed will include all construction sites and staging areas in suitable habitat areas for which vegetation removal and grading is required, to a buffer of 150 feet outside the boundary of the area to be cleared. Survey results will remain valid for a period of 21 days following the date of the survey. 2. If a potential den is located, infrared camera stations will be set up and maintained for three (3) consecutive nights at the potential den openings prior to initiation of grading/work activities to determine the status of the potential dens. 3. If American badger is not found to be using the den, the burrow can be filled (using hand work and shovels) and site grading may proceed in the vicinity of this burrow(s) unhindered. However, if American badger is found using a den site within the area of proposed grading, provided it is not a natal den, the badger will be passively and humanely evicted from its den if it could be impacted by grading or other construction activities. • Exclusion techniques will be used to passively relocate any badgers that are present in the Project work area, or within 150 feet of Project activities at the discretion of the qualified biologist. • Exclusion techniques, such as installation of a one-way door in the burrow entrance, would exclude badgers from entering the burrow. Burrows with exclusion techniques will be monitored to confirm badger usage has been discontinued. After badger use has been discontinued, burrows outside the Project work area, but within 150 feet of construction activities, will be temporarily covered with plywood sheets or	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-8 - Special-Status Bats To ensure that the noise of construction equipment would not adversely affect any maternity roosts that could occur adjacent to existing structures, a pre-construction survey shall be conducted by a qualified bat biologist to determine if active maternity roosts exist within the structure. If maternity roosts are observed, and construction of the access road and/or staging areas adjacent to the barn or outbuilding would occur at the time the roosts are active, equipment emitting ultrasonic noise (i.e., those having frequencies above the range of human hearing >20 kilohertz [kHz]) shall be prohibited from the construction area until the maternity roost is no longer active, as determined by the qualified bat biologist. Alternatively, equipment that emits noise with frequencies <20 kHz can be used to grade and prepare the access road and staging areas adjacent to the barn and outbuilding. Fencing may also be used as necessary to keep users on trail and away from the barn and roosting bats.	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys, monitoring noise and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-9 - Native Nesting Birds The Construction Bid Documents will stipulate that the Construction Contractor can only remove trees, shrubs, and other vegetation between August 31 and February 15 to avoid migratory bird-nesting season. If it is not feasible to remove vegetation within this window, then SCRP will complete the following: 1. Conduct a bird-nesting survey at least seven (7) days prior to ground-disturbing activities in a specific construction work area, including vegetation removal. The area to be surveyed will include all construction activity areas, including staging areas, for which vegetation removal is required, to a buffer of 150 feet outside the boundary of the area to be cleared. Survey results will remain valid for a period of 21 days following the date of the survey. 2. If an active nest is found, Regional Parks will consult with the CDFW to determine the appropriate buffer size and then establish the buffer zone around the occupied nest, using fencing, pin flags, yellow caution tape, or other CDFW-approved material. Vegetation clearing and construction activities will be postponed within the buffer zone; no construction–related activity will be allowed to occur within this area until it is determined that the young have fledged, the nest is vacated, and there is no evidence of second nesting attempts. SCRP will require a qualified biologist regularly monitor the buffer area during construction activities to evaluate the nest(s). 3. If an active nest is found after the completion of the pre-construction surveys and after construction activities have begun, all construction activities will cease immediately until a qualified biologist has evaluated the nest and a CDFW-approved buffer zone has been created. If establishment of a buffer zone is not feasible, SCRP will contact CDFW for further avoidance and impact minimization guidelines.	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys, monitoring vegetation removal, overseeing fence installation, and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-10 - Special-Status Plants 1. To avoid/minimize direct and indirect impacts to special-status plant populations within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented: 2. SCRP will contract with a qualified biologist (botanist or plant ecologist) to conduct a focused survey for special status plan species in habitat areas that can support these species during their blooming period, prior to the on-set of ground-disturbing activities. 3. Based on the survey results**,** SCRP or a qualified biologist will flag areas with special status species prior to the onset of ground-disturbing activities. The Contractor will avoid impacts to marked populations and individuals of these species. 4. If disturbance cannot be avoided, SCRP will consider re-aligning the affected trail segment where possible. If trail re-route is not possible, SCRP will consult with the CDFW to develop and implement a plan to harvest and re-locate, collect seed collection or re-seed and replant (a Habitat Mitigation and Monitoring Plan or HMMP). 5. The HMMP will specify that relocation/re-seeding or planting occur at a level necessary to ensure at least a 1:1 survival rate, meaning one surviving replanted individual for every individual removed or impacted (take) in order to construct the Project. 6. SCRP will conduct a mandatory Contractor / Worker Awareness Training, instructing workers how to identify and avoid "take" of special status plant species. If such species are observed during construction activities that were not identified during pre-construction surveys, work will immediately cease in the vicinity of the discovery until SCRP develops and implements additional mitigation measures and authorizes work continuation. 7. SCRP will include information about sensitive plant habitats as part of the interpretive signage program associated with this trail Project.	• Include measure as Condition of Approval. • Implementation actions are outlined in the mitigation measure. • Incorporate measure as part of construction specifications.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified professional biologist is responsible for monitoring during specified construction activities.	Monitoring during specified construction activities.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-11 - Coastal Terrace Prairie, Seasonal Wetlands and Coastal Scrub Riparian Communities To avoid/minimize direct and indirect impacts to Coastal Terrace Prairie, Seasonal Wetlands and Coastal Scrub Riparian Communities within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented: Exclusionary fencing shall be installed during construction to avoid riparian vegetation where bridges are proposed. Sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets. 1. If riparian vegetation removal and/or disturbance to the bed, bank, or channel of the central drainage is necessary, a Streambed Alteration Agreement (SAA), pursuant to Section 1602 of the California Fish and Game Code, shall be procured from the California Department of Fish and Wildlife (CDFW) prior to any disturbances to these areas. As part of the SAA, compensatory mitigation may be required to offset the loss of riparian habitat. If so, a mitigation plan shall be prepared to address implementation and monitoring requirements under the SAA to ensure that the Project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to mitigate the impact, performance criteria, monitoring methods, and actions to be taken in the event that the mitigation is not successful. Mitigation may be required at a ratio directed by the SAA. 2. A pre-construction survey shall be completed prior to the onset of construction to identify and quantify the plants along or immediately adjacent to the proposed trail corridors that could be potentially removed or disturbed. If removal or disturbance of any of these plant communities would occur, a planting plan shall be prepared to offset the loss of any vegetation/plants to be removed or disturbed. Propagation and planting outside of the trail corridor(s) may be required on a 1:1 basis to ensure no net loss of these sensitive natural communities. 3. SCRP will:	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys, monitoring vegetation removal, overseeing fence installation, and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure BIO-12 - Wetlands To avoid/minimize direct and indirect impacts to wetlands within or adjacent to the proposed trail corridors as a result of Project implementation, the following measures shall be implemented: 1. The proposed trails and bridge crossings shall avoid mapped jurisdictional wetland areas and waters of the U.S. and the state of California as defined by the California Coastal Commission (CCC), California Department of Fish and Wildlife (CDFW) and/or North Coast Regional Water Quality Control Board (RWQCB) to the extent feasible. Areas of temporary disturbance due to construction shall be restored to pre-construction condition. Drainage crossings shall be designed to avoid wetland disturbance. Prior to the initiation of ground disturbance activities within 100 feet of wetland habitat areas, sediment and erosion control measures shall be utilized that can include, but are not limited to, biodegradable straw wattles free from weed seed, silt fencing, hydroseeding, or biodegradable erosion control mats/blankets. 2. If wetland areas or other waters of the U.S. under the jurisdiction of the ACOE and/or the state of California are disturbed in order to install drainage crossings, an individual or Nationwide Section 404 permit from the ACOE, and/or consultation /agreement with the CCC, CDFW Lake and Streambed Alteration Agreement and/or RWQCB Section 401 permit shall be obtained prior to any ground disturbance that could result in fill or removal of wetlands or waters of the U.S or CA. As part of the permit(s), compensatory mitigation may be required, at a ratio to be determined by the responsible regulatory agencies to offset the loss of wetland/waters habitat. For CEQA purposes, compensatory mitigation will be provided at a minimum of 2:1 for permanent impacts, and 1:1 for temporary impacts to regulatory wetlands. The amount and type of compensatory mitigation will be provided in consultation with regulatory agencies as part of the permit application process, a habitat mitigation and monitoring plan (HMMP) shall be prepared to address implementation and monitoring requirements under the permit to ensure that the Project would result in no net loss of habitat functions and values. The plan shall contain, at a minimum, mitigation goals and objectives, mitigation location, a discussion of actions to be implemented to	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications, and for ensuring compliance during construction. • A qualified biologist is responsible for conducting surveys, monitoring vegetation removal, overseeing fence installation, and monitoring during construction.	• Verification of awareness training prior to construction. • Review of preconstruction survey prior to construction. • Periodic monitoring throughout the construction period.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
V. CULTURAL RESOURCES				
Mitigation Measure CR-1: If buried archeological resources, such as chipped or ground stone, historic debris building foundations, or human bone, are inadvertently discovered during ground-disturbing activities, work would stop in that area and within 100 feet of the find until the Kashia Band of Pomo Indians is contacted about the finds. The Band will determine whether a qualified archaeologist should assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the Parks Department and other appropriate agencies, or whether an alternative approach is warranted for the finds.	• Include measure as Condition of Approval. • Incorporate measure as part of construction specifications.	• SCRP is responsible for incorporating measure into contract specifications and for ensuring compliance during construction. • The Project Contractor is responsible for coordinating and cooperating with the Kashia Band of Pomo Indians during monitoring, worker training, and any stop-work orders if resources are discovered.	• Prior to and during construction activities.	
Mitigation Measure CR-2: If human remains of Native American origin are discovered during Project construction, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (NAHC) (PRC 5097). If any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the county coroner has been informed and has determined that no investigation of the cause of death is required; and If the remains are of Native American origin, the Kashia Band of Pomo Indians shall be contacted to determine the means of treating or disposing of the human remains and any associated grave goods as provided in PRC 5097.98.	• Include measure as Condition of Approval. • Implementation	SCRP is responsible for incorporating measure into contract specifications and for ensuring compliance	During construction activities.	
VI. ENERGY				
There are no significant impacts related to energy.				

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measures	**Implementation Actions**	**Monitoring/ Reporting Responsibility**	**Timing Requirements**	**Verification By/Date**
VII. GEOLOGY AND SOILS				
Mitigation Measure GS-1: Design and construct the Project in compliance with the Sonoma County Code, including the Building Ordinance (Chapter 7), Drainage and Storm Water Management Ordinance (Chapter 11), and Subdivision Ordinance (Chapter 25). All construction activities shall meet the California Building Code regulations for seismic safety. Construction plans shall be subject to review and approval of Permit Sonoma prior to the issuance of a building permit. All work shall be subject to inspection by Permit Sonoma and must conform to all applicable code requirements and approved improvement plans prior to the issuance of a certificate of occupancy. SCRP shall apply for building permits from Permit Sonoma and further modify the trail alignment and develop trail and crossing design and stabilization plans to ensure that permits are granted and that the trail and crossing structures, including all existing culverts, are stable, hydraulically adequate, and protect surface water quality. . SCRP will design the trail and staging areas to incorporate LID features such as areas of permeable pavement and drainage bio-swales where feasible and beneficial. . This will ensure County review of improvement plans; and that all structures such as bridges and boardwalks adhere to the Sonoma County Codes and applicable Building Ordinances, including grading, drainage, and seismic design criteria for planned structures.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • Permit Sonoma is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation. Permit Sonoma shall review for compliance with Building Permit.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure GS-2: The Project design shall conform to the specifications and criteria contained in the Project Geotechnical Report. Geotechnical recommendations were prepared and presented in the North Coast Trails Preliminary Geotechnical Report prepared by Questa Engineering dated August 2018. The report provided recommendations for site preparation and grading, parking lots, and bridge foundations. The report also identified seismic design parameters in accordance with the 2020 California Building Code. Proper foundation engineering and construction of any structures such as small bridge structures built as a result of implementation of the Project shall be performed in accordance with the geotechnical recommendations as well as preparation of plans prepared by a Registered Structural Engineer or Civil Engineer experienced in structural design. The structural engineering design shall incorporate seismic design parameters as outlined in the current California Building Code and Sonoma County Code.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • Permit Sonoma is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation. Permit Sonoma shall review for compliance with Building Permit.	
Mitigation Measure GS-3: SCRP and the Construction Contractor shall finalize the Draft SWPPP and submit it and the Notice of Intent to the North Coast Regional Board and, if required by the State Water Resources Control Board, amend the SWPPP to obtain an approved Final SWPPP. The applicant shall implement all conditions set forth in the Final SWPPP. The Project SWPPP shall include a description of the "Best Management Practices" (BMPs) to be used to prevent the discharge of other construction related NPDES pollutants beside sediment (i.e., paint, concrete, etc.) to downstream waters and the ocean. After construction is completed, all drainage facilities shall be inspected for accumulated sediment from the Project and these drainage structures shall be cleared of debris and sediment.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation. Permit Sonoma shall review for compliance with Building Permit.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure GS-4: SCRP shall complete an Erosion Control Plan to be submitted to Permit Sonoma in conjunction with the Building Permit Application. The Erosion Control Plan shall include winterization, dust control, erosion control and pollution control measures conforming to the Association of Bay Area Government (ABAG) Manual of Standards for Erosion and Sediment Control Measures and the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbook Portal: Construction. The Erosion Control Plan shall describe the "Best Management Practices" (BMPs) to be used during and following construction to control pollution resulting from both storm and construction water runoff. The Plan shall include locations of vehicle and equipment staging, portable restrooms, mobilization areas, and planned construction access routes.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • Permit Sonoma is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation. Permit Sonoma shall review for compliance with Building Permit.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure GS-5: If vertebrate fossils are discovered during construction, all work on the site shall stop immediately, Sonoma County Regional Parks or the Agency's designee shall be notified, and a qualified professional paleontologist shall assess the nature and importance of the find and recommend appropriate treatment. Treatment may include, but is not limited to, preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and may also include preparation of a report for publication describing the finds. The Project applicant shall be responsible for implementing the recommendations of the qualified paleontologist. A report of all findings shall be submitted to Sonoma County Regional Parks or the Agency's designee.	• Include measure as Condition of Approval. • Implementation actions are outlined in the mitigation measure.	• SCRP is responsible for incorporating measure into contract specifications and for ensuring compliance during construction. • A qualified paleontologist is responsible for evaluating any resources found inadvertently during construction; and identifying appropriate mitigation measures. • The Project Contractor is responsible for coordinating and cooperating with the paleontologist and during any stop-work orders if resources are discovered.	During construction activities.	
VIII. GREENHOUSE GAS EMISSIONS				
There are no significant impacts related to greenhouse gas emissions.				
IX. HAZARDS AND HAZARDOUS MATERIALS				
There are no significant impacts related to hazards.				

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
X. HYDROLOGY AND WATER QUALITY				
Mitigation Measure HYD-1: Regional Parks will schedule ground-disturbing activities including vegetation removal, excavation, grading, and compaction, to the dry season, May 15 – October 31. Regional Parks will schedule ground-disturbing activities below top-of-bank of the unnamed blue-line stream channel between June 15 and October 14. Regional Parks must approve ground-disturbing activities that must occur during the rainy season (November 01 –	• Implementation actions are outlined in the mitigation measure. • The applicant will include these	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance	SCRP shall monitor construction to ensure implementation.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
May 15) based on an approved Storm Water Pollution Prevention Plan (if required).	measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	during construction. • The Project Contractor is responsible for implementing this measure.		
Mitigation Measure HYD-2: Regional Parks will delineate the limits of construction activity within or near wetlands, the unnamed blue-line stream channel, and riparian habitat prior to the onset of ground-disturbing activities. Work limit delineation will be temporary, high-visibility construction fencing to protect environmentally sensitive areas and prevent construction work and equipment from unnecessarily extending the work area. Regional Parks will include the temporary fencing locations on the construction drawings and will require it be removed after construction activities are completed.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP and Biological Monitor are responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP and Biological Monitor shall monitor construction to ensure implementation.	
Mitigation Measure HYD-3: The Contractor will disturb only the minimum amount of riparian vegetation possible within the construction area. Within temporary disturbance areas, the Contractor will cut riparian vegetation at or above grade to facilitate natural regrowth.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will	• SCRP is responsible for incorporating measure into contract specifications • SCRP and Biological Monitor are responsible for ensuring compliance during construction. • The Project	SCRP and Biological Monitor shall monitor construction to ensure implementation.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
	be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	Contractor is responsible for implementing this measure.		
Mitigation Measure HYD-4: The Contractor will comply with regulations of the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, the North Coast Regional Water Quality Control Board and the State Coastal Commission regarding construction activities that affect drainages and wetlands.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	
Mitigation Measure HYD-5: The Contractor will dispose of surplus soils, surplus concrete rubble, or pavement at an acceptable and legally permitted disposal site or taken to a permitted soil concrete and/or asphalt recycling facility.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
	• SCRP shall monitor construction to ensure implementation.			
Mitigation Measure HYD-6: The Contractor will implement Best Management Practices to protect geology and soils, including the following: 1. Avoid construction activities during rainy days as directed by Regional Parks. 2. Preserve existing vegetation except what is designated by Regional Parks for removal. 3. Leave root structure of vegetation in place whenever feasible. 4. Minimize the extent of disturbance from construction activities. 5. Stabilize exposed slopes, banks and stockpiles of soil materials during construction using Erosion control blankets, or other method approved by Regional Parks. **6.** Stabilize exposed soil by installing erosion control materials such as blankets, mulch, and/or Seed that are free of exotic species or other method approved by Regional Parks.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	
Mitigation Measure HYD-7: The Contractor will be required to prepare, submit, and implement a spill prevention plan for the Project, which shall include, but not be limited to, the following elements: 1. Follow the provisions of Sections 5163 – 5167 of the General Industry Safety Orders (CCR Title 8) to protect the project site from being contaminated by the accidental release of any Hazardous materials and/or waste. 2. Store all flammable liquids in compliance with the Sonoma County Fire Code and section 7- 1.01G of the Caltrans Standard Specification (or the functional equivalent) for the protection of surface waters. 3. If hazardous materials are encountered during construction, the contractor will immediately halt construction activities and will implement actions required by the current California Regulatory requirements. 4. In the event of a spill of hazardous materials the Contractor will immediately call the emergency number 9-1-1 to report the spill; and will take appropriate actions to contain the spill to prevent further migration of the hazardous materials to storm water	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
drains or surface Waters. 5. Prevent the following activities within areas protected by construction barrier fencing: i. Fueling of any vehicles or portable generators ii. Vehicle/equipment washing and maintenance areas iii. Above-ground tanks for liquid storage iv. Industrial waste management areas (landfills, waste piles, treatment plants, disposal areas) 6. The Contractor will use drip pans or absorbent pads during vehicle and equipment maintenance, cleaning, fueling, and storage, 7. Spill kits and cleanup materials shall be available at all locations of pile-driving activities. 8. Equipment that is to be used shall be kept leak free and inspected for leaks and spills on a daily basis. 9. Equipment will be parked over drip pans or absorbent pads. 10. When not in use, the contractor will store pile-driving equipment away from concentrated flows of storm water, drainage courses, and inlets. 11. Protect hammers and other hydraulic attachments by placing them on plywood and covering them with plastic or a comparable material prior to the onset of rain.				
Mitigation Measure HYD-8: The Contractor will dispose of petroleum-based products in accordance with applicable laws and regulations.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
Mitigation Measure HYD-9: Regional Parks Department operations and maintenance crews will dispose of petroleum-based products in accordance with applicable laws and regulations.	• SCRP shall monitor operations to ensure implementation.	• SCRP is responsible for implementing this measure.	SCRP shall monitor ongoing operations and maintenance	
Mitigation Measure HYD-10: During construction, the Contractor will conduct inspections and maintenance, according to current regulations, of portable toilet facilities used during construction. The contractor will conduct daily sanitation and waste removal to ensure that effluent spills are avoided or minimized.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	
Mitigation Measure HYD-11: Regional Parks or the Contractor will prepare a Storm Water Pollution Prevention Plan (SWPPP) for implementation during project construction, if required The SWPPP will include a sediment control plan to identify measures to prevent sediment from entering delineated wetlands, the unnamed tributary, and any other surface drainage within the project area. The sediment control plan will address temporary, construction-related sediment control that may include but not be limited to silt fencing, sediment traps, fiber roles, and/or barriers. The SWPPP will be prepared by a certified Qualified SWPPP Developer and will be monitored by a Qualified SWPPP Practitioner.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor or SCRP is responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
XI. LAND USE AND PLANNING				
There are no significant impacts related to land use and planning.				
XII. MINERAL RESOURCES				
There are no significant impacts related to mineral resources.				
XIII. NOISE				
Mitigation Measure N-1: The applicant will reduce construction noise by implementing the following controls: 1. The Contractor will operate all internal combustion engines with mufflers that meet the requirements of the State Resources Code, and, where applicable, the Vehicle Code. 2. The Contractor will restrict construction activities to the hours of 7:00 a.m. to 7:00 p.m. except for actions taken to prevent or resolve an emergency. 3. SCRP will operate all internal combustion engines with mufflers that meet the requirements of the State Resources Code, and, where applicable, the Vehicle Code.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract. • The Contractor will be responsible for implementing the construction-related measures. • SCRP shall monitor construction to ensure implementation.	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for ensuring compliance during construction. • The Project Contractor and SCRP are responsible for implementing this measure.	SCRP shall monitor construction to ensure implementation.	
XIV. POPULATION AND HOUSING				
There are no significant impacts related to population and housing.				
XV. PUBLIC SERVICES				
Mitigation Measure PS-1: SCRP will monitor and record reports of trespass and other incidents involving unauthorized use of the trails. If such incidents are considered above normal, SCRP will consider the following: increase its patrols; add additional signage; and/or develop a volunteer program to educate users and monitor use.	• Implementation actions are outlined in the mitigation measure. • The applicant will include these measures in the construction contract and Resource Management Plan.	The Project Contractor and SCRP are responsible for implementing this measure.	SCRP shall monitor trail operations to ensure implementation.	
Mitigation Measure PS – 2: SCRP will prepare a Maintenance Plan and Schedule for review and approval by PRMD. SCRP will implement the approved program for ongoing sanitation and maintenance of the vault restroom, including the vault inspection and pump maintenance schedule , daily checks and maintenance	• Implementation actions are outlined in the mitigation measure.	The Project Contractor and SCRP are responsible for implementing this measure.	SCRP shall monitor restroom use to ensure implementation.	

Mitigation Measures	Implementation Actions	Monitoring/ Reporting Responsibility	Timing Requirements	Verification By/Date
during seasonal use periods, and provision of water for cleaning and maintenance, and the provision of personal sanitation supplies. The self contained restroom will include a shutter flush valve or similar equipment for safety and preventative maintenance.	• The applicant will include these measures in the construction contract and Resource Management Plan. •			
XVI. RECREATION				
There are no significant impacts related to recreation.				
XVII. TRANSPORATION/TRAFFIC				
Mitigation Measure T-1: At the northern parking lot, the existing driveway section between SR 1 and the locked gate will be widened to provide at least 16 feet of paved width without obstruction from landscaping. An R-1 Stop sign should be installed at the existing driveway intersection approaching SR 1. The sign should not obstruct sight lines and the size should be at the discretion of Caltrans. At the southern parking lot, striping and signage shall be provided at the driveways including "Do Not Enter" signs at the southern exit-only driveway and striped directional arrows identifying the entry and exit driveways. An R-1 Stop sign should be installed at the exit driveway. The sign should not obstruct sight lines and the size should be at the discretion of Caltrans.	• Implementation actions are outlined in the mitigation measure. • SCRP will include traffic design measures in the Project Plans	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for Caltrans coordination • SCRP is responsible for ensuring compliance during construction.	SCRP shall monitor construction to ensure implementation.	
Mitigation Measure T-2: SCRP shall include signage explaining who to call in case of a fire or emergency medical situation as well as the location of the nearest call box. SCRP will initiate coordination with North Sonoma Coast Fire Protection District about access constraints on the Project site and a protocol for providing emergency response. SCRP shall also coordinate with the Sheriff's Office and State Parks to develop this protocol for emergency medical response to the site.	• Implementation actions are outlined in the mitigation measure. • SCRP will include traffic design measures in the Project Plans	• SCRP is responsible for incorporating measure into contract specifications • SCRP is responsible for Caltrans coordination • SCRP is responsible for ensuring compliance during construction.	SCRP shall monitor construction to ensure implementation.	
XVIII. UTILITIES AND SERVICE SYSTEMS				
There are no significant impacts related to utilities and service systems.				
XIX. WILDFIRE				
There are no significant impacts related to wildfire.				