To: **Parks and Recreation Commission**

From: **Public Works Department**

Date: **March 28, 2017**

Subject: **Highway 101 Pedestrian/Bicycle Overpass Project**

Recommendation

No action to be taken. Staff is providing the Parks and Recreation Commission (Commission) with a progress update on the design of the Highway 101 Pedestrian/Bicycle Overpass Project (Project).

Background

This Project includes construction of a new, year-round, grade-separated, shared bicycle and pedestrian crossing over Highway 101 and Adobe Creek, and it will improve connectivity to the Palo Alto Baylands Nature Preserve, East/West Bayshore Road businesses and the regional San Francisco Bay Trail network. The Project will replace the existing seasonal Benjamin Lefkowitz underpass of Highway 101 located within the Adobe Creek corridor.

In May 2016, Council approved a contract with Biggs Cardosa Associates, Inc. (BCA) (Staff Report ID# 6578) for design of a 12-foot wide prefabricated steel truss bridge spanning Highway 101. Subsequently in November 2016, BCA presented the 15% design of the bridge along with optional enhancements for Council consideration and input. Council direction to staff was to proceed with the Bowstring Bridge type and alignment discussed in the body of this report (Staff Report ID# 7209).

Discussion

Per Council direction in November 2016, the following project elements were included for 35% design development and environmental assessment:

- Three span steel truss bridge with 12-foot clear and 14-foot total widths:
  - Principal span: Prefabricated bowstring steel truss; 165 feet spanning Highway 101.
  - Steel trusses spanning East and West Bayshore Roads, 70 and 60 feet, respectively.

- Cast-in-place concrete approach ramps, an eastern plaza with basic amenities and an additional 140 feet steel truss over Adobe Creek on West Bayshore Road.
- Standard architectural elements such as railings, fencing and handrails.
- Basic landscaping features.
- Eastern approach overlook: The eastern approach overlook offers sweeping views of the Baylands and Adobe Creek setting. Amenities such as benches, educational signage will be located on the overlook structure.
- Western approach access ramp: An access structure will be included in the Western Approach structure to improve access for pedestrians and bicyclists. Integrating the existing sidewalk into the bridge approach ramp eliminates the need for a stairway and provides bicyclists with a dedicated bike lane over Adobe Creek Bridge on West Bayshore Road.
- West Bayshore roadway modification and Adobe Creek trailhead improvements: Best practices in bikeway design support a one-way separated bikeway on each side of West Bayshore Road. The new Adobe Creek Reach Trail will connect West Bayshore Road to East Meadow Drive with a new west plaza and trailheads.
- Enhanced lighting: Ground-mounted and handrail lighting are being considered to provide low-impact direct pathway lighting and reduced glare beyond the bridge and pathways. Light poles along the western approach will limit glare by incorporating shields to push light away from the Barron/Adobe Creeks confluence. Interactive lighting will also be explored.
- Enhanced amenities (drinking fountains, benches, trash receptacle, and interpretive signage): These amenities will improve user comfort and provide educational opportunities. Salvaged wood from the Baylands boardwalk decking could be repurposed for benches, deck elements and informational signage.

The project elements listed above are configured to meet a total project budget of $14 million. Attachment A includes the 15% concept plans and graphics and Attachment B includes a detailed project description.

Art Coordination

The City's Public Art Program selected an artist for the project by interviewing a number of prequalified artists with previous experience working on similar projects. Upon approval of the contract from Art Commission and Council in

March/April 2017, the artist will join the design team to identify opportunities to incorporate artwork in the design.

RESOURCE IMPACT

Funding for this project is included in Capital Improvement Program (CIP) project (PE-11011) - Highway 101 Pedestrian/Bicycle Overpass Project.

The current project funding is as follows:

Funding Source	**Funding Amount**
Santa Clara County Recreation Fund	$4.0 million
One Bay Area Grant (OBAG) Cycle 2*	$4.35 million
General Fund	$4.65 million
Google Contribution	$1.0 million
Total:	$14.0 million

*Approval of the OBAG Cycle 2 funds, which replace Surface Transportation Improvement Program (STIP) funds removed by the California Transportation Commission due to a funding shortfall, is expected in 2017.

Policy Implications

The project is consistent with the Comprehensive Plan goals, policies and programs.

Goal T-3: Facilities, services and programs that encourage and promote walking and bicycling.

Goal T-14: Improve pedestrian and bicycle access to and between local destinations, including public facilities, schools, parks, open space, employment districts, shopping centers, and multi-model transit stations.

Policy T-25: When constructing or modifying roadways, plan for usage of the roadway space by all users, including motor vehicles, transit vehicles, bicyclists, and pedestrians.

Timeline

Upon completion of the 35% design, an environmental assessment will be prepared to conduct a Site and Design Review with Boards and Commissions to obtain input in fall 2017.

Schedule and milestones:

Phase 1:

- 15% design – Completed in November 2016
- Complete 35% design and public review meetings – Fall 2017
- Complete environmental assessment – Winter 2017
- Complete 65% design – Winter 2017

Phase 2:

- Authorize Phase 2 and Phase 3 services – Fall 2017
- OBAG Cycle 2 access to funding – October 2018

Phase 3:

- Begin construction, construction administration – early 2019
- Complete construction – early spring 2020

Environmental Review

Pursuant to the California Environmental Quality Act (CEQA), a draft Mitigated Negative Declaration analyzing the proposed project will be prepared for public review and for consideration by advisory and decision-making bodies prior to project approval. Because the project may include federal funding, the City will file for a categorical exclusion under the National Environmental Policy Act (NEPA).

Attachments

Attachment A: 15% Project Concept Plan and Graphics
Attachment B: Project Description

PREPARED BY: _____

Megha Bansal
Project Engineer, Public Works Engineering

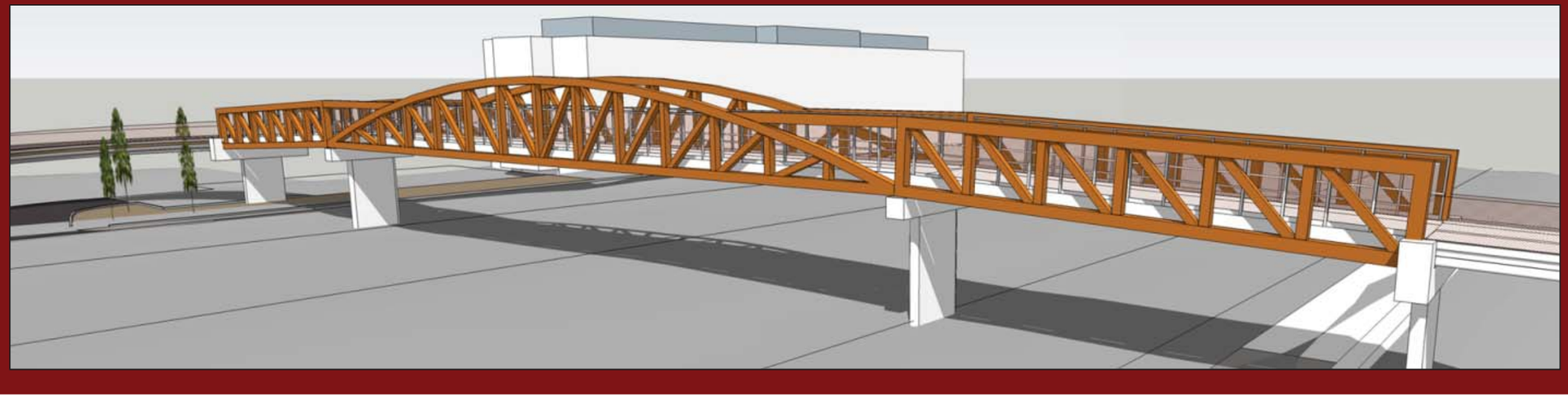
BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS

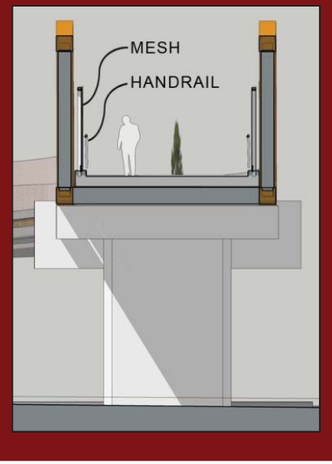
Attachment A

HIGHWAY 101 MULTI-USE PATH OVERCROSSING PROJECT AT ADOBE CREEK

City of Palo Alto

15% PS&E Concept Plan and Graphics





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Landscape Architecture, Inc.

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ENGINEERS / SURVEYORS / PLANNERS

LIGHTSWITCH®

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCl	101			

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER ANTHONY P NOTARO No. C51739 Exp.6/30/18 CIVIL STATE OF CALIFORNIA

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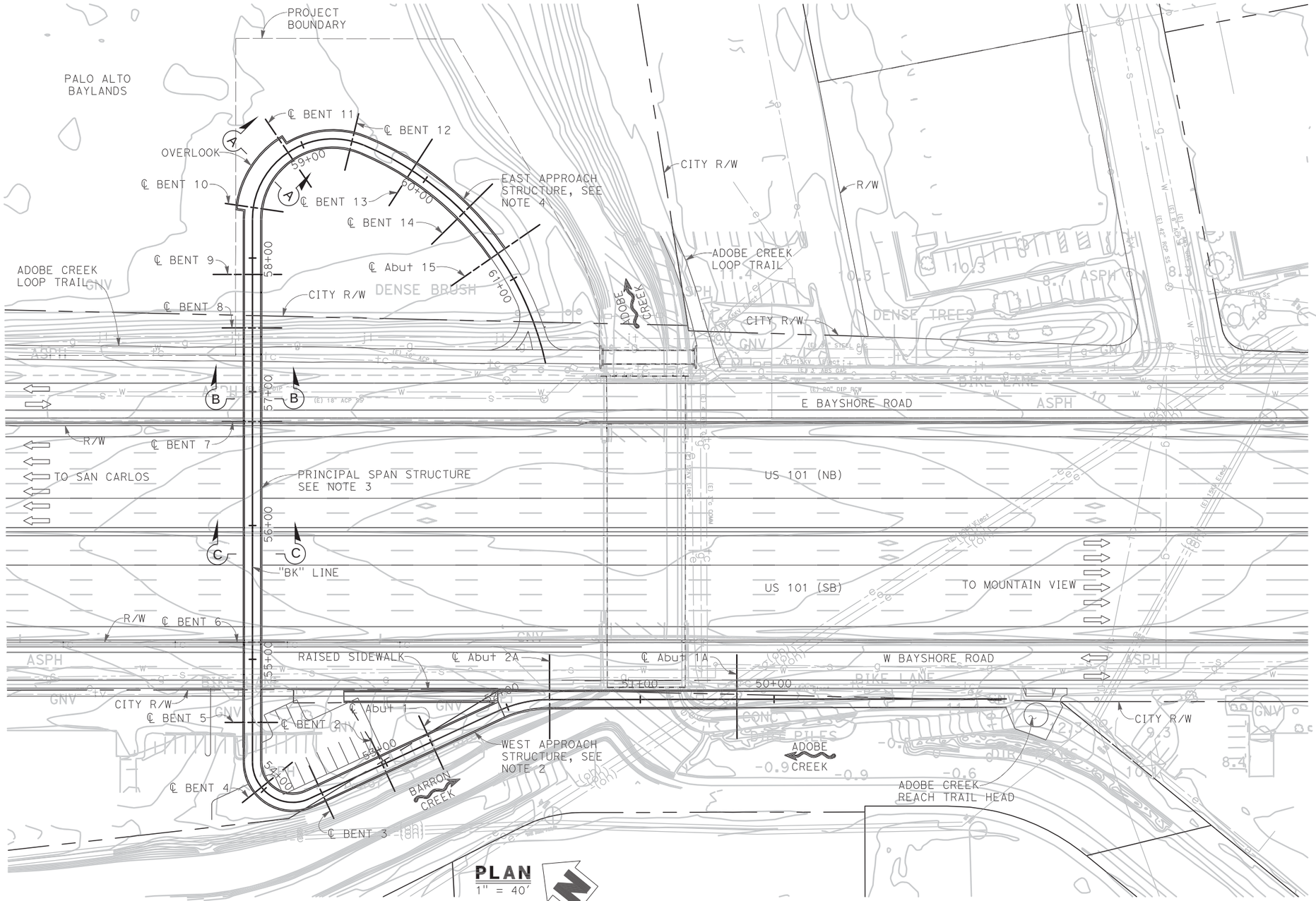
CITY OF PALO ALTO
250 HAMILTON AVENUE
PALO ALTO, CA 94301

BIGGS CARDOSA ASSOCIATES INC.
865 THE ALAMEDA
SAN JOSE, CALIFORNIA 95126



LEGEND:

- Indicates Point of Minimum Vertical Clearance
- ----- Indicates Existing Structure
- Indicates Traffic Direction
- Indicates FLOW DIRECTION

NOTES:

1. This plan accurate for Highway 101 Multi-Use Path Overcrossing facilities only.
2. For West Aproach Structure details not noted, see "WEST APROACH STRUCTURE PLAN" and "ELEVATIONS No. 1" sheets.
3. For Principal Span Structure details not noted, see "PRINCIPAL SPAN STRUCTURE PLAN" and "ELEVATIONS No. 1" sheets.
4. For East Approach Structure details not noted see "EAST APPROACH STRUCTURE PLAN" and "ELEVATIONS No. 2" sheets.

PLAN CHECK SET/NOT FOR CONSTRUCTION (9/9/16)

DESIGN OVERSIGHT	DESIGN	BY D. ROSELLINI	CHECKED	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	ANTHONY P. NOTARO PROJECT ENGINEER
SIGN OFF DATE	DETAILS	BY D. ROSELLINI	CHECKED	LAYOUT	BY A. NOTARO CHECKED		BRIDGE NO. / POST MILES
	QUANTITIES	BY D. ROSELLINI	CHECKED	SPECIFICATIONS	BY PLANS AND SPECS COMPARED		HWY 101 MULTI-USE PATH OVERCROSSING GENERAL PLAN

DESIGN GENERAL PLAN SHEET (ENGLISH) (REV. 03/14/12)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: PROJECT NUMBER & PHASE: CONTRACT NO.:

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES

SHEET 1 OF

FILE => $REQUEST

USERNAME => $USER DATE PLOTTED => $DATE TIME PLOTTED => $TIME (20160551) 20160055

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCl	101			

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

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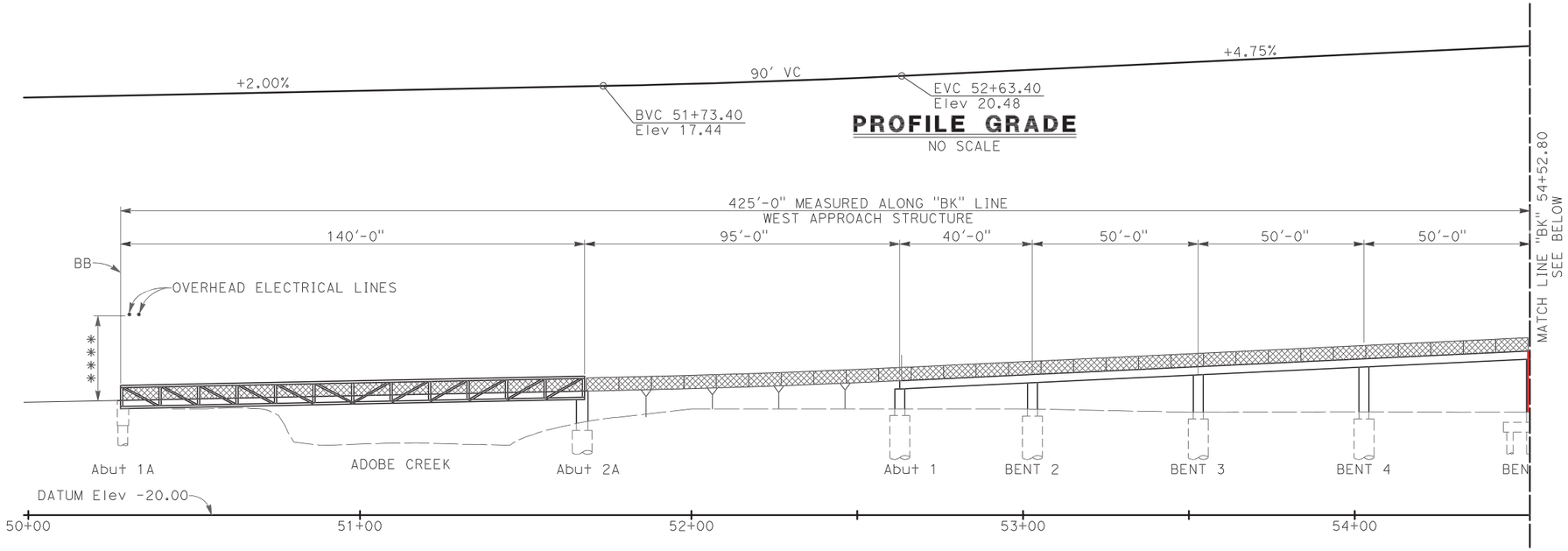
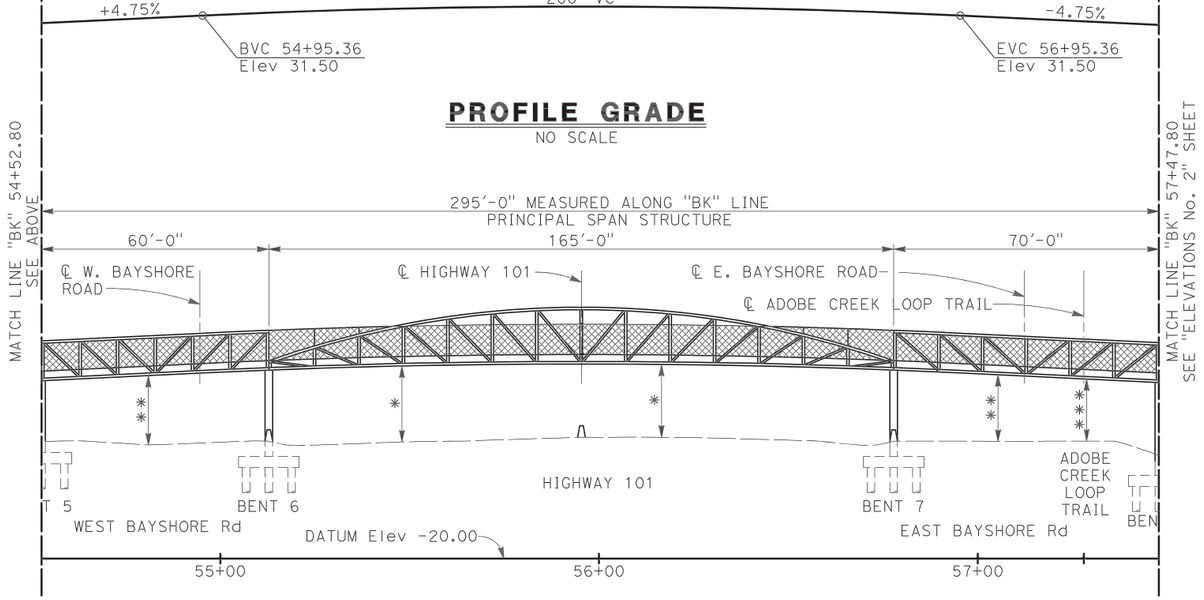
SAN JOSE, CALIFORNIA 95126



PROFILE GRADE
NO SCALE

WEST APPROACH DEVELOPED ELEVATION
1" = 20'



PROFILE GRADE
NO SCALE

PRINCIPAL SPAN DEVELOPED ELEVATION
1" = 20'

* 18'-6" Min allowable vertical clearance over Higway 101.

** 17'-0" Min allowable vertical clearance over East and West Bayshore Road.

*** 10'-0" Min allowable vertical clearance over Adobe Creek Loop Trail.

**** 25'-0" Min allowable permanent vertical clearance below existing overhead electrical lines and above trail surface.

PLAN CHECK SET/NOT FOR CONSTRUCTION (9/9/16)

DESIGN OVERSIGHT

SIGN OFF DATE

	BY	CHECKED
DESIGN	D. ROSELLINI	
DETAILS	D. ROSELLINI	
QUANTITIES	D. ROSELLINI	

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

ANTHONY P. NOTARO
PROJECT ENGINEER

BRIDGE NO.

POST MILES

HWY 101 MULTI-USE PATH OVERCROSSING
ELEVATIOINS No. 1

DESIGN DETAIL SHEET (ENGLISH) (REV. 03/14/12)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

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PROJECT NUMBER & PHASE: CONTRACT NO.:

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04	SCl	101			

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

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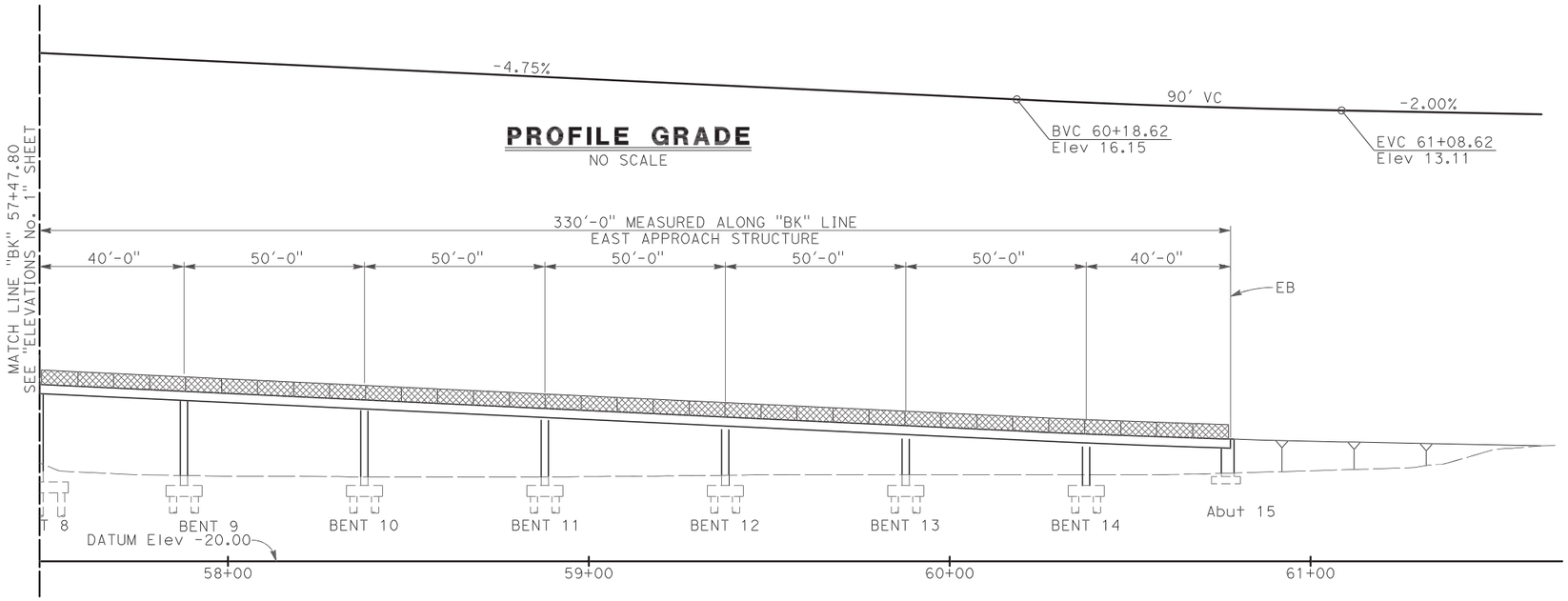

PROFILE GRADE
NO SCALE

EAST APPROACH DEVELOPED ELEVATION
1" = 20'

PLAN CHECK SET/NOT FOR CONSTRUCTION (9/8/16)

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SIGN OFF DATE		DETAILS	BY D. ROSELLINI	CHECKED	
		QUANTITIES	BY D. ROSELLINI	CHECKED	

ANTHONY P. NOTARO
PROJECT ENGINEER

BRIDGE NO.
POST MILES

HWY 101 MULTI-USE PATH OVERCROSSING
ELEVATIOINS No. 2

DESIGN DETAIL SHEET (ENGLISH) (REV. 03/14/12)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

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PROJECT NUMBER & PHASE: CONTRACT NO.:
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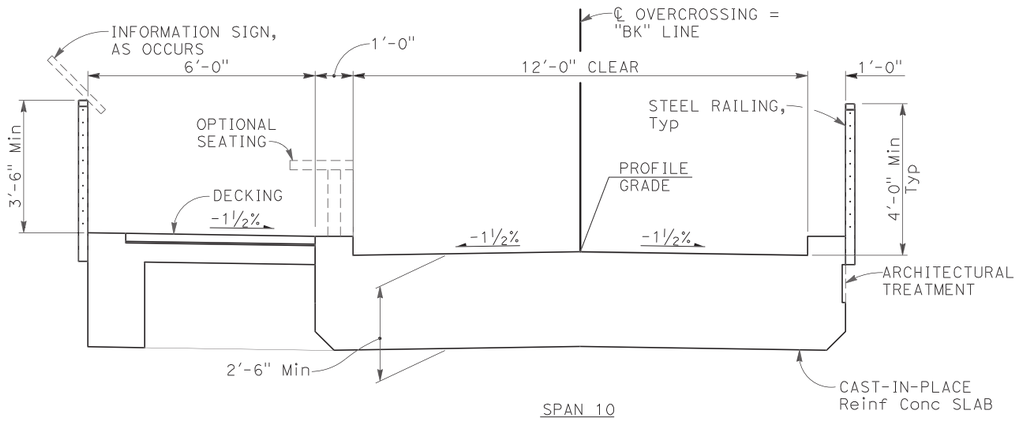
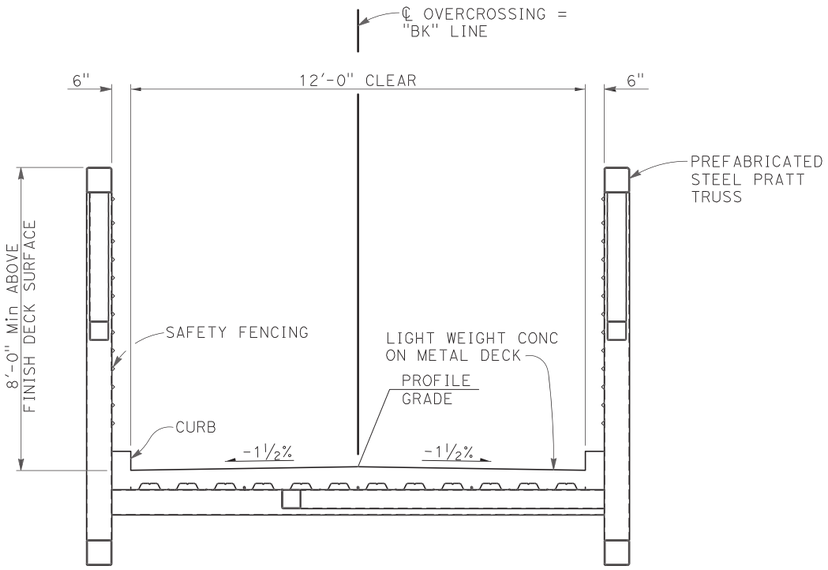


SPAN 10

TYPICAL SECTION A-A

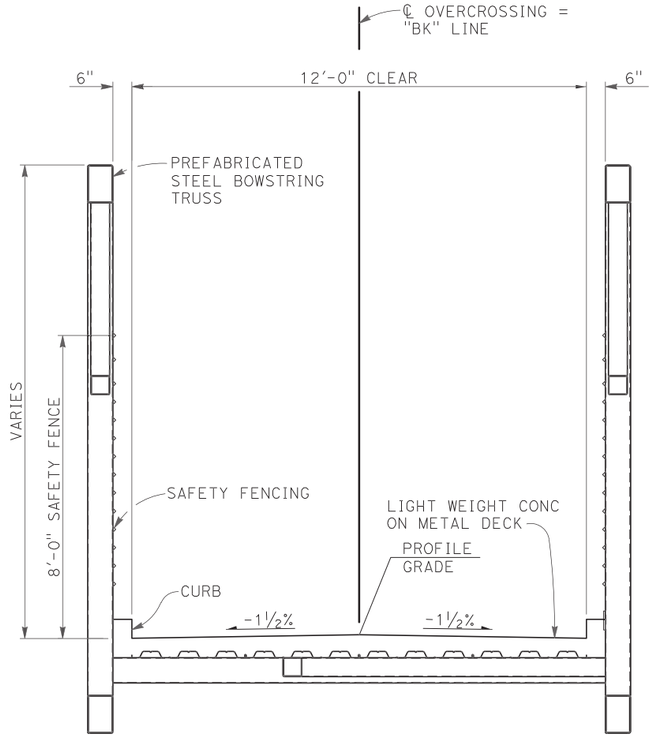
1/2" = 1'-0"



SPAN 5 AND 7

TYPICAL SECTION B-B

1/2" = 1'-0"



SPAN 6

TYPICAL SECTION C-C

1/2" = 1'-0"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCI	101			

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER ANTHONY P NOTARO No. C51739 Exp.6/30/18 CIVIL STATE OF CALIFORNIA

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SAN JOSE, CALIFORNIA 95126

PLAN CHECK SET/NOT FOR CONSTRUCTION (9/9/16)

DESIGN OVERSIGHT _____

SIGN OFF DATE _____

	BY	CHECKED
DESIGN	D. ROSELLINI	
DETAILS	D. ROSELLINI	
QUANTITIES	D. ROSELLINI	

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

ANTHONY P. NOTARO
PROJECT ENGINEER

BRIDGE NO.

POST MILES

HWY 101 MULTI-USE PATH OVERCROSSING
TYPICAL SECTION

DESIGN DETAIL SHEET (ENGLISH) (REV. 03/14/12)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT:
PROJECT NUMBER & PHASE:
CONTRACT NO.:

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REVISION DATES				SHEET	OF
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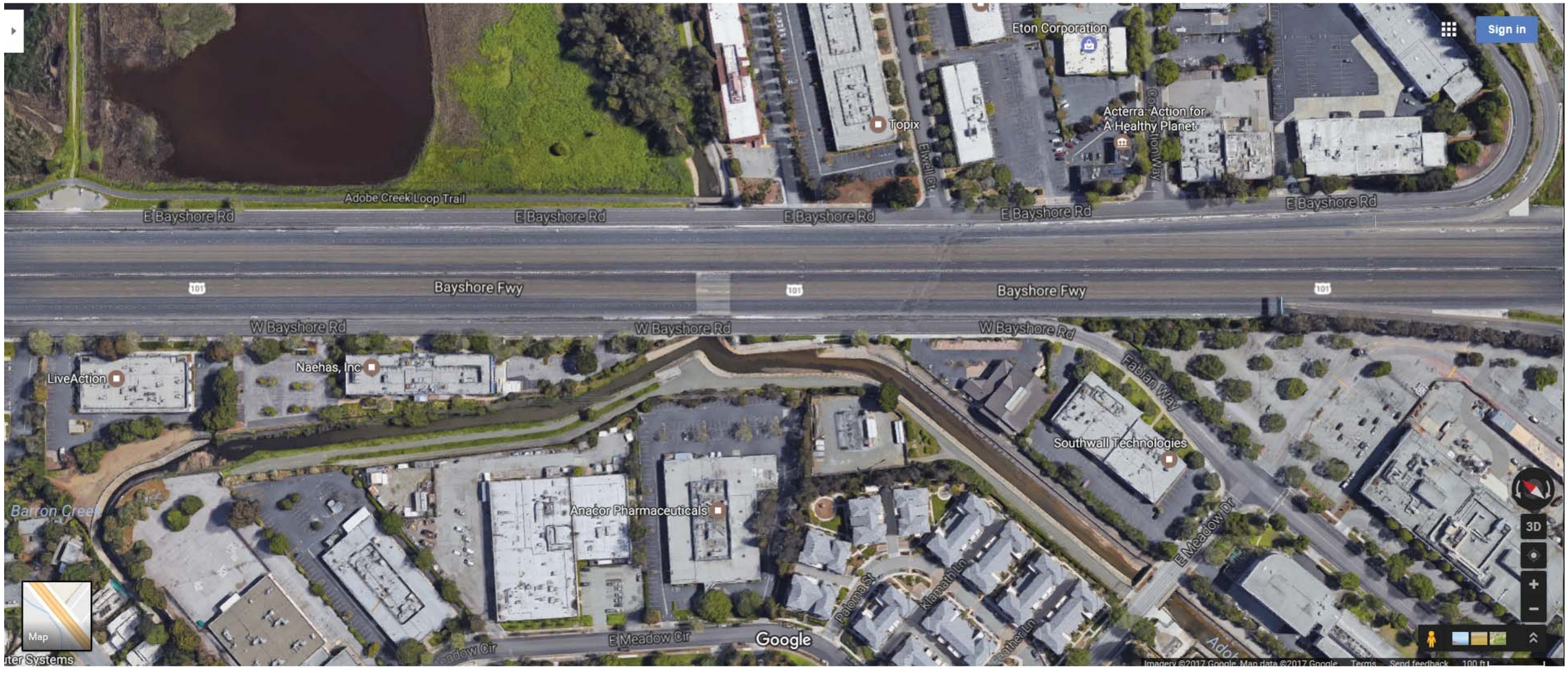
HIGHWAY 101 MULTI-USE PATH OVERCROSSING PROJECT AT ADOBE CREEK

PHOTOGRAPHIC DISPLAY / NEIGHBORHOOD CONTEXT



Northbound Highway 101 (Looking North)

Southbound Highway 101 (Looking South)

East Bayshore Road (Looking North)

West Bayshore Road (Looking South)

Northbound Highway 101 at Proposed Overcrossing (Looking East)

Southbound Highway 101 at Proposed Overcrossing (Looking West)

West Bayshore Road at Adobe Creek (Looking South)

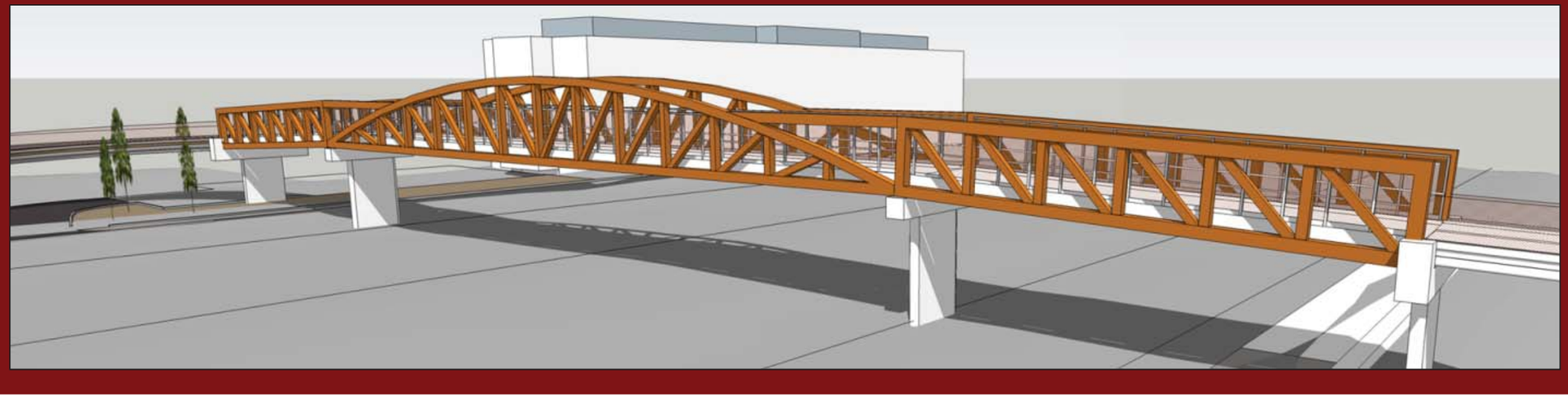
East Meadow Drive at Adobe Creek (Looking North)

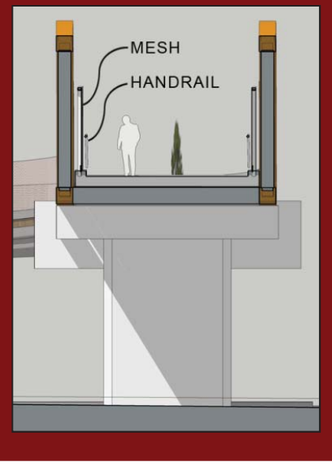
BIGGS CARDOSA ASSOCIATES INC
STRUCTURAL ENGINEERS

HIGHWAY 101 MULTI-USE PATH OVERCROSSING PROJECT AT ADOBE CREEK

City of Palo Alto

15% PS&E Concept Plan and Graphics





BCA ARCHITECTS

Callander Associates Landscape Architecture, Inc.

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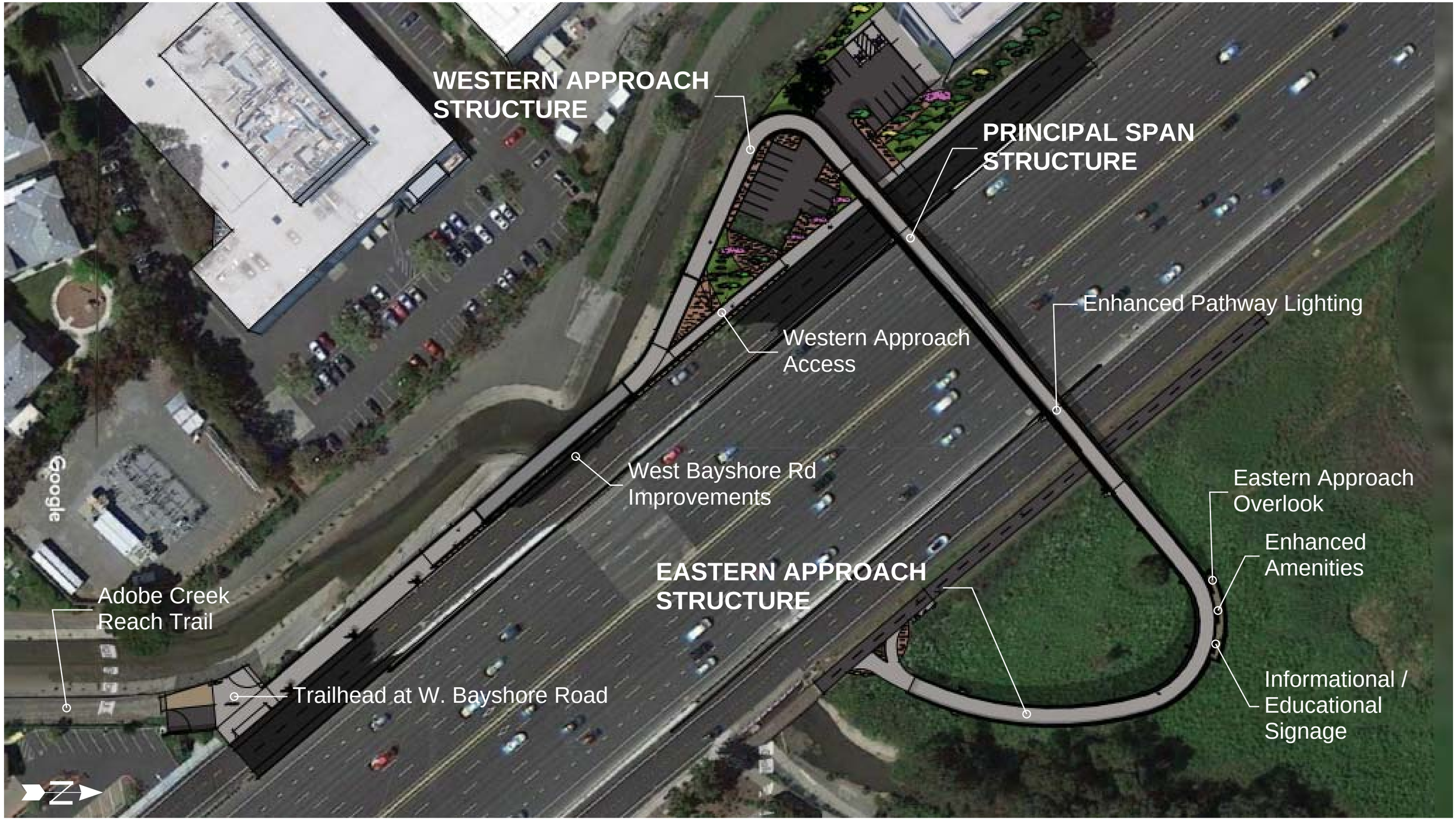
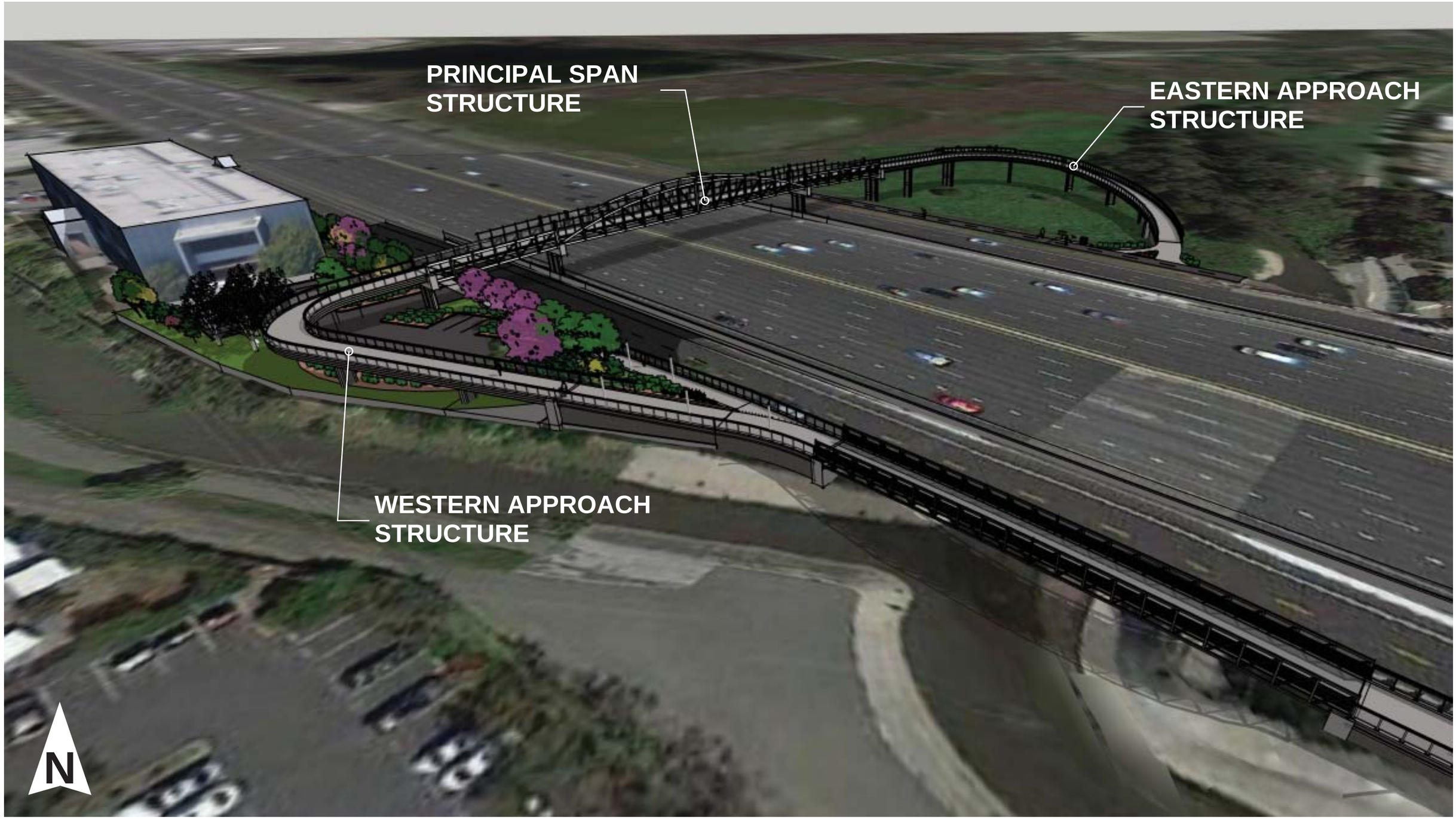


PROJECT PLAN VIEW

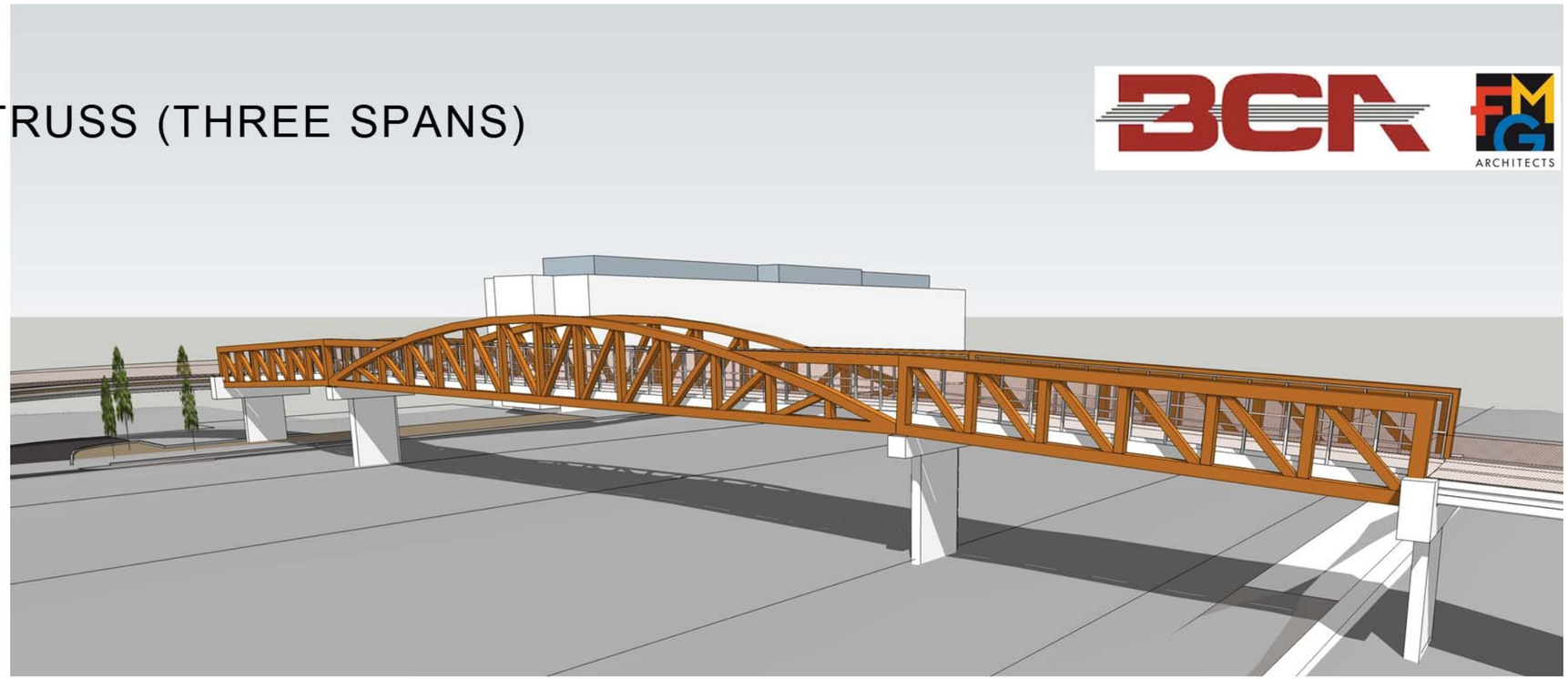


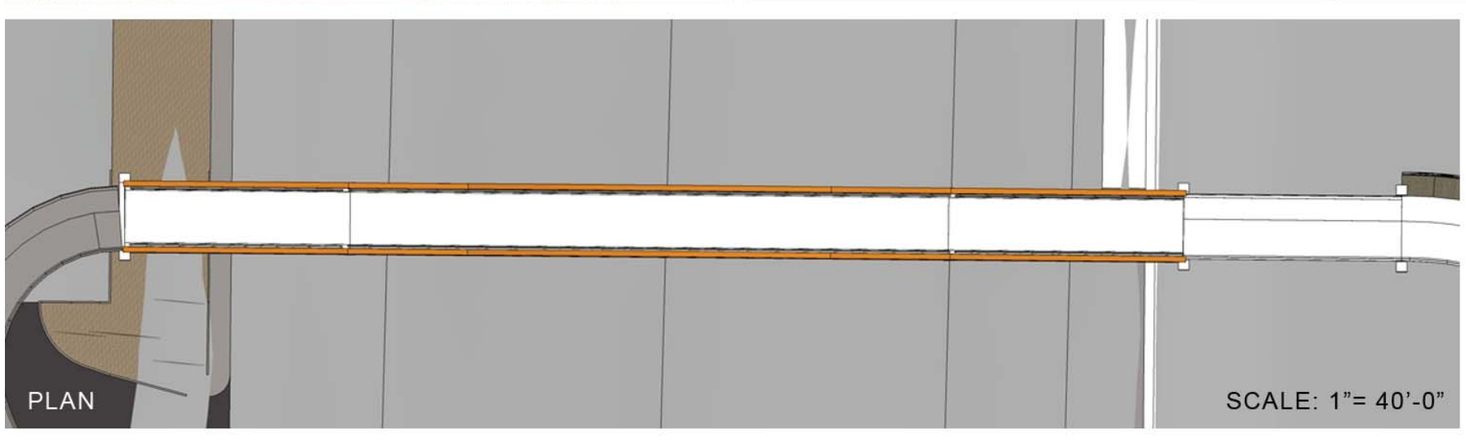
PROJECT OVERVIEW

LOOKING NORTH

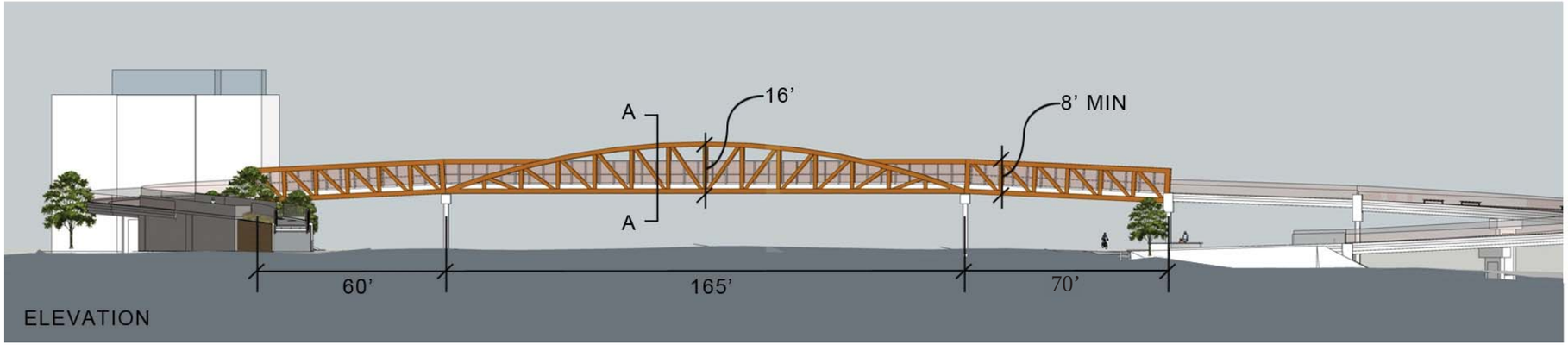
PREFAB BOWSTRING TRUSS (THREE SPANS)


EXAMPLE

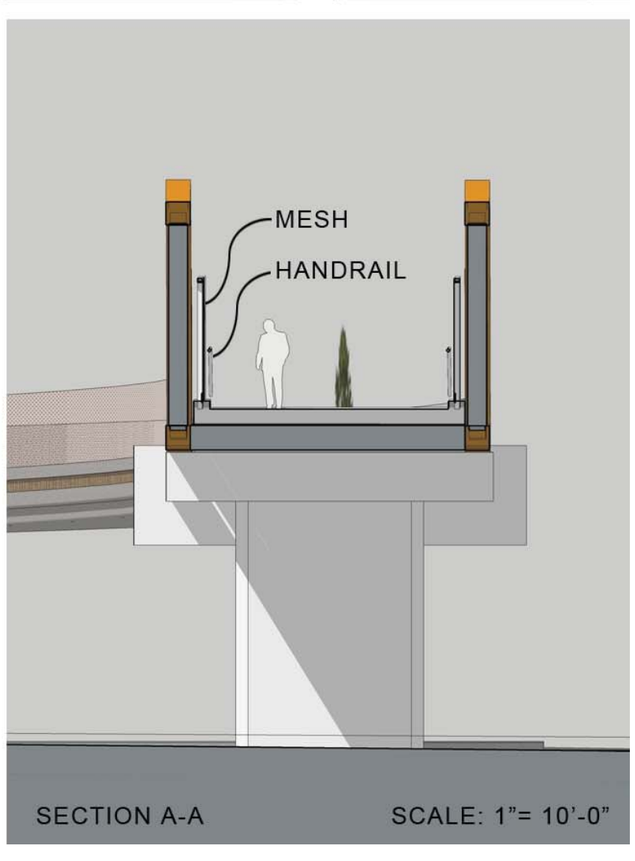



PLAN

SCALE: 1”= 40’-0”



ELEVATION



SECTION A-A

SCALE: 1”= 10’-0”

EASTERN APPROACH OVERLOOK

This overlook will provide users the opportunity to pause, rest, view and appreciate the adjacent Baylands Nature Preserve. The architecture of the overlook will compliment the main bridge structure elements, including railings and concrete facing textures and colors.

The overlook will be decked with a wood finish to make the area more distinguishable from the main pathway and to give it some warmth in texture and color. The decking and the bench elements could be constructed from recycled and repurposed existing timber decking from the adjacent Baylands Boardwalk Project.

Amenities such as benches and informational/educational signage will also be located on the overlook to further enhance the experience for the users.

WESTERN APPROACH ACCESS

An access structure will be incorporated into the baseline Western Approach Structure. For northbound pedestrians along West Bayshore Road, the access structure can reduce the length of travel by roughly 500 feet.

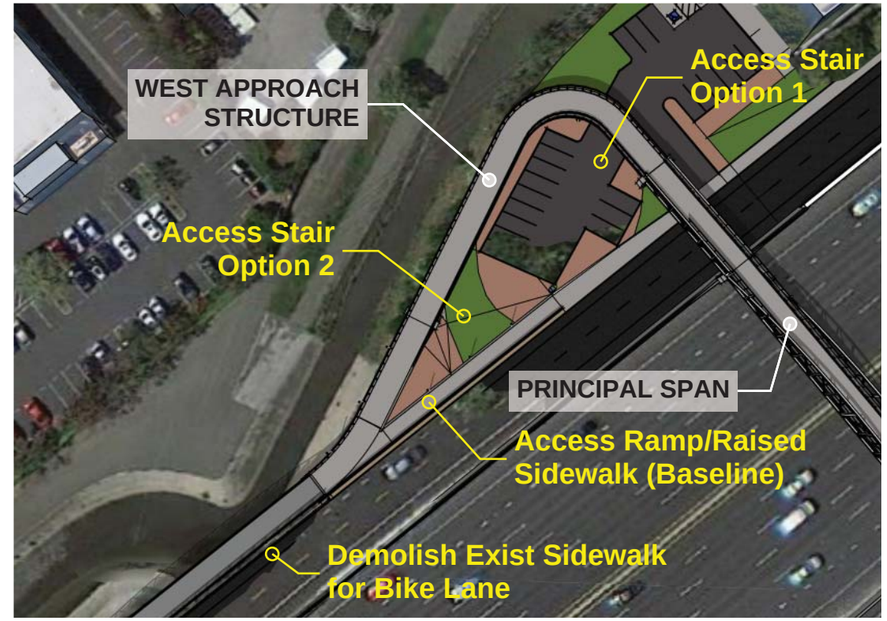
Three initial alternatives were considered: 1) Access Stair Option 1: Located near the interface of the Principal Span and Western Approach Structure; 2) Access Stair Option 2: Located lower along the path where the overcrossing structure becomes supported on fill; and 3) Access Ramp/Raised Sidewalk: Located between the existing parking lot and the Adobe Creek Bridge.

The access ramp/raised sidewalk alternative is preferable since it creates equal access to mobility impaired trail users and it provides a pedestrian bypass allowing the existing bike lane along West Bayshore Road to be made continuous across the existing Adobe Creek Bridge. It also provides a functional ADA compliant alternative access which can be used as primary ingress/egress if and when the SCVWD closes the trail access area for their channel sedimentation maintenance.

WEST BAYSHORE ROAD IMPROVEMENTS

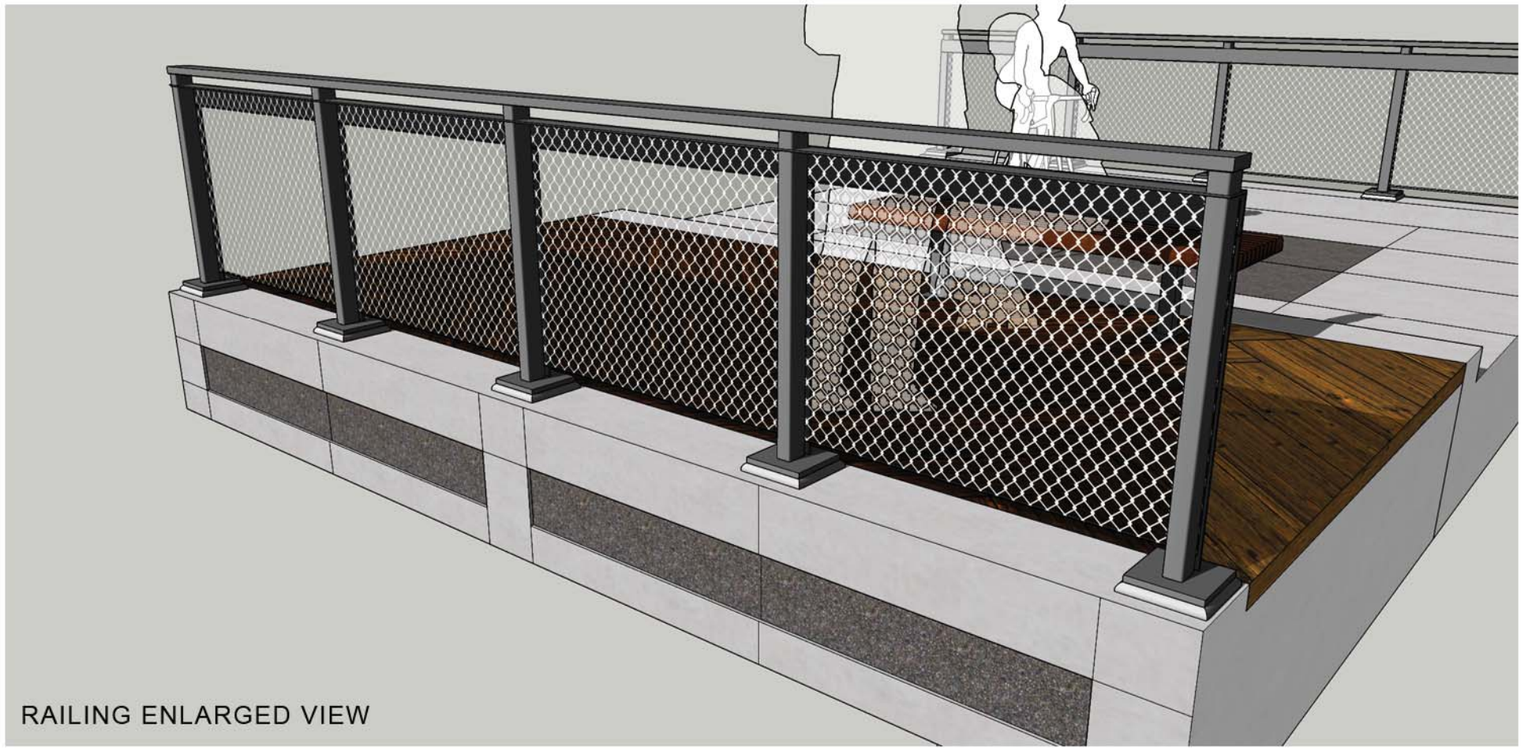
Currently the existing bicycle lane drops off at the Adobe Creek Bridge at West Bayshore Road and the bike lane and sidewalk merge into an approximately 5-foot wide single raised shared sidewalk. A feasible and economical means to accommodate a separate bicycle and pedestrian facility at West Bayshore Road at Adobe Creek was investigated.

We reviewed widening the existing roadway structure to accommodate the bicyclists and pedestrians but the multiple utilities carried by the existing structure are problematic and would require considerable retrofit of the existing structure. Based on conversations with the SCVWD, it was preferable to limit the amount of intrusion into the creek from both the bridge structure and its associated retaining structures. The access ramp/raised sidewalk alternative allowed us the opportunity to essentially accomplish the desired goal with one element.



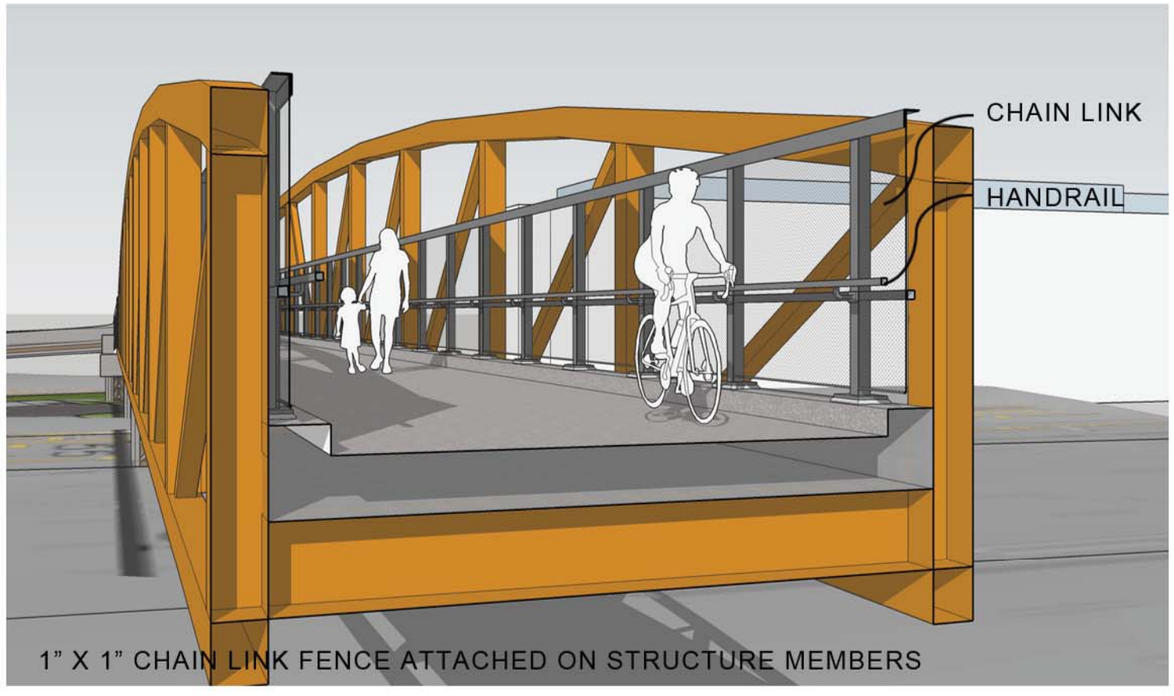
Access Ramp/Raised Sidewalk
(Looking SE)

TOP MOUNTED GALVANIZED POST
WITH METAL CHAIN LINK

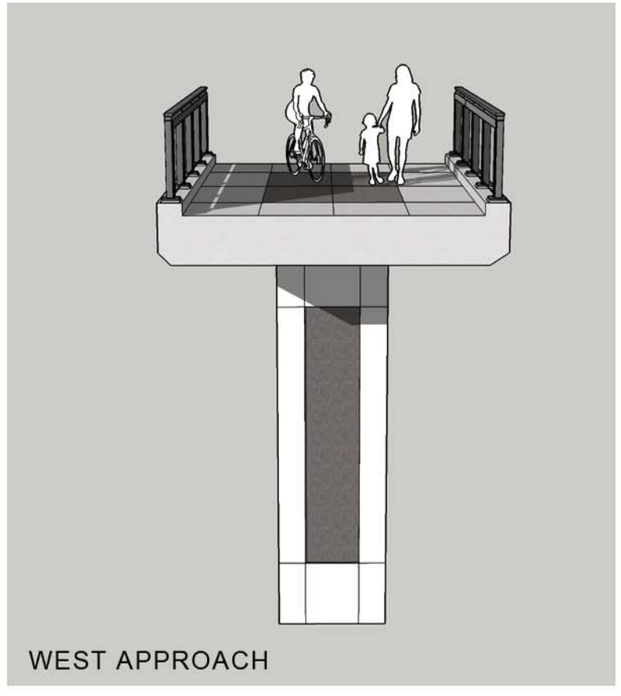


RAILING ENLARGED VIEW

EAST APPROACH



1" X 1" CHAIN LINK FENCE ATTACHED ON STRUCTURE MEMBERS



WEST APPROACH

PALO ALTO - HWY 101 PEDESTRIAN / BICYCLE PATH OVERCROSSING

(Galvanized cable rail and In-fill Galvanized double wooven wire mesh shown)

3/17/2017

BCA

FMG ARCHITECTS


GALVANIZED WEAVED WIRE MESH, INTERCRIMP WEAVE, 77% OPEN AREA 1"X1" WIRE DIAMETER: 0.1200 (McNICHOLS CO.)


1/8" GALVANIZED CABLE (OPTIONAL)

3/16" GALVANIZED CABLE

3/16" GALVANIZED CABLE ASSEMBLY (Cable Art Incorporated)

FORM LINER PATTERN 14347 (FITZGERALD FORMLINERS)

FORM LINER PATTERN 14307 - OPTIONAL (FITZGERALD FORMLINERS)


GALVANIZED DECORATIVE WIRE MESH, 74% OPEN AREA PATTERN MODEL 3150 (McNICHOLS CO.)


1/8" GALVANIZED CABLE ASSEMBLY -OPTIONAL (Cable Art Incorporated)

PALO ALTO - HWY 101 PEDESTRIAN / BICYCLE PATH OVERCROSSING

(Material Board)

3/17/2017

BCA

FMG ARCHITECTS

LEGEND:

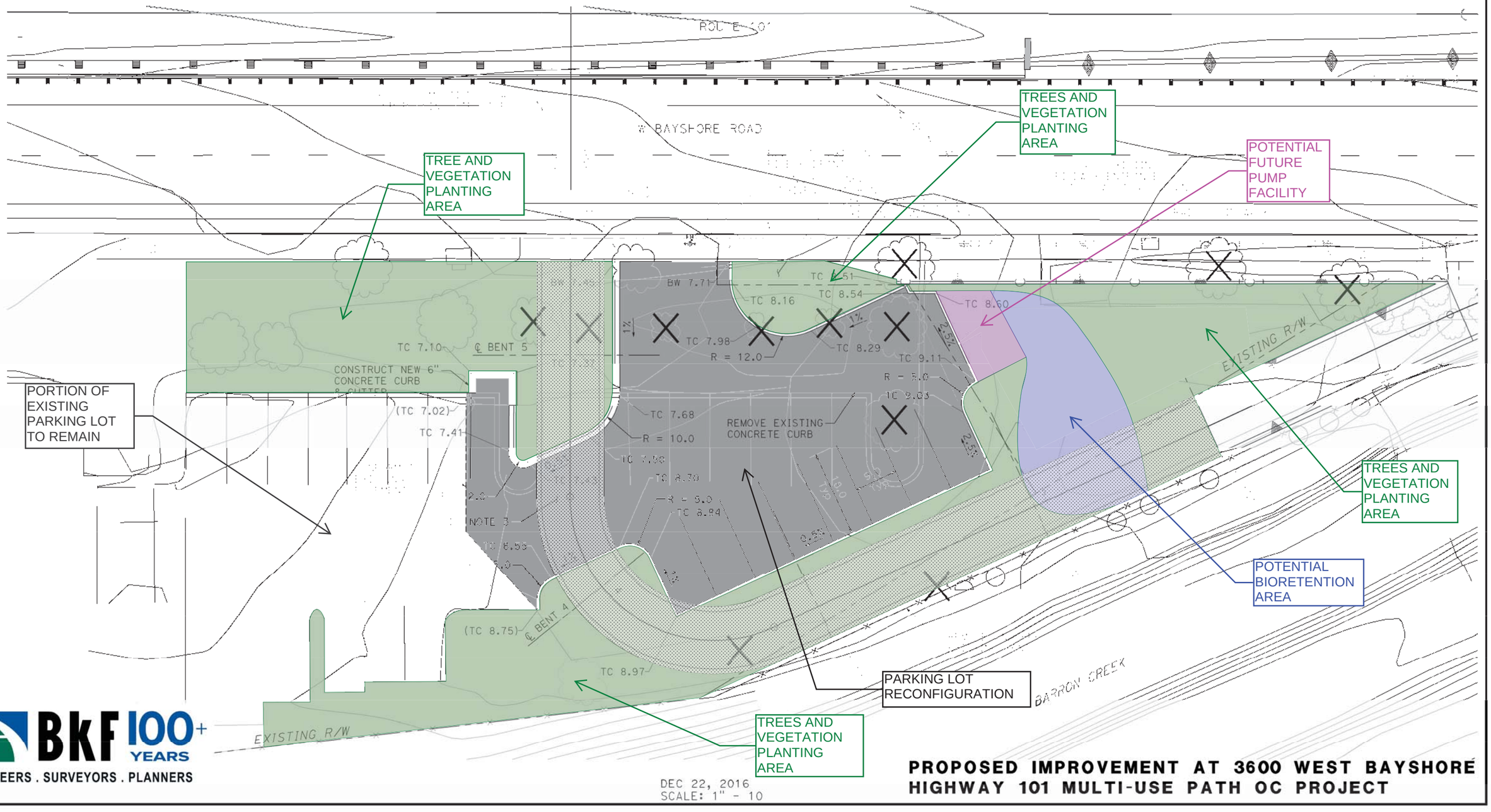
REMOVE TREE

CHAIN LINK FENCE

HANDRAIL

NOTES:

1. NEW DRIVEWAY ENTRANCE AT 3600 WEST BAYSHORE SHALL BE CONSTRUCTED BEFORE OTHER IMPROVEMENTS TO MAINTAIN ACCESS DURING CONSTRUCTION.
2. EXISTING LANDSCAPING, IRRIGATION AND LIGHTING IMPACTED BY THE PROPOSED IMPROVEMENTS WILL BE RESTORED IN-KIND



BkF 100+ YEARS

ENGINEERS . SURVEYORS . PLANNERS

DEC 22, 2016
SCALE: 1" - 10

PROPOSED IMPROVEMENT AT 3600 WEST BAYSHORE
HIGHWAY 101 MULTI-USE PATH OC PROJECT

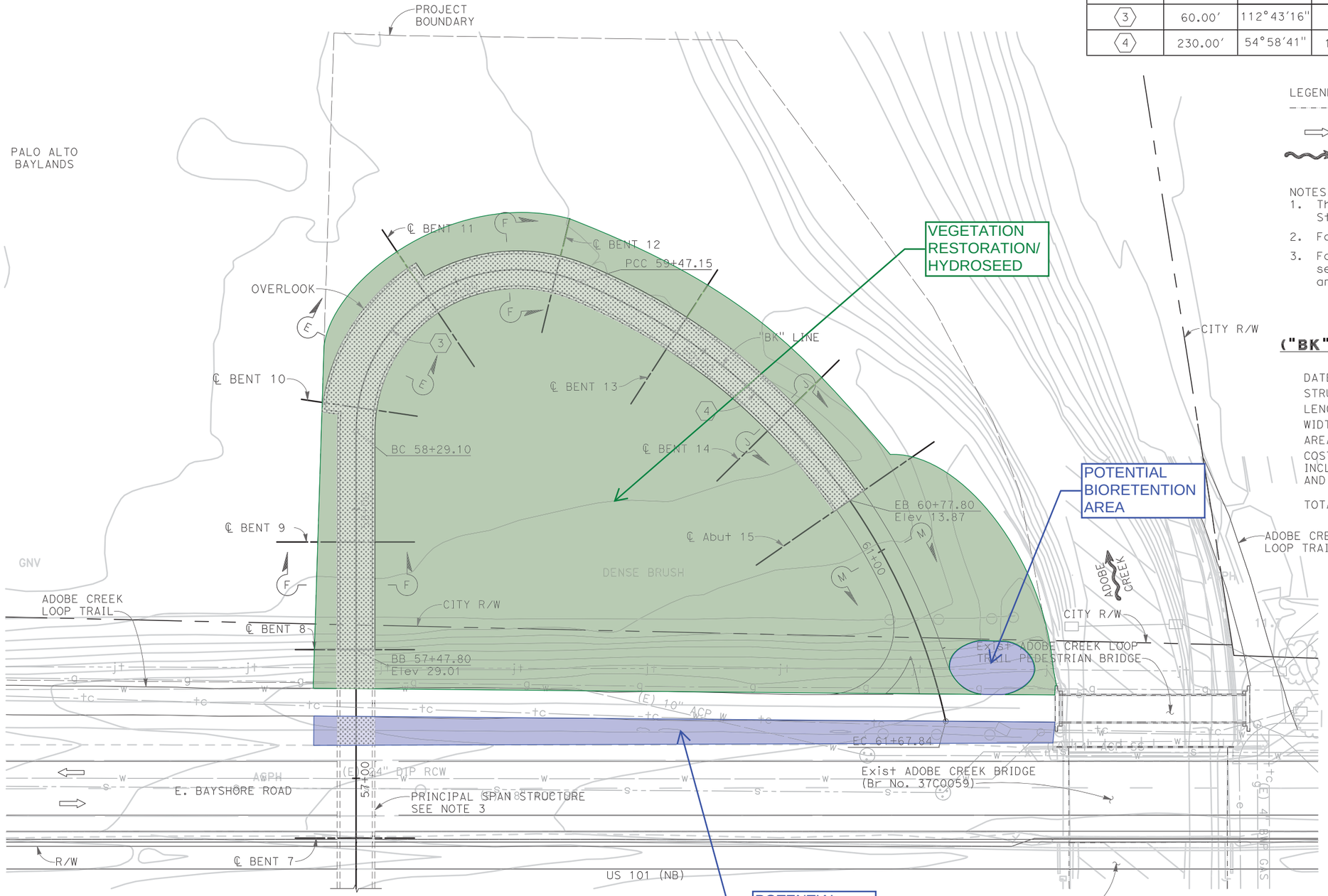
PREPARED FOR THE STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT
04	SCI	101	

CITY OF PALO ALTO
250 HAMILTON AVENUE
PALO ALTO, CALIFORNIA 94301

BIGGS CARDOSA ASSOCIATES INC.
865 THE ALAMEDA
SAN JOSE, CALIFORNIA 95126

CURVE DATA				
CURVE	R	△	T	L
⟨3⟩	60.00′	112°43′16"	90.77′	118.04′
⟨4⟩	230.00′	54°58′41"	119.67′	220.70′



LEGEND:
- – – – – Indicates Existing Structure
- ⇨ Indicates Traffic Direction
- ≈⇨ Indicates FLOW DIRECTION

NOTES:
1. This plan accurate for East Approach Structure only.
2. For Typical Sections, see "TYPICAL SECTION" sheets.
3. For Principal Span Structure details not noted, see "PRINCIPAL SPAN STRUCTURE PLAN" and "ELEVATIONS No. 1" sheets.

EAST APPROACH STRUCTURE ("BK" Sta 57+47.80 TO "BK" Sta 60+77.80)

DATE OF EXTIMATE	11/22/16
STRUCTURE DEPTH	2′-6"
LENGTH	330′-0"
WIDTH	14′-0"
AREA	4,620 SQ FT
COST PER SQUARE FOOT INCLUDING 10% MOBILIZATION AND 25% CONTIGENCY	$296/SQ FT
TOTAL COST	$1,368,000

PLAN
1" = 20′

HWY 101 MULTI-USE PATH OVERCROSSING

DESIGNED BY	D. ROSELLINI	DATE	11/22/16
DRAWN BY	S. HICKEY	DATE	11/22/16
CHECKED BY	A. NOTARO	DATE	11/22/16
APPROVED	R. SCHNABEL	DATE	11/22/16

ANTHONY NOTARO
PROJECT ENGINEER

ADVANCE PLANNING STUDY S-4

EAST APPROACH STRUCTURE PLAN

BRIDGE NO.	UNIT:
SCALE: AS NOTED	PROJECT NUMBER & PHASE:

DESIGN OVERSIGHT

SIGN OFF DATE

PLAN CHECK SET/NOT FOR CONSTRUCTION (12/7/16)

ADVANCE PLANNING STUDY SHEET (ENGLISH) (REV. 7/16/10)

FILE => $REQUEST

CONTRACT NO.:

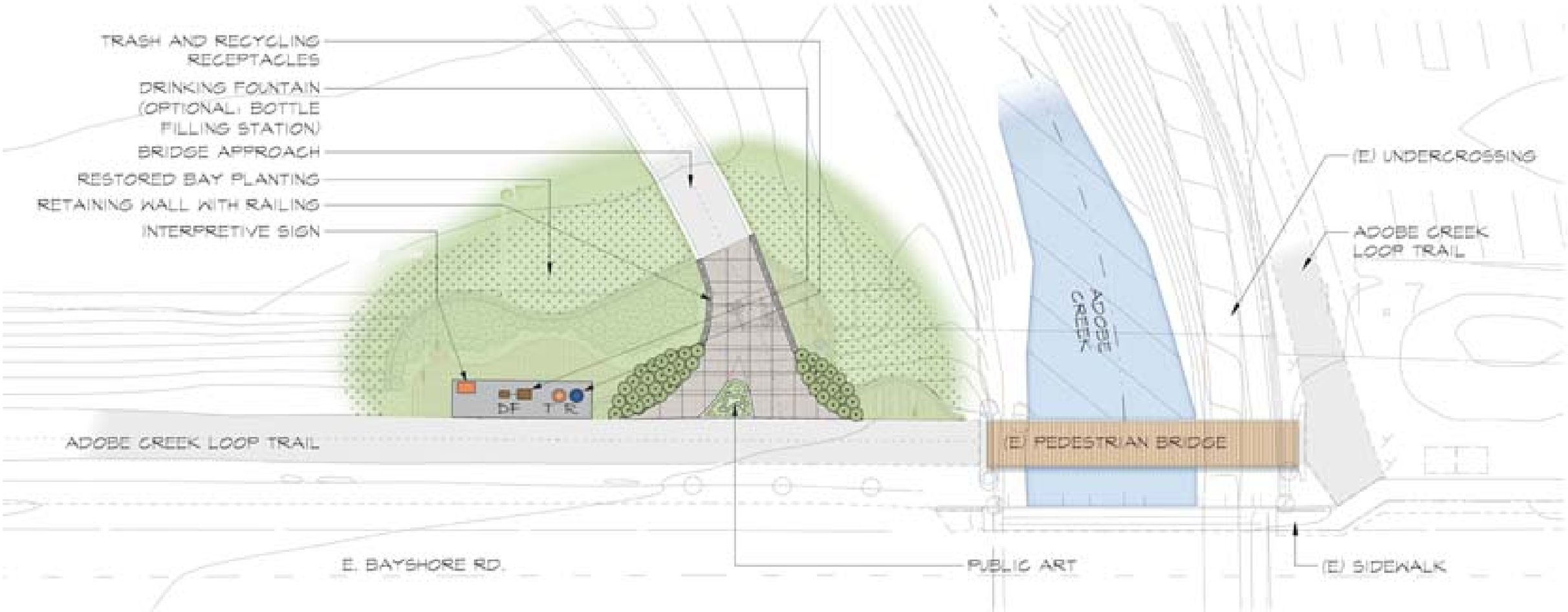
2016055

(2016055APS_S4)

TIME PLOTTED => $TIME

DATE PLOTTED => $DATE

USERNAME => $USER



EAST PLAZA

Highway 101 Multi-Use Path Overcrossing

Palo Alto, California

Callander Associates Landscape Architecture

BCA

CITY OF PALO ALTO

0 5' 10' 20'

September 30, 2016

PJ315 Palo Alto Highway 101 POC 2016 09-28.indd


Decorative Concrete


Public Art at Trailhead


Planting Bands


Bay Restoration Planting


Drinking Fountain/Bottle Filler


Trash/Recycling Receptacles


Bike Racks


Interpretive Signage

ENHANCED AMENITIES

Highway 101 Multi-Use Path Overcrossing

Palo Alto, California

Callander Associates Landscape Architecture

BCA

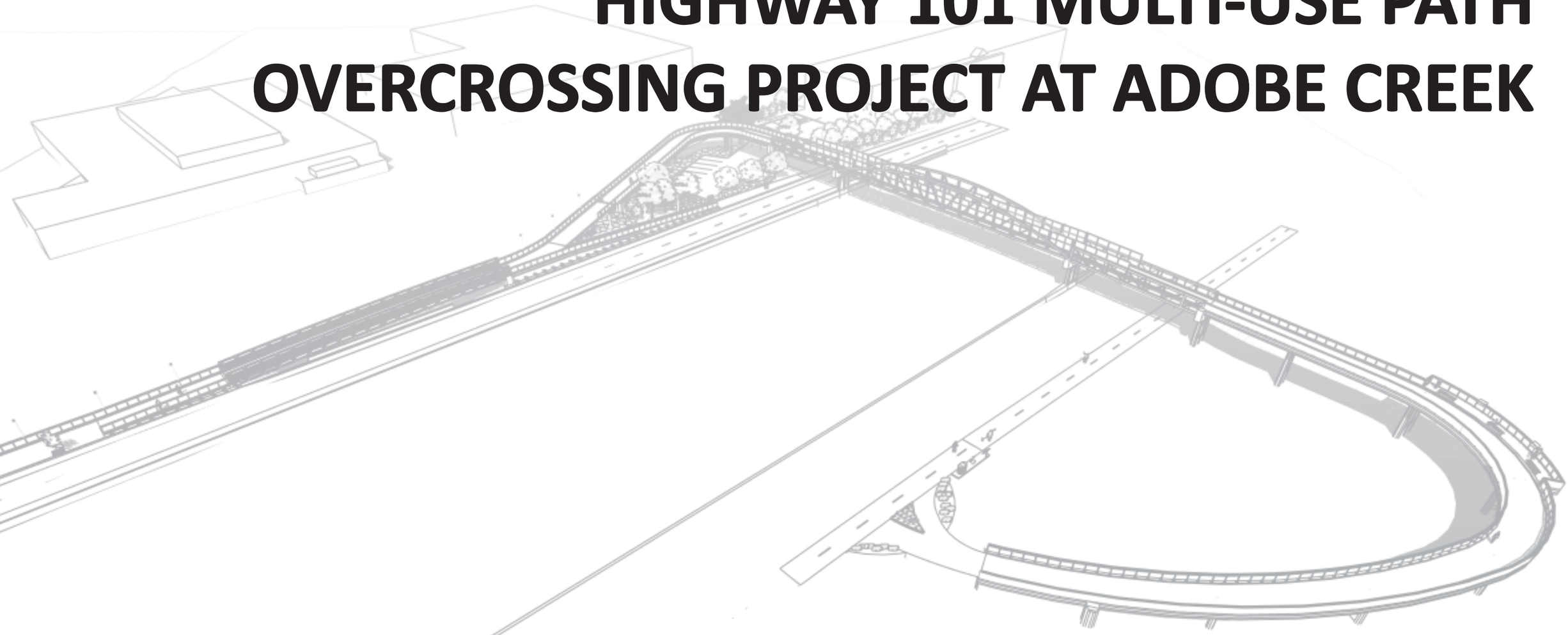
CITY OF PALO ALTO

September 30, 2016

PJ315 Palo Alto Highway 101 POC 2016 09-28.indd

BIGGS CARDOSA
ASSOCIATES INC
STRUCTURAL ENGINEERS

HIGHWAY 101 MULTI-USE PATH OVERCROSSING PROJECT AT ADOBE CREEK



City of Palo Alto

Enhanced Lighting

WESTERN APPROACH

BCA LIGHTSWITCH®

DAYTIME VIEW

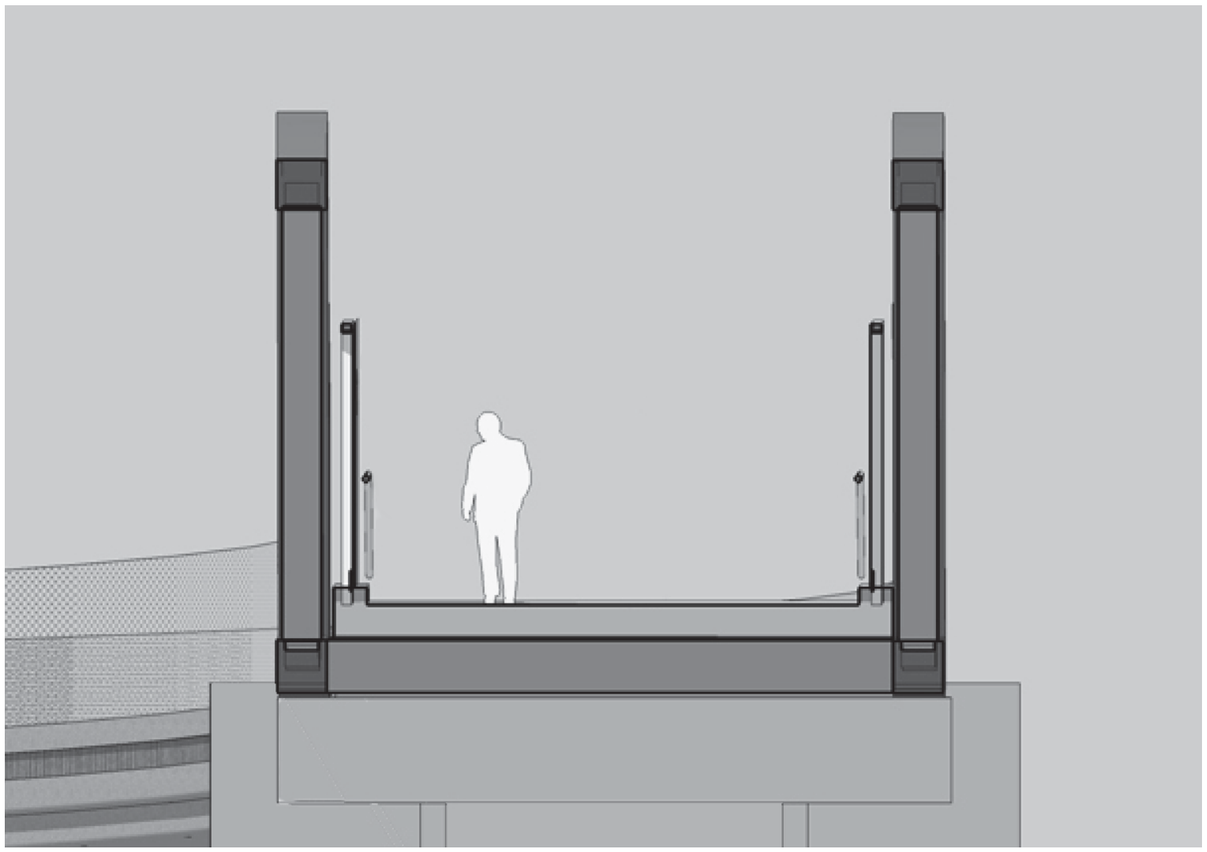
NIGHTTIME VIEW

NTS

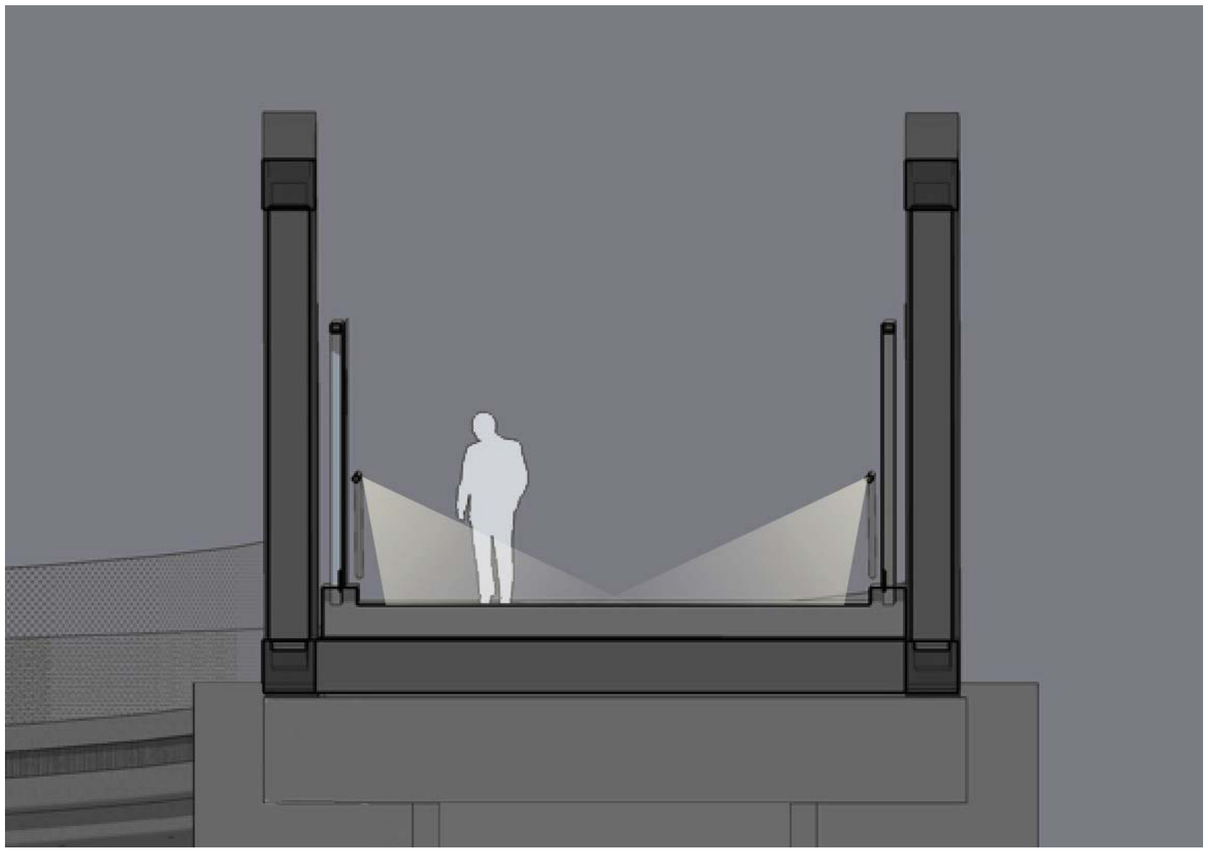
WESTERN APPROACH

BCA LIGHTSWITCH®

DAYTIME VIEW



NIGHTTIME VIEW



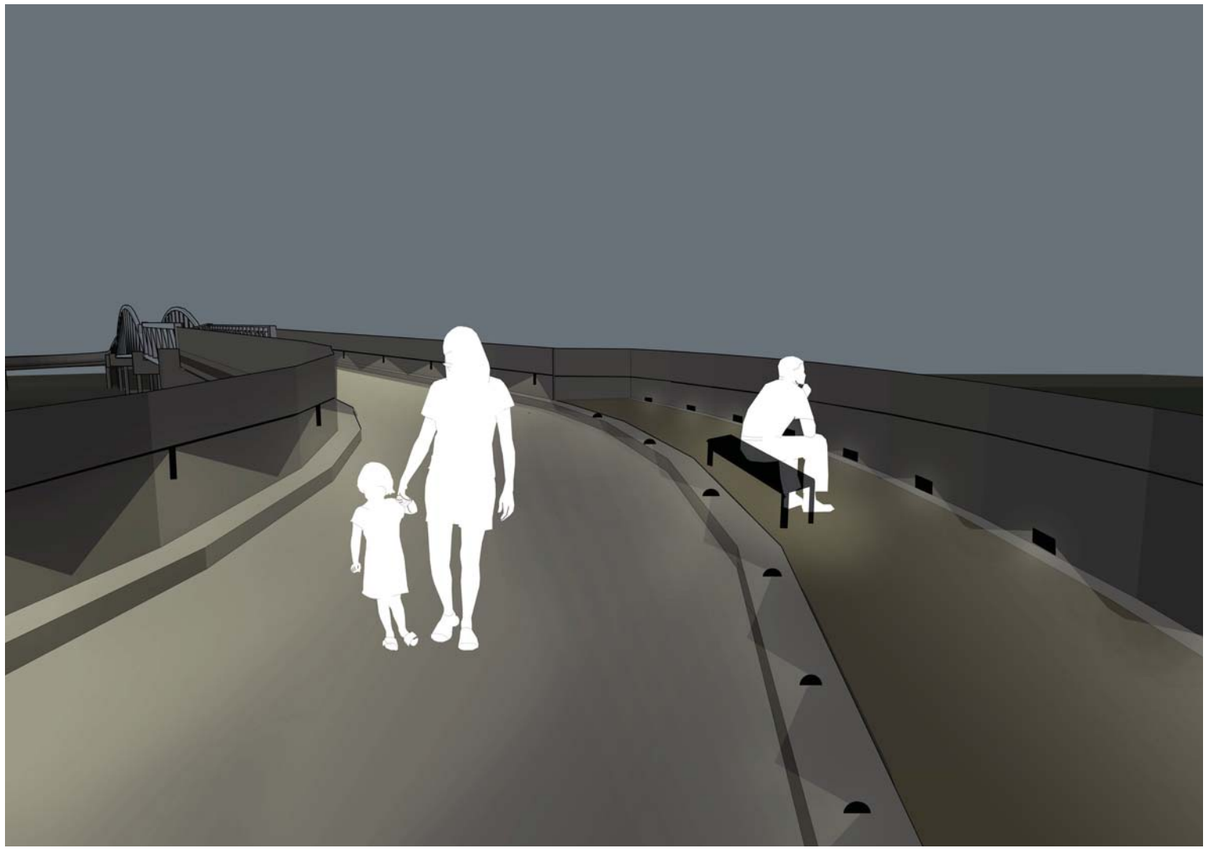
NTS

PRINCIPAL SPAN

BCA LIGHTSWITCH®

DAYTIME VIEW

NIGHTTIME VIEW



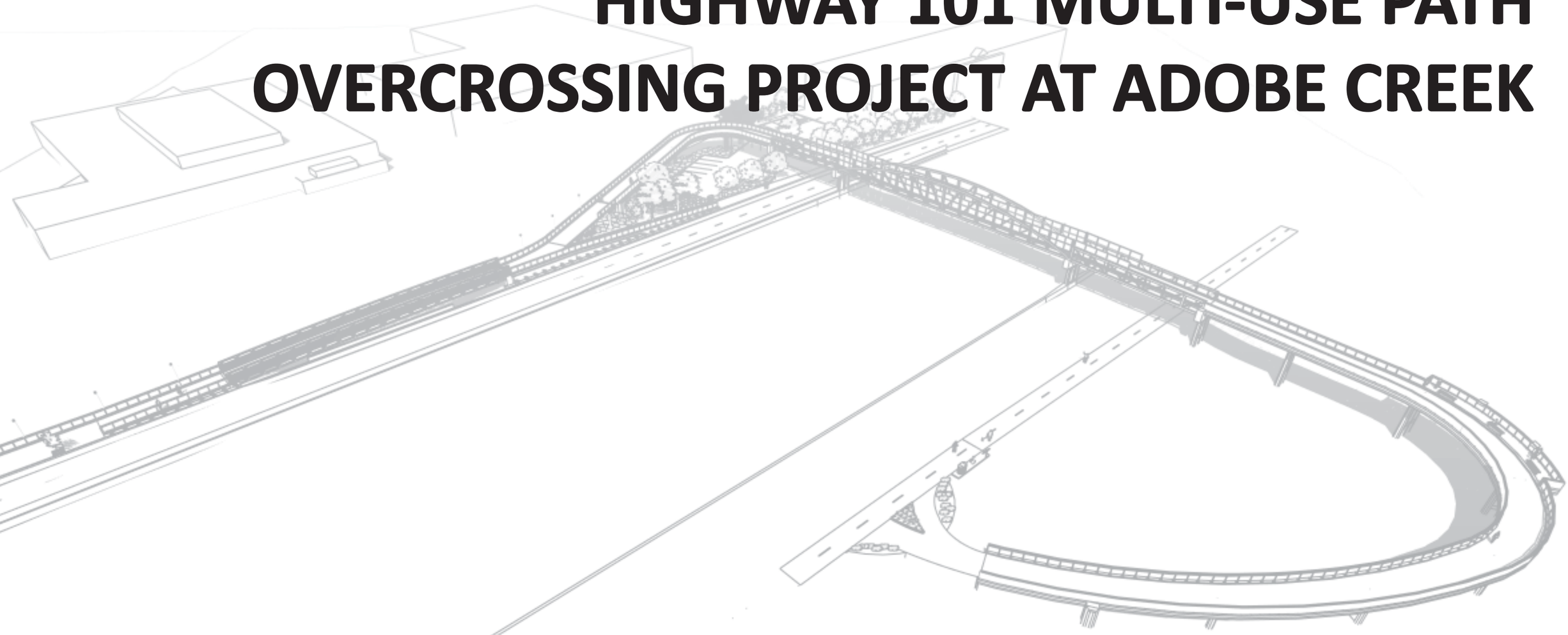
NTS

EASTERN APPROACH

BCA LIGHTSWITCH®

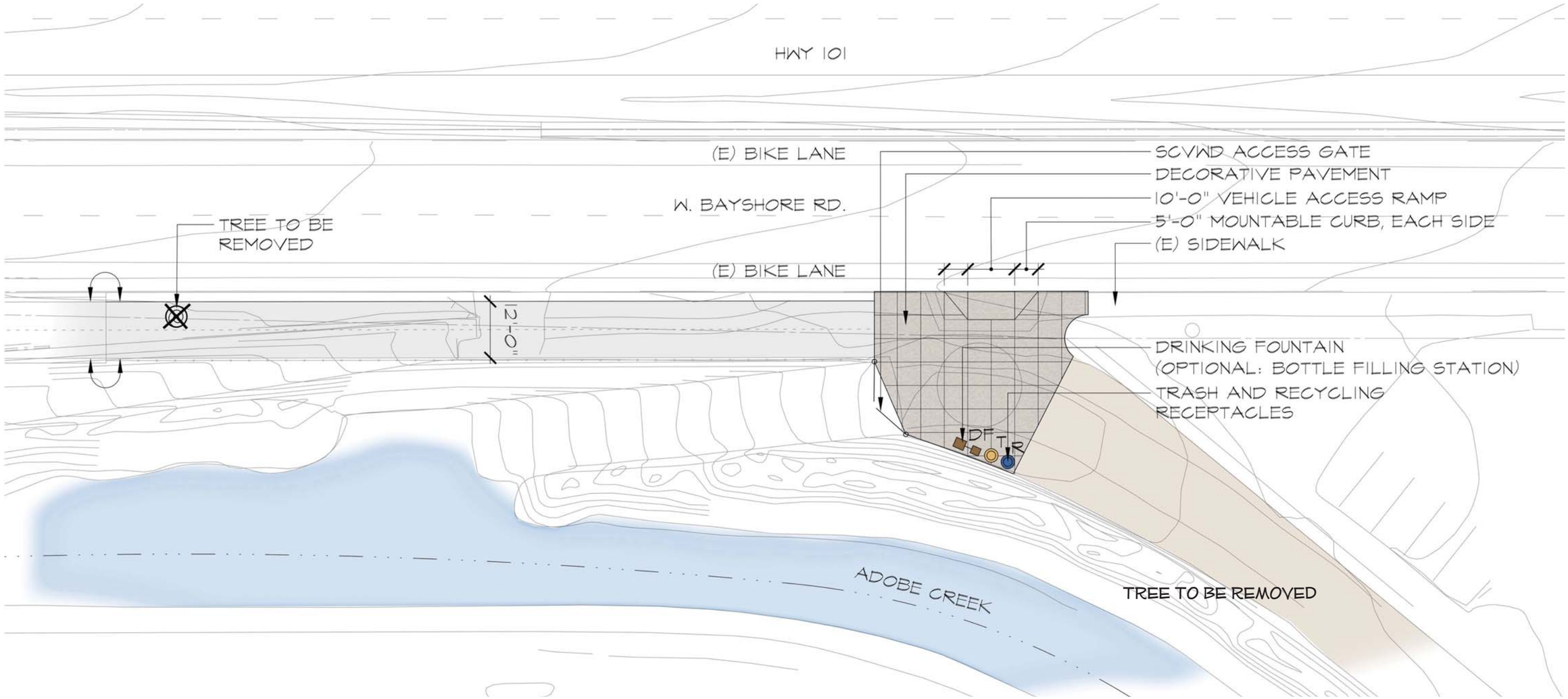
BIGGS CARDOSA
ASSOCIATES INC
STRUCTURAL ENGINEERS

HIGHWAY 101 MULTI-USE PATH OVERCROSSING PROJECT AT ADOBE CREEK



City of Palo Alto

Adobe Creek Reach Trail



WEST PLAZA

Highway 101 Multi-Use Path Overcrossing

Palo Alto, California

Callander Associates Landscape Architecture

BCA

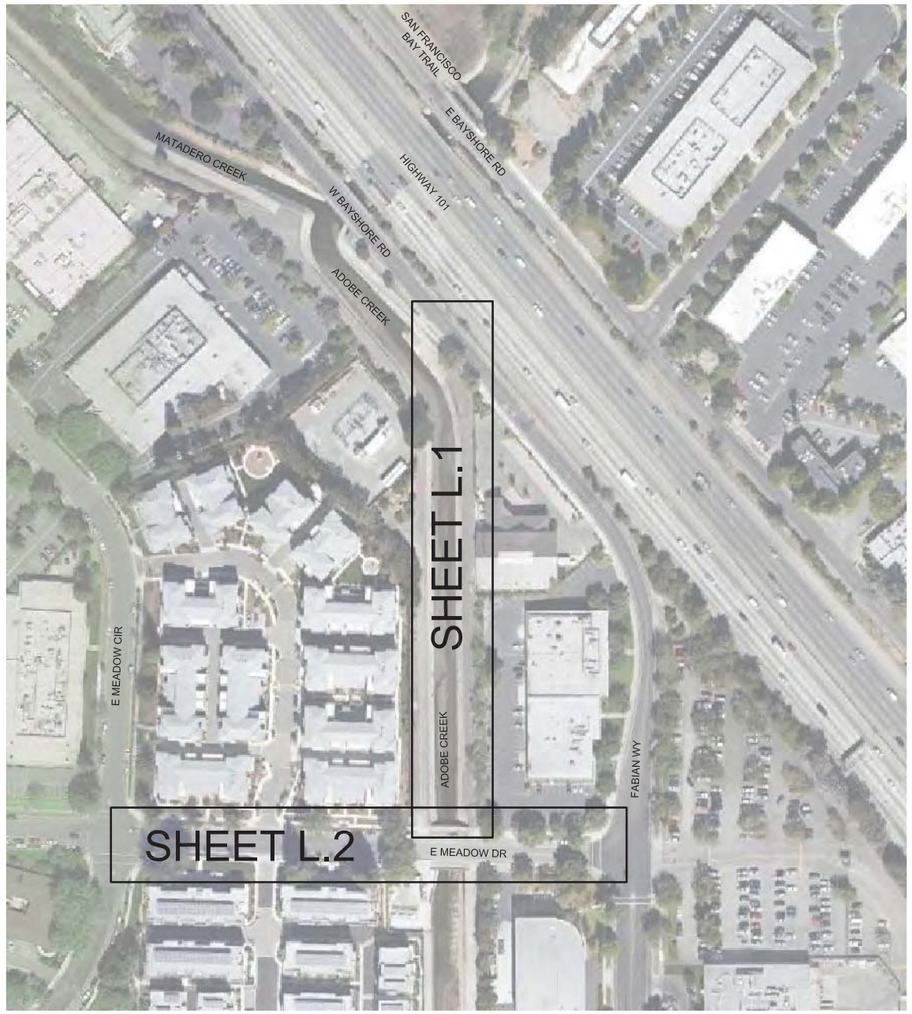
CITY OF PALO ALTO

0 5' 10' 20'

September 30, 2016

PJ315 Palo Alto Highway 101 POC 2016 09-28.indd

ADOBE CREEK REACH TRAIL
PALO ALTO, CA



LOCATION MAP

NO SCALE

INDEX OF DRAWINGS

DRAWING NO.	SHEET	DESCRIPTION
1	TS.1	TITLE SHEET
2–3	L.1, L.2	LAYOUT PLAN

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www.altaplanning.com

100 Webster Street, Ste. 300
Oakland, California 94607
p:510.540.5008 f:510.540.5039

Adobe Creek Reach Trail

City of Palo Alto, California

REVISIONS

NO	DATE	ITEM

REGISTRATION:

DESIGNED: KM
REVIEWED: RA
DRAWN: KM
12-131 PROJECT NO.
12/19/14 DATE

Adobe Creek Reach Trail

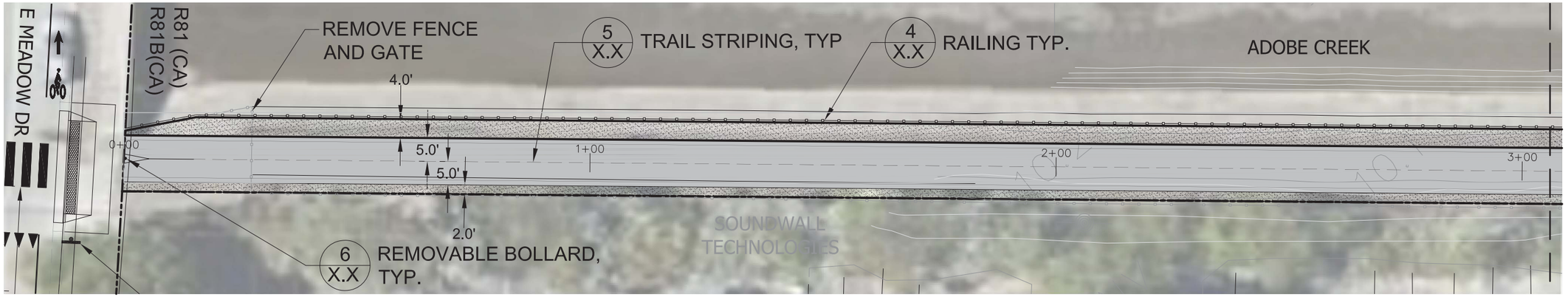
15% Design

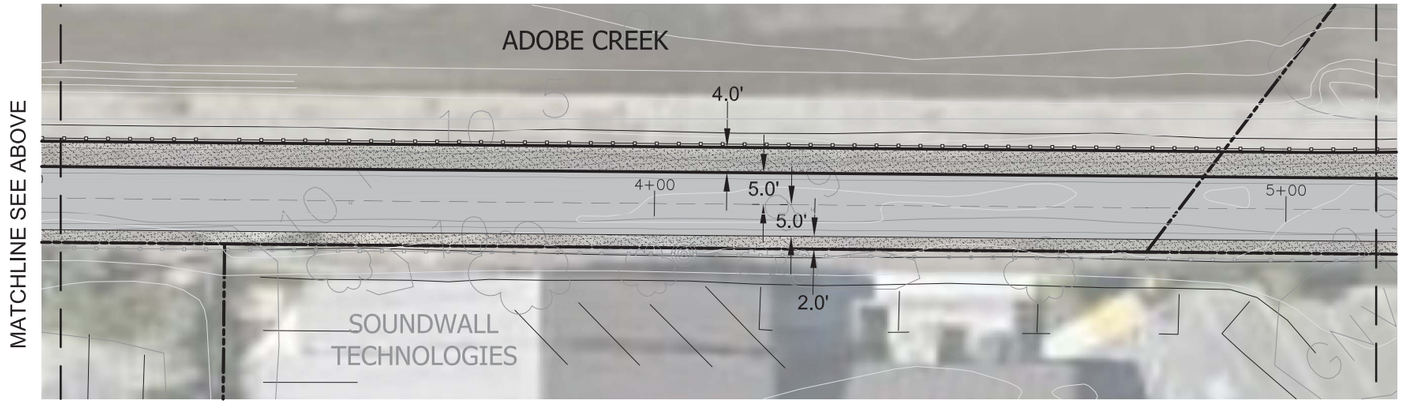
TITLE SHEET

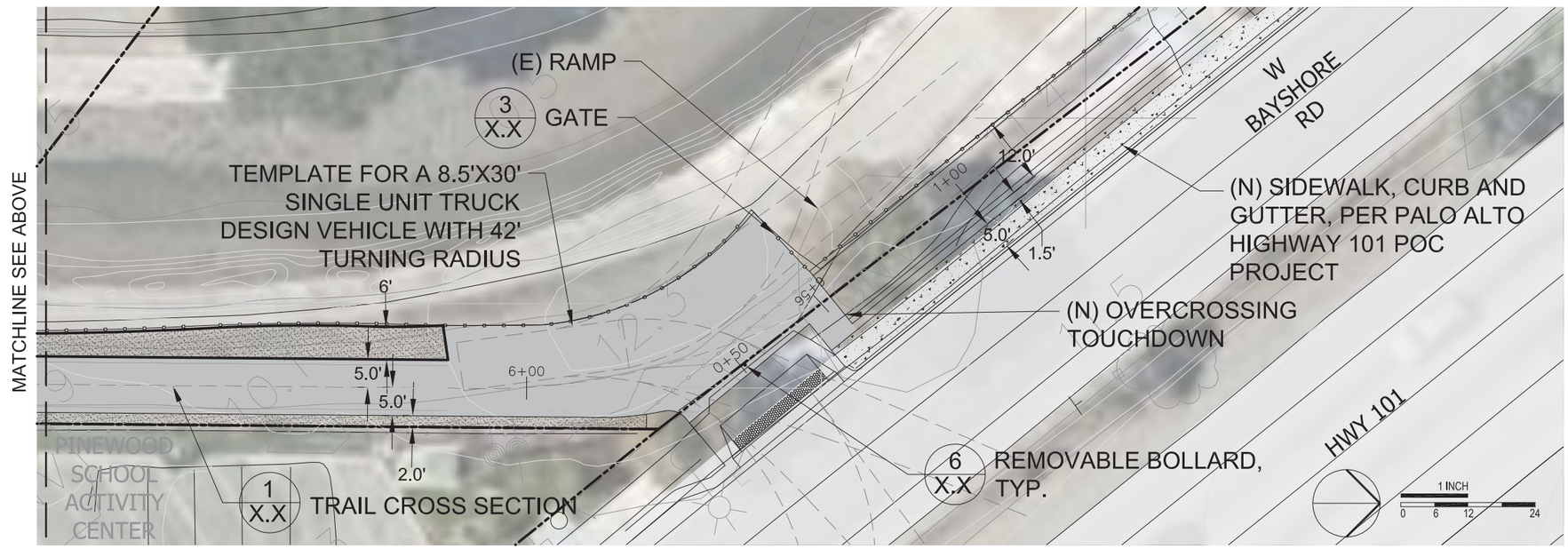
TS.1

SHEET NO.

1 OF 3







LEGEND

ALL DISTANCES AND DIMENSIONS ARE SHOWN IN FEET AND DECIMALS THEREOF.

PROPOSED

- AC PAVEMENT
- DECOMPOSED GRANITE PAVEMENT, SEE CIVIL PLANS
- CONCRETE
- SIGN
- REMOVABLE / LOCKABLE BOLLARD
- CHAINLINK FENCE
- TRUNCATED DOMES

EXISTING

- PARCEL LINE
- FENCE LINE AS NOTED

NOTE: DETAILS TO BE DEVELOPED

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Adobe Creek Reach Trail

City of Palo Alto, California

REVISIONS

NO	DATE	ITEM

REGISTRATION:

DESIGNED:	KM
REVIEWED:	RA
DRAWN:	KM
12-131 PROJECT NO.	12/19/14 DATE

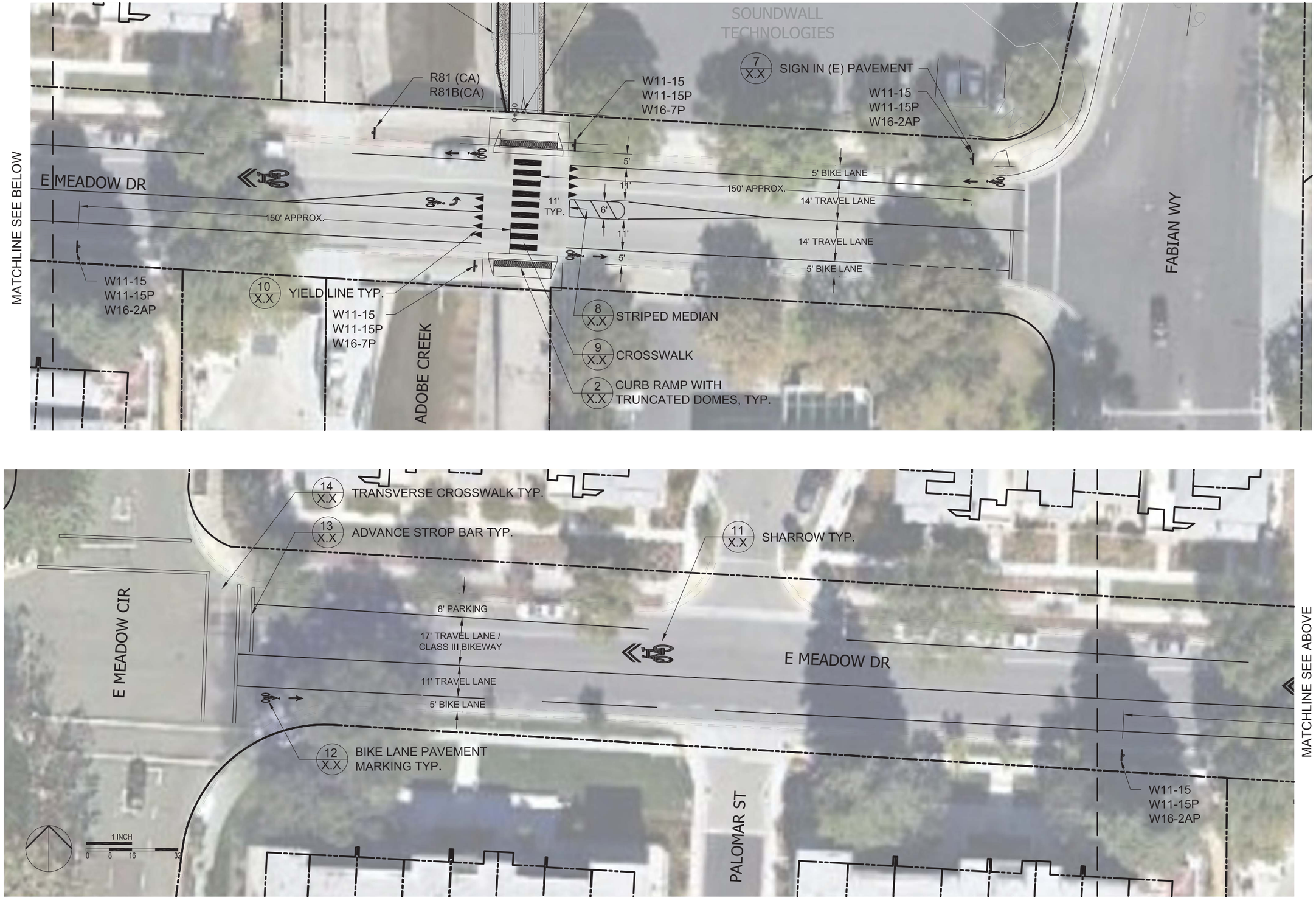
Adobe Creek Reach Trail

15% Design

Layout Plan

L.1

SHEET NO.



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Oakland, California 94607
p:510.540.5008 f:510.540.5039

Adobe Creek Reach Trail

City of Palo Alto, California

REVISIONS

NO	DATE	ITEM

REGISTRATION:

DESIGNED:	KM
REVIEWED:	RA
DRAWN:	KM
12-131 PROJECT NO.	12/19/14 DATE

Adobe Creek Reach Trail

15% Design

Layout Plan

L.2

SHEET NO.

3 OF 3

ATTACHMENT B

HIGHWAY 101 MULTI-USE PATH OVERCROSSING PROJECT AT ADOBE CREEK
WRITTEN PROJECT DESCRIPTION

PROJECT DESCRIPTION:

The proposed Highway 101 Multi-Use Path Overcrossing (Overcrossing) is located in the City of Palo Alto in Santa Clara County, between the East Oregon Expressway and San Antonio Road overpasses of Highway 101, and will replace the existing seasonal Benjamin Lefkowitz Underpass of Highway 101 located within the Adobe Creek corridor. The grade-separated crossing will provide year-round connectivity from residential and commercial areas west of Highway 101 to the Palo Alto Baylands Nature Preserve (Baylands), East Bayshore Business Park area, and the regional Bay Trail network of multi-use trails east of Highway 101. The project will include a new bridge structure over Highway 101 and West and East Bayshore Roads, a trail connection along Adobe Creek to East Meadow Drive, sidewalk improvements along West Bayshore Road, and landscaping and habitat restoration within the Baylands and along the Adobe Creek riparian corridor. The project lies primarily within City and Caltrans rights-of-way, although the south/west project area includes Santa Clara Valley Water District property and private property owned by Google.

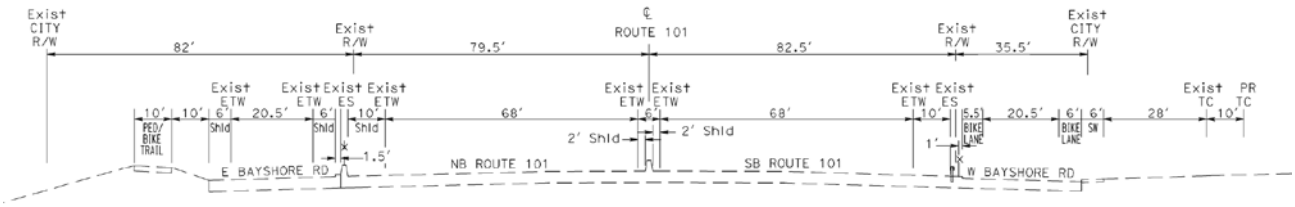
The proposed Overcrossing will consist of multiple structure types in order to maximize the benefits of the different structure types for the various constraints present in the project. The Overcrossing structure is divided into the following four major elements:

1. **Principal Span Structure:** Three span structure over Highway 101 and East and West Bayshore Roads
2. **West Approach Structure:** Multi-span structure located west of West Bayshore Road
3. **East Approach Structure:** Multi-span structure located east of East Bayshore Road
4. **Adobe Creek Bridge:** Simple span crossing of Adobe Creek west of West Bayshore Road

STRUCTURE DESCRIPTION:

PRINCIPAL SPAN STRUCTURE

The Principal Span Structure is set to a straight alignment that is essentially perpendicular to the Highway 101 and Bayshore Road alignments. It consists of three simply-supported steel truss spans spanning across West Bayshore Road, Highway 101, and East Bayshore Road. At this location, Highway 101 is a 12-lane highway with a 162-foot wide right-of-way (See Figure below). East Bayshore Road consists of two travel lanes with a 20.5-foot wide traveled way and two 6-foot shoulders. West Bayshore Road consists of two travel lanes with an approximately 20.5-foot wide traveled way and a 5.5-foot shoulder and 6-foot bicycle lane.



The span over Highway 101 will consist of a 165-foot long, simply-supported prefabricated steel bowstring truss. The bowstring truss is able to achieve the long clear span while keeping the profile depth from the top of deck to bridge soffit to a minimum. The adjacent side span clear-spanning over West Bayshore Road will

consist of a 60’-0” long prefabricated steel Pratt truss. The adjacent side span clear-spanning over East Bayshore Road will consist of a 70-0” long prefabricated steel Pratt truss. All spans will accommodate a 12-foot clear width pathway.

Bents under the Principal Structure spans will consist of 2-foot thick non-skewed concrete pier walls on cast-in-drilled-hole (CIDH) pile foundations. In order to reduce traffic control requirements within Highway 101, the pier walls adjacent to Highway 101 (Bents 6 and 7) will be founded on a concrete pile cap supported by CIDH piles located within the medians between Highway 101 and East and West Bayshore Roads. The concrete pier walls supporting the other ends of the steel Pratt trusses (Bents 5 and 8) will be founded on a concrete pile cap which is supported by CIDH piles. Pier walls at Bents 5 and 8 will support both the steel Pratt trusses of the Principal Span Structure and the end of the West and East Approach concrete slab spans.

Architecturally enhanced safety railings will be provided the full length of the Principal Span Structure. The railings will consist of 8-foot tall galvanized welded wire safety fencing.

WEST APPROACH STRUCTURE

The alignment of the West Approach Structure consists of an approximately 115 degree curve that directs pedestrian/bicycle traffic from along West Bayshore Road, over the Google parking lot, and to the Principal Span Structure over Highway 101. The alignment closely abuts the adjacent Barron Creek to enable retention of all parking spaces with in the Google parking lot and to provide the maximum elevation gain between the adjoining Principal Span Structure and the Adobe Creek Bridge crossing.

The West Approach Structure consists of a four span, 2’-6” deep reinforced concrete slab superstructure supported by 2’-6” x 5’-0” rectangular columns supported on large diameter Type II CIDH pile shafts. The span lengths will vary from 40 to 50 feet long, resulting in a minimum span-to-depth ratio of 0.050. The columns will be architecturally enhanced. The abutment will consist of a reinforced concrete seat-type abutment supported by a large diameter CIDH pile. All spans will accommodate a 12-foot clear width pathway.

Architecturally enhanced safety railings will be provided the full length of the West Approach Structure. The railings consist of 4-foot tall galvanized safety fencing and will include a small concrete curb at the edge of the pathway to collect rain water.

EAST APPROACH STRUCTURE

The alignment of the East Approach Structure consists of an approximate 168-degree compound curve that directs pedestrian/bicycle traffic from the Principal Span Structure, over the Baylands, and back around to conform at the San Francisco Bay Trail.

The East Approach Structure consists of a seven span, 2’-6” deep reinforced concrete slab superstructure supported by 2’-6” x 5’-0” rectangular columns supported on large diameter Type II CIDH pile shafts. The span lengths will vary from 40 to 50 feet long, resulting in a minimum span-to-depth ratio of 0.050. The columns will be architecturally enhanced. The abutment will consist of a reinforced concrete seat-type abutment supported by CIDH piles. All spans will accommodate a 12-foot clear width pathway.

Bent 8 supports both the end of the concrete slab of the East Approach Structure and the end of the steel Pratt truss span of the Principal Span Structure.

Architecturally enhanced safety railings will be provided the full length of the East Approach Structure. The railings will be 4-foot tall galvanized safety fencing and will include a small concrete curb at the edge of the pathway to collect rain water.

An overlook area consisting of an extension of the reinforced concrete slab will be located between Bents 10 and 11 in order to provide the trail users an opportunity to pause, rest and view the adjacent Baylands without impeding pedestrian and bicycle through traffic. The architecture of the overlook will extend from the main bridge structure elements including railings and concrete facing textures and colors. The overlook

will be decked with a wood finish to make the area more distinguishable from the main pathway and to give it some warmth in texture and color. The decking and the bench elements could potentially be constructed from the existing timber decking being removed from the adjacent Baylands Boardwalk project that can be recycled, refinished and repurposed as part of the Overcrossing Project. Amenities such as benches and informational/educational signage will also be located on the overlook to further enhance the experience for the users. Benches will be located along the overlook to allow users to rest and/or view the surrounding vistas of the Baylands.

ADOBE CREEK BRIDGE

The Adobe Creek Bridge consists of a 140-foot long prefabricated steel Pratt truss, spanning over the confluence of Barron and Adobe Creeks, adjacent to the existing Adobe Creek Bridge (Bridge No. 37C-0060) along West Bayshore Road. The bridge will accommodate a 12-foot clear width pathway allowing for travel in both directions.

The top chord of the steel truss will serve as the top chord of the 4 foot high safety railing for the structure.

The abutments will consist of concrete seat type abutments supported by large diameter CIDH piles.

ADDITIONAL PROJECT ELEMENTS:

WESTERN APPROACH ACCESS

A pedestrian access ramp has been incorporated into the Western Approach Structure between the Google property (3600 West Bayshore Road) and Adobe Creek Bridge to provide continuous access for pedestrians along West Bayshore and access to the Overcrossing. For northbound pedestrians along West Bayshore Road the access structure can reduce the length of travel by roughly 500 feet. This access structure also provides equal access to mobility impaired trail users and provides a pedestrian bypass allowing the existing bike lane along West Bayshore road to be made continuous across the existing Adobe Creek Bridge. It also provides a functional ADA compliant alternative access which can be used as a primary ingress/egress if and when the SCVWD closes the trail access area for their channel sedimentation maintenance.

STRUCTURE LIGHTING

Lighting design will be provided for the Overcrossing that contributes to the project goals of providing connectivity while addressing environmental concerns. The Overcrossing paths are to be illuminated during night hours to support pedestrian and bicycling activates, with lighting levels reflecting the transition from higher illuminated urban areas on the western side of Highway 101 to the lower lighting of the Baylands to the east. Photometric levels will conform to standards set by the Illuminating Engineering Society.

The Western Approach Structure will require higher lighting levels for better uniformity ratios to the surrounding environment. Pole mounted luminaires will provide uniform illumination along the pathway and at landscaping areas leading to the Overcrossing. At the Principal Span Structure, lighting will be integrated into the guardrail where possible to create a consistently illuminated pathway. Direct view of any light source is to be shielded from adjacent vehicular vantage points to reduce glare and distraction for drivers. Lighting at the Eastern Approach Structure and Eastern Approach Overlook will be integrated into the urban infrastructure components, such as railings and benches, in order to reduce visual interferences of the Baylands.

Careful consideration will be given to providing appropriate illumination at environmentally sensitive areas such as areas adjacent to Adobe and Barron Creek and the Baylands. Lighting on the Eastern Approach Structure will be minimal in order to reduce potential glare and distraction for wildlife with the Baylands. Step lights will be utilized, meeting photometric requirements, to provide low levels of functional lighting

along the pathway. Warm color lighting techniques will be used to reduce lighting effects to migratory birds and other wildlife.

The lighting system will be designed to be mindful of the surrounding environment. Lighting poles and bollards with full-cutoff capability will be used in order to reduce light emitted above the 90° plane, limiting contribution to light pollution. Lighting controls will be utilized to reduce light output during hours with limited activity. Light levels dim down on a set time schedule synced with the astronomical clock. As people approach, sensors detect their presence, allowing the lighting to change in response to pedestrian and bicycle activity.

PROJECT LANDSCAPING AND STORM WATER RETENTION

Landscaping is limited to restoration of areas disturbed by construction. Primary areas for restoration include: 1. The portion of the Baylands under and adjacent to the Eastern Approach Structure which will be restored with native grasses and planting as well as some hardscape and planting at the east plaza where the East Approach Structure joins the San Francisco Bay Trail. Trail head amenities in the form of trash and recycling receptacles as well as an optional drinking fountain and bottle filling station. 2. Disturbed areas of the Google Parking Lot under and adjacent to the Western Approach Structure will be landscape to provide screening to the structure and will include accommodation of a bioretension area, replacement of existing landscaping trees affected by construction and reconfiguration of the existing Google Parking lot resulting in no net loss of parking. 3. The west plaza at the Adobe Creek Reach Trail Head will include hardscaping at the plaza and existing aggregate base along the SCVWD maintenance road compatible with the regular SCVWD maintenance operations and materials, as well as proposed trail head amenities including trash and recycling receptacles and an optional drinking fountain and bottle filling station. 4. Storm water collection into bioretension systems will include native planting and drainage swales leading into retention basins to filter storm-water. These systems will be located in landscaping areas in the vicinity of the western and eastern approaches.

ADOBE CREEK TRAIL

The proposed Adobe Creek Reach Trail involves designating a 10-foot wide by approximately 800 linear feet of the existing Santa Clara Valley Water District (SCVWD) maintenance road on the east side of Adobe Creek, between West Bayshore Road and East Meadow Drive, as the Adobe Creek Reach Trail. The Adobe Creek Reach Trail will provide a more direct, comfortable, and potentially safer alternative to Fabian Way/West Bayshore Road for pedestrians and recreational bicyclists. The trail will utilize the existing SCVWD maintenance road along Adobe Creek (maintaining the existing aggregate base surfacing) and will include installation of safety railing along the top of bank of Adobe Creek (subject to acceptance by the SCVWD). The project will include trail heads at West Bayshore Road and East Meadow Drive. Trail heads will consist of simple concrete connections to the adjoining streets/sidewalks (no formal plazas), associated pavement delineation and street signage. Resurfacing of the Adobe Creek Reach Trail will not be included in this project. However, potential trail resurfacing as part of a future project, will be environmentally cleared as part of this project.