DRAFT

Soil Remediation Workplan for the Cross Alameda Trail

Alameda, California

Site Address:
The Cross Alameda Trail site is adjacent to and south of Ralph Appezzato Memorial Parkway between Webster Street and Main Street, Alameda, CA

Case Number:
Case RO0003168

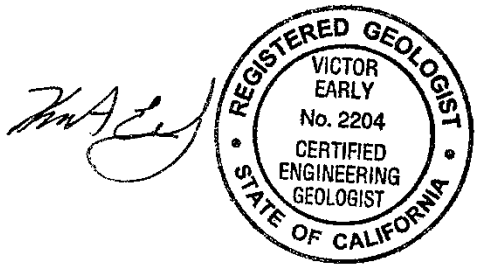
PREPARED FOR:

City of Alameda
Department of Public Works
Alameda, California

REVIEW AND APPROVAL

Submittal Statement:

I have read and acknowledge the content, recommendations, and/or conclusions contained in the attached document submitted on my behalf to ACDEH's FTP server and the State Water Resource Control Board's GeoTracker website.
I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.



Project Manager: _____ Date: April 14, 2017
Victor Early, CEG, Tetra Tech

Draft

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City of Alameda
Department of Public Works
Alameda, California

April 14, 2017

Prepared for:
City of Alameda
Department of Public Works
Alameda, California

Prepared by:
Tetra Tech, Inc.
1999 Harrison Street, Suite 500
Oakland, California 94612
510-302-6300

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ACRONYMS AND ABBREVIATIONS

ACEH	Alameda County Department of Environmental Health
APN	Assessor's Parcel Number
BRT	Bus Rapid Transit
GSL	Geosynthetic layer
HDPE	high density polyethylene
mg/kg	Milligrams per kilogram
PAH	Polycyclic aromatic hydrocarbon
RAMP	Ralph Appezzato Memorial Parkway
RIWP	Remedial implementation work plan
SLHHRA	Screening Level Human Health Risk Assessment
SMP	Soil Management Plan
Tetra Tech	Tetra Tech, Inc.

1.0 INTRODUCTION

This work plan describes the soil remediation tasks planned during construction of the Cross Alameda Trail. Construction of the trail is scheduled to commence in early 2018 and last approximately 6 months. The soil remediation addresses potential human health risks associated with exposure to chemical contamination in shallow soil within the former railroad corridor between Webster Street and Main Street, along the south side of Ralph Appezzato Memorial Parkway (RAMP), in Alameda, California (Figures 1-7). The property is owned by the City of Alameda (Assessor's Parcel Numbers [APN] 74-905-20-3 and 74-905-20-2). This work plan was prepared under contract to the City of Alameda, Department of Public Works.

Construction of the Cross Alameda Trail, a typical rail-to-trail project, will add to the San Francisco Bay Trail. The proposed path will be 0.8 mile long and include walking, jogging, and bike paths. The construction will be mostly at grade, with limited landscaping, sloping, and bioswale stormwater drainage systems. When it is complete, the Cross Alameda Trail will be open for recreational land use.

The city is beginning to actively develop the Alameda Point Bus Rapid Transit (BRT) project, which will install dedicated Bus Lanes between Alameda Point and the Webster/RAMP intersection (which will connect into Oakland via the Webster/Posey Tubes). In April 2017, the countywide transportation agency (Alameda County Transportation Commission) allocated $9 million to the city for planning/environmental/design (in FY2017-19) and construction (FY2019-20). These dedicated lanes will run along RAMP, between Main Street and Webster Street, parallel to the planned Cross Alameda Trail. The undeveloped right of way, between the current edge of curb and the Cross Alameda Trail, was preserved for this project and will likely be developed as additional travel lanes for the buses.

2.0 BACKGROUND AND PURPOSE

The results of the Phase II Environmental Site Assessment Report for the Cross Alameda Trail (Tetra Tech 2015a), and subsequent site investigations (Tetra Tech 2015b, 2016) are the basis for the soil remediation. The results of the Phase II ESA identified shallow soil across most of the site with elevated levels of polycyclic aromatic hydrocarbons (PAHs). PAHs are associated with the marsh crust (City of Alameda 2015). Marsh crust and fill material were identified near the

surface to depths of 5 to 6 feet below ground. Additionally, three hotspot areas containing elevated levels of lead and arsenic in soil were identified at the site. Results showed low levels of groundwater contamination, but not requiring groundwater remediation.

As a part of site investigation activities and the risk assessment report, a screening-level human health risk assessment (SLHHRA) was conducted considering recreational use and construction worker activities. The site investigation and risk assessment report concluded that elevated concentrations of lead and arsenic in soil at three hotspot areas of the site pose unacceptable risks to humans. The remedial objective is to prevent human exposure to soil containing lead at concentrations above 80 milligrams per kilogram (mg/kg) (RWQCB 2016), arsenic above 11 mg/kg (Duverge 2011), and PAHs above residential and construction worker screening criteria (SRWQCB 2016). This work plan presents the City of Alameda's plan to remediate the soil that presents an unacceptable risk to humans at the site.

3.0 DESIGN APPROACH

The lateral boundary of the remediation area is the property boundary of the site. The total remediation area is estimated at 6.4 acres. Potential remedial solutions considered included (1) excavation and backfill with clean soil, (2) capping with soil or pavement, and fencing with vegetative cover. With input from the City of Alameda and the Alameda County Environmental Health (ACEH) agency, capping and fencing with vegetative cover with institutional controls was selected as an effective, and less costly, long-term remedy for the site. The three hotspot areas will be capped with trail pavement and with a soil or pavement cap to the north of the trail. The hotspot area south of the trail will either be capped with soil or pavement (Figure 2) or will have restricted access and a permeable geosynthetic layer (GSL) vegetative cover (Figures 4 and 5). To restrict public access to the remaining uncapped areas of the site fencing with a GSL/vegetative cover will be installed.

Cap Design:

The cap will consist either of 2-foot-thick soil cap or asphalt and concrete pavement over a GSL. The soil cap will be covered with a vegetative soil erosion prevention layer. A pavement cap rather than a soil cap over the area north of the trail is an option. Existing asphalt will be used as a cap where present. Trail pavement over GSL consists of asphalt, concrete, pavers, and

decomposed granite. The GSL is intended to prevent mixing of contaminated soil with the overlying clean material and also provide a visual demarcation if the soil cap were to be degraded, eroded, or damaged. The GSL is also intended to allow migration of groundwater. Except for the existing paved areas, GSL will cover the entire site upon completion.

Figures 2-7 show the proposed alignment of the new trail and paved areas, which will match the existing grade elevations of the adjacent roadway and intersections. Capping within the new trail alignment shown on Figures 2-7 will consist of the GSL over which the trail pavement will be placed. Swales will be capped by excavating to a depth of 2 feet then lined with a GSL and backfilled with clean soil. Adjacent to the north of the trail in areas shown on Figures 2-7, the contaminated soil will be capped with either 2 feet of soil or road pavement. Figure 8 is a typical cross-section of the capping configuration utilizing a soil cap to the north of the trail.

The cap will be considered a permanent remedy. The soil cap and will include provisions for an erosion control barrier, such as establishing a vegetative layer or mulching to prevent erosion of the soil cap.

Fencing and Vegetative Layer to Restrict Access:

Permanent fencing and warning signs will be installed and maintained to restrict public access to the uncapped areas of the site south of the trail to the property line. Inside the fenced areas, further protection will be provided by a GSL and a vegetative cover to demark the underlying contaminated soil and to minimize erosion or contact. The fence will be constructed of metal and will be 5 feet tall. The existing fence along the south property line will also be used to restrict access to these areas. The vegetative layer will consist of clean organic soil with vegetation and will be 6 inches to 1 foot thick.

Interim Measures

The city would prefer an option to delay capping of the area north of the trail until the BRT project is constructed. After which (FY2019-2020) a GSL would be installed and the area would be capped with either pavement or a soil cap.

In the interim, the city would restrict access to this area with a 6-foot fence and warning signs. As planned, this area will also be used to contain approximately 2,200 cubic yards of material

consolidated from on-site swale and trench excavation. Temporary surface containment of the excavated material will be accomplished using high density polyethylene (HDPE) with berms to prevent erosion or dust generation. The remainder of the area will be covered with mulch until the area is permanently capped.

4.0 INSTITUTIONAL CONTROLS

According to U.S. Environmental Protection Agency, "Institutional controls are non-engineering measures designed to prevent or limit exposure to hazardous substances left in place at a site, or assure effectiveness of the chosen remedy."

The remedy for this site includes leaving hazardous substances in place, so institutional controls are necessary and will include:

- A legal description of the real property area where the institutional controls are to be implemented.
- A description of the anticipated future land use.
- Identification of the residual risk and prohibited site activities.
- Site monitoring requirements, responsibilities, and enforcement against violations.

Applicable county or state agencies will review and approve the institutional controls for the site.

5.0 CONSTRUCTION

Before construction, a Remedial Implementation Work Plan (RIWP) and a Soil Management Plan (SMP) will be prepared. The RIWP will provide sufficient drawings, cross-sections, detail, and specifications for permitting and construction of the project. The SMP will provide protocols details and requirements during earthwork, excavation, demolition, utility trenching and trail construction to protect construction workers and the public from potential human health risks, both short and long term, from hazardous substances in soil at the site.

Currently the city's consultant has completed 95% of the construction plans (BKF Engineers 2017) for the trail project. Upon completion of the plans, the city will solicit bids and construction of the trail and remedial actions will begin in early 2018. Completion of the trail and interim remediation areas south of the trail will occur 6 months later. The interim measures including temporary fencing and soil containment will be installed in early 2018 and maintained

to restrict access from the northern capping area until 2019, when the final phase of the project including capping of this area will be completed.

6.0 REFERENCES

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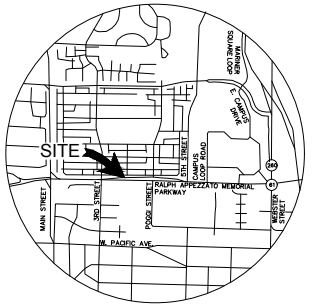
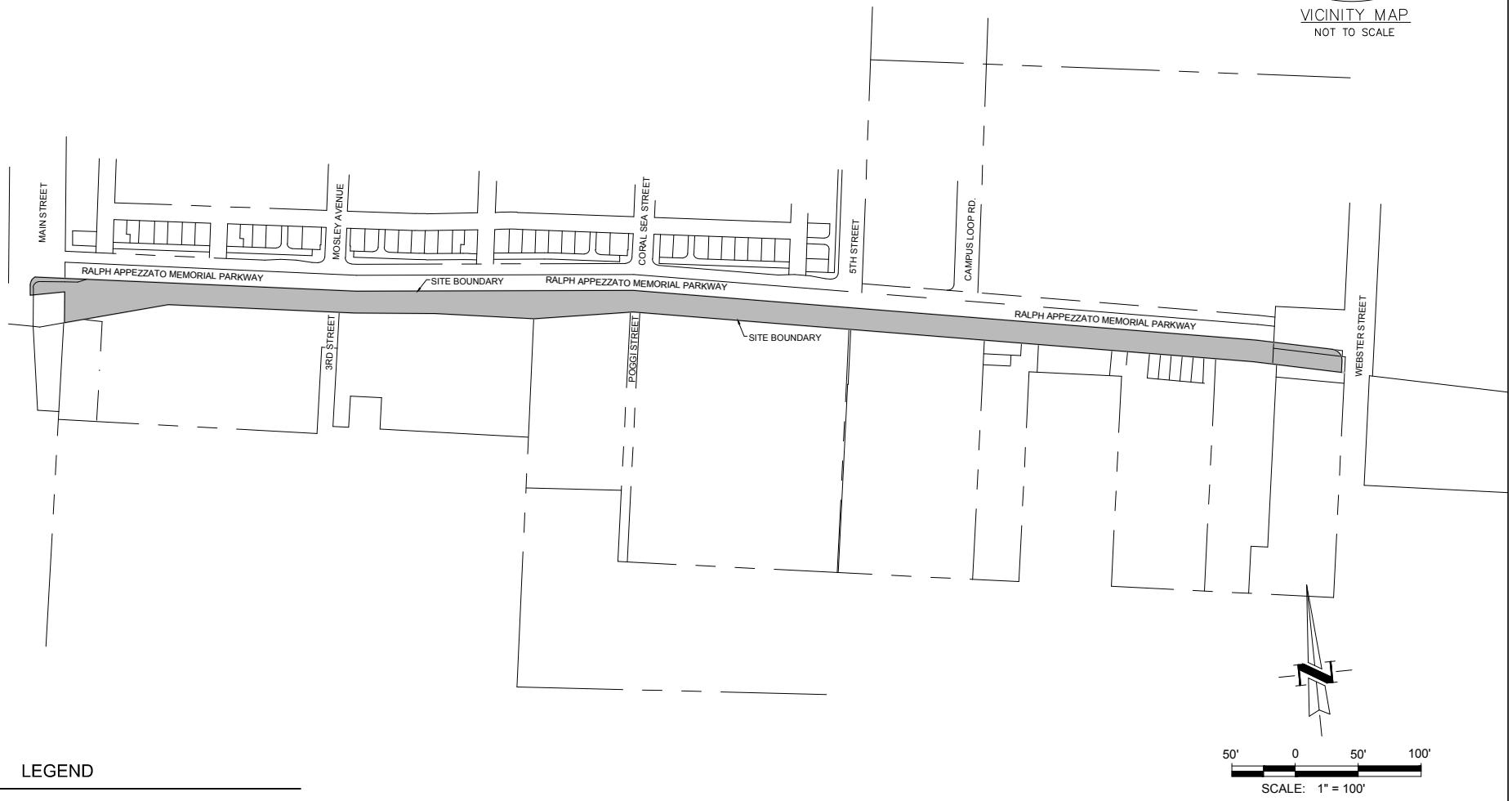
FIGURES



VICINITY MAP
NOT TO SCALE



50' 0 50' 100'

SCALE: 1" = 100'

LEGEND

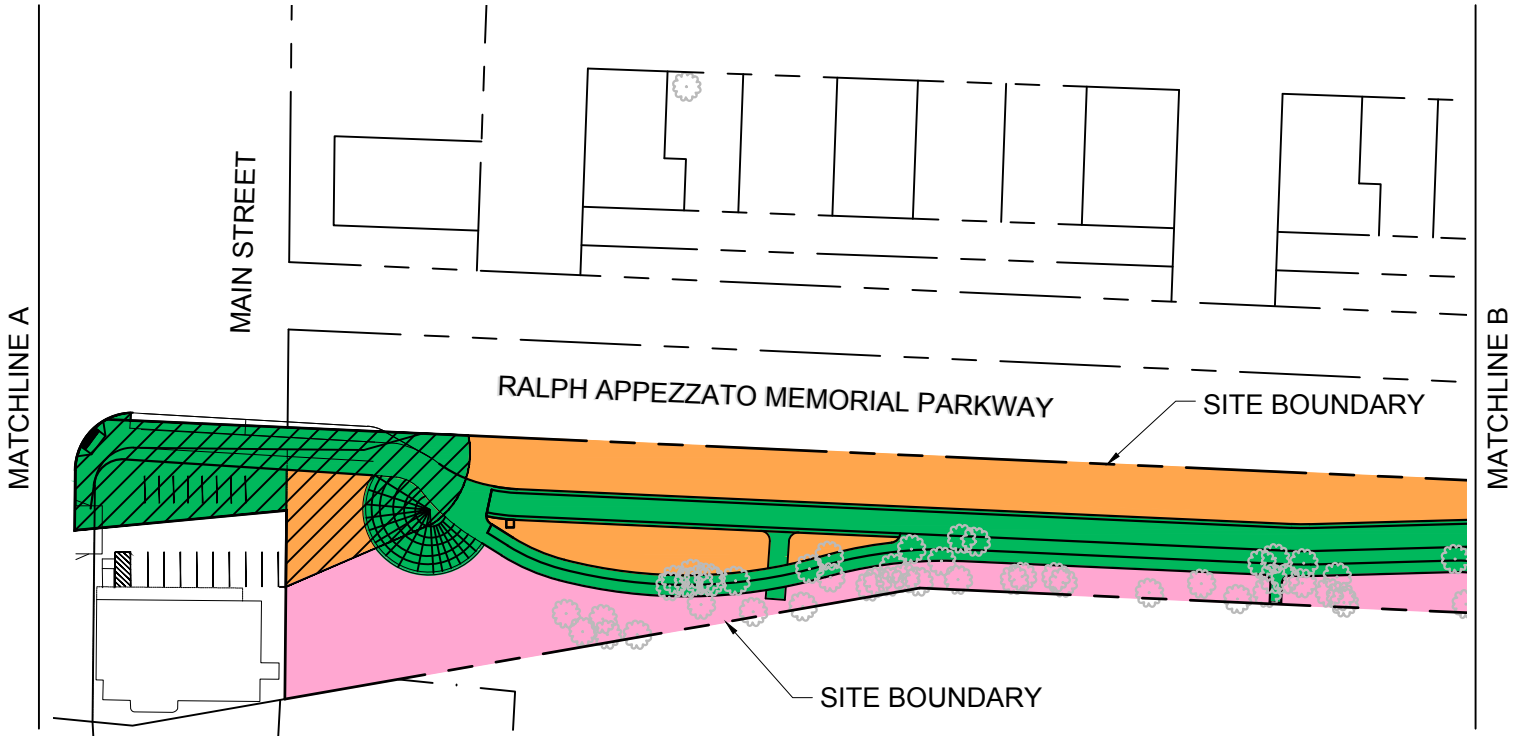
SITE LOCATION

Cross Alameda Trail
Alameda, Cailfornia

DESIGNED BY: ??
DRAWN BY: dmf
DATE: 04/14/2017

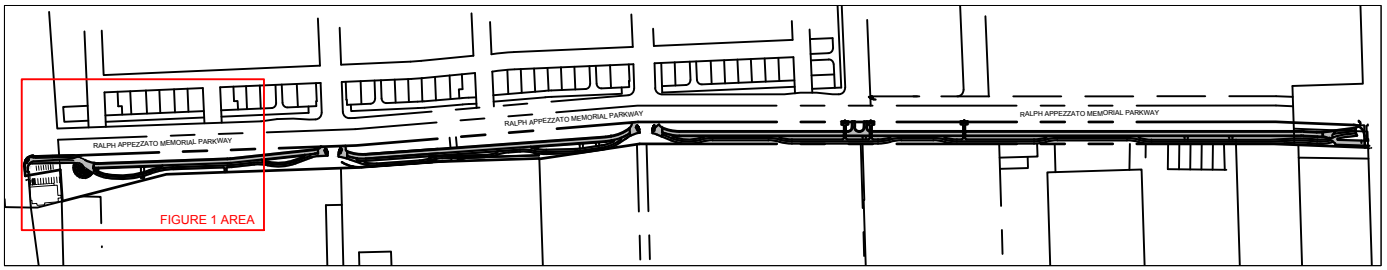
FIGURE 1
OVERALL SITE PLAN

PREPARED BY: TETRA TECH



LEGEND

- HOT SPOT AREA
- TRAIL PAVEMENT CAP
- 2' SOIL OR PAVEMENT CAP
- RESTRICTED AREA FENCED/GEOTEXTILE/VEGETATION
- SITE BOUNDARY



SITE PLAN VIEW

300' 0 300' 600'

SCALE: 1" = 600'

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Cross Alameda Trail
Alameda, Cailfornia

DESIGNED BY: ??
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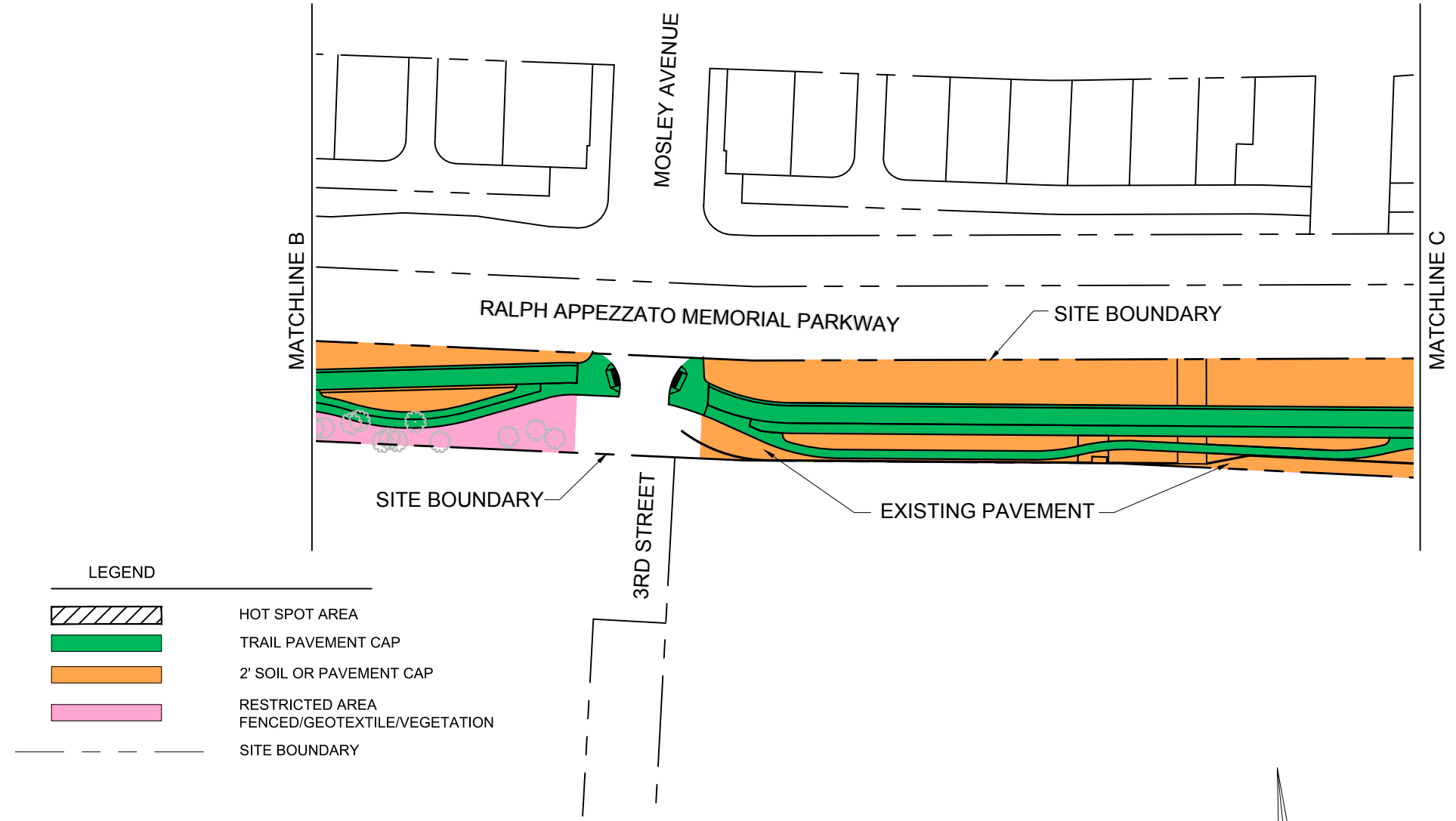
DATE: 04/14/2017

FIGURE 2
PRELIMINARY REMEDIATION AREA

PREPARED BY: TETRA TECH



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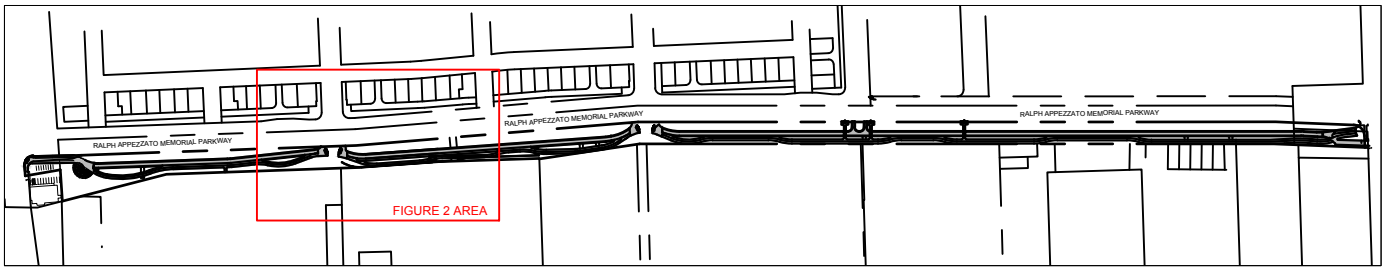

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FIGURE 3
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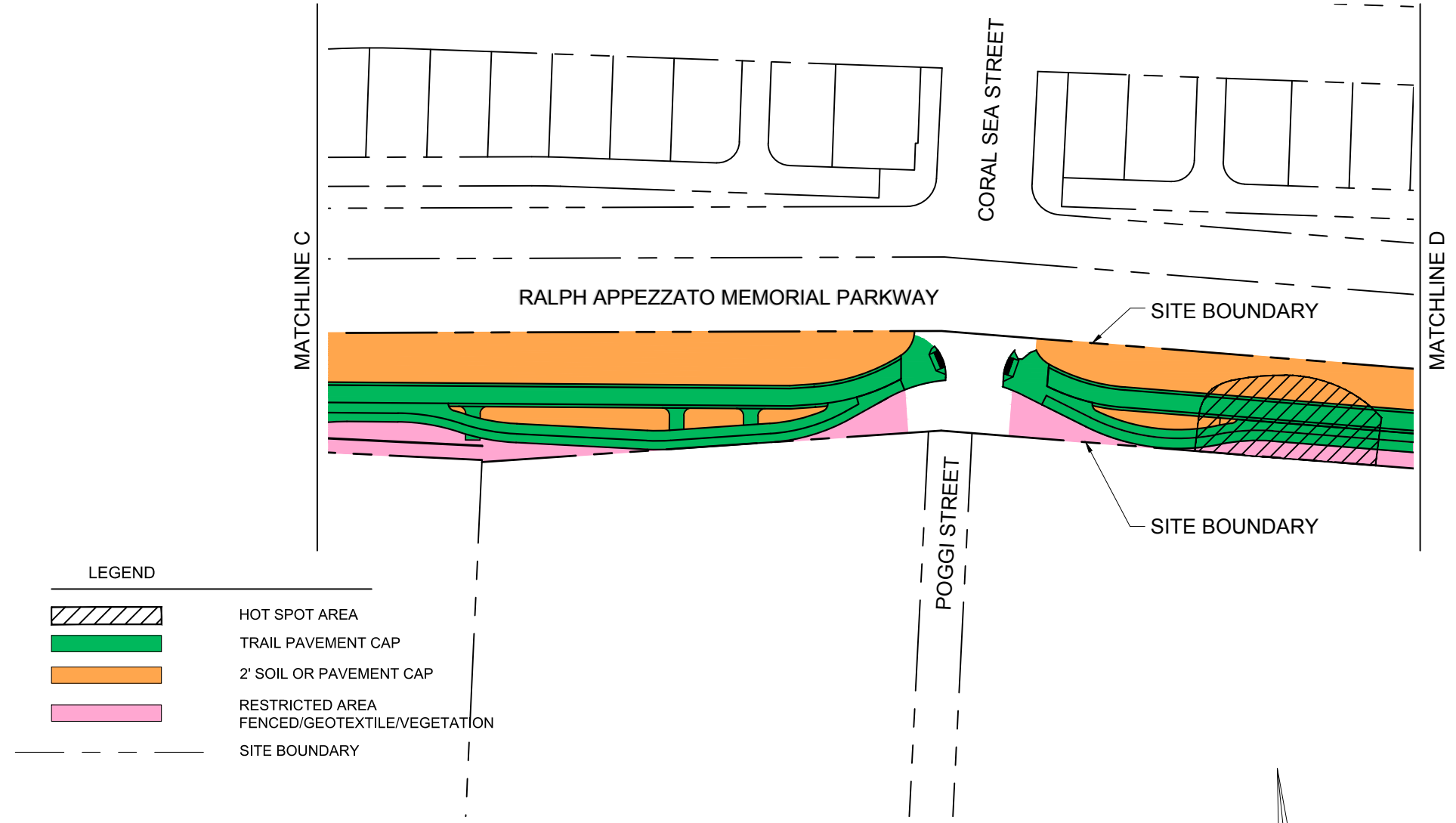

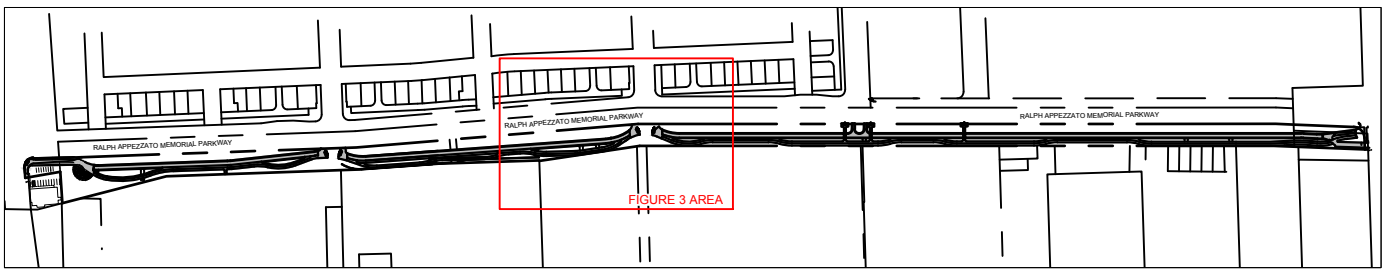

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FIGURE 4
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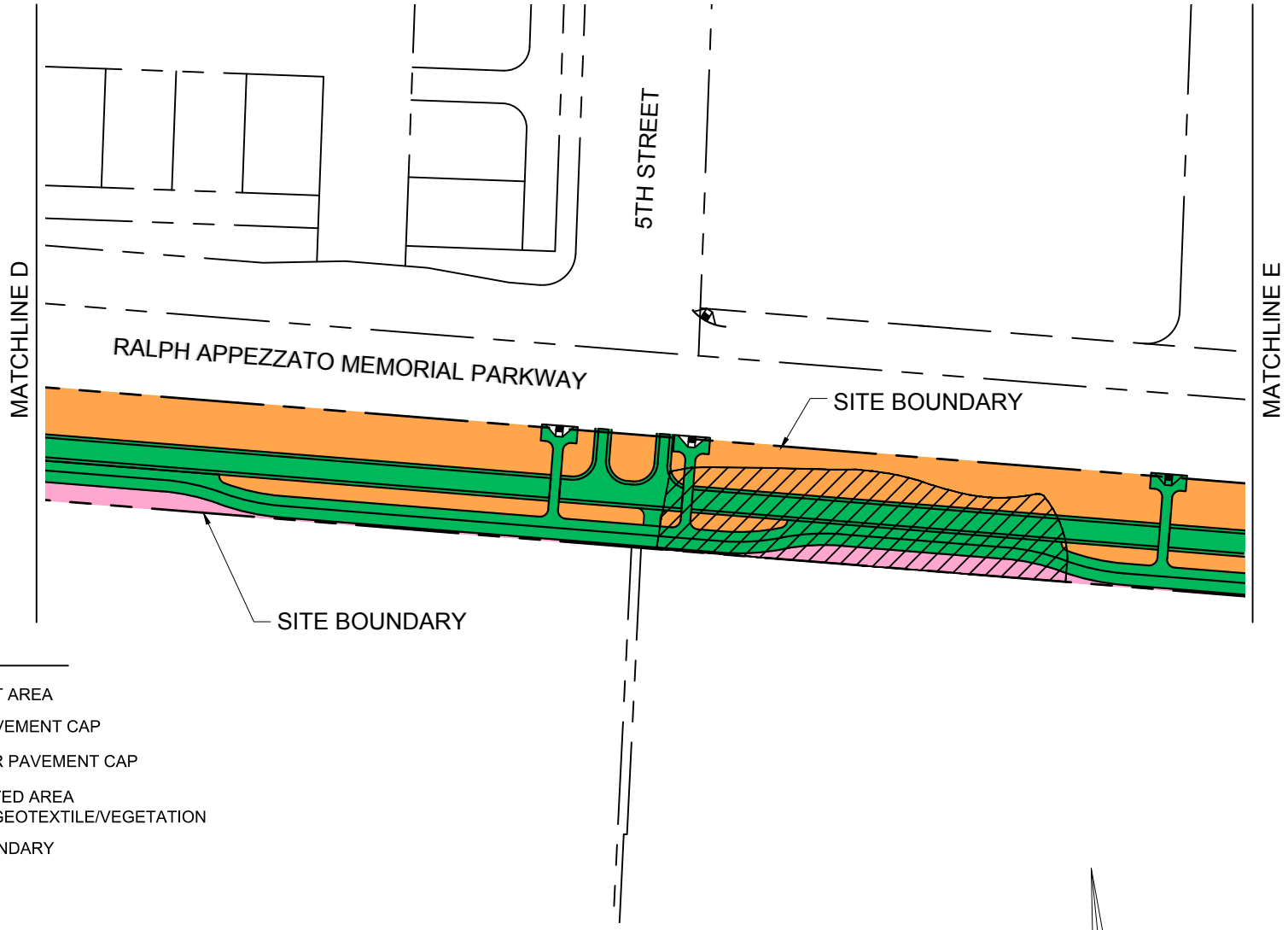

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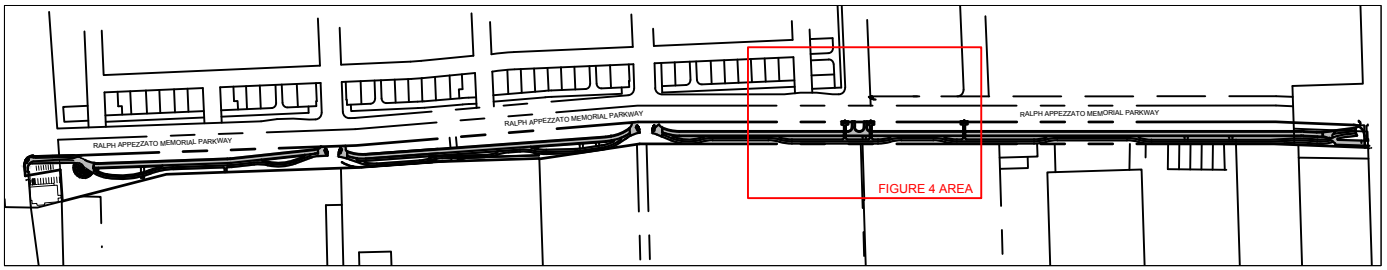

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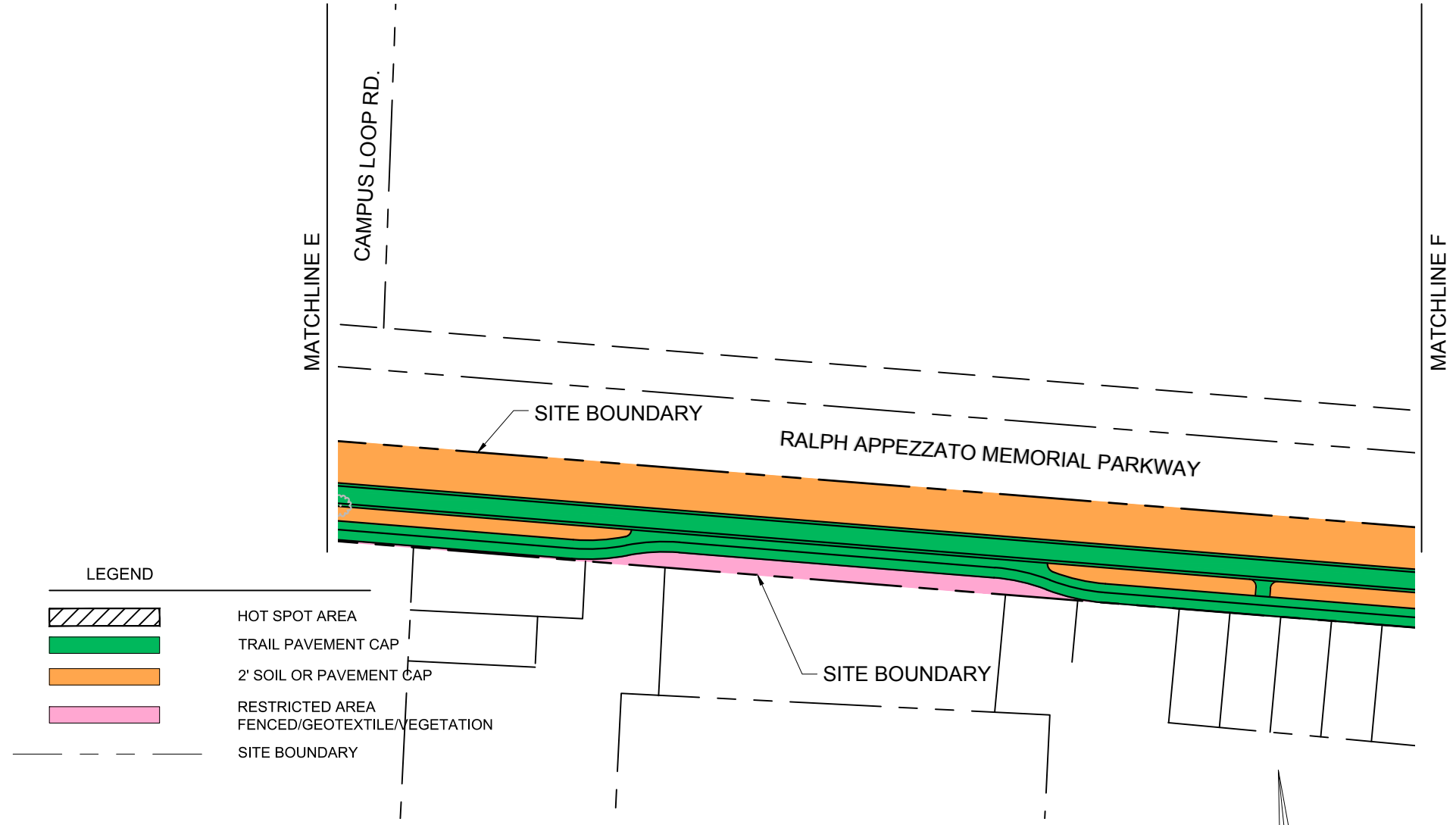
FIGURE 5
PRELIMINARY REMEDIATION AREA

PREPARED BY: TETRA TECH



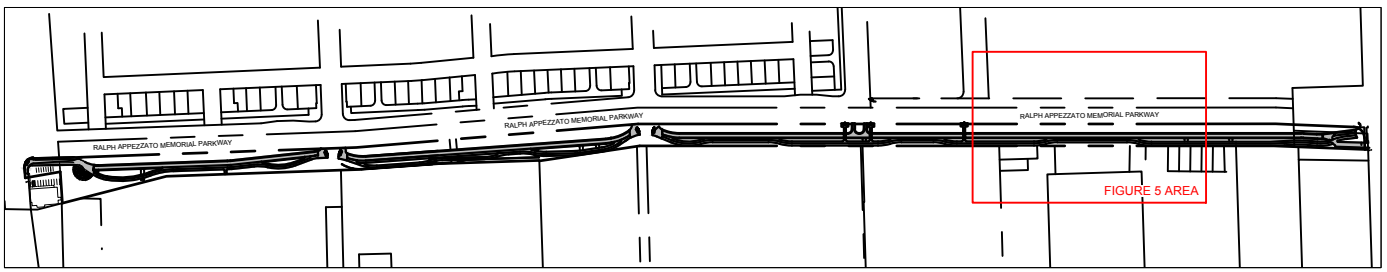


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FIGURE 6
PRELIMINARY REMEDIATION AREA

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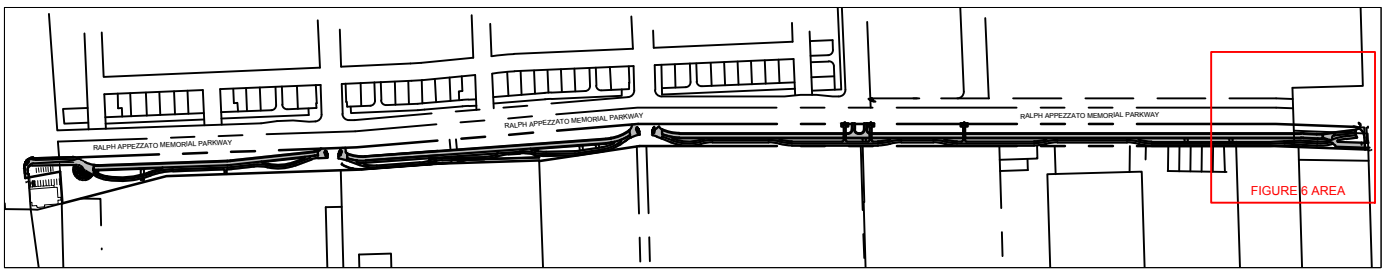

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FIGURE 7
PRELIMINARY REMEDIATION AREA

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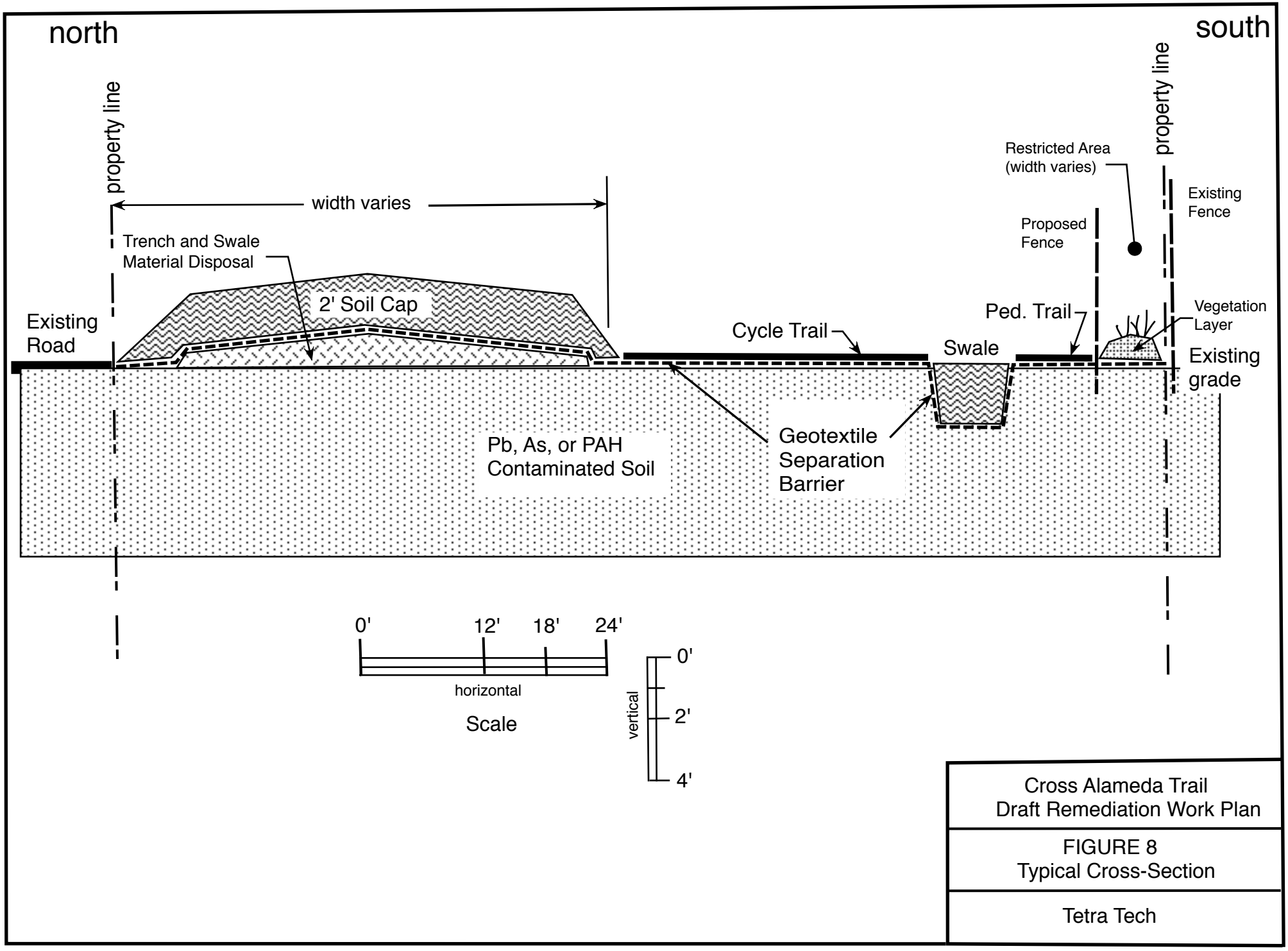

Cross Alameda Trail
Draft Remediation Work Plan

FIGURE 8
Typical Cross-Section

Tetra Tech