INFORMATION HANDOUT

For Contract No. 04-4A3424
In Alameda County at Various Locations

Identified by
Project ID 0414000044

GEOTECHNICAL INFORMATION AND RECOMMENDATIONS

1. Foundation Recommendations for Overhead Sign at Location 3.
2. Foundation Recommendations for Overhead Signs at Location 1 and 2.
3. Preliminary Foundation Recommendations for Overhead Signs.
4. Underground Classification.

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. RON TSUNG
Chief
Design East - Contra Costa

Date: January 24, 2014

Attention: K. Kitamura

File: 04-ALA-24, 580, Var
04-4A3421
0400020161
Overhead Sign

From: JOHN MOORE
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: Foundation Recommendations for an additional Overhead Sign located at Westbound Route 580, 04-ALA-580, PM 20.7

Per your request, we have reviewed preliminary plans submitted by you to our office indicating that one sign is proposed at the following location:

Location	Route	Post Mile	Sign Type
3	WB 580	20.7	Single Post VIII

With respect to location 3 and based on our review of as-built plans (Contract No. 04-233924, dated March 2002), it appears, based on elevations given for LOTB Borings B-62 (elevation 335.5 feet), B94-2(approximate elevation 333.9 feet) and B-63 (elevation 335.6 feet), that the CIDH pile for this sign will be founded in either entirely engineered fill or a combination of engineered fill and native alluvial material. Please refer to attached as-built plans.

Your request states that the sign will be a truss type, mounted on a type-VIII post. Based on our review of the as-built plans and the 2010 standard plans, a round pedestal pile foundation should be founded on a Cast-in-Drilled-Hole (CIDH) pile with a diameter of 5-feet and a depth of 25-feet. Please refer to attached as-built plans, Standard Plan Sheets S3, and S8.

Regarding this location, variable subsurface conditions will likely be encountered, which

includes groundwater and caving soils, during CIDH pile construction. CIDH piles shall be constructed in accordance with Caltrans' most recent Standard Specifications.

If any future changes occur, please contact this office for further review.

If you have any questions, please contact me at (510) 622-8742 or Mahmood Momenzadeh at (510) 286-5732.

c: MMomenzadeh, TJPokrywka, Daily File, Route File, Archive

JMoore/JM

Attachments

District	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Stanley P. Johnson No. C57793 Exp. 3-31-12 Civil STATE OF CALIFORNIA

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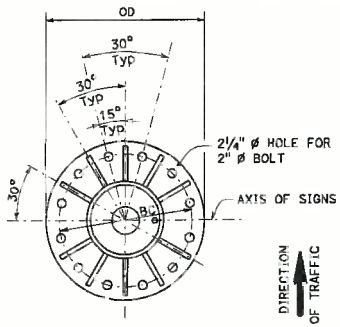
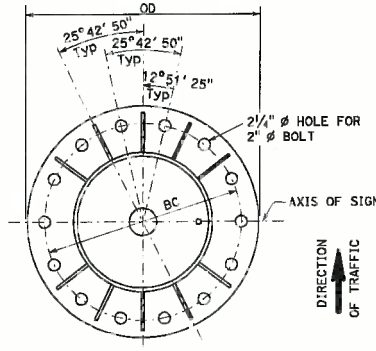
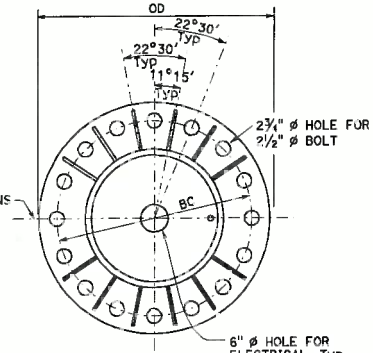


12 BOLT



14 BOLT



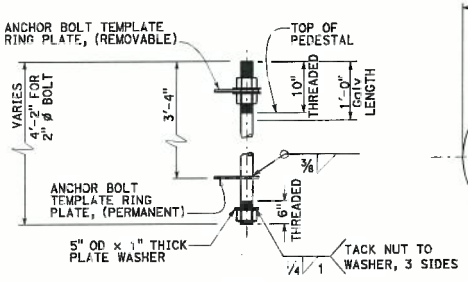
16 BOLT

BASE PLATE DETAILS SINGLE POST TYPE

BC = Bolt Circle Diameter

SINGLE POST TRUSS

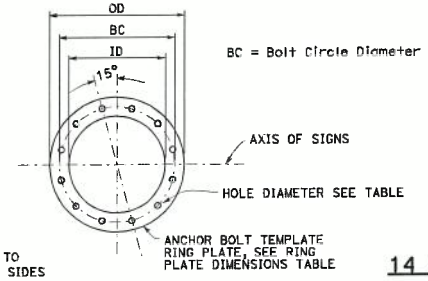
POST TYPE No.	PIPE NPS	PIPE THICKNESS	BASE PL OD AND THICKNESS	ANCHOR BOLTS BOLT CIRCLE Dia	ANCHOR BOLTS BOLT TOTALS AND Dia OF BOLT
II	14	½"	2'-10" x 2"	2'-0"	12-2"
III	16		2'-10" x 2"	2'-0"	12-2"
IV	18		2'-10" x 2"	2'-0"	12-2"
V	20		3'-5" x 2½"	2'-10"	14-2"
VI	24		3'-6" x 2½"		16-2½"
VII	24	¾"	3'-6" x 2½"		
VIII	24	31/32"	3'-6" x 3½"		
IX	24	31/32"	3'-6" x 3½"		



FOR POST II THRU IV
12 BOLT PATTERN

ANCHOR BOLT TEMPLATE ASSEMBLY

NOTE: One bolt shown only. Other bolts same configuration around ring plate.



BC = Bolt Circle Diameter

12 BOLT

ANCHOR BOLT TEMPLATE

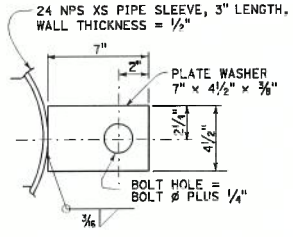
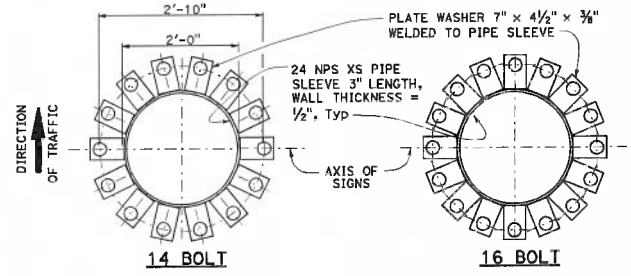


PLATE WASHER DETAIL FOR 14 AND 16 BOLT TEMPLATE PATTERN



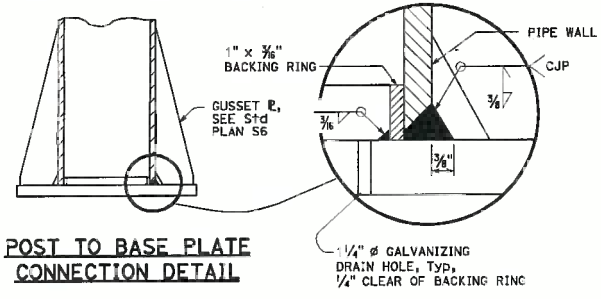
14 BOLT 16 BOLT

ANCHOR BOLT TEMPLATE

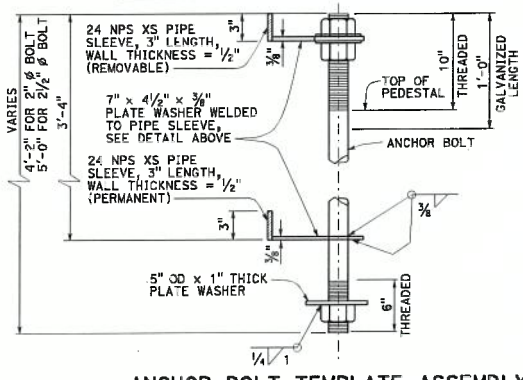
Template to match base plate anchor bolt pattern. (Option: Template similar to ring plate type can be used in lieu of plate washer type).

RING PLATE DIMENSIONS

No. OF BOLTS	OD	BC	ID	HOLE Dia	PERMANENT TEMPLATE THICKNESS	TEMPORARY TEMPLATE THICKNESS
12	2'-1"	2'-0"	1'-9"	2⅛" Max	⅝"	½"
14	3'-1"	2'-10"	2'-7"	2⅛" Max	⅝"	½"
16	3'-2"	2'-10"	2'-6"	2⅝" Max	¾"	½"



POST TO BASE PLATE CONNECTION DETAIL



ANCHOR BOLT TEMPLATE ASSEMBLY FOR 14 AND 16 BOLT PATTERN

NOTE: One bolt shown only. Other bolts same configuration around pipe sleeve.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGNS-TRUSS SINGLE POST TYPE BASE PLATE AND ANCHORAGE DETAILS

NO SCALE

S3

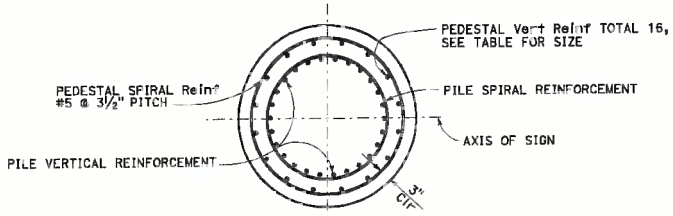
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

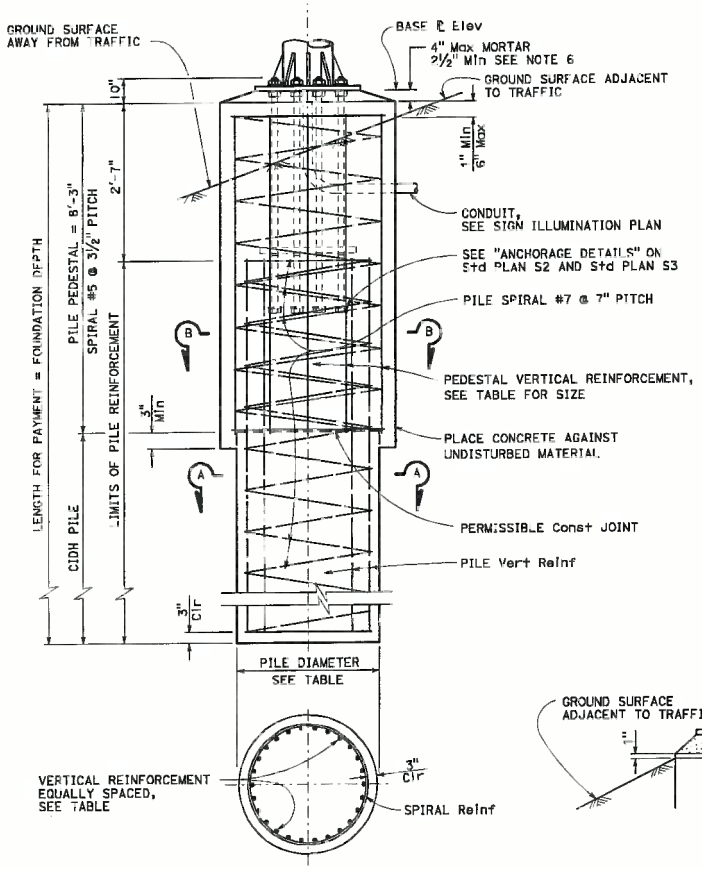
May 20, 2011
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
Stanley P. Johnson
No. C37783
Exp. 9-31-12
CIVIL
STATE OF CALIFORNIA



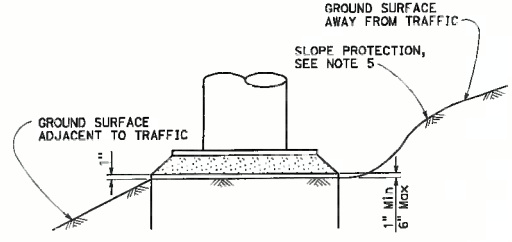
SECTION B-B



SECTION A-A

POST TYPE No.	ANCHOR BOLTS			ROUND PILE PEDESTAL					CIDH PILE					FOUNDATION DEPTH **
	BOLT CIRCLE	BOLT TOTAL AND Dia	TOTAL LENGTH	Dia	VERTICAL REINFORCING		SPIRAL		PILE Dia	VERTICAL REINFORCING		SPIRAL		
					TOTAL	BAR SIZE	BAR SIZE	PITCH		TOTAL	BAR SIZE	BAR SIZE	PITCH	
II	2'-0"	12-2"	4'-2"	5'-3"	16	#10	#5	3½"	4'-6"	26	#10	#5	3½"	14'-9"
III	2'-0"	12-2'												16'-0"
IV	2'-0"	12-2'												18'-0"
V	2'-10"	14-2"												19'-0"
VI		16-2½"	5'-0"	5'-9"		#11			5'-0"	28	#11			22'-0"
VII														23'-0"
VIII														25'-0"
IX														25'-0"

** Use Foundation Depth shown in table unless otherwise shown on the Project Plans.



DETAIL C

NOTES:

1. For anchor bolt layout, see Standard Plan S3.
2. For "Base ℄ elevation" see Project Plans.
3. Prior to erection of the post, backfill which is equivalent to the surrounding material shall be in place.
4. Pedestal shall be formed 6" minimum below ground surface. Remainder to be placed against undisturbed material.
5. Slope protection required when indicated on the Project Plans.
6. For drain holes and central void in mortar see Standard Plan ES-6B detail N.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGNS-TRUSS SINGLE POST TYPE ROUND PEDESTAL PILE FOUNDATION

NO SCALE

S8

2010 STANDARD PLAN S8

6-30-10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580,680	19.8/21.0, R19.7/R21.9	907	|||

9/02/97
REGISTERED CIVIL ENGINEER

3-2-98
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — RAYMOND L. COX — No. 45597 — Exp. 12/31/98 — CIVIL — STATE OF CALIFORNIA

ALAMEDA COUNTY
TRANSPORTATION AUTHORITY
1401 LAKESIDE DRIVE SUITE 600
OAKLAND, CA. 94612

I-580/680 DIRECT CONNECTOR PROJECT
HARDING LAWSON ASSOCIATES INFRASTRUCTURE, INC.
1855 GATEWAY BOULEVARD, SUITE 500
CONCORD, CA. 94520

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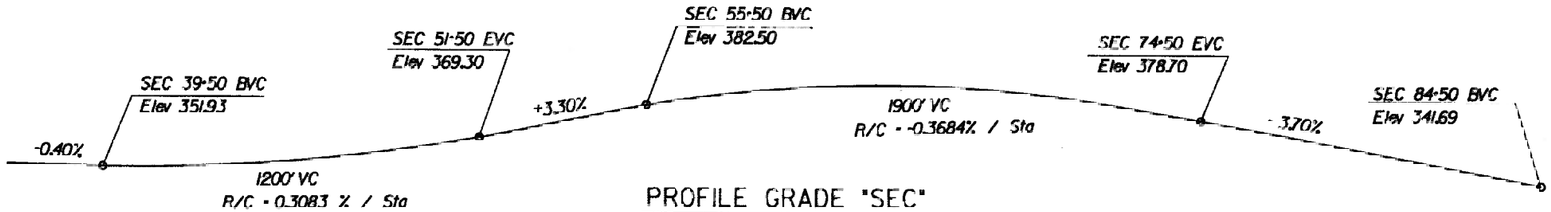
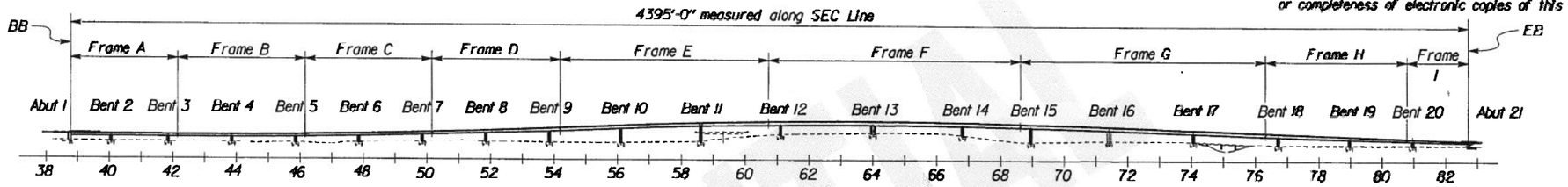
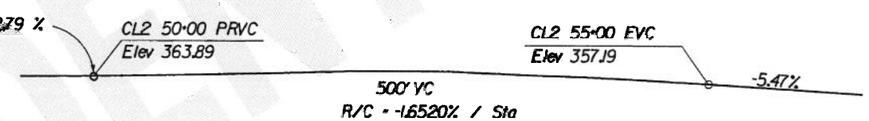


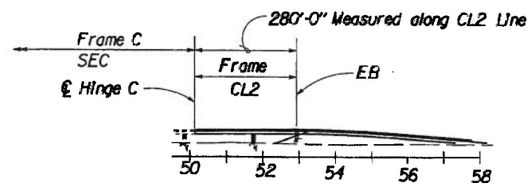
PROFILE GRADE "SEC"
No Scale



DEVELOPED ELEVATION "SEC"
No Scale



PROFILE GRADE "CL2"
No Scale

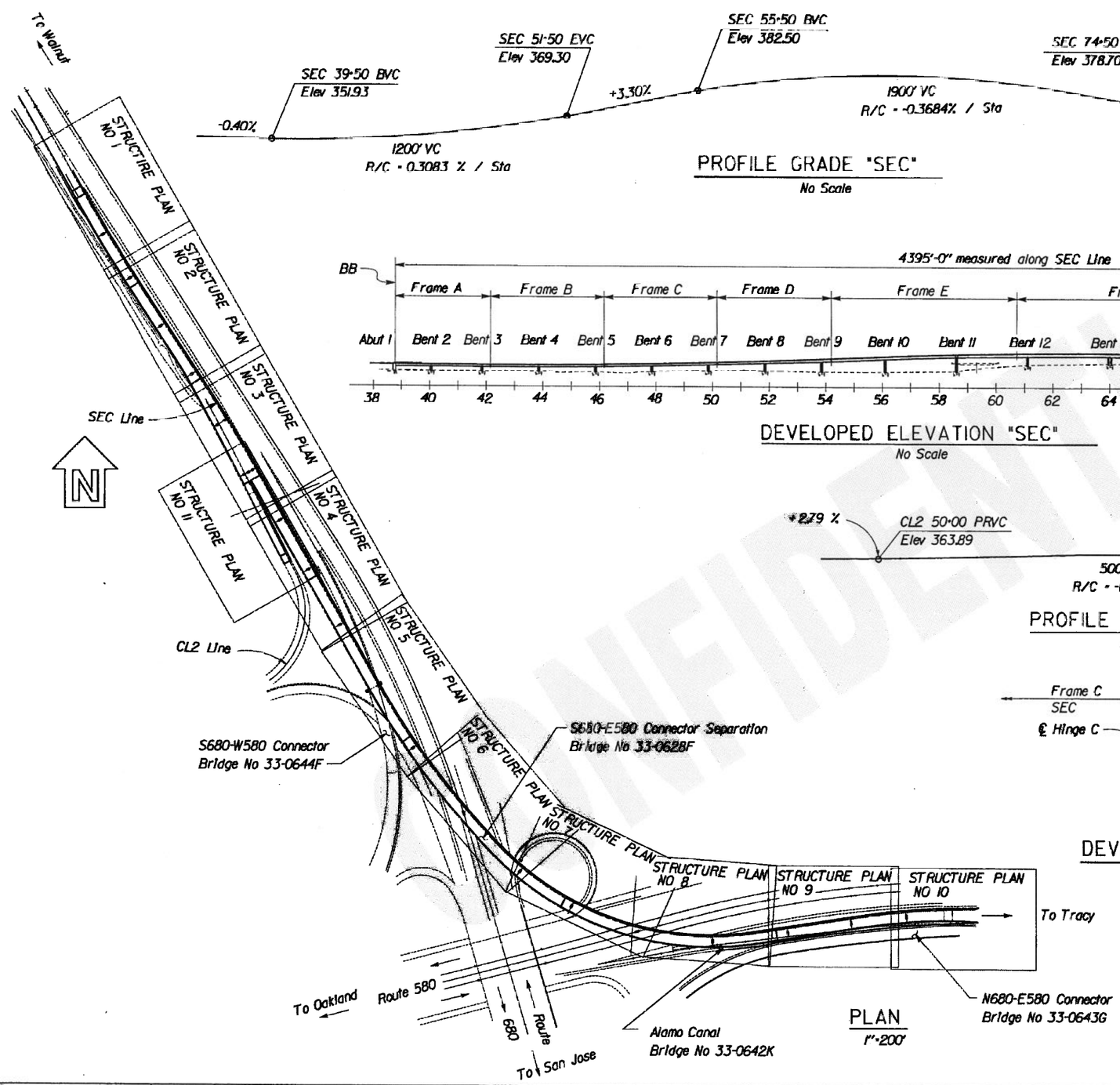


DEVELOPED ELEVATION "CL2"
No Scale

NO AS BUILT CHANGES

AS BUILT

CORRECTIONS BY E. ERICSON — CFY 9-17-04
CONTRACT NO. 04-233921
DATE 3-21-02



PLAN
1"=200'

Notes:

1. For alignment data and other information see "STRUCTURE PLAN NO 1" thru "STRUCTURE PLAN NO 11" sheets
2. For Index to Plans, Standard Plans List and Quantities see "INDEX TO PLANS" sheet
3. For General Note see "GENERAL NOTES" sheet
4. For Pile Data see "FOUNDATION DATA" sheet

CONFIDENTIAL

DESIGN OVERSIGHT 11/4/97 SIGN OFF DATE	DESIGN	BY E. Mercurio 7/95	CHECKED Odean Li 5/96	LOAD FACTOR DESIGN	LIVE LOADING HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD		
	DETAILS	BY G. Schumacher 7/95	CHECKED Odean Li 5/96	LAYOUT	BY J. Crulkshank 7/95	CHECKED Odean Li 5/96	
	QUANTITIES	BY ———	CHECKED ———	SPECIFICATIONS	BY Greiner 5/96	PLANS AND SPECS COMPARED R. Cox 5/96	

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

Raymond L. Cox
PROJECT ENGINEER

CU 04257
EA 233921

BRIDGE NO. 33-0628F
POST MILE 20.02

S680-E580 CONNECTOR SEPARATION
GENERAL PLAN

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES (PRELIMINARY STAGE ONLY) 6/14/96 7/13/97 5/28/97 9/02/97

SHEET 1 OF 205

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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580, 680	19.8/21.0, R19.7/R21.9	917	1111

9/02/97
REGISTERED CIVIL ENGINEER

3-2-98
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
RAYMOND L. COX
No. 45597
Exp. 12/31/98
CIVIL
STATE OF CALIFORNIA

ALAMEDA COUNTY
TRANSPORTATION AUTHORITY
1401 LAKESIDE DRIVE SUITE 600
OAKLAND, CA. 94612

I-580/680 DIRECT CONNECTOR PROJECT
HARDING LAWSON ASSOCIATES INFRASTRUCTURE, INC.
1855 GATEWAY BOULEVARD, SUITE 500
CONCORD, CA. 94520

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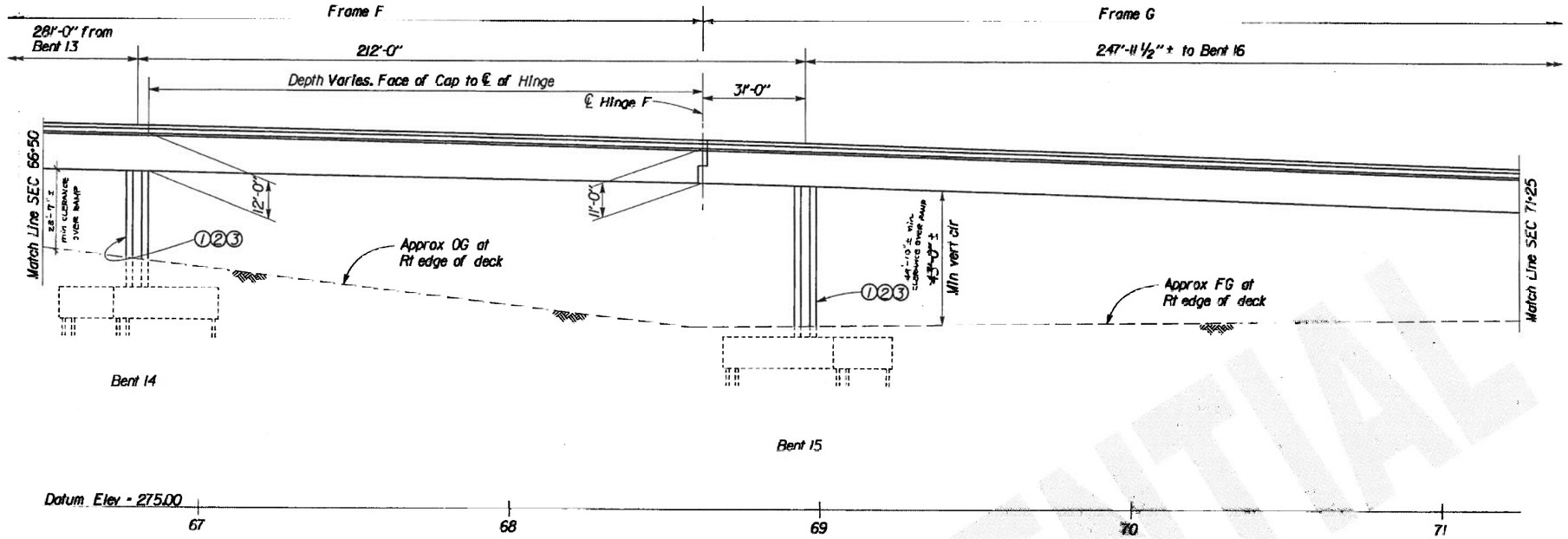
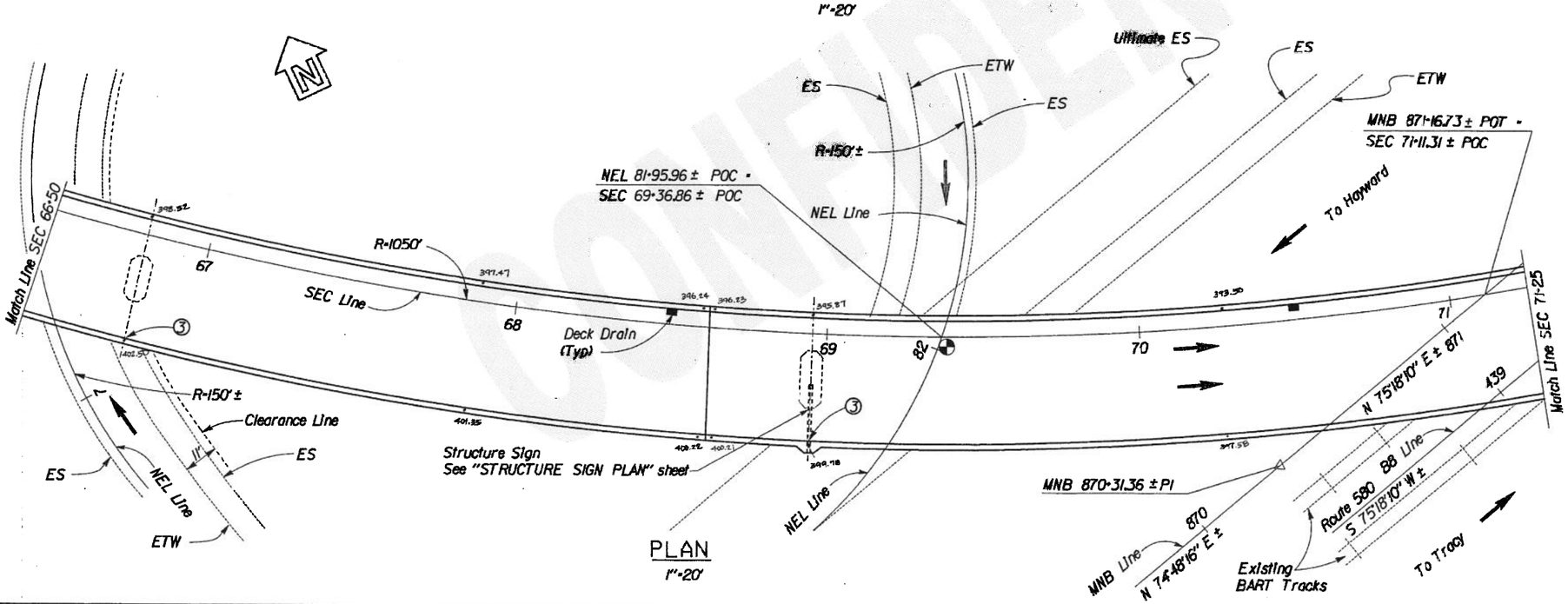


DEVELOPED ELEVATION
1"=20'



PLAN
1"=20'

AS BUILT
CORRECTIONS BY E. ERICSON CFY 4-7-98
CONTRACT NO. 04-233924
DATE 3-26-98

Notes :
For notes see "STRUCTURE PLAN NO 1" sheet
■ indicates Deck Drain Type D-2
Modified see "DECK DRAIN LAYOUT" sheets

DESIGN OVERSIGHT		DESIGN	BY E. Mercurio 12/95	CHECKED Odeon Li 5/96	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
SIGN OFF DATE 11/4/97		DETAILS	BY A. Lishansky 12/95	CHECKED Odeon Li 5/96	
		QUANTITIES	BY	CHECKED	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

Raymond L. Cox
PROJECT ENGINEER

CU 04257
EA 233921

BRIDGE NO. 33-0628F
POST MILE 20.02

S680-E580 CONNECTOR SEPARATION
STRUCTURE PLAN NO 7

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 6/5/96 4/3/97 9/02/97

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 11 OF 205

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DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580,680	19.8/21.0 R19.7/R21.9	1107	1111

Mark Freitas 11-1-97
REGISTERED ENGINEER

3-2-98
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MARK J. FREITAS No. GE 2017 Exp. 6/30/00 GEOTECHNICAL STATE OF CALIFORNIA

ALAMEDA COUNTY
TRANSPORTATION AUTHORITY
1401LAKESIDE DRIVE SUITE 600
OAKLAND, CA 94612

I-580/680 DIRECT CONNECTOR PROJECT
WOODWARD-CLYDE CONSULTANTS
500 12TH STREET, SUITE 100
OAKLAND, CALIFORNIA 94607

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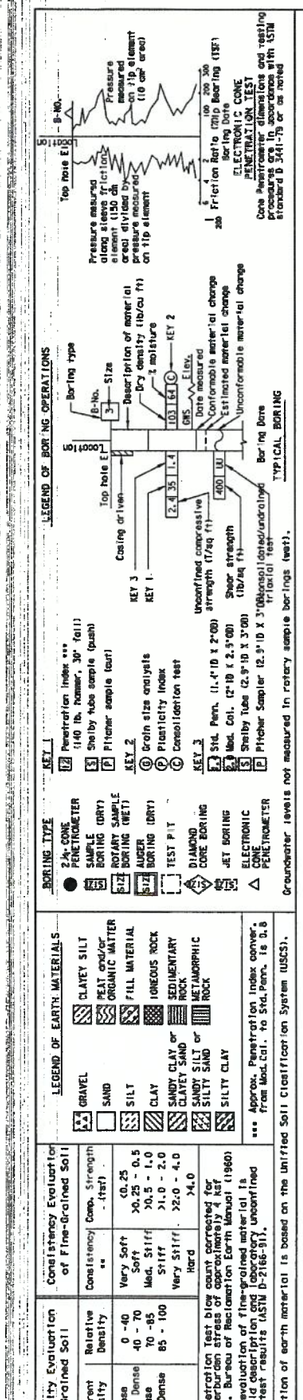

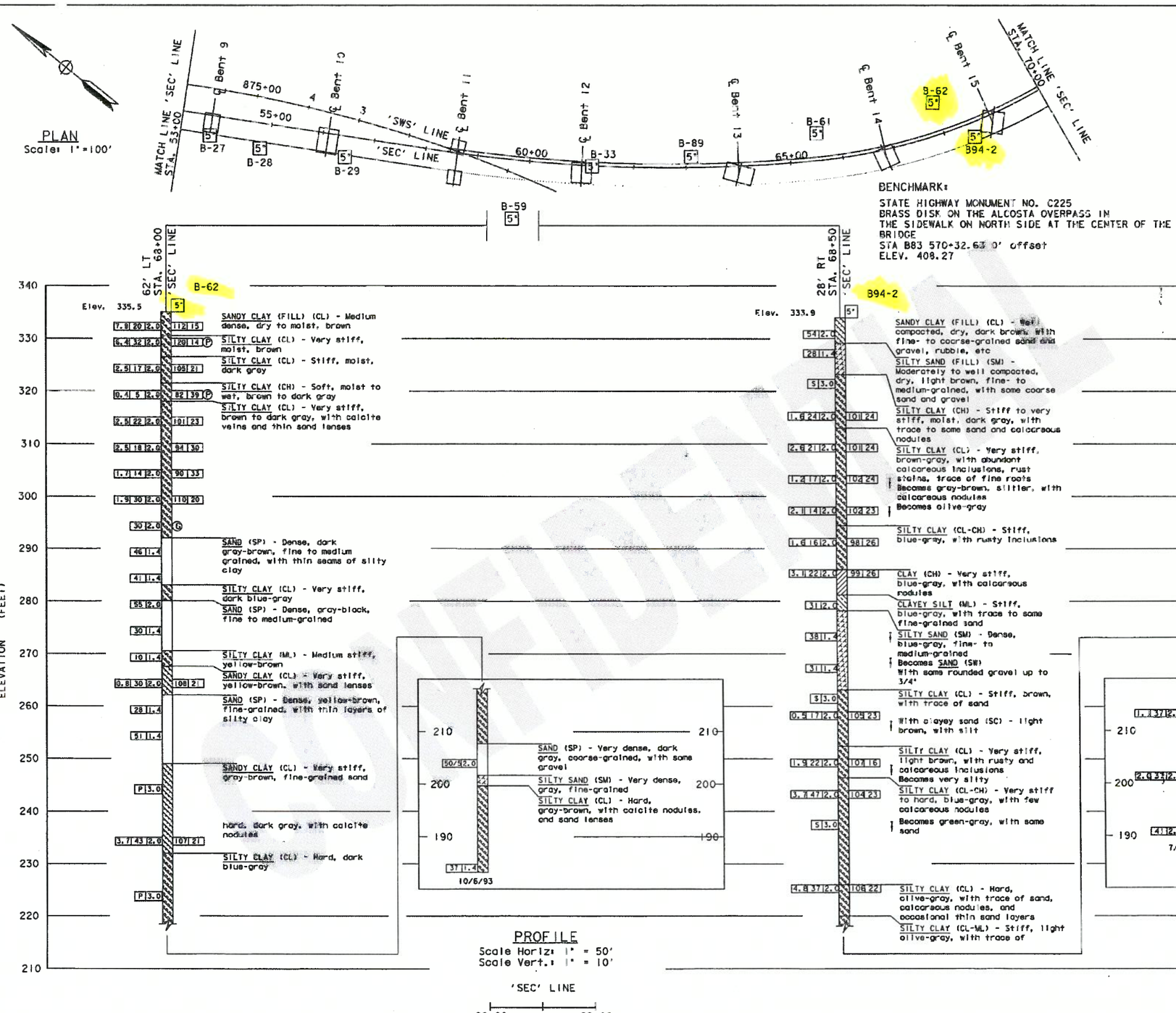

BENCHMARK:
STATE HIGHWAY MONUMENT NO. C225
BRASS DISK ON THE ALCOSTA OVERPASS IN THE SIDEWALK ON NORTH SIDE AT THE CENTER OF THE BRIDGE
STA B83 570+32.63 0' offset
ELEV. 408.27

NO AS BUILT CHANGES

AS BUILT
CPY 4-16-04
CORRECTIONS BY E. ERICSON
CONTRACT NO. 04-233924
DATE 03-21-02

DESIGN OVERSIGHT
11/4/97
SIGN OFF DATE

DRAWN BY R. AGLIANO
CHECKED BY J. PAXTON

RESPESS, JAMES
FIELD INVESTIGATOR
DATE

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

Raymond L. Cox
PROJECT ENGINEER

BRIDGE NO. 33-0628F
POST MILE 20.02

S680-E580 CONNECTOR SEPARATION

LOG OF TEST BORINGS No. 8

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04257
EA 233921

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 5-97 9-97 11-1-97

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 201 OF 205

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DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	580.680	19.8/21.0, R19.7/R21.9	1108	1111

Mark Freitas 11-1-97
REGISTERED ENGINEER

3-2-98
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER MARK J. FREITAS No. GE 2017 Exp. 6/30/00 GEOTECHNICAL STATE OF CALIFORNIA

ALAMEDA COUNTY
TRANSPORTATION AUTHORITY
1401 LAKESIDE DRIVE SUITE 600
OAKLAND, CA 94612

I-580/680 DIRECT CONNECTOR PROJECT
WOODWARD-CLYDE CONSULTANTS
500 12TH STREET, SUITE 100
OAKLAND, CALIFORNIA 94607

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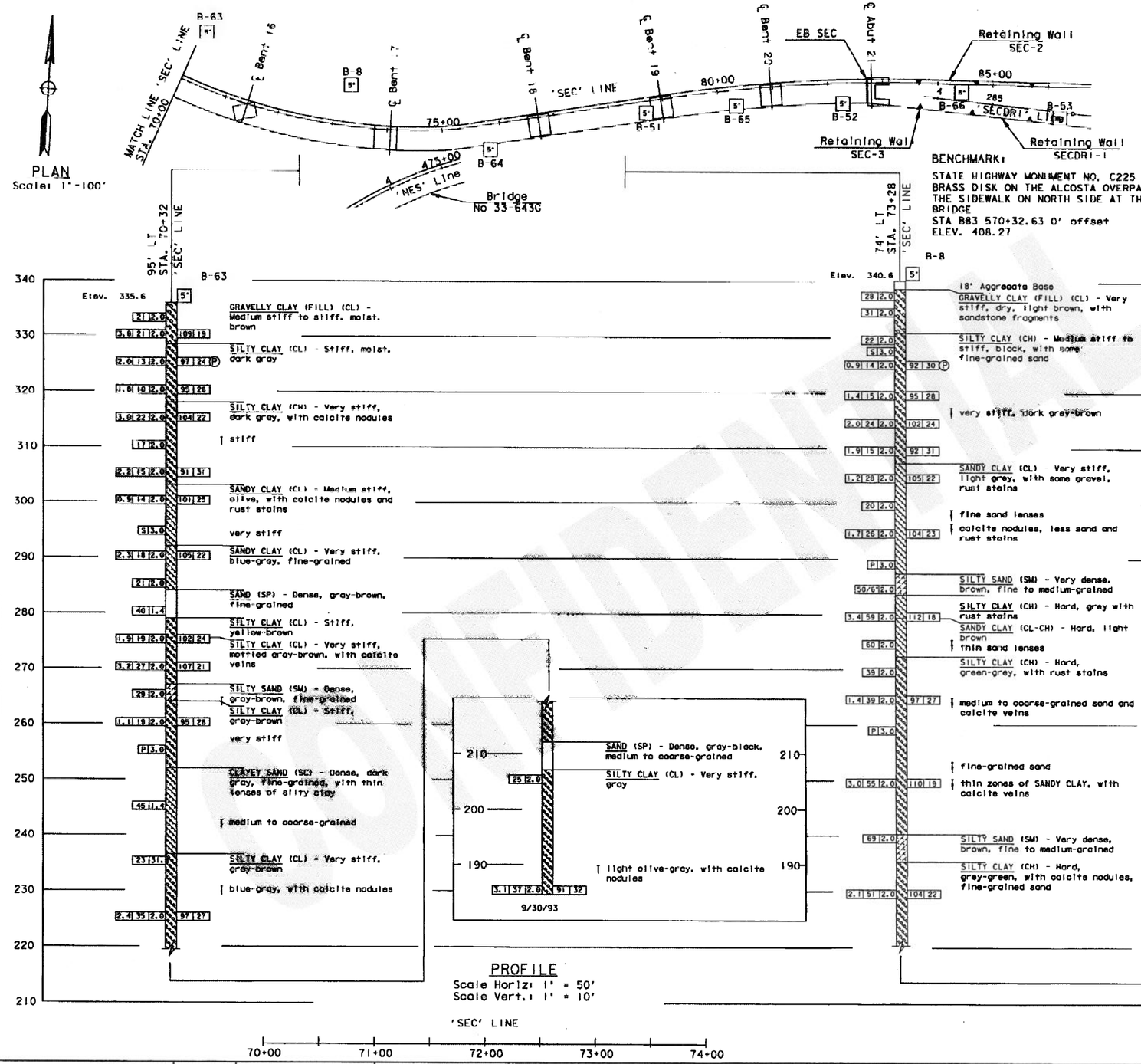


BENCHMARK:
STATE HIGHWAY MONUMENT NO. C225
BRASS DISK ON THE ALCOSTA OVERPASS IN THE SIDEWALK ON NORTH SIDE AT THE CENTER OF THE BRIDGE
STA B83 570+32.63 0' offset
ELEV. 408.27

PROFILE
Scale Horiz: 1" = 50'
Scale Vert.: 1" = 10'

NO AS BUILT CHANGES

AS BUILT
CORRECTIONS BY E. ERICSON CFY 4-16-04
CONTRACT NO. 04-233924
DATE 03-21-02

LEGEND OF BORING OPERATIONS

KEY
BORING TYPE: 2½" CONE PENETROMETER; SAMPLE BORING (DRY); ROTARY SAMPLE BORING (WET); AUGER BORING (DRY); TEST PIT; DIAMOND CORE BORING; JET BORING; ELECTRONIC CONE PENETROMETER
Groundwater levels not measured in rotary sample borings (wet).

LEGEND OF EARTH MATERIALS: GRAVEL; SAND; SILT; CLAY; SANDY CLAY or CLAYEY SAND or SILTY SAND; SILTY CLAY; CLAYEY SILT; PEAT and/or ORGANIC MATTER; FILL MATERIAL; IGNEOUS ROCK; SEDIMENTARY ROCK; METAMORPHIC ROCK

*** Approx. Penetration Index converted from Mod. Cal. to Std. Pen. in U.S.

Apparent Density Evaluation of Coarse-Grained Soil

Blow Count *	Apparent Density	Relative Density
0 - 10	Loose	0 - 40
>10 - 30	Medium Dense	40 - 70
>30 - 50	Dense	70 - 85
>50	Very Dense	85 - 100

Consistency Evaluation of Fine-Grained Soil

Consistency **	Comp. Strength (tsf)
Very Soft	<0.25
Soft	>0.25 - 0.5
Med. Stiff	>0.5 - 1.0
Stiff	>1.0 - 2.0
Very Stiff	>2.0 - 4.0
Hard	>4.0

* Standard Penetration Test blow count corrected for effective overburden stress of approximately 4 ksf based on U.S. Bureau of Reclamation Earth Manual (1960)

** Consistency evaluation of fine-grained material is based on visual-manual procedures and unconfined compression test results (ASTM D-2166-91). Unconfined compression test results not reported.

NOTE: Classification of earth material is based on the Unified Soil Classification System (USCS).

DESIGN OVERSIGHT / SIGN OFF DATE	DRAWN BY	R. AGLIANO	RESPESS, JAMES / FIELD INVESTIGATOR	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Raymond L. Cox / PROJECT ENGINEER	BRIDGE NO. 33-0628F	S680-E580 CONNECTOR SEPARATION
11/4/97	CHECKED BY	J. PAXTON	DATE			POST MILE 20.02	LOG OF TEST BORINGS No. 9

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

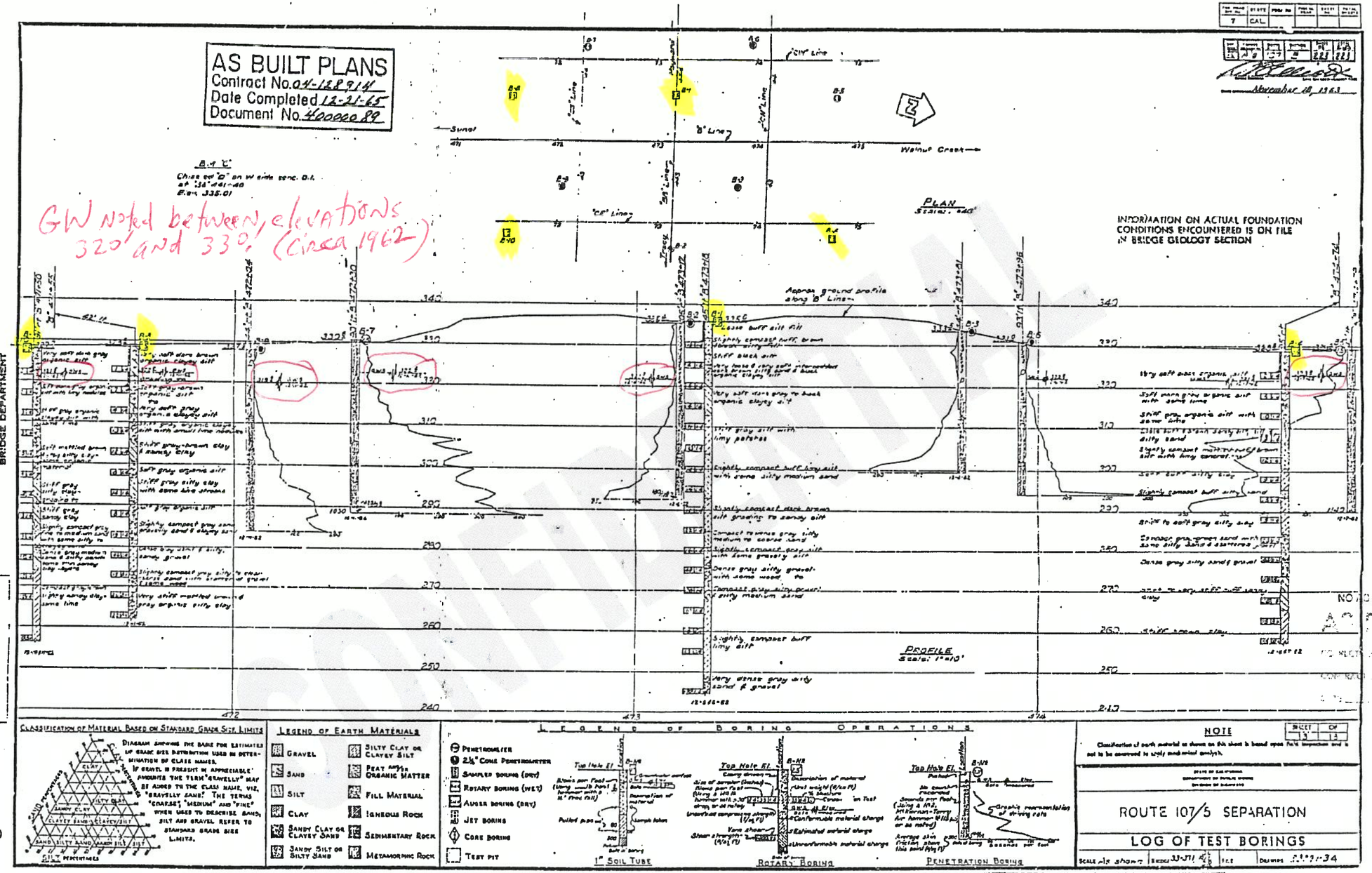
CU 04257
EA 233921

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES (PRELIMINARY STAGE ONLY) 5/97 9/97 11-1-97

SHEET 202 OF 205

ClibPDF - www.fastio.com

7-5-93 TO ACCOMPANY PLANS DATED	DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
	04	Ala	580	18.3 /R21.5	514	602



223

DESIGN OVERSIGHT 11/16/92 SIGN OFF DATE	NOTE: ADDITIONAL AS-BUILT FOUNDATION DATA MAY BE AVAILABLE AT THE DIVISION OF NEW TECHNOLOGY, MATERIALS AND RESEARCH 5900 FOLSOM BOULEVARD, SACRAMENTO, CALIFORNIA 95819	DESIGN BY Erik Jensen 11/92	CHECKED Adam Jr 11/92	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	PROJECT ENGINEER
		DETAILS BY Erik Jensen 11/92	CHECKED Adam Jr 11/92		
		QUANTITIES BY Erik Jensen 11/92	CHECKED Adam Jr 11/92		

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04188
EA 233711

BRIDGE NO. 33-628F
POST MILE 20.64

PIER FOUNDATION
SOUTHEAST CONNECTOR
AS-BUILT LOG OF TEST BORINGS

DISREGARD PRINTS BEARING EARLIER REVISION DATES → 11/16/92

REVISION DATES (PRELIMINARY STAGE ONLY) SHEET 10 OF 10

ClibPDF - www.fastio.com

Wang, Yalin@DOT

From: Moore, J C@DOT
Sent: Wednesday, December 04, 2013 11:50 AM
To: Wang, Yalin@DOT
Cc: Sarwary, Parwin@DOT
Subject: RE: 4A3401 Ala-24
Attachments: Foundation Recommendations for Type V Overhead Sign Truss.pdf

Sorry I missed your earlier email, Yalin. The geotech recommendations are still valid; although based on a type V post you'll need a 4'-6" diameter CIDH pile with a foundation depth of 19-feet. Please review attached sheet.

John Moore
Caltrans
Office of Geotechnical Design - West
111 Grand Ave., Oakland, CA 94623

(510) 622-8742 (W)

From: Wang, Yalin@DOT
Sent: Tuesday, December 03, 2013 1:49 PM
To: Moore, J C@DOT
Cc: Sarwary, Parwin@DOT; Wang, Yalin@DOT
Subject: RE: 4A3401 Ala-24

John,

Did you get a chance to look into this?

Yalin Wang, PE
Caltrans D-4
Design East - Contra Costa
(510)622-8701

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. JERRY MA
Chief
Design Alameda I

Date: June 3, 2013

Attention: A. Zepeda

File: 04-ALA-24
04-4A3401
0412000349
Design/Plan Review

From: JOHN C. MOORE
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

MAHMOOD MOMENZADEH
Chief, Branch C
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject: Design/Plan Review for the Gore Replacement Project, 04-ALA-24, EA 04-4A3401

Per your request we have reviewed preliminary plans submitted by you to our office indicating that two signs are proposed at the following locations:

Location	Route	Post Mile	Sign Type
1	EB 24	2.3	Single Post
2	EB 24	5.65	Sign Bridge (two posts)

It is our understanding that a third location will not require a foundation and consequently, does not need to be considered. It is also our understanding that this review is an update to prior recommendations written by this office in April 2005.

Based on the prior review, standard overhead signs – tubular single post and two post, square or round pedestal pile foundations with a maximum post height of 29-feet and a maximum panel depth of 10-feet were found to be adequate. Our review of as-built plans confirms that this is still true and that both of these signs should be founded on Cast-in-Drilled-Hole (CIDH) piles with a diameter of 5-feet and a depth of 33-feet.

With respect to location 1 and based on our review of as-built plans (Contract No. 04-275714, dated April 1966), it appears, based on elevations given for Boring B-5 (elevation 93.9 feet, LOTB) and for Bridge No. 33-364 OR (approximate elevation 109 to

110-feet, General Plan) that the CIDH pile for this sign would be founded in either entirely engineered fill or a combination of engineered fill and native alluvial material. Please refer to attached as-built plans.

With respect to location 2 and based on our review of plans for 04-294911, Caldecott Improvement Project, Detention Basin, Borings DB4 and DB5, it appears that the CIDH pile for this sign would be founded in moderately hard to very hard rock. Please refer to attached plans.

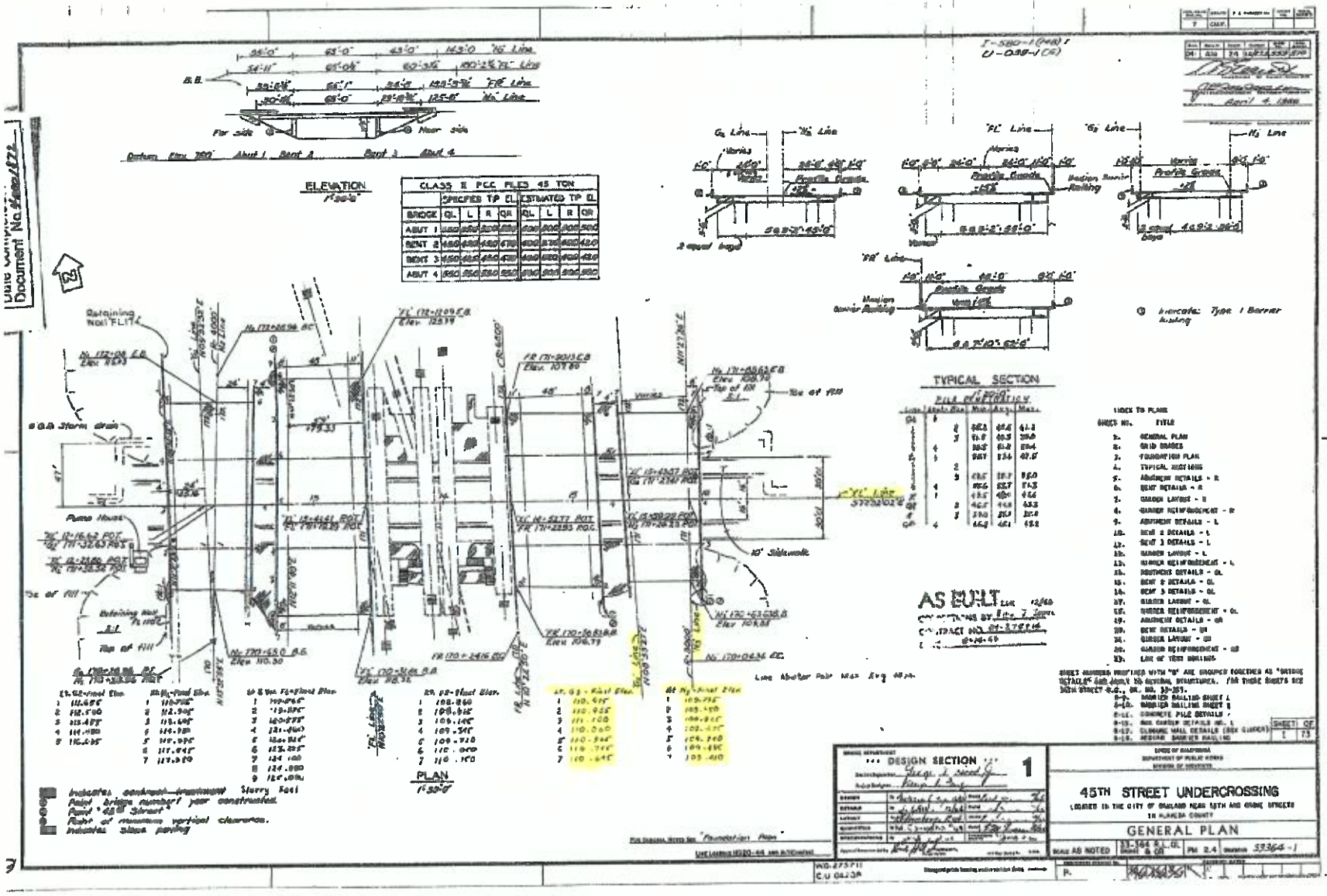
Regarding both locations, variable subsurface conditions are anticipated to be encountered, including high groundwater levels, caving soils, and hard materials (rock) during the CIDH pile construction. CIDH piles should be constructed in accordance Caltrans' Standard Specifications.

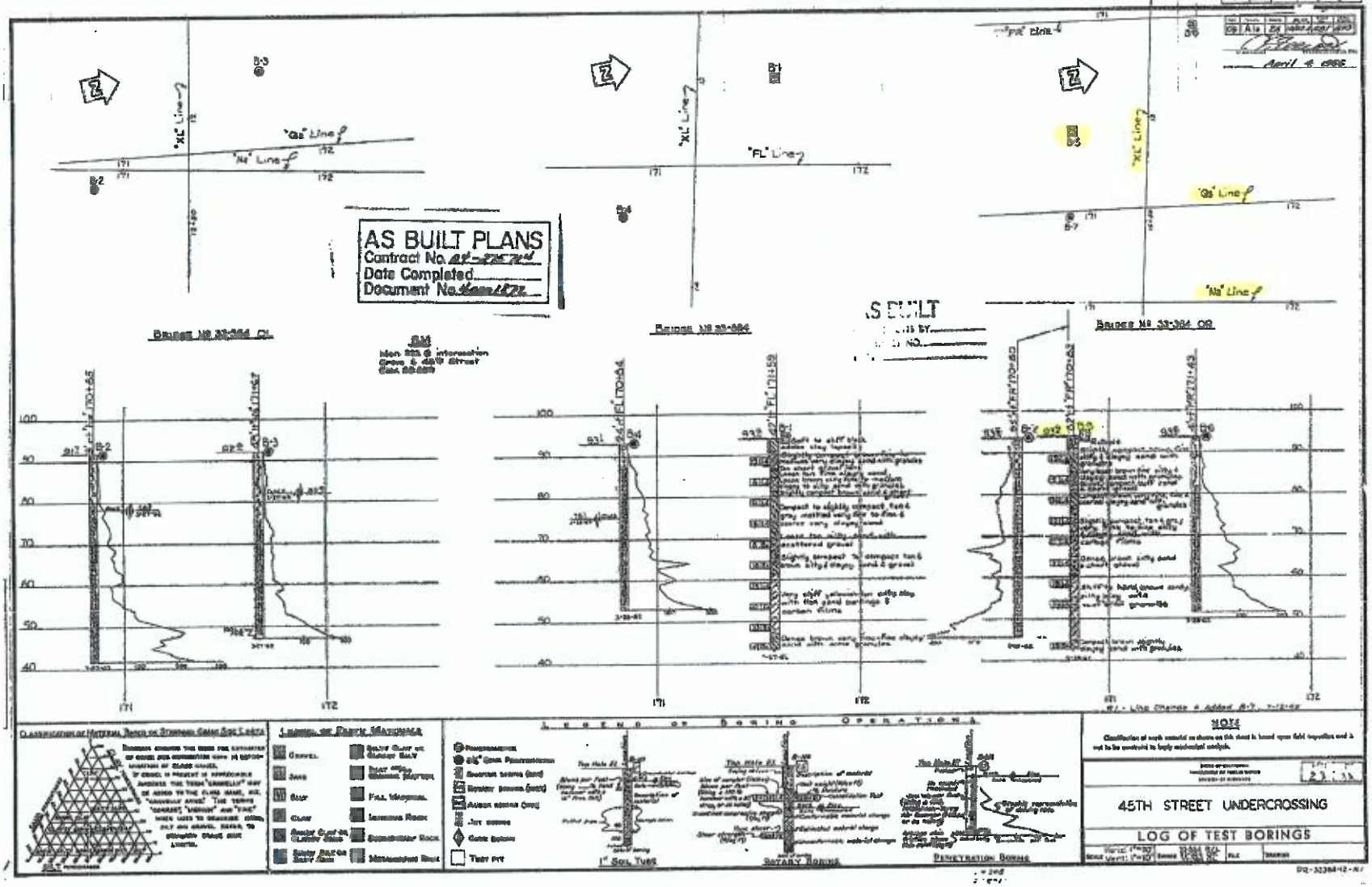
If any future changes are planned, please contact this office for further review.

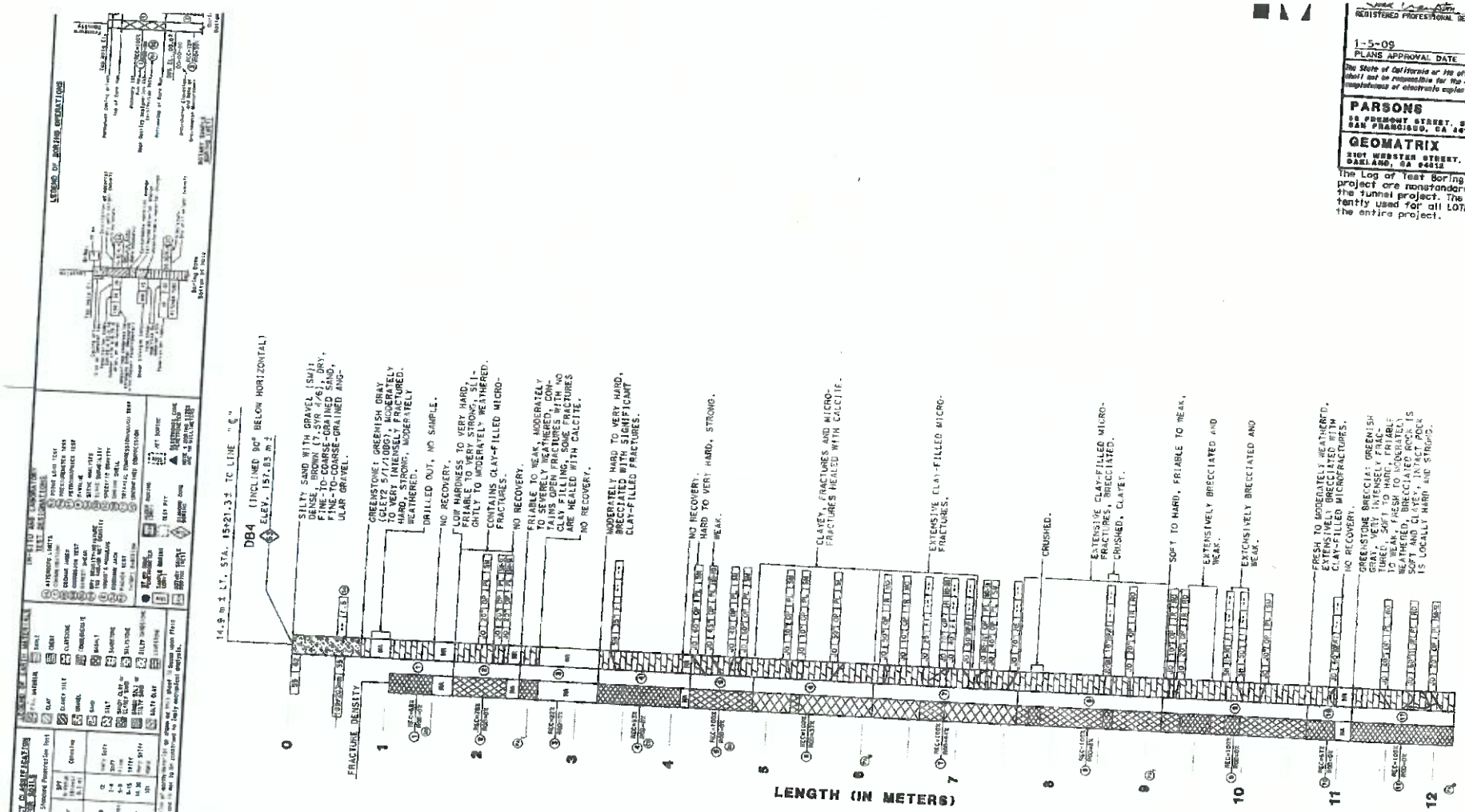
If you have any questions, please contact me at (510) 622-8742 or Mahmood Momenzadeh at (510) 286-5732.

c: MMomenzadeh, TJPokrywka, Daily File, Route File, Archive

JMoore/JM


ELEVATION
TYPICAL SECTION
PLAN
AS BUILT
DESIGN SECTION
45TH STREET UNDERCROSSING
GENERAL PLAN
Retaining Wall
Pump House
Storm drain
Sidewalk
Median Barrier Railing
Profile Grade
Indicates Type 1 Barrier Railing
Indicates construction maximum Slurry Seal
Point bridge number per constructed
Point "45th Street"
Right of maximum vertical clearance.
Indicates Slope paving
INDEX TO PLANS
SHEET No. TITLE
2. GENERAL PLAN
3. GRID BASES
4. FOUNDATION PLAN
5. TYPICAL SECTIONS
6. ABUTMENT DETAILS - R
7. BENT DETAILS - R
8. GIRDER LAYOUT - R
9. GIRDER REINFORCEMENT - R
10. ABUTMENT DETAILS - L
11. BENT 2 DETAILS - L
12. BENT 3 DETAILS - L
13. GIRDER LAYOUT - L
14. GIRDER REINFORCEMENT - L
15. BENT 2 DETAILS - GL
16. BENT 3 DETAILS - GL
17. GIRDER LAYOUT - GL
18. GIRDER REINFORCEMENT - GL
19. ABUTMENT DETAILS - GR
20. BENT DETAILS - GR
21. GIRDER LAYOUT - GR
22. GIRDER REINFORCEMENT - GR
23. LOG OF TEST BORINGS
SHEETS NUMBERED PREFIXED WITH "B" ARE GROUPED TOGETHER AS "BRIDGE DETAILS" AND APPLY TO GENERAL STRUCTURES. FOR THESE SHEETS SEE 30TH STREET U.C., DR. NO. 33-351.
B-9. BARRIER RAILING SHEET 1
B-10. BARRIER RAILING SHEET 2
B-11. CONCRETE PILE DETAILS
B-15. BOX GIRDER DETAILS NO. 1
B-17. CLOSURE WALL DETAILS (BOX GIRDER)
B-18. MEDIAN BARRIER RAILING
SHEET 1 OF 73
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
45TH STREET UNDERCROSSING
LOCATED IN THE CITY OF OAKLAND NEAR 45TH AND GRAND STREETS
IN ALAMEDA COUNTY
GENERAL PLAN
SCALE AS NOTED
33-164 R.L. G.L.
Sheet 8 OF
PM 2.4
Contract 33364-1
WG-275711
C.U 0420R
Document No.


AS BUILT PLANS
Contract No.
Date Completed
Document No.
AS BUILT
"XL" Line
"Qs" Line
"Na" Line
"FL" Line
Bridge No 33-364 OL
Bridge No 33-364
Bridge No 33-364 OR
April 4 1966
Legend of Boring Operations
1" Soil Tube
Rotary Boring
Penetration Boring
Note
45TH STREET UNDERCROSSING
LOG OF TEST BORINGS



REGISTERED PROFESSIONAL GEOLOGIST 07-0

1-5-09
PLANS APPROVAL DATE

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PARSONS
50 FREMONT STREET, SUITE 1600
SAN FRANCISCO, CA 94105

GEOMATRIX
2101 WEBSTER STREET, 12TH FLOOR
OAKLAND, CA 94612

The Log of Test Boring (LOTB) test project are nonstandard because the tunnel project. The same temp tently used for all LOTB sheets p the entire project.

PROFILE
SCALE 1 : 20

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

LTB

DIVISION OF ENGINEERING SERVICES

DRAWN BY S. NESSELS 12/06
CHECKED BY T. CRAMPTON/A. BEHAN 12/06 (GEOMATRIX) M. MOMENZADEH (CALTRANS)

FIELD INVESTIGATION BY: J. ALLEN (GEOMATRIX)

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL SERVICES
OFFICE OF GEOTECHNICAL DESIGN - WEST

ENGINEER NO. 28-0015K
PLANNING POST 9.44/0.55

CU 04
EA 294911

DISREGARD PRINTS BEARING EARLIER REVISION DATES

CALDECOTT IMPROVEMENT PRO

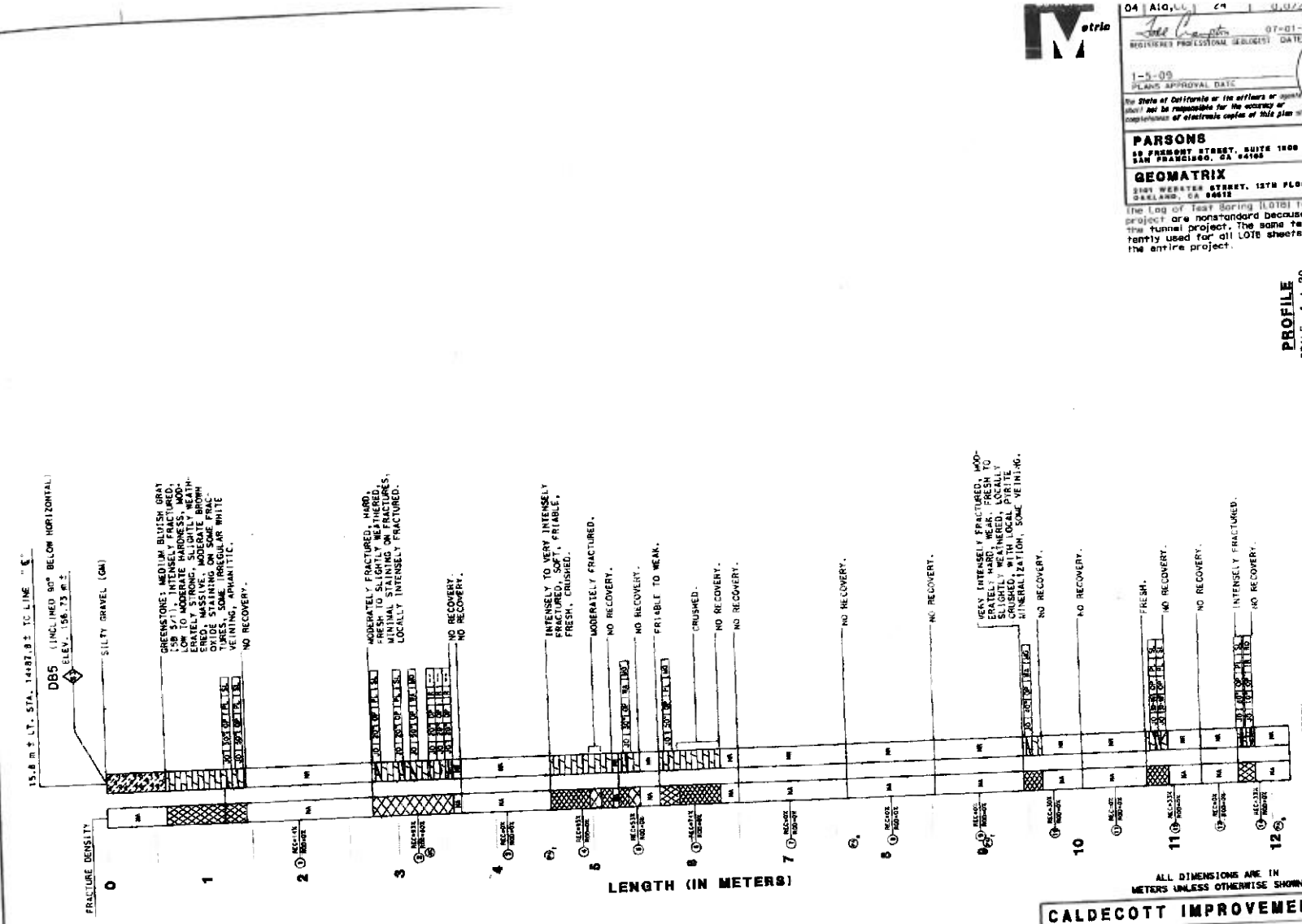
DETENTION BASIN

LOG OF TEST BORINGS DB4

CHECKED BY T. CRAMPTON(GEOMATRIX)/M. MOMENZADEH

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

EA 294911



ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

PROFILE
SCALE 1 : 20

LTB-307

CALDECOTT IMPROVEMENT PROJECT
DETENTION BASIN
LOG OF TEST BORINGS DB5

DIVISION OF ENGINEERING SERVICES

DRAWN BY: S. WESSELS 12/06
CHECKED BY: T. CRAMPTON/A. BEMAN 12/06 (GEOMATRIX) M. MOMENZADEH (CALTRANS)

FIELD INVESTIGATION BY: R. RUBIN (GEOMATRIX)

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL SERVICES
OFFICE OF GEOTECHNICAL DESIGN - WEST

CU 04
EA 294911

DRAWING NO. 28-0015K
KILOMETER POST 9.44/0.55

SHEET 107 OF 130

04 | AIG,LC | 29 | 0.0/2.1

REGISTERED PROFESSIONAL GEOLOGIST — DATE 07-01-08

1-5-09
PLANS APPROVAL DATE

PROFESSIONAL GEOLOGIST — TODD A. CRAMPTON — No. 2179 — CERTIFIED ENGINEERING GEOLOGIST — STATE OF CALIFORNIA

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PARSONS
50 FREMONT STREET, SUITE 1900
SAN FRANCISCO, CA 94105

GEOMATRIX
2101 WEBSTER STREET, 12TH FLOOR
OAKLAND, CA 94612

The Log of Test Boring (LOTB) templates for this project are nonstandard because of the nature of the tunnel project. The same template is consistently used for all LOTB sheets prepared for the entire project.

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO	TOTAL SHEETS
04	Ala,CC	24	8.2/10.0, 0.0/2.7	619	1435

Caltrans Metric

REGISTERED PROFESSIONAL GEOLOGIST — DATE 07-01-08

PROFESSIONAL GEOLOGIST TODD A. CRAMPTON No. 2179 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

1-5-09
PLANS APPROVAL DATE

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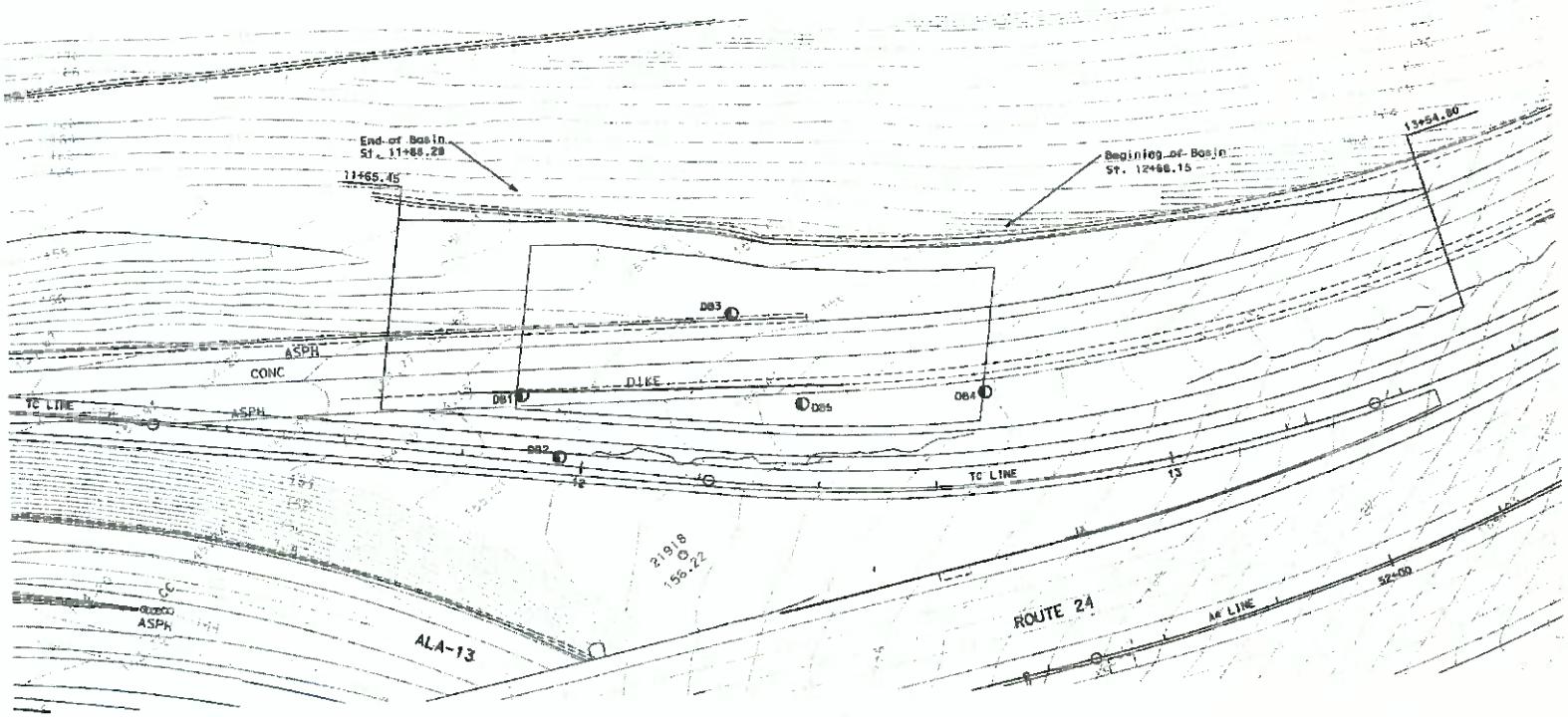
PARSONS
58 FREMONT STREET, SUITE 1800
SAN FRANCISCO, CA 94105

GEOMATRIX
2101 WEBSTER STREET, 12TH FLOOR
OAKLAND, CA 94612

The Log of Test Boring (LOTB) templates for this project are nonstandard because of the nature of the tunnel project. The same template is consistently used for all LOTB sheets prepared for the entire project.



LEGEND:

◐ APPROXIMATE VERTICAL BORING LOCATION DRILLED BY GEOMATRIX

PLAN
SCALE 1 : 400

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

LTB-301

CALDECOTT IMPROVEMENT PROJECT
DETENTION BASIN
LOG OF TEST BORINGS - BORING LOCATIONS

DIVISION OF ENGINEERING SERVICES		FIELD INVESTIGATION BY:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	GEOTECHNICAL SERVICES OFFICE OF GEOTECHNICAL DESIGN - WEST	BRIDGE NO. 28-0015K
DRAWN BY	S. WESSELS	GEOMATRIX AND CALTRANS			KILOMETER POST 9.44/0.55
CHECKED BY	T. CRAMPTON(GEOMATRIX)/M. MOMENZADEH(CALTRANS)			CU 04 EA 294911	DISREGARD PRINTS BEARING EARLIER REVISION DATES

SHEET 101 OF 130

State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

Memorandum

4-28-05 RECD

PHF Found Rept

Flex your power!
Be energy efficient!

CAT 322.03

To: MR. ALBERT ZEPEDA
Senior Transportation Engineer
Design Alameda I

Date: April 25, 2005

Attention: Amjad Naseer

File: 04-ALA-13,24,580,880
KP Var
04-250-0A8001
Gore Area Sign Replacement

From: TUNG NGUYEN
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

STEVEN KAKIHARA
Chief, Branch D
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject : Geotechnical Recommendations for Overhead Signs

This memo is in reply to your request to provide geotechnical recommendations for planned Overhead Signs with the worse-case foundation loads for the subject project. The project consists of replacing Overhead Signs on Routes 13, 24, 580, and 880 in Alameda County at Various Kilometer Posts.

Geotechnical Recommendations

Based on our evaluation of nearby borings and site reconnaissance visits, we have the following recommendations:

The Standard Overhead Signs – Tubular Single or Two Post Types with the maximum post height of 8.84 m and maximum panel depth of 3.048 m shall be adequate for the project at the following locations: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, ~~11~~, 12, 13, 14, 15, 16, 17, 19, 20, 21, and 22. These signs shall be supported by the Cast in Drilled Hole (CIDH) piles with the diameter of 1.524 m and the length of 10.058 m. Based on our evaluation, the foundation soils meet or exceed the required internal friction of 30 degree and unit weight of 1922 kg/m^3 (120 pcf).

Variable subsurface conditions are anticipated including high groundwater levels, caving soils, and hard materials during the CIDH pile construction. CIDH piles should be constructed in accordance with the Standard Specifications.

Sign Locations Requiring Additional Information

Proposed Overhead Sign #18

We understand that it has not been determined if this sign will be attached to the bridge structure or if it will extend to the street below (the corner space at Foothill and Marlow). If the sign will be attached to the bridge, no further geotechnical input would be required. If the sign will extend to the street below, the height of the sign will exceed the maximum height of the standard sign and would therefore become a special design requiring the input from Structures Design. On a preliminary basis, we evaluated the foundation for a longer sign and concluded that the standard foundation would probably be adequate. Nevertheless, Structures Design should evaluate the non-standard condition and we can confirm the adequacy of the foundation.

Overhead Sign #23

No subsurface data was available for this sign and its location is in an area potentially underlain by soft soils. Subsurface conditions at this location should be evaluated by performing a subsurface exploration program. We will update you regarding our schedule for the subsurface exploration.

Overhead Sign #11

We understand that the location of this sign has not been determined. It may either be located immediately behind a retaining wall structure or be attached to the retaining wall itself. As built plans indicate that the retaining wall is pile supported. If the sign will be located immediately behind the retaining wall structure, it appears that the sign will require a special design, partly because the required length of the CIDH foundation for the sign will encounter the retaining wall foundation. We can assist you and Structures Design as needed, when the location of the sign has been determined.

If you have any questions or need additional information, please call me at 510-622-1775 or Steven Kakihara at 510-286-4752.

c: TPokrywka, SKakihara, TNguyen, Daily File, Route File

TNguyen/mm

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. DOUGLAS PATTERSON
Senior Engineer
Department of Industrial Relations
Division of Occupational Safety and Health
Mining and Tunneling Unit

Date: March 21, 2014

File: 04-ALA-24, 580, VAR
04-4A3421
Efis# 0400020161
Gore Replacement Project
Underground Classification

From: RONALD KARPOWICZ RK
Engineering Geologist
Office of Geotechnical Design-West
Geotechnical Services
Division of Engineering Services

CHRIS RISDEN AS for CR
Chief, Branch B
Office of Geotechnical Design-West
Geotechnical Services
Division of Engineering Services

Subject: UNDERGROUND CLASSIFICATION

In accordance with the provisions of California Code of Regulations, Title 8, Subchapter 20 – Tunnel Safety Orders, Caltrans is submitting this memorandum to gain an underground classification for the construction of a gore replacement project at three locations in Alameda County on State Routes 24 and 580. The site locations are depicted on Figure 1, Vicinity Map.

As the basis for our analysis, we have completed the following services:

- Reviewed published geologic maps, As-Built Plans, and Caltrans Logs of Test Borings to evaluate the prevailing geologic conditions at the site and in the site vicinity.

- Prepared this memo presenting a summary of our investigation, a description of the geologic conditions at the site, and our recommendations for underground classification.

1. PROJECT DESCRIPTION

This project proposes the installation of overhead sign structures at the following three locations: Location 1 - State Route 580 Post Mile 44.7, Location 2 - State Route 24 Post Mile 5.6, and Location 3 - State Route 580 Post Mile 20.77. The foundations for the overhead signs will consist of Cast-In-Place-Drilled-Holes (CIDH) piles approximately 5 feet in diameter and 25 to 33 feet in depth (See Figure 2 – 2010 Standard Plan S8).

2. SITE GEOLOGY

Location 1 - State Route 580 Post Mile 44.7: According to Graymer (2000), location 1 is underlain by alluvial fan and fluvial deposits (Holocene). Graymer (2000) describes the alluvial fan deposits as brown or tan, medium dense to dense, gravely sand or sandy gravel that generally grades upward to sandy or silty clay. Near the distal fan edges, the fluvial deposits are typically brown, never reddish, medium dense sand that fines upward to sandy or silty clay. The best developed Holocene alluvial fans are on the San Francisco Bay plain. All other alluvial fans and fluvial deposits are confined to narrow valley floors (See Figure 3A).

Location 2 - State Route 24 Post Mile 5.6: According to Graymer (2000), location 2 is underlain by the Artificial Fill (Historic). Graymer (2000) describes the fill as man-made deposit of various materials and ages. Some are compacted and quite firm, but fills made before 1965 are nearly everywhere not compacted and consist simply of dumped materials (See Figure 3A).

Location 3 - State Route 580 Post Mile 20.77: According to Helley and Graymer (1997), location 3 is underlain by Alluvial Fan and Fluvial Deposits (Holocene). Helley and Graymer (1997) describe the alluvial fan deposits as brown or tan, medium dense to dense, gravely sand or sandy gravel that generally grades upward, to sandy or silty clay. Near the distal fan edges, the fluvial deposits are typically brown, medium dense sand that fines upward to sandy or silty clay. The best developed Holocene alluvial fans in Contra Costa County are on the Richmond Bay Plain and the fans of Sand and Deer Creeks in the Brentwood Area. All other alluvial fans and fluvial deposits are confined to narrow valley floors. Several Holocene fans along the south shore of the Carquinez Strait have bulbous surface morphology, are short, overlap older Pleistocene surfaces, and may be debris flows (See Figure 3B).

3. EXPLORATORY BORINGS

Below is a review of previous exploratory borings in the areas of the proposed construction:

Location 1 - State Route 580 Post Mile 44.7: According to the Log of Test Borings, the area, Location 1 is underlain by alluvial material consisting of gravelly sand to silty clay (See Figure 4).

Location 2 - State Route 24 Post Mile 5.6: According to the Log of Test Borings, the area, Location 2 is underlain by up to 20 to 30 feet of fill consisting of clay and shale and sandstone gravel. The fill is underlain by bedrock consisting of interbeded shale and sandstone (See Figure 5).

Location 3 - State Route 580 Post Mile 20.77: Log of Test Borings for B-62 and B94-2 are located in the immediate vicinity of proposed Location 3. According to these logs of test borings, location 3 is underlain by medium dense sandy clay fill to a depth of approximately 5

feet. The fill is underlain by soft to very stiff silty clay to a depth of at least 33 feet (See Figure 6).

4. CALIFORNIA OIL AND GAS FIELDS

According to Publication No. TR10 "California Oil and Gas Fields, Northern California Vol. 3" (California Department of Conservation, Division of Oil and Gas), none of the above mentioned deposits are associated with gas production within California.

5. UNDERGROUND CLASSIFICATION RECOMMENDATION

Location 1 - State Route 580 Post Mile 44.7: Based on our review, we recommend that this location be classified as non gassy.

Location 2 - State Route 24 Post Mile 5.6: Based on our review of the logs of test borings, the site is underlain by shale. Due to the presence of shale, we recommend that this location be classified as potentially gassy.

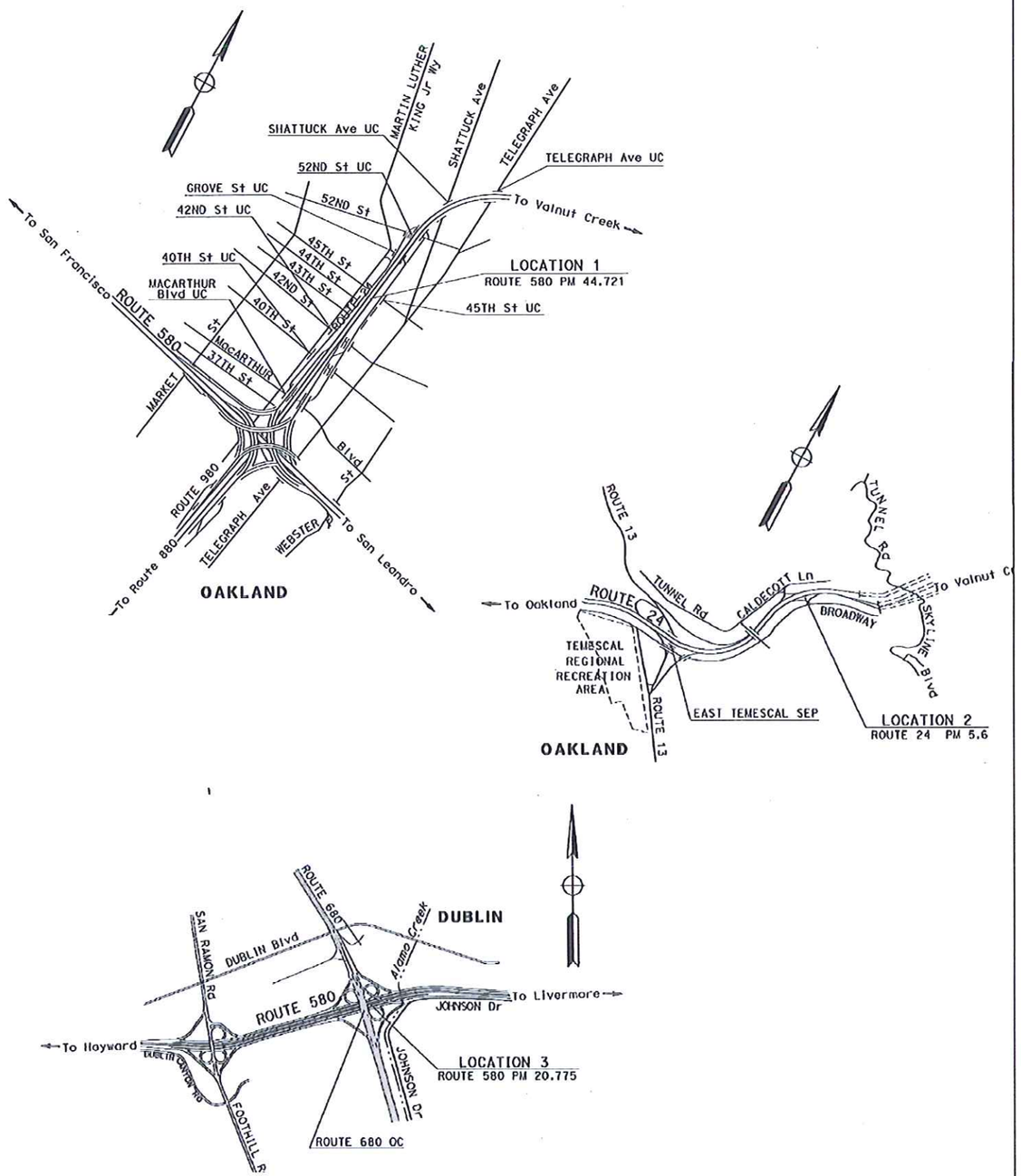
Location 3 - State Route 580 Post Mile 20.77: Based on our review, we recommend that this location be classified as non gassy.

If you have any questions or require further information, please contact Ron Karpowicz at (510) 286-5640 or Chris Risden at (510) 622-8757.

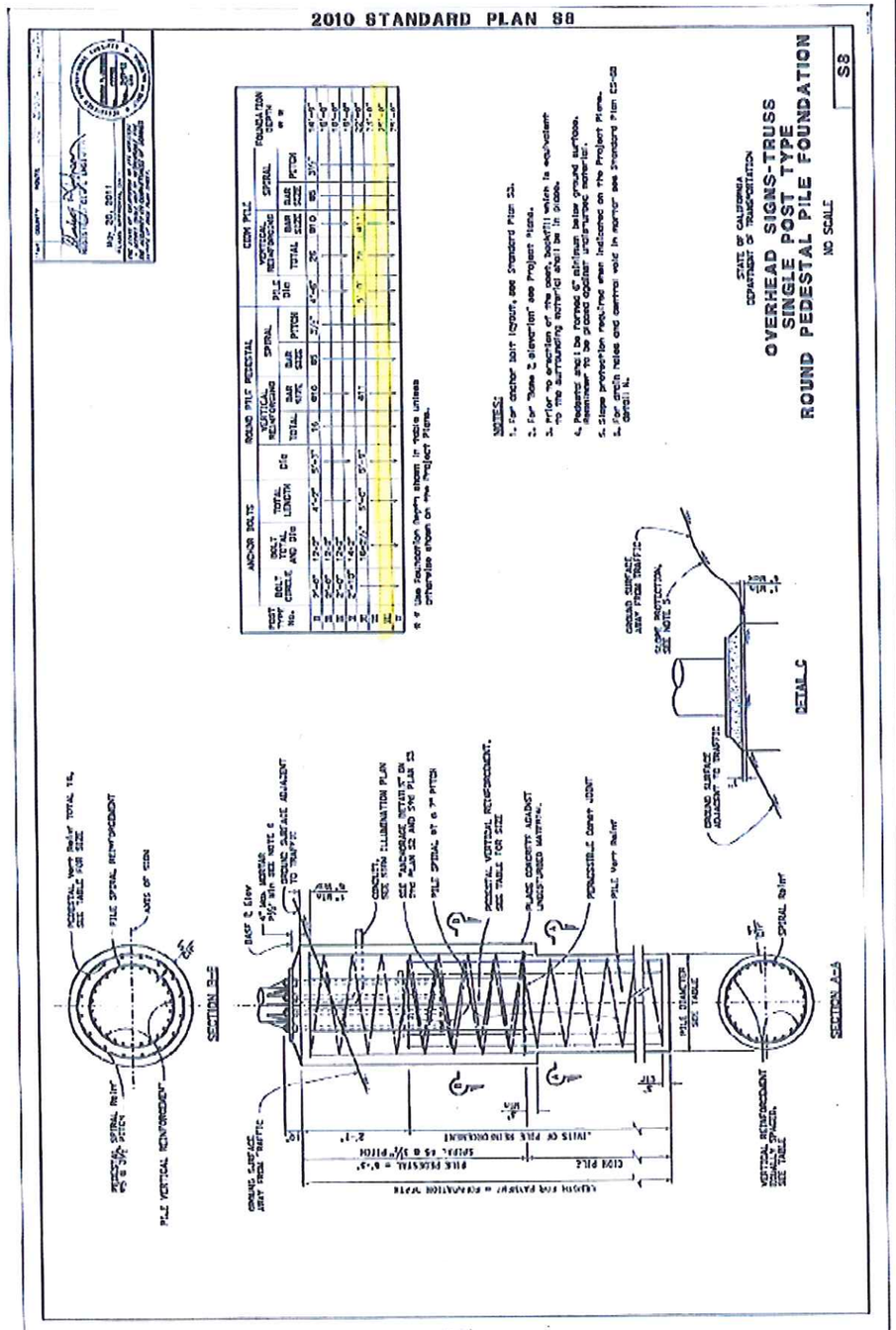
Attachments
Figure 1, Vicinity Map
Figure 2, Standard Plan
Figure 3A, Vicinity Geologic Map
Figure 3B, Vicinity Geologic Map
Figure 4, Logs of Test Borings
Figure 5, Logs of Test Borings
Figure 6, Logs of Test Borings

c: TPokrywka, CRisden, Daily File

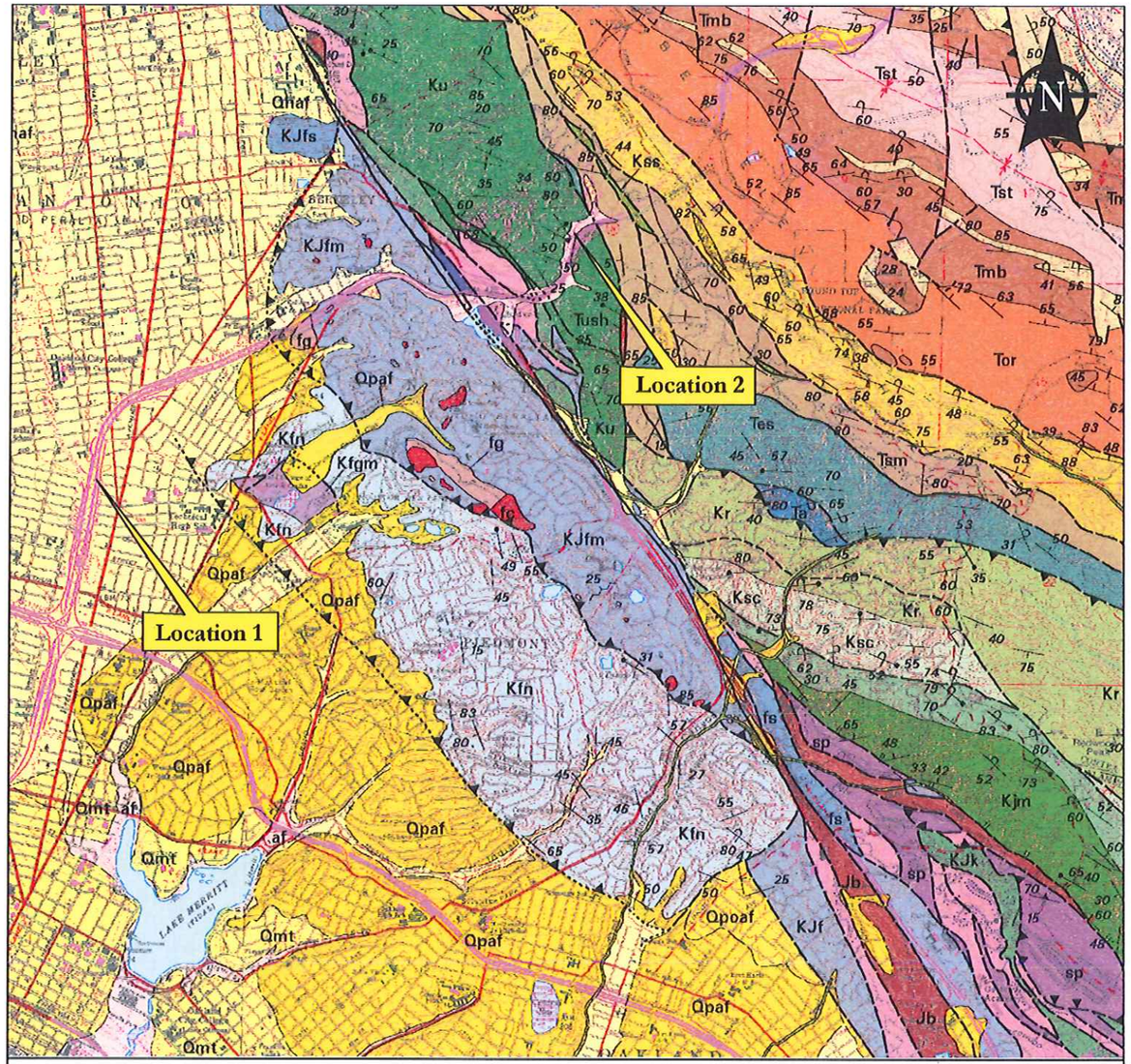
RKarpowicz/mm



Caltrans	UNDERGROUND CLASSIFICATION HIGHWAY 580 PM44.7, 24 PM 5.6, AND 580 PM 20.775 ALAMEDA COUNTY, CALIFORNIA	VICINITY MAP
	MARCH 2014	FIGURE 1



Caltrans	UNDERGROUND CLASSIFICATION HIGHWAY 580 PM44.7, 24 PM 5.6, AND 580 PM 20.775 ALAMEDA COUNTY, CALIFORNIA	STANDARD PLAN
	MARCH 2014	FIGURE 2

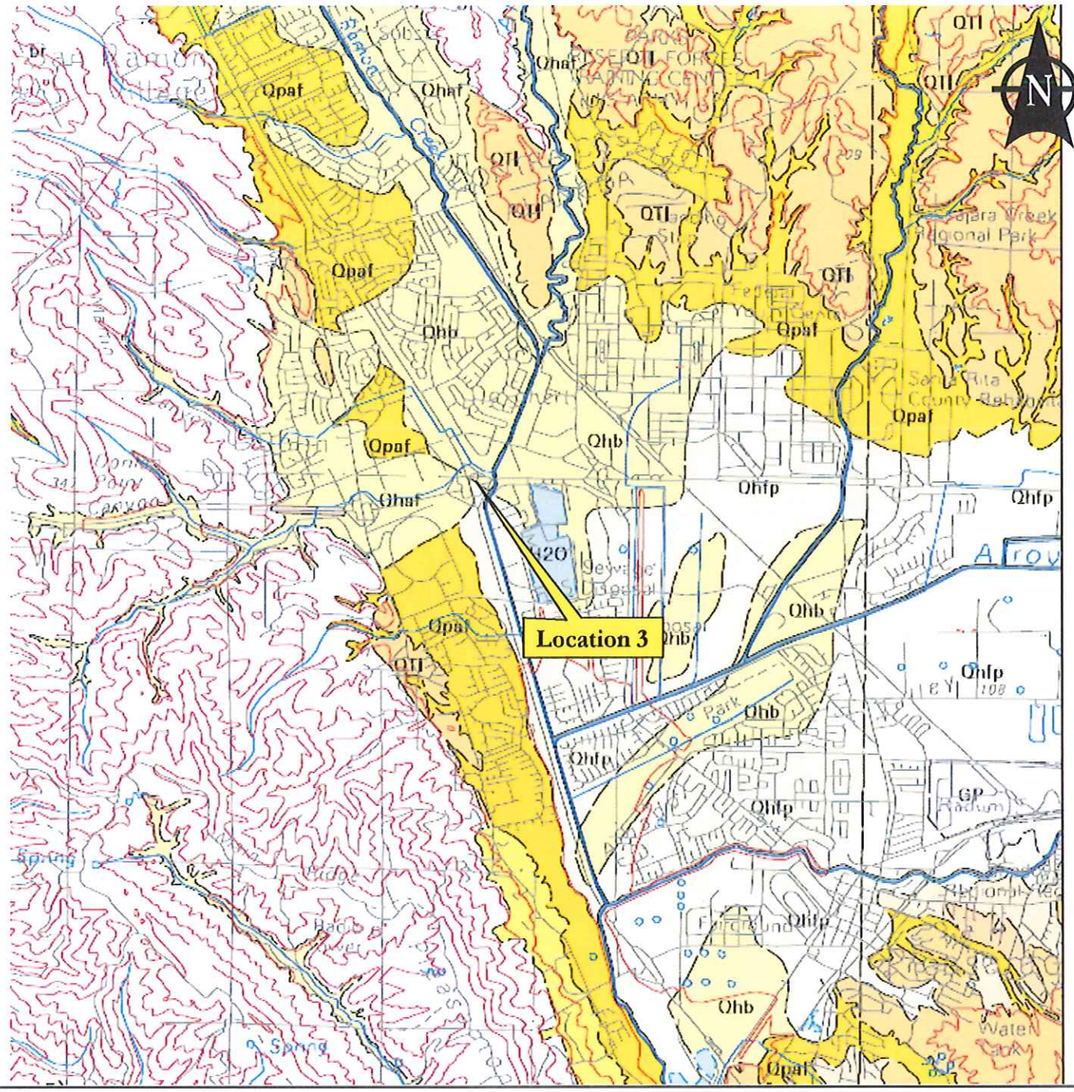


LEGEND

af	Artificial fill (Historic)
Qhaf	Alluvial fan and fluvial deposits (Holocene)
Tmb	Moraga Formation (late Miocene)

Base: Geologic Map of the Oakland Metropolitan Area, Alameda County CA (Graymer, 2000)
Not to scale

Caltrans	UNDERGROUND CLASSIFICATION HIGHWAY 580 PM44.7, 24 PM 5.6, AND 580 PM 20.775 ALAMEDA COUNTY, CALIFORNIA	GEOLOGIC MAP
	MARCH 2014	FIGURE 3A



LEGEND

af	Artificial fill (Historic)
Qhaf	Alluvial fan and fluvial deposits (Holocene)

Base: Quaternary Geology of Alameda County and Surrounding Areas, California Open File 97-97 (Helley and Graymer, 1997)
Not to scale

Caltrans	UNDERGROUND CLASSIFICATION HIGHWAY 580 PM44.7, 24 PM 5.6, AND 580 PM 20.775 ALAMEDA COUNTY, CALIFORNIA	GEOLOGIC MAP
	MARCH 2014	FIGURE 3B

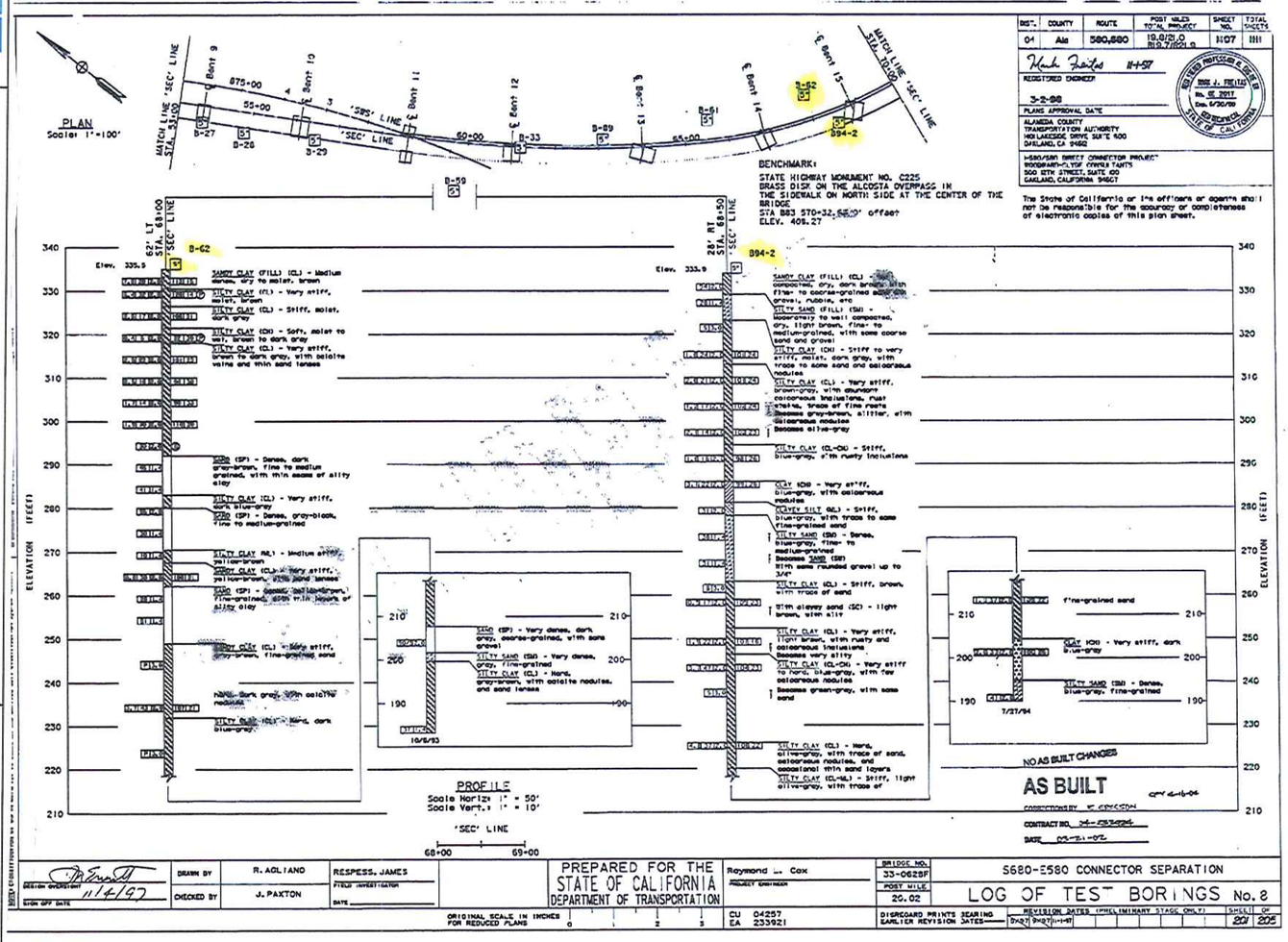
Caltrans

UNDERGROUND CLASSIFICATION
HIGHWAY 580 PM44.7, 24 PM 5.6, AND 580 PM 20.775
ALAMEDA COUNTY, CALIFORNIA

MARCH 2014

LOGS OF TEST BORINGS

FIGURE 6



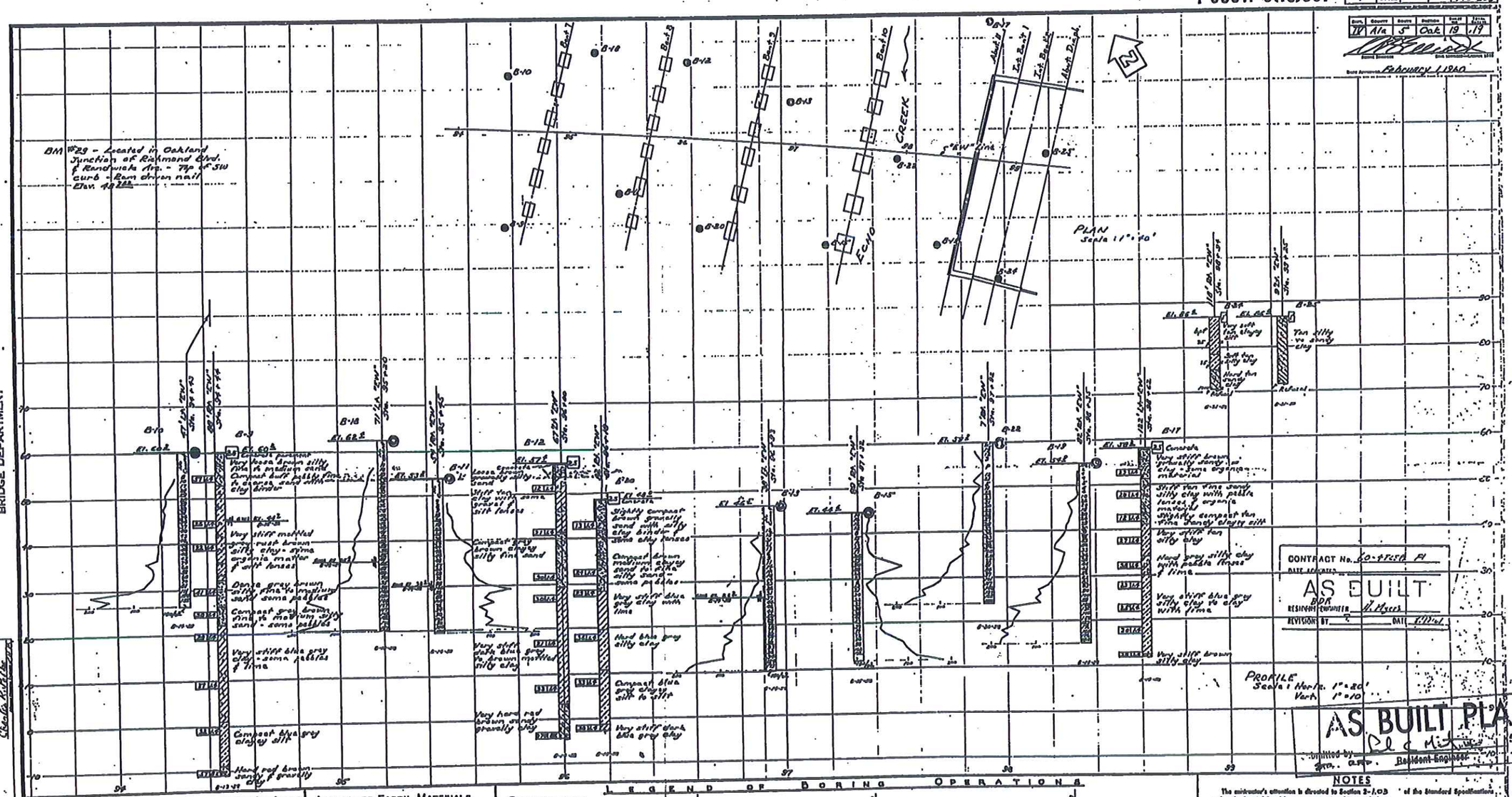
9-13-93 TO ACCOMPANY PLANS DATED	04	Ala	580	43.5/44.5	37	56

I-005W-6(19)507

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	CAL.			140 251	

DIST.	COUNTY	ROUTE	POSTMILE	SHEET NO.	TOTAL SHEETS
IV	Ala	5	Oak	19	19

FEBRUARY 1940



141

MOE AMINI
DESIGN OVERSIGHT
5/19/1993
SIGN OFF DATE

NOTE:
ADDITIONAL AS-BUILT FOUNDATION DATA MAY BE AVAILABLE AT THE DIVISION OF NEW TECHNOLOGY, MATERIALS AND RESEARCH 5900 FOLSOM BOULEVARD, SACRAMENTO, CALIFORNIA 95819

DESIGN	BY	CHECKED
DETAILS	BY	CHECKED
QUANTITIES	BY	CHECKED

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

Caltrans

UNDERGROUND CLASSIFICATION
HIGHWAY 580 PM44.7, 24 PM 5.6, AND 580 PM 20.775
ALAMEDA COUNTY, CALIFORNIA

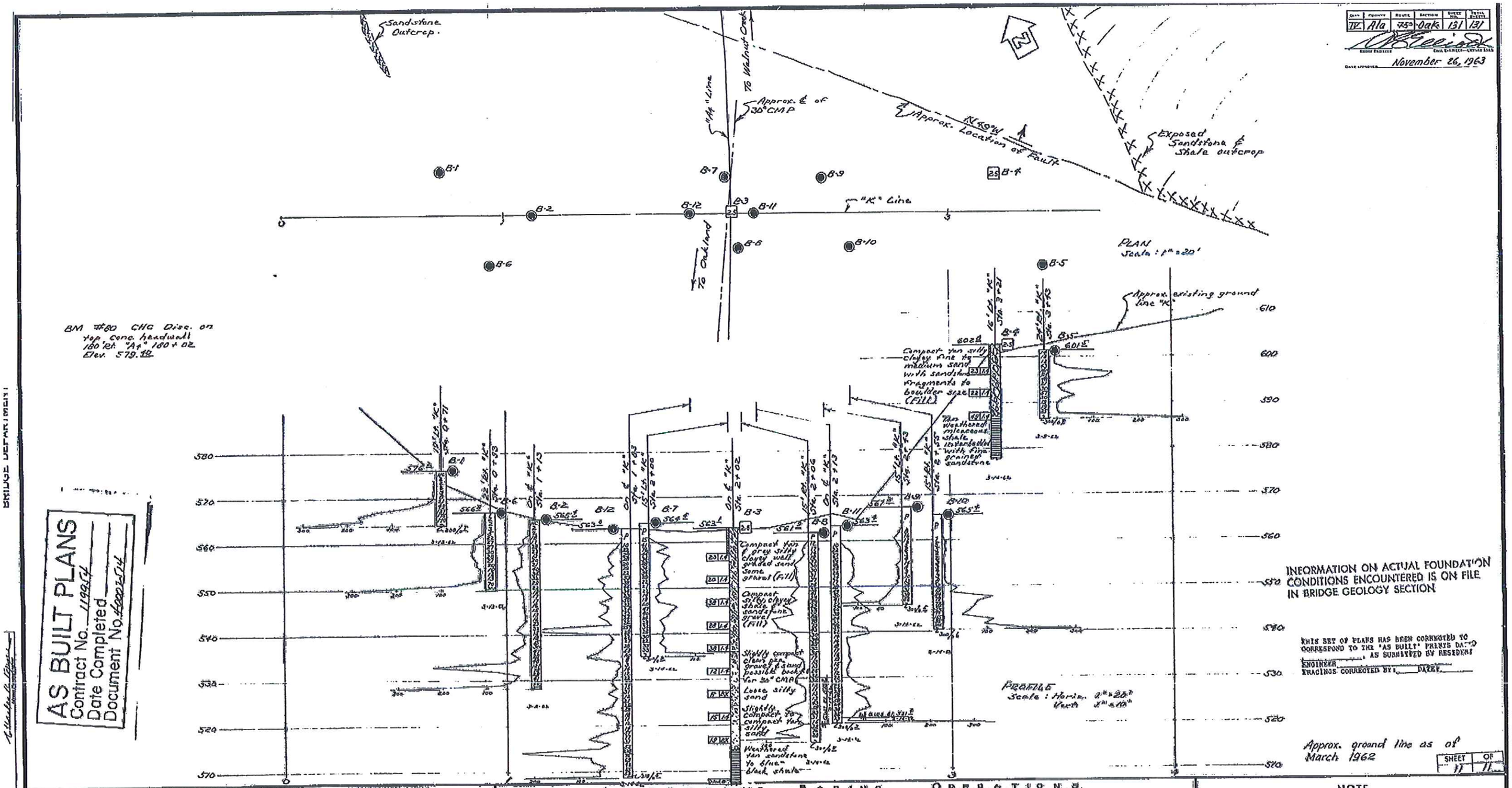
MARCH 2014

LOGS OF TEST BORINGS

FIGURE 4

District	County	Route	Section	Sheet No.	Total Sheets
04	Ala	580	Oak	131	131

Date Approved November 26, 1963



Classification of Material Based on Standard Grade Size Limits

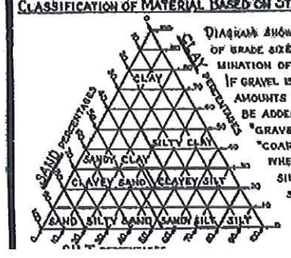


Diagram showing the basis for estimates of grade size distribution used in determination of class names.

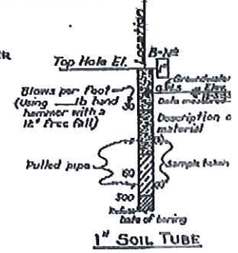
If gravel is present in appreciable amounts the term "gravelly" may be added to the class name, viz, "gravelly sand." The terms "coarse," "medium" and "fine" when used to describe sand, silt and gravel refer to standard grade size limits.

Legend of Earth Materials

- Gravel
- Sand
- Silt
- Clay
- Sandy Clay or Clayey Sand
- Sandy Silt or Silty Sand
- Silty Clay or Clayey Silt
- Peat and/or Organic Matter
- Fill Material
- Igneous Rock
- Sedimentary Rock
- Metamorphic Rock

Legend of Boring Operations

- Penetrometer
- 2¼" Cone Penetrometer
- Sampler Boring (Dry)
- Rotary Boring (Wet)
- Auger Boring (Dry)
- Jey Boring
- Core Boring
- Test pit



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and h

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UNDERGROUND CLASSIFICATION HIGHWAY 580 PM44.7, 24 PM 5.6, AND 580 PM 20.775 ALAMEDA COUNTY, CALIFORNIA	LOGS OF TEST BORINGS
MARCH 2014	FIGURE 5