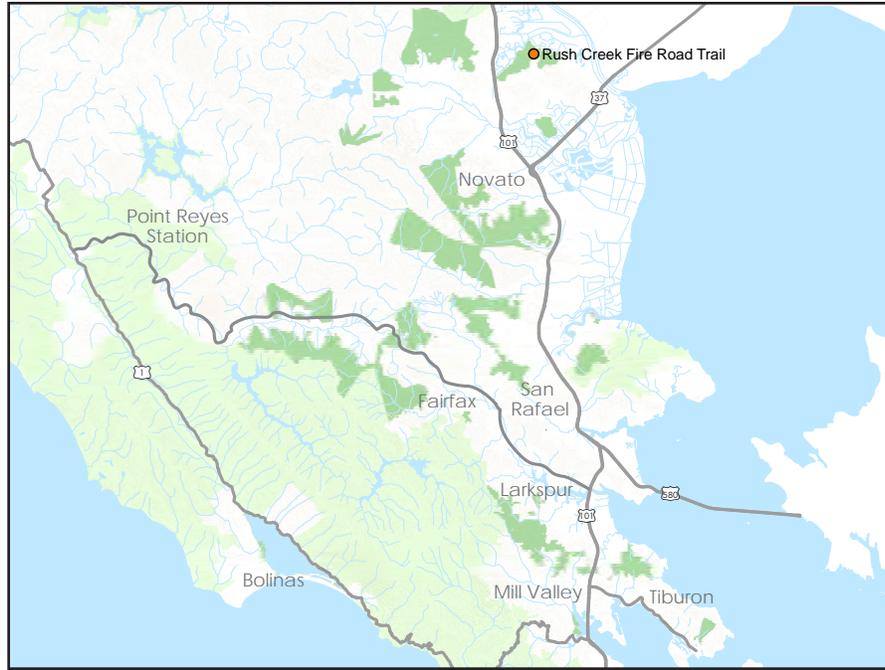


Access and Discovery Trails

Rush Creek Fire Road
Bugeia Lane, Novato



Narrative Description

Road ID 12200

Destination and Experience:

Rush Creek Fire Road is a mile long fire road located in the Rush Creek Open Space Preserve in Novato. It connects to the Bahia Trail at the east side of the Bahia Ridge to the Pinheiro Fire Road at the bottom of Cemetery Marsh. Views from the trail face northward toward Mount Burdell and Gness Field Airport and east towards the Petaluma River Marsh Wildlife Area. The trail is well used with a mix of hikers, mountain bikers, and equestrians.

As with the Pinheiro Fire Road, this trail traverses California bay and coast live oak woodlands and annual grasslands along the edge of Marin County Park's Cemetery Marsh and then continues around Bahia Ridge along the Petaluma River Marsh Wildlife Area, which provide estuarine marsh habitat for species such as pickleweed, salt grass, and bulrush. Due to its proximity to these marshes, the trail provides ample opportunities for bird and wildlife viewing, including hundreds of shorebird and waterfowl species, as documented in the Rush Creek Open Space Preserve Field Guide here: <http://www.marincounty.org/depts/pk/divisions/open-space/rush-creek> .

Parking:

An informal gravel parking area with sections of significant slope is available on Bugeia Lane at the entrance gate. Curb side parking in front of residences is located along Saddle Wood Drive with a pedestrian connection to the trail/fire road.

Proposed Improvement: Provide an accessible parking area with a single accessible stall including access aisle at the Bugeia entrance and two paved parking spaces not designated for accessibility. Grading and construction of retaining wall will be required to create a level parking area.

Alternative Means of Arrival:

Pedestrian access is available along the roadway from the adjacent Saddle Wood Drive neighborhood. There are no public transit options or pedestrian sidewalks to this trail.

Proposed Improvement: No recommended improvements

Gate/Entry:

Bugeia Lane: The pedestrian access opening adjacent to the vehicle gate is 44-¾ inches wide and has a 3.3% running slope. The fire road connecting to the trail is 8 to 10 feet wide and is surfaced with a compacted base with some loose surface gravel. The fire road/trail has a slight crown creating up to a 4% cross slope at edges. Sections of the trail have loose sand material up to ¾ inch deep.

Proposed Improvement: Provide an accessible surface connecting the accessible parking space and the trail/fire road.

Trail Conditions:

Much of the fire road has a clear width of greater than 8 feet. Grass medians occur at several sections along the length of the trail and reduce the clear trail width. Parallel social trails on the uphill side of the trail are present where poor drainage result in wet trail conditions.

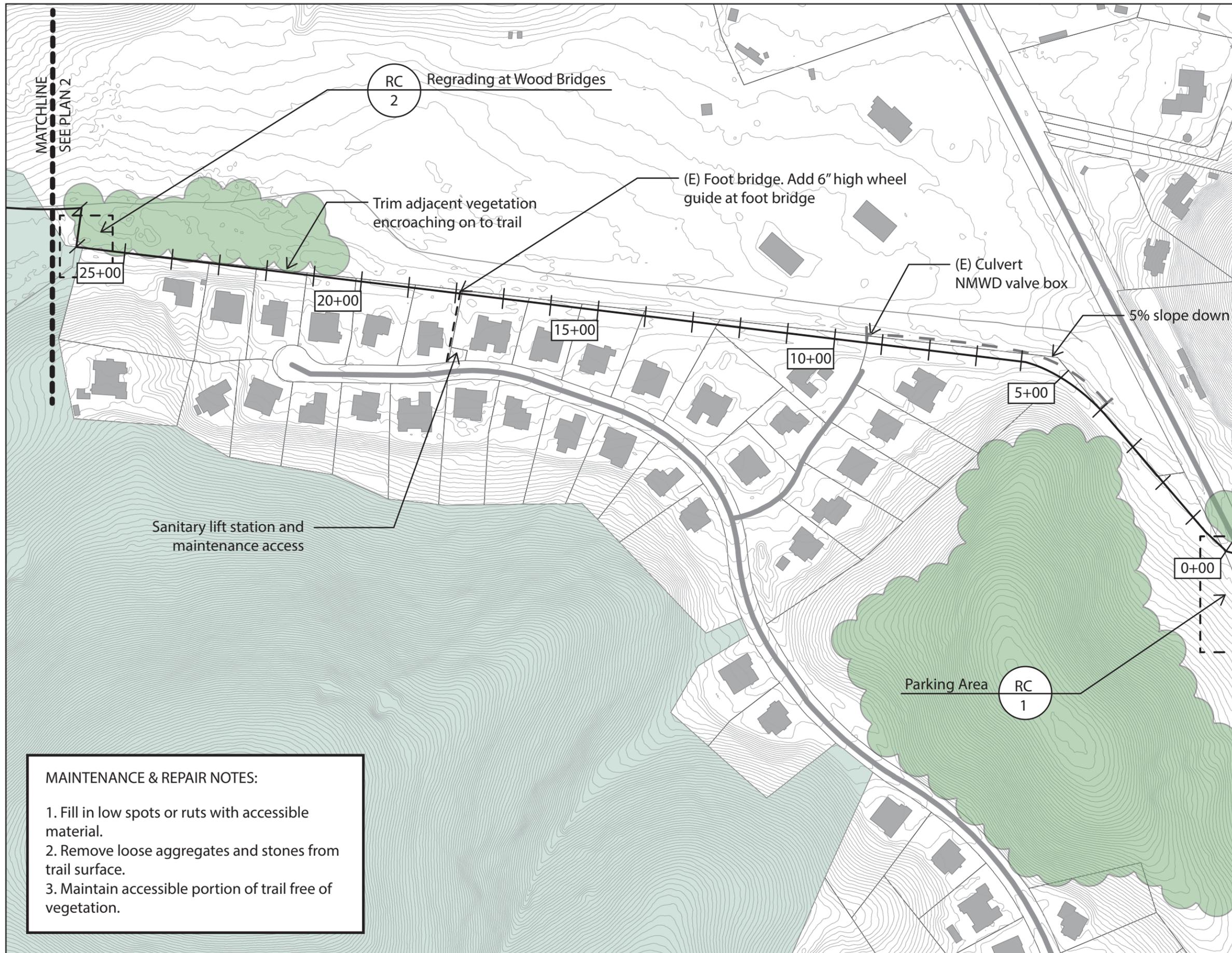
At the incline from the Cemetery Marsh section to the Basalt Creek section, an erosion channel was noted on uphill/inside curve of road.

The trail surface is varied with sections of compacted sandy/silty clay considered to be firm and stable in its dry state, larger loose road gravel, and loose fine sand. Areas were observed with a top layer of sand at a depth of 1 inch. Segments of the trail along Cemetery Marsh are rutted and have standing water following rains. Further drainage issues are evident where horse and bicycle tracks were observed in hardened dry surfaces. Cross slopes were less than 5%. Two sections, both where the trail is facing the Petaluma River Marsh Wildlife Area, had cross slopes of 12% and 17%. Running slopes along much of the trail are less than 5% with a few sections up to 12.5% where the road turns to run along the Basalt Creek.

Proposed Improvement: Remove sections of loose surface materials and replace with firm and stable compacted surfacing. Install edge protection at the steep slope immediately south of the pedestrian bridges. Modify the trail section between the bridges to provide a more level connection. Provide resting intervals at several locations where the trail has steeper sections. Consider providing a resting place with a bench at a shady spot along the trail alignment.

Probable Issues/Maintenance:

The trail has poor drainage with evidence of standing water. There is a possibility of seasonal closures during high water periods. An assessment of the existing trail surface materials suitability to be properly compacted to meet access requirement may be needed. Existing wood boards on the bridge surface have gaps that exceed the allowable ½" gap. Replacement of the boards with properly spacing is recommended.



MAINTENANCE & REPAIR NOTES:

1. Fill in low spots or ruts with accessible material.
2. Remove loose aggregates and stones from trail surface.
3. Maintain accessible portion of trail free of vegetation.



Inclusive Access Plan
Access and Discovery Trails

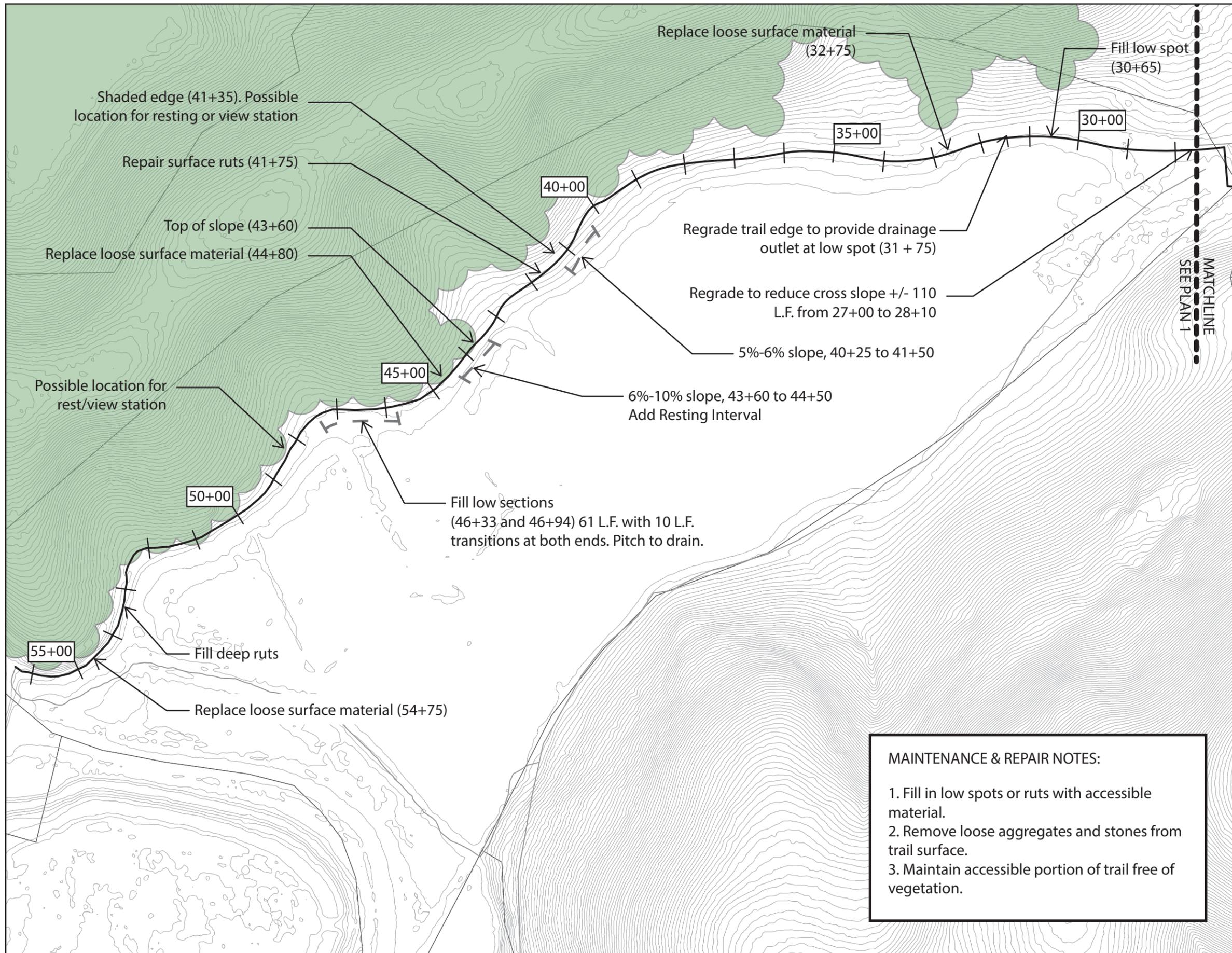
Rush Creek Fire Road

Rush Creek Open Space Preserve
Bugeia Lane, Novato

Improvement Plan 1



NOTE: See Wetland Maps contained in the Biological Resources Assessment for water features in the vicinity of trail improvements



MAINTENANCE & REPAIR NOTES:

1. Fill in low spots or ruts with accessible material.
2. Remove loose aggregates and stones from trail surface.
3. Maintain accessible portion of trail free of vegetation.

NOTE: See Biological Resources Assessment Wetland Maps for water features in the vicinity of trail improvements



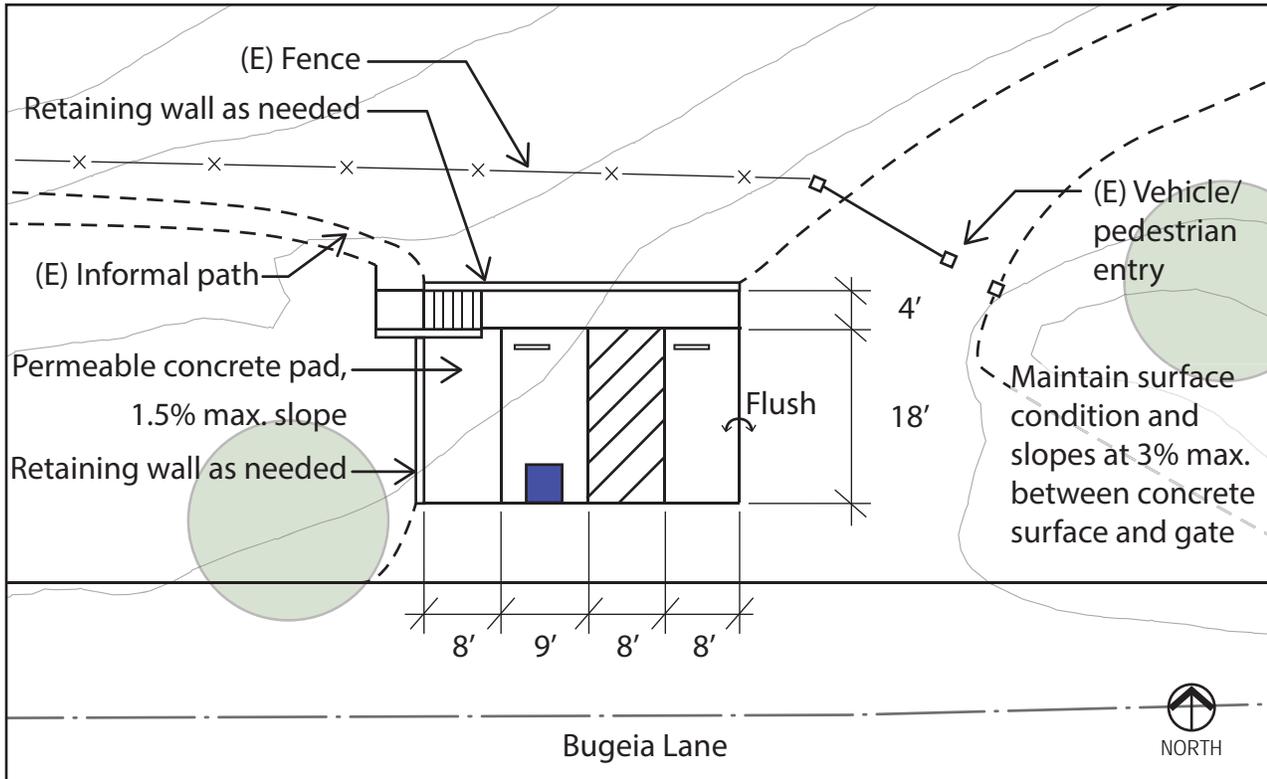
**Inclusive Access Plan
Access and Discovery Trails**

Rush Creek Fire Road

Rush Creek Open Space Preserve
Bugeia Lane, Novato

Improvement Plan 2

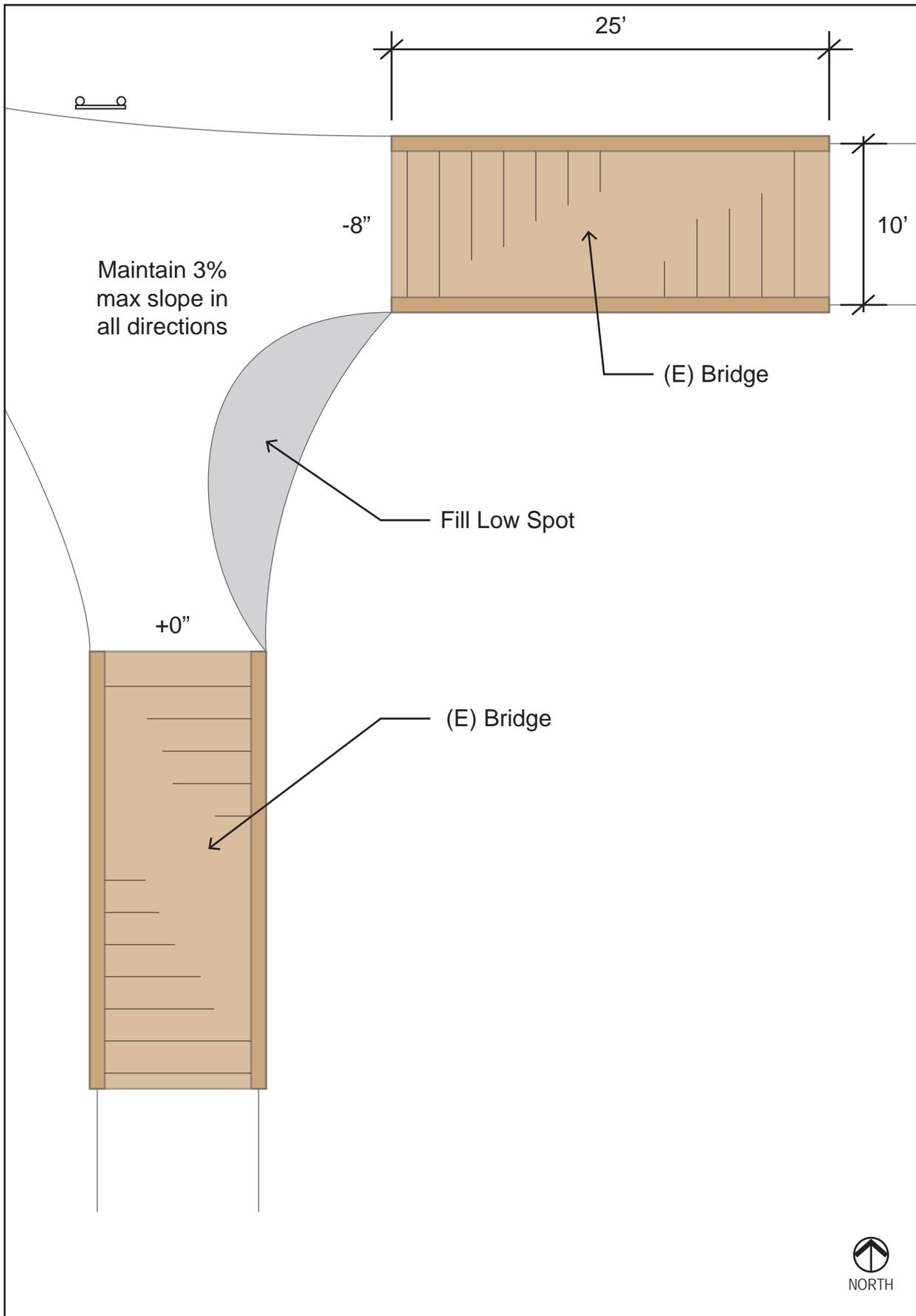




1

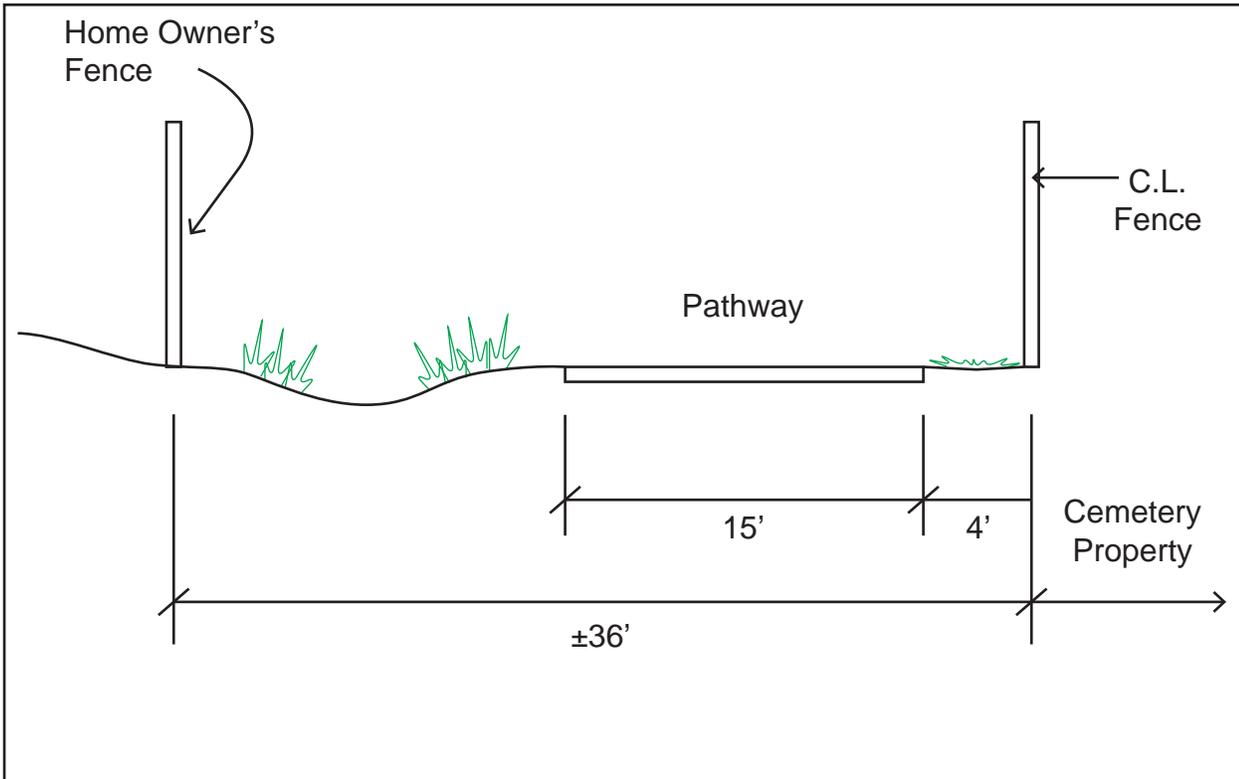
Bugeia Lane Accessible Parking

Scale: 1" = 20'-0"

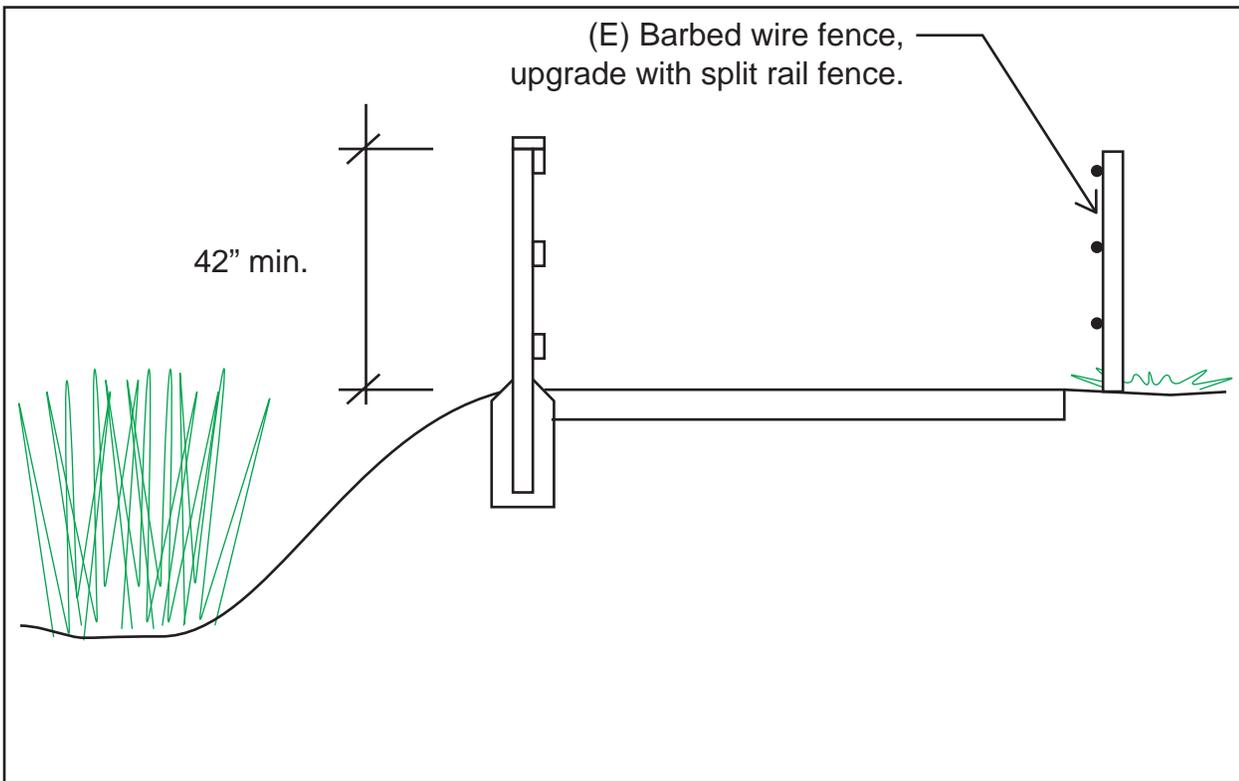


2

Regrading at Wood Bridges
Scale: 1/8" = 1'-0"



3 Typical Trail Section
Scale: 1/8" = 1'-0"



4 Edge Protection
Scale: 1/4" = 1'-0"

Access and Discovery Trails

Vistazo Fire Road
West Vistazo Road, Tiburon



Narrative Description

Road ID 42200

Destination and Experience:

The Vistazo Fire Road is approximately 1/3 mile long and is located in Old Saint Hillary's Preserve in Tiburon at the southern end of the preserve. From the hillside, the road provides expansive views of San Francisco Bay to the south, and the surrounding Tiburon peninsula neighborhoods in other directions. The road winds through rare, native serpentine grassland and crosses one perennial drainage channel. The road provides access to fire and emergency vehicles and is open to pedestrians, equestrians and cyclists.

Parking:

A small, informal parking area at the trailhead to the north could provide parking for about 4 vehicles. The surface is loose gravel and dirt with 15% to 20% running slopes and 1% to 3% cross slopes. Informal street parking within the right-of-way exists at the southern end of the alignment with 2% to 4% slopes in either direction.

Proposed Improvement: Consider installing a blue curb and signage at the southern end of the trail at the cul-de-sac. The specific location of the blue curb and pole mounted sign is to be determined to minimize visual impact from the adjacent property.

Alternative Means of Arrival:

Sidewalks are not provided connecting the neighborhood to the trail. There are no public transit options to this trail.

Proposed Improvement: No recommended changes

Gate/Entry:

The trailhead at either end has a normally closed vehicular gate with a 36 inch wide pedestrian entry.

Proposed Improvement: Minor regrading/surfacing improvements at the entry pathways at both ends of the trail. Any work required must be done within the existing road tread to avoid impacts to sensitive natural resources.

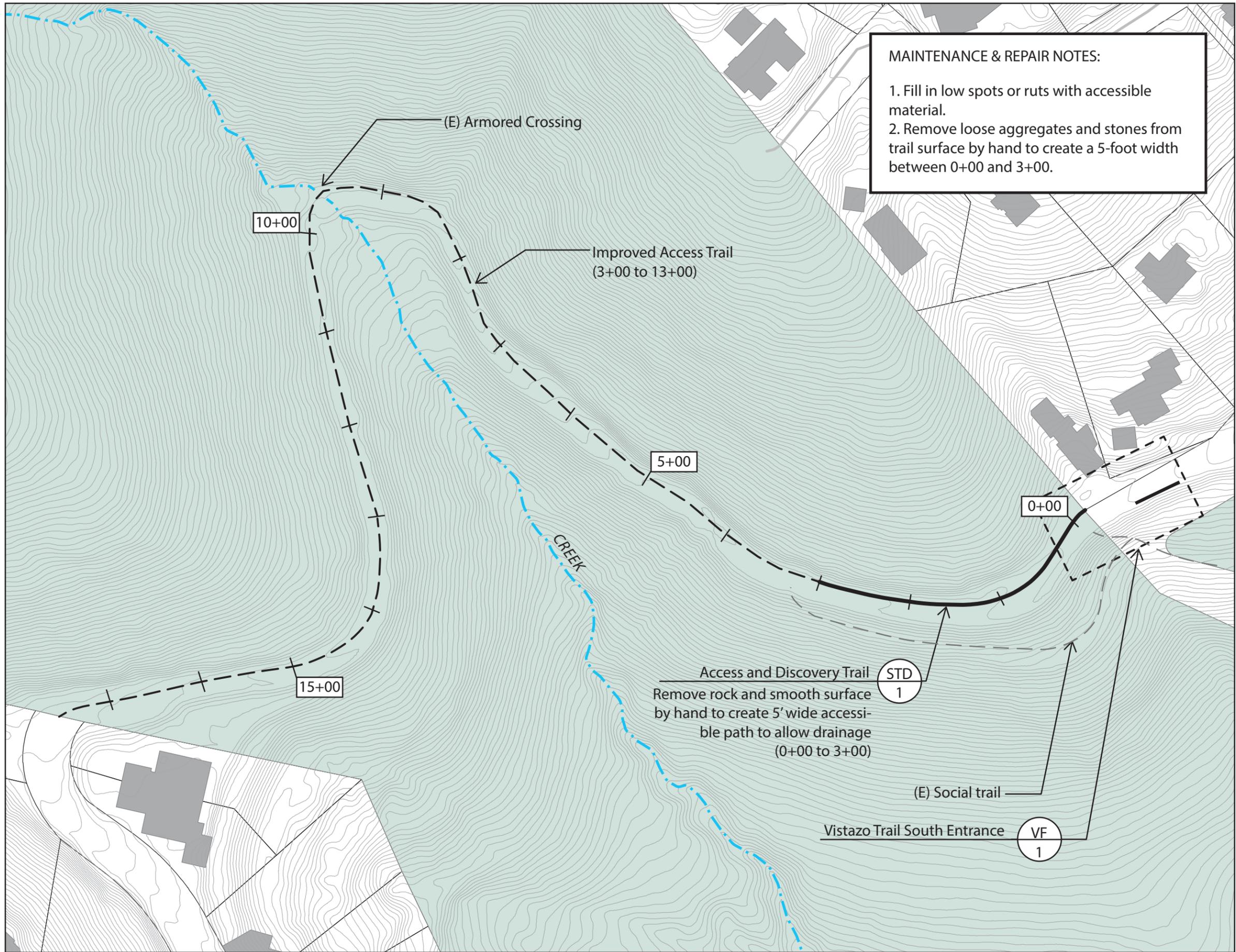
Trail Conditions:

The trail is comprised of a combination of imported road base and compacted native serpentine soil and varies in width from 10 to 20 feet. Short sections of trail have severe erosion, exposed bedrock, and larger rocks. An perennial stream crossing exists which narrows the trail to approximately 6 feet. Most of the trail has running slopes of less than 10% and cross slopes less than 5%. A short segment immediately south of the stream crossing has a 20% running slope. Drainage from the adjacent hill side has cut deep ruts into sections of the trail surface.

Proposed Improvement: Due to pragmatic implications of the effort necessary to improve and maintain the current road bed, surface improvements to the trail alignment will be limited to the first 300 linear feet of fire road from the south entrance. The remainder of the fire road will be treated as an Improved Access Trail with expanded conditions information being made available. The County will explore additional environmental improvements to the trail alignment.

Probable Issues/Maintenance:

Regrading the entire width of the fire road may have undesired environmental impacts on the serpentine soils and associated plant communities. Modifying the existing drainage patterns may be advisable to reduce future trail surface erosion.



Inclusive Access Plan
Access and Discovery Trails

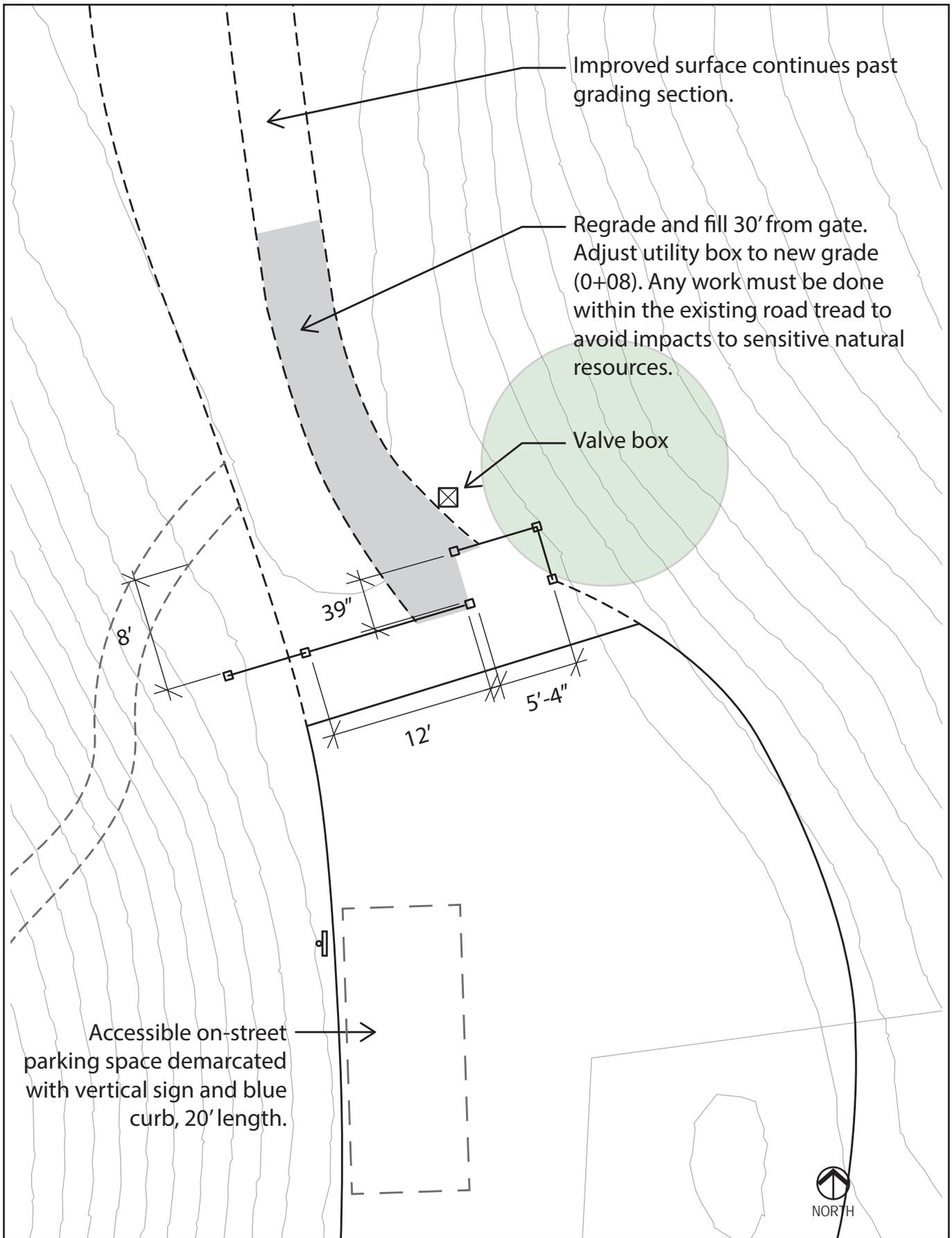
Vistazo Fire Road

Old St. Hilary's Open Space Preserve
Vistazo West Street, Tiburon

Improvement Plan



NOTE: See Biological Resources Assessment Wetland Maps for water features in the vicinity of trail improvements

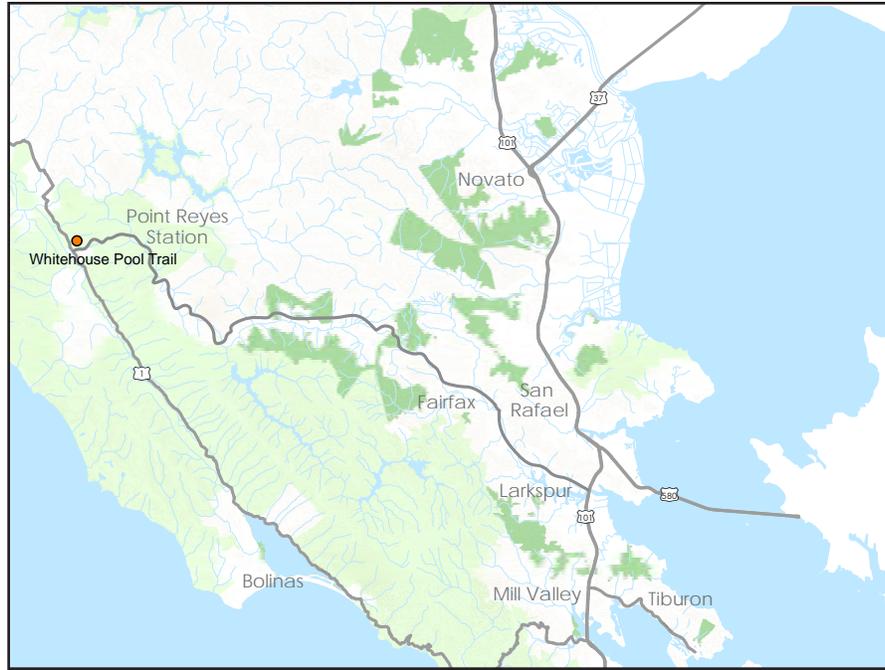


1

Vistazo Trail South Entrance
Scale: 1" = 10'-0"

Access and Discovery Trails

Whitehouse Pool
Sir Francis Drake Blvd, Point Reyes Station



Narrative Description

Road ID N/A

Destination and Experience:

Whitehouse Pool Trail is located in Point Reyes Station, and is a level ½ mile trail along Lagunitas Creek in the Tomales Bay Estuary. In addition to the walking paths there are viewing areas, picnic tables, benches, access to Lagunitas Creek, and portable toilets - one of which is larger and provides wheelchair maneuvering space. Whitehouse Pool is surrounded by riparian vegetation and provides significant wildlife habitat for species such as coho salmon, and is popular for bird watching, nature study, and wildlife viewing.

Parking:

A paved parking area is provided at the trailhead. The asphalt parking area is not striped and does not include designated accessible parking spaces.

Proposed Improvement: Regrade a portion of the parking lot closest to the trail head adding markings, striping, signage and an access aisle. Install wheel stops to create an accessible 48" min. wide path to the existing portable toilets.

Alternative Means of Arrival:

There are no pedestrian sidewalks along the adjacent roadway. Whitehouse Pool is served by the West Marin Stage Coach Route 68. The bus stop is located at the west entrance to the trail.

Proposed Improvement: Explore improvements such as a bus loading/unloading platform at the bus stop. Any improvements to bus stop will need to be done with coordination between Marin County Parks, Marin Transit and any other agencies having jurisdiction.

Trail Entry:

The entrance to the trail has a removable bollard with an opening 53 inches on one side and 54 inches on the other side. The entrance is level but the surface at the transition from asphalt paving to the trail is loose gravel.

Proposed Improvement: Provide a section of stabilized decomposed granite or similar firm and stable surface at the pavements/trail transition to prevent vertical changes in elevation caused by erosion and wear.

Trail Conditions:

The trail varies from 12 to 36 inches wide. Many sections of the trail have overgrown vegetation both on the ground surface and overhead reducing the clear width and height.

The trail has two timber bridges. The bridge adjacent to Sir Francis Drake Blvd on the east side of the site is 60 inches wide. A 14% slope and 3 inch change in level were observed at the transition plate. The second bridge crossing the inlet between the two trail sections is 48 inches wide. The wood transition on the east side of the bridge has a slope of 12% for 14 linear feet and up to 24 inch changes in level on either side with no edge protection. The transition on the west side includes a 14 foot long timber section with a slope up to 6% connected to an earthen ramp with a slope of 9% to 11% for 15 linear feet.

The trail surface is varied with compacted native surface that is firm and stable in its dry state. Sections were observed with a top layer of loose small gravel.

Amenities such as the picnic tables, benches, and trash receptacles are located off the trail and require traversing grass.

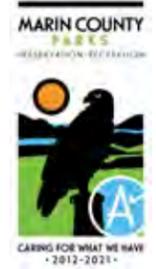
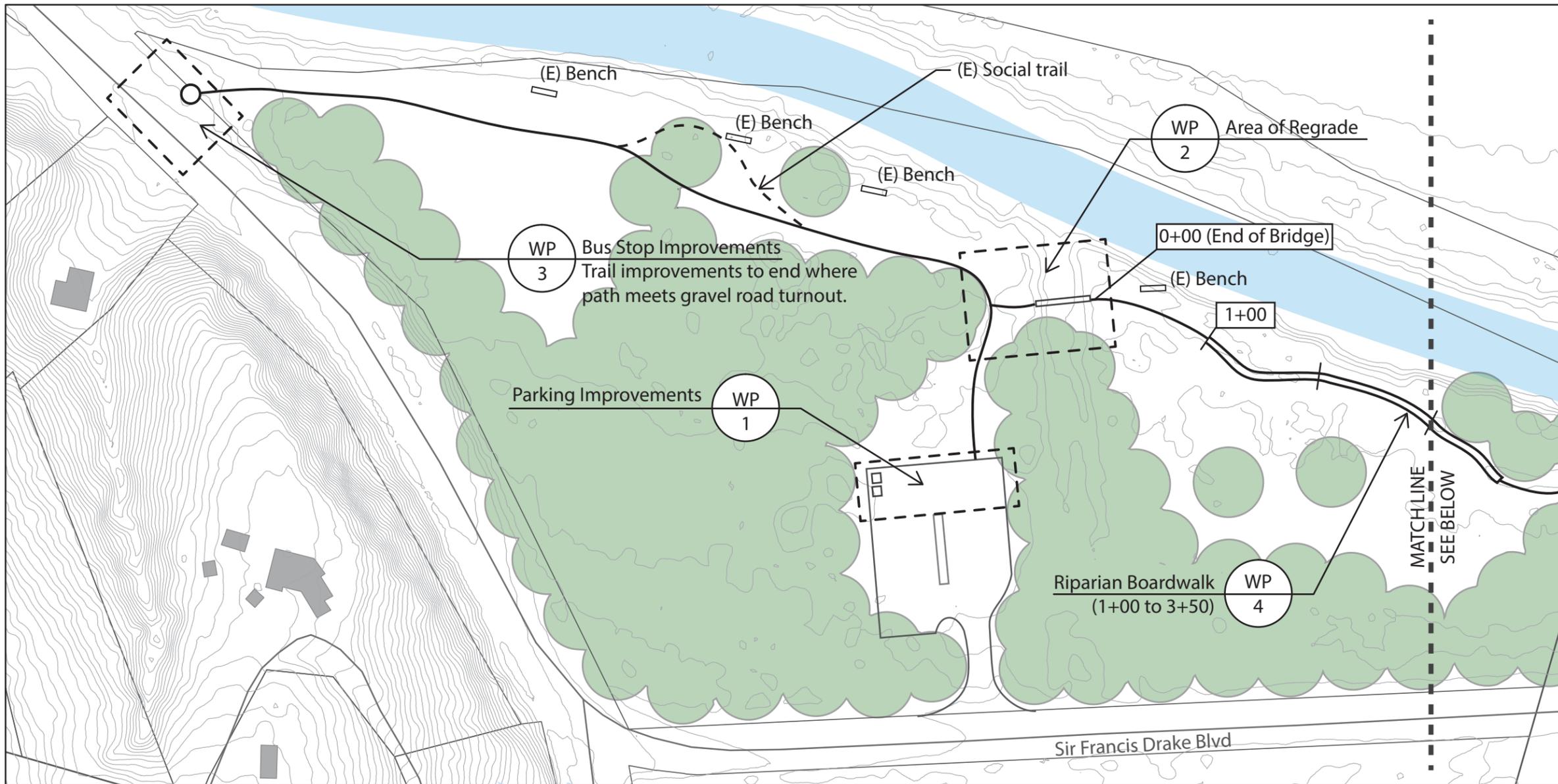
Running and cross slopes along much of the path are less than 5%. The only sections observed to have excessive slopes were the ramp up to the bridge and the trail segment at the west entrance connecting to the bus loading area.

Proposed Improvement: Improvements to the pedestrian bridge near the parking area include modifying the slope of the approach ramp, installing safety railing to the wooden bridge ramp. Trail improvements include widening the trail tread and providing accessible trail surfacing to selected benches at the bank of the creek. A section of boardwalk is also recommended to address reduced trail width along the riparian clearing as noted on the diagram.

Probable Issues/Maintenance:

The trail surface is irregular in some sections, with surfaces not considered firm and stable. Seasonal rains and high water may be a maintenance issue. The site is known to flood seasonally, making sections of the trail impassable at certain times of year.

Proposed Response: Temporary closures of sections of the trail affected by flooding may be necessary. Ensure information is updated and available to convey current conditions of the trail. Ensure firmness and stability of trail surface is evaluated and addressed after water recedes.



Inclusive Access Plan
Access and Discovery Trails

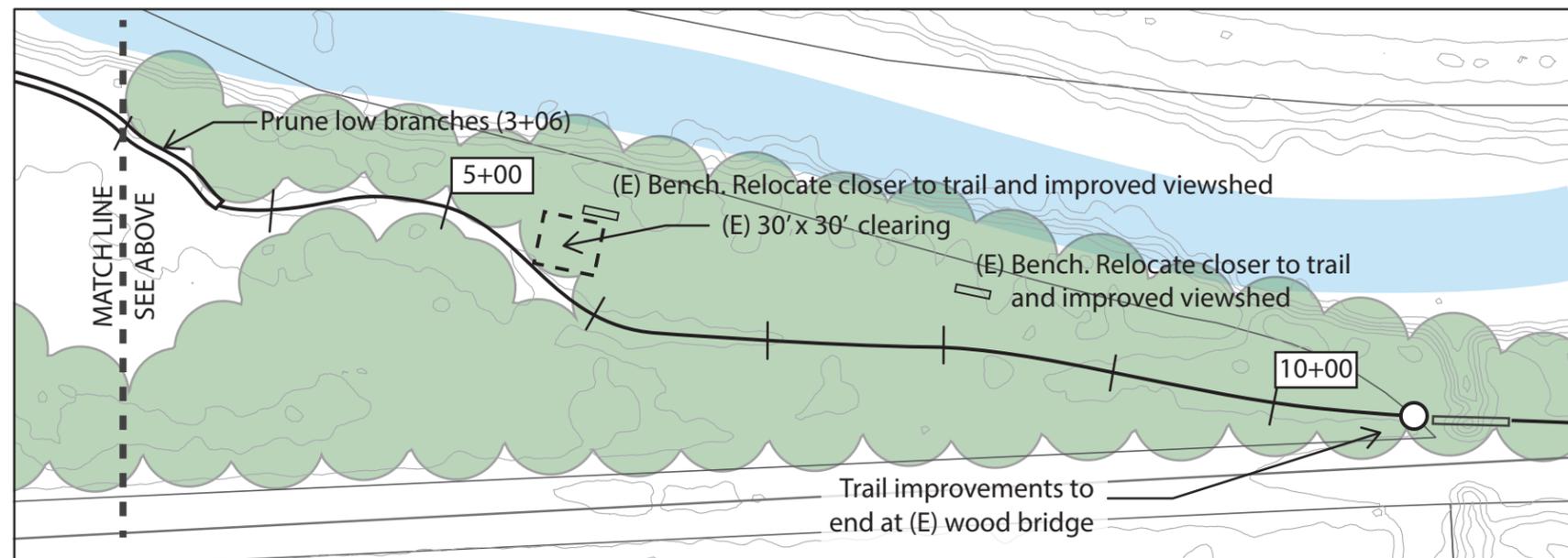
Whitehouse Pool Trail

Whitehouse Pool County Park
Sir Francis Drake Blvd, Inverness

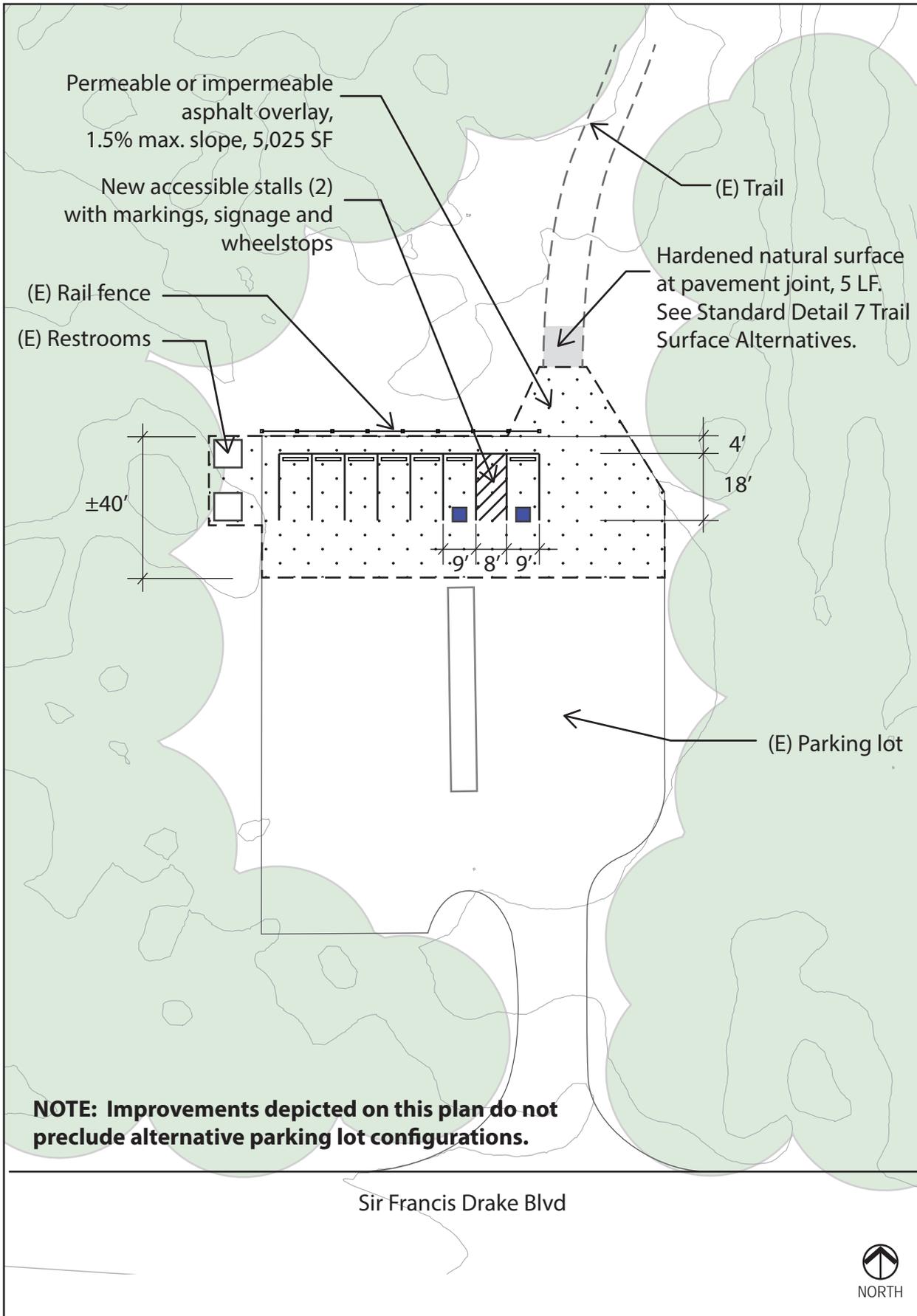
Improvement Plan

MAINTENANCE & REPAIR NOTES:

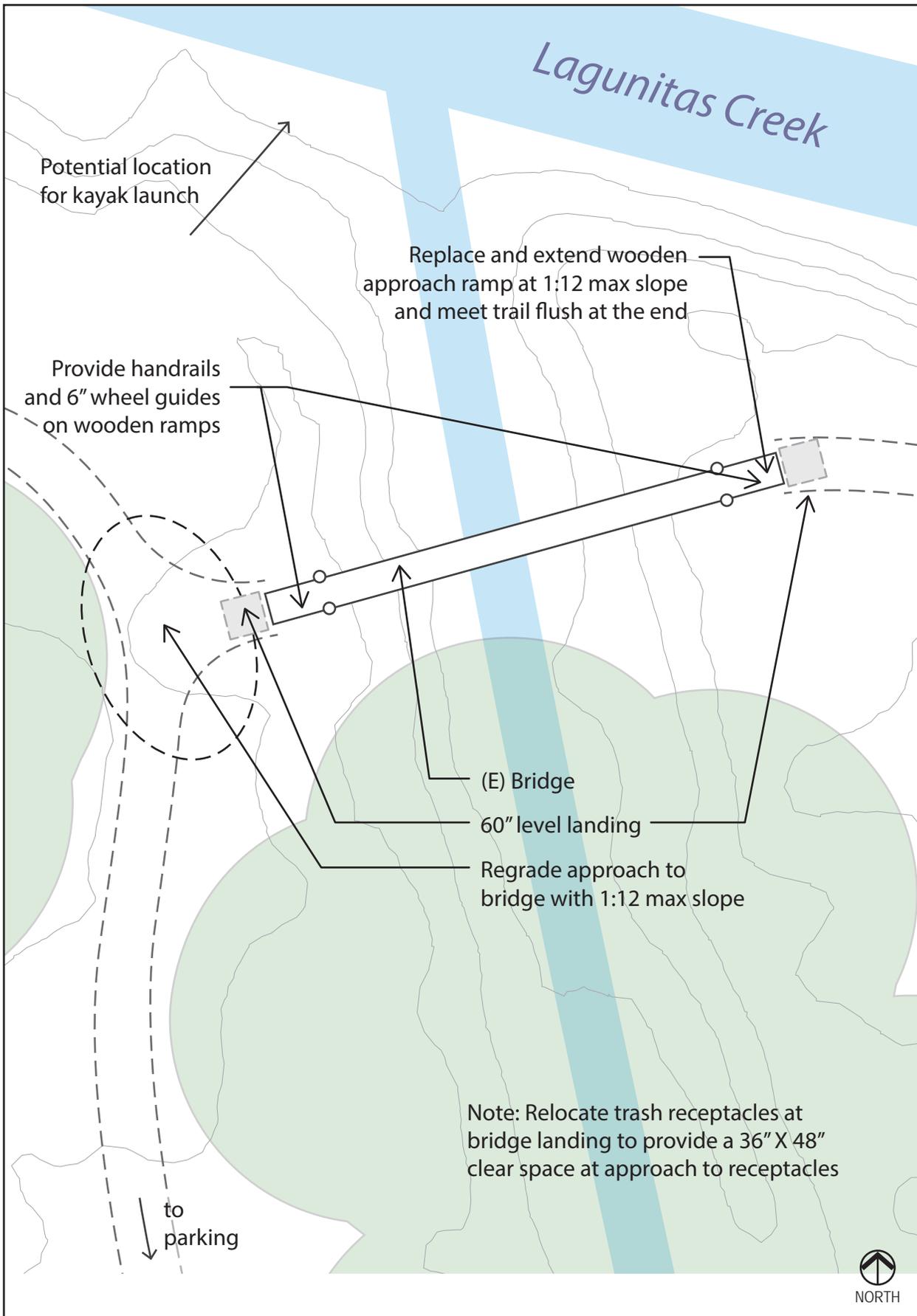
1. Fill in low spots or ruts with accessible material
2. Remove loose aggregates and stones from trail surface.
3. Maintain accessible portion of trail free of vegetation.
4. Bus stop improvements will require agency coordination between Marin County Parks and Marin Transit.



NOTE: See Biological Resources Assessment Wetland Maps for water features in the vicinity of trail improvements

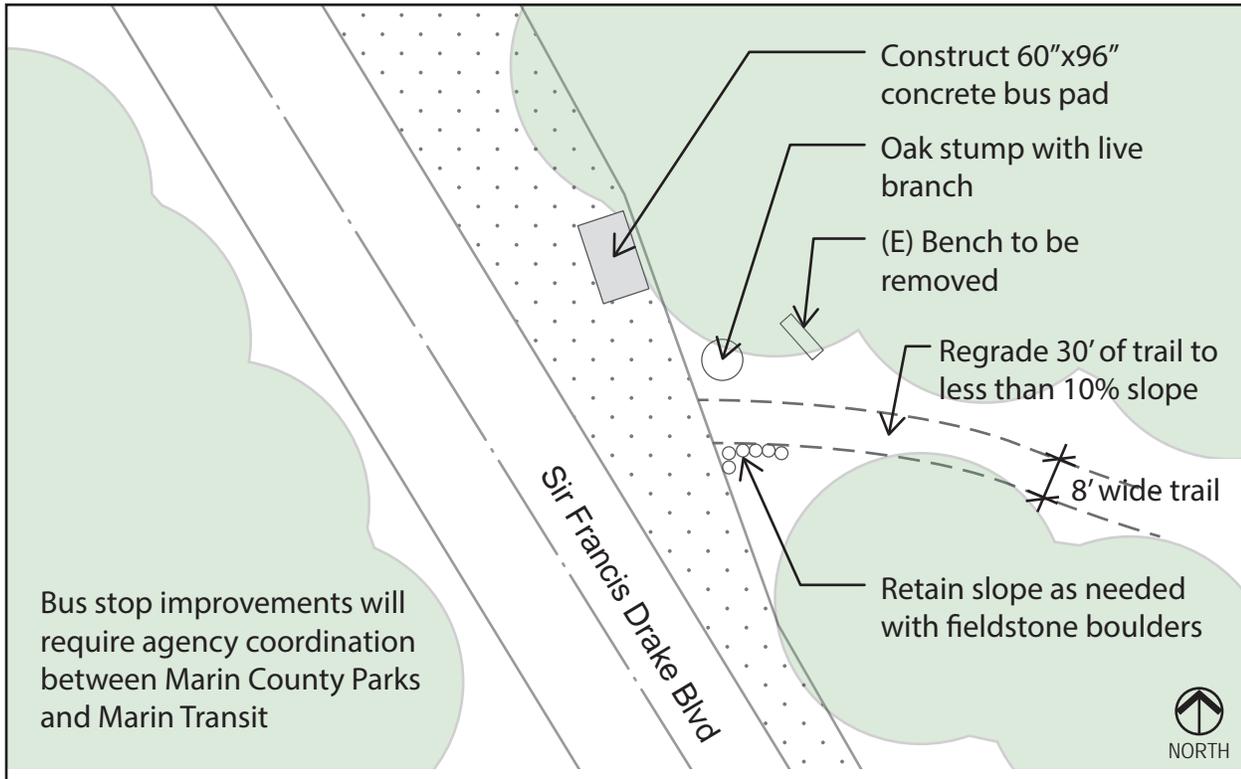


1 Parking Improvements
Scale: 1" = 40'-0"

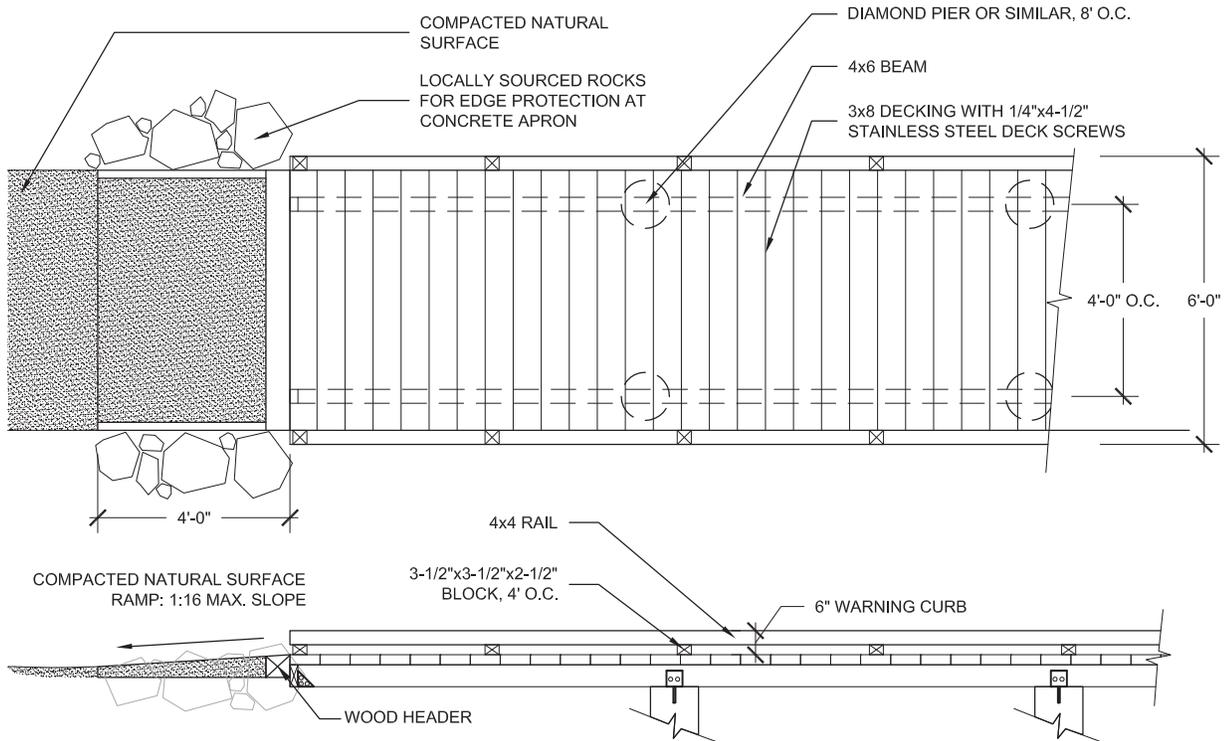


2

Regrading at Bridge
Scale: 1" = 20'-0"



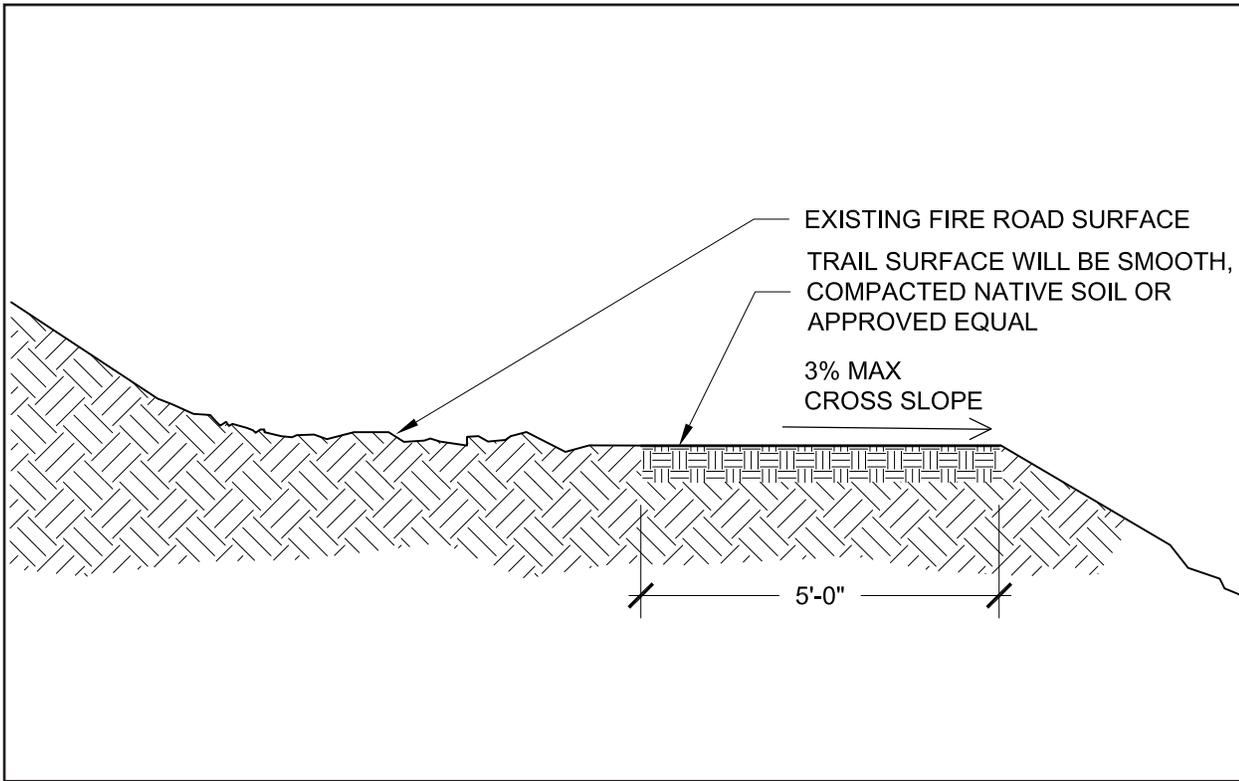
3 Bus Stop Improvements
Scale: 1' = 20'-0"



4 Riparian Boardwalk
Scale: 3/8" = 1'-0"

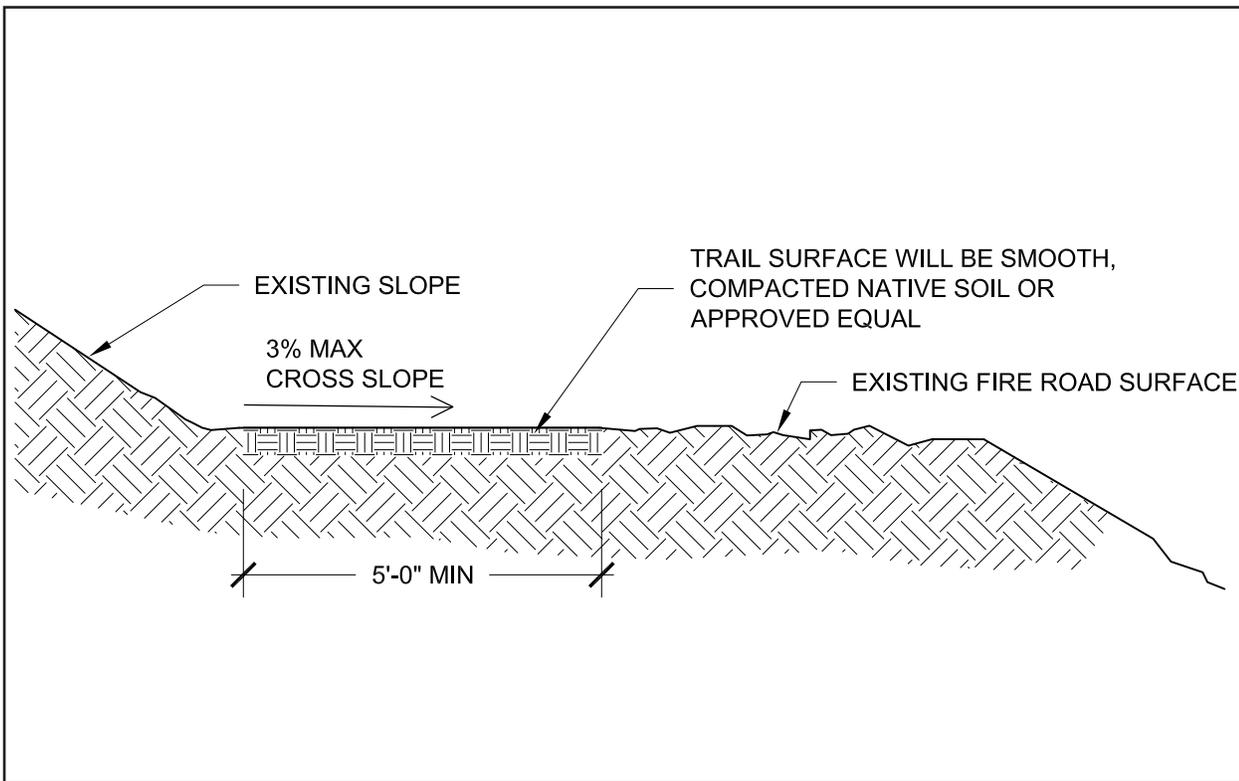
Inclusive Access Plan - Standard Details

1. Improved Surface at Fire Road (Downhill side)
2. Improved Surface at Fire Road (Uphill side)
3. Resting Intervals
4. Armored Crossing
5. Drainage Bar



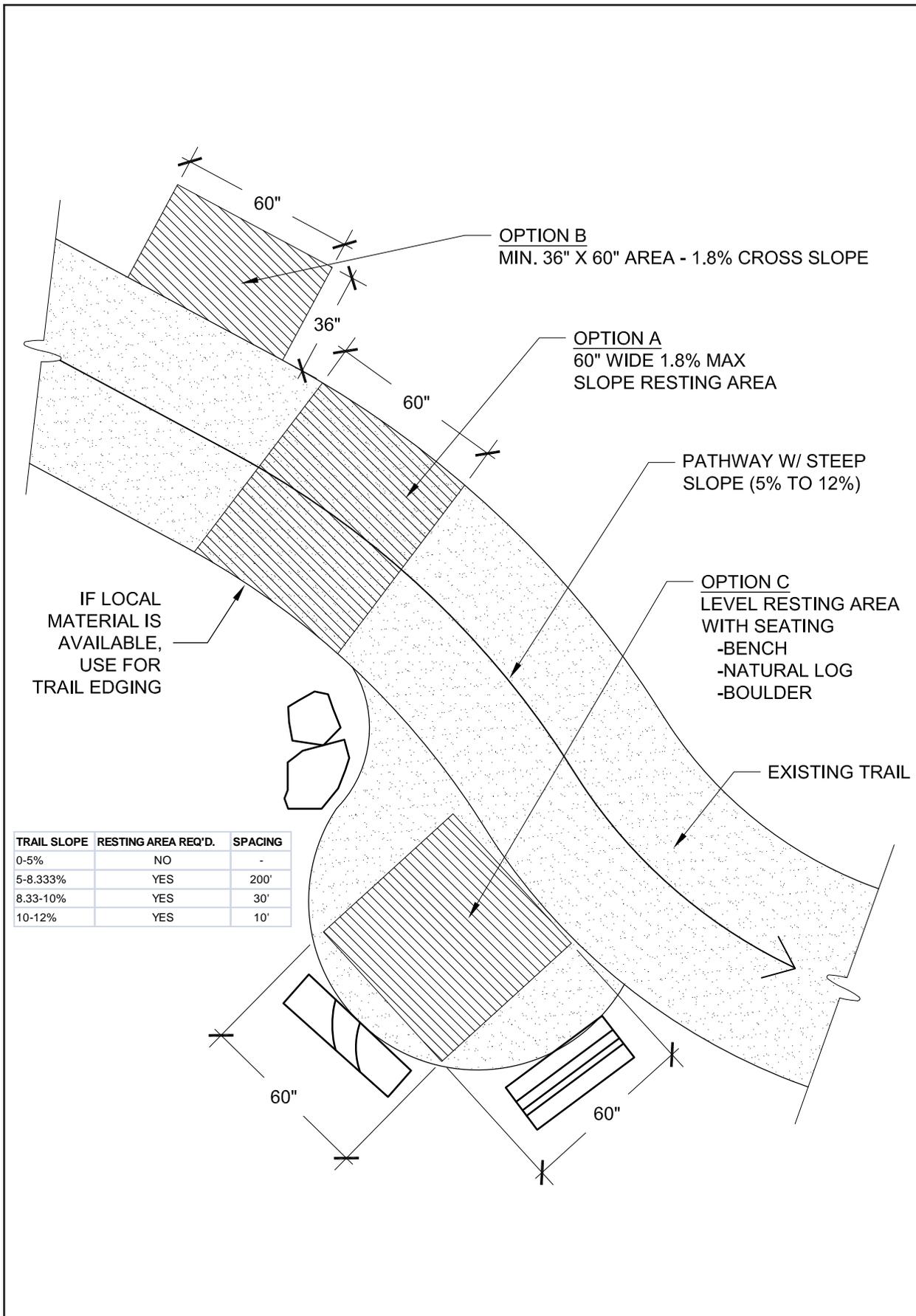
1

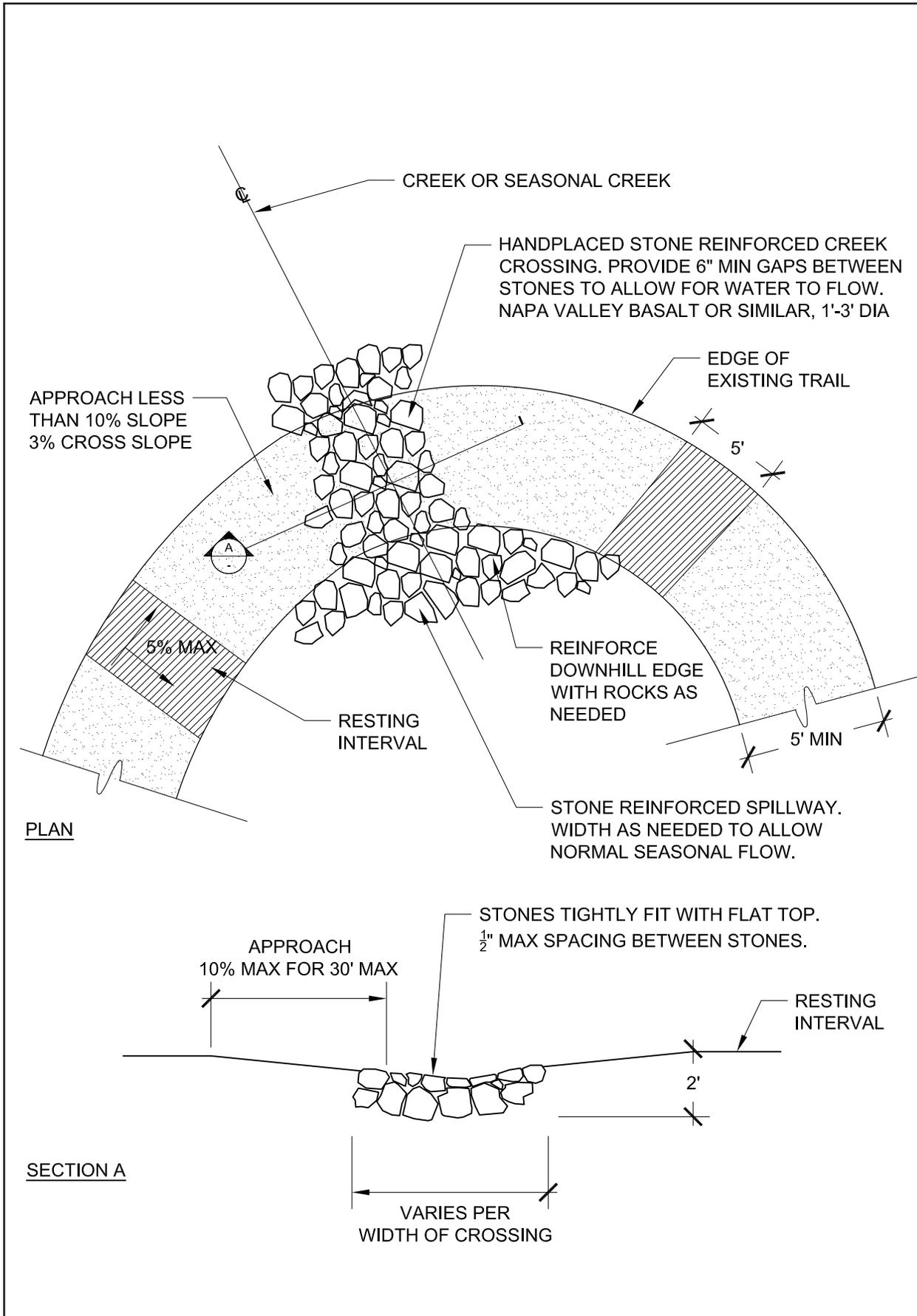
Improved Surface at Fire Road
Scale: 3/8" = 1'-0"



2

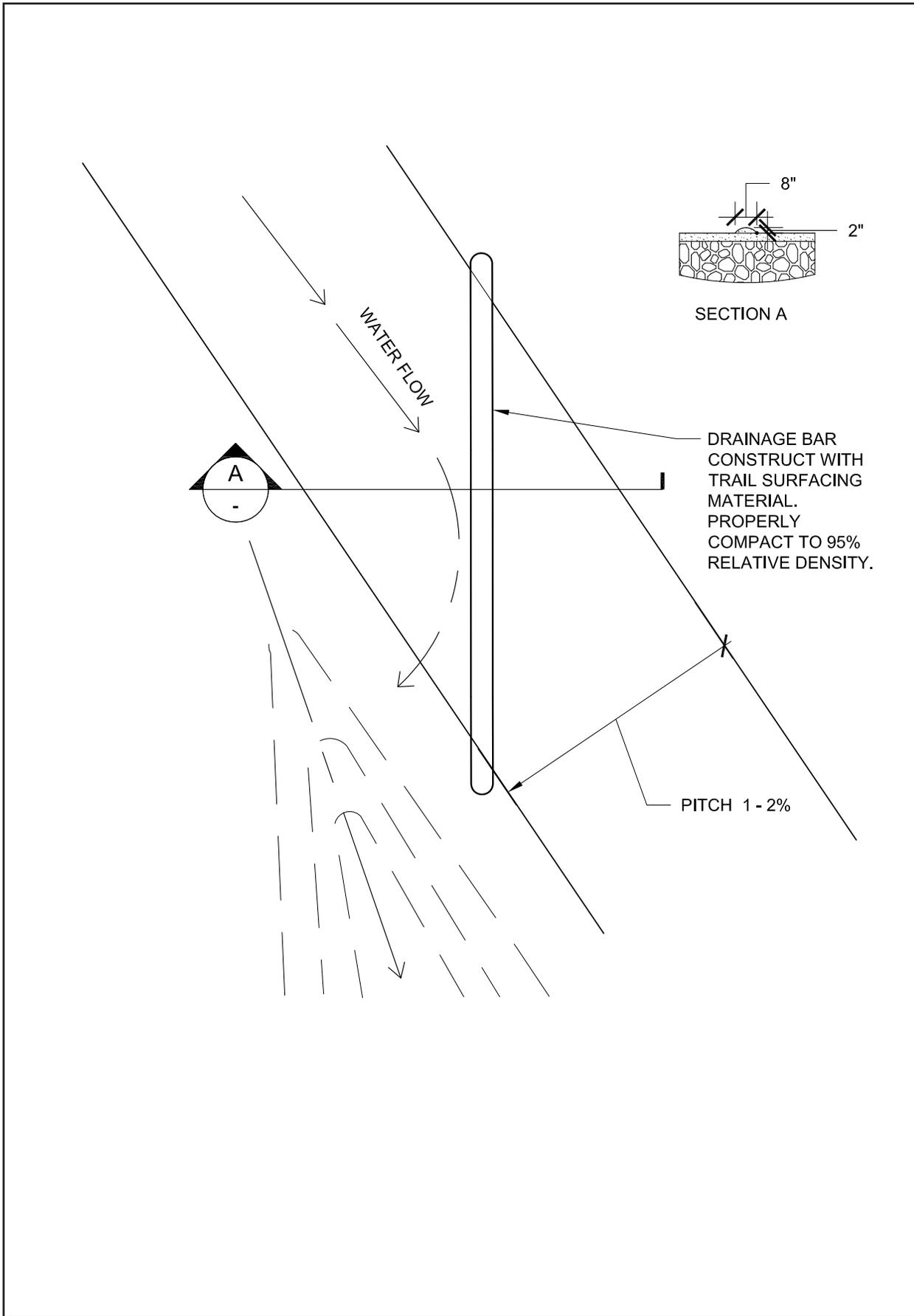
Improved Surface at Fire Road
Scale: 3/8" = 1'-0"





4

Armored Crossing
Scale: 1/8" = 1'-0"



5

Drainage Bar
Scale: 1" = 1'-0"

PRODUCTS

Imported material

Class 2 aggregate base material is often the most available trail surfacing material. However, not all Class 2 materials are suitable. Samples with a higher percentage of fines tend to compact better. Soil moisture is critical to stable trail surfaces.

The size of the aggregate distributed is often of critical importance to the way the material performs. Too much of the smaller fines in comparison to the larger fines may contribute to more washout or erosion, whereas not enough smaller fines may lead to lots of loose, larger aggregate pieces that can contribute to a non-firm and non-stable surface.

AGGREGATE BASE

Class 2, 3/4-inch maximum of a compatible color with no reclaimed material. Aggregate base consistency should be “dirty” with adequate fines for proper compaction and binding qualities. Rock should be of angular shape, not rounded.

According to the 2014 National Trail Surface Study, a dirty 3/4” or 3/8” road base with around 20 -30 percent clay fine particles seems to work well in areas that are not consistently wet.

Native soil may be blended into the last 3-inch lift of crushed rock to soften the color and texture of the finished trail tread.

Native soils

Site soils that have adequate clay, are under the cover of a tree canopy or have some organic materials like forest duff on the surface, will retain soil moisture and are more likely to maintain compaction. Constructing trail surfaces from native soils has the advantage of not introducing non-local organisms to the environment, being aesthetically compatible with the surrounding environment, and available at lower costs. Imported soils used to supplement native soils should be selected to be compatible in color and texture with native soils

EXECUTION

It is recommended to construct a test section of trail surfacing with the selected material in order to test for compaction and erosion resistance. Testing the sample trail section with a rotational penetrometer is recommended

California State Parks requires the contractor to install an 80 sq/ft test section for State Representative approval prior to order, delivery and installation of additional aggregate paving material. The test section is installed and compacted per their specifications in Sections 327770 Aggregate Paving and 312000 Earthmoving. The test section is completed for viewing within 60 – 90 days of the project start date.

Where possible and appropriate, use headers along the trail edge to hold trail surface material and maintain integrity.

EXECUTION CONT.

Per California State Parks Section 327770 Aggregate Paving referencing Section 26 of Caltrans Standard Specifications

Subgrade Preparation

- A. Prior to installing the aggregate paving, areas to receive aggregate shall be shaped to reflect the same linear grade and cross slopes as the desired finished surface.
- B. Subgrade surface shall be graded to within 0.05 foot of finish grade minus paving thickness.
- C. The subgrade shall be uniformly smooth and compacted to meet or exceed 90% relative compaction.
- D. Fill and compact any depressions and remove loose material to finish true to line and grade, presenting a smooth, compacted and unyielding surface except where indicated otherwise.
- E. Remove debris, loose dirt and other extraneous materials.
- F. If the subsurface soils have insufficient strength and cohesion to provide a stable base for the aggregate then a layer of non- woven geotextile fabric may be applied to the prepared area prior to the installation of the aggregate paving.
- G. State Representative shall approve all staking prior to installation of aggregate paving.

Installation of Aggregate Paving

- A. Uniformly spread aggregate smoothly over the prepared subgrade.
- B. The aggregate shall be applied to the designated areas at a minimum total depth of 6 inches. The application shall be performed in two separate 3-inch lifts. The final lift shall be shaped and compacted to the proper lines, grades and slopes as shown on Plans.
- C. Compaction shall consist of a minimum four passes over the entire paved area for each lift using either a viberplate compactor or a vibratory roller. Compact aggregate material to a minimum 90% per ASTM D 2950.
- D. Aggregate shall be kept moist to achieve maximum rate of compaction.

Tolerances

- A. Finished surface smoothness: Maximum 1 inch in 10 feet any direction

Field Quality Control

- A. Testing Agency: The Contractor shall engage a qualified geotechnical engineering testing firm to preform, subgrade, moisture and compaction tests related to this work at Contractors expense.
- B. Allow the testing firm to inspect and test subgrades and each fill layer. Proceed with subsequent base placement only after test results for previously completed work comply with requirements.
- C. When testing firm reports subgrades or fills have not achieved degree of compaction specified; repair, moisten, scarify and replace material to depth required; recompact and retest until specified compaction is obtained.

RESOURCES

American Soil and Stone, San Rafael
<http://www.americansoilandstone.com/>
 415-456-1381

Soiland Company / Stony Point Rock Quarry, Cotati
<http://stonypointrockquarry.com/>
 707-795-1775

Soils Plus, Cotati
 (Source for State Parks trail projects in Marin County)
<http://soils-plus.com/>
 707-996-3400

REFERENCES

National Trail Surfaces Study (2014)
 Nicole Montembeault and Sherril York, Ph.D
 National Center on Accessibility, Indiana University-
 Bloomington

Section 26 Aggregate Bases, Caltrans Standard
 Specifications
http://www.dot.ca.gov/hq/esc/oe/construction_contract_standards/std_specs/2015_StdSpecs/2015_StdSpecs.pdf

California State Parks Specification
 Section 327770 – Aggregate Paving