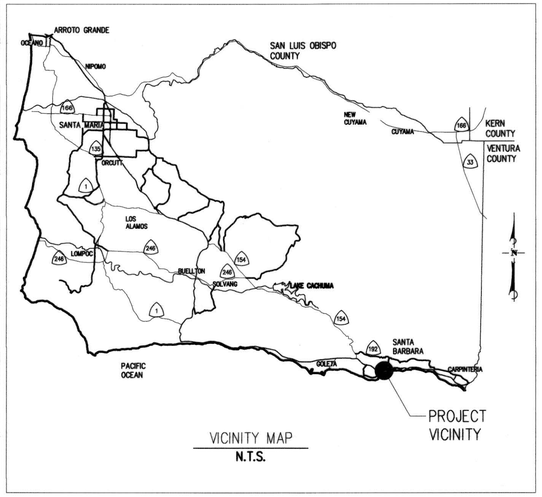
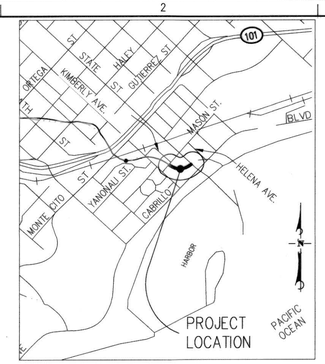
LOWER MISSION CREEK

FLOOD CONTROL PROJECT

CITY OF SANTA BARBARA
&
SANTA BARBARA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
REACH 1A – STATE ST. TO MASON ST. – PHASE 2



VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

GENERAL NOTES

1. RIGHT AND LEFT BANKS ARE LOOKING DOWNSTREAM.

2. ON THIS SET OF DRAWINGS THE DIRECTION OF FLOW IS SHOWN FROM LEFT TO RIGHT AS YOU FACE THE DRAWING.

DEMOLITION NOTES

3. PIPING: REMOVE ALL PIPING IN THE DEMOLITION AREA, INCLUDING UNDERGROUND PIPING, EXPOSED PIPING, OR PIPING FIXED TO TIMBER STRUCTURES, TO THE PROPERTY LINE.

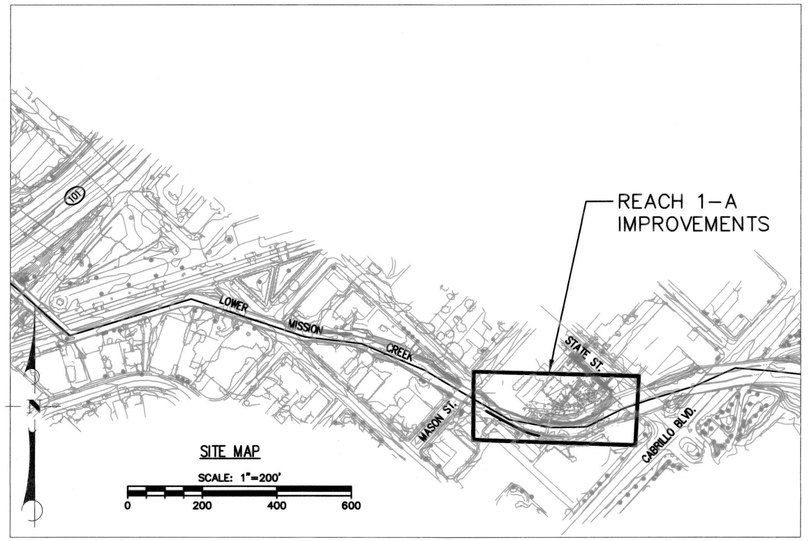
4. ELECTRICAL AND TELEPHONE LINES: REMOVE ELECTRICAL CONDUIT, FIXTURES AND EQUIPMENT FROM THE DEMOLITION AREA, TO THE PROPERTY LINE.

5. WATER LINES: REMOVE AND CAP WATER AND OTHER UTILITY LINES IN ACCORDANCE WITH APPLICABLE CODES, TO THE PROPERTY LINE.

6. STORM DRAINS: REMOVE CATCH BASINS IN THE DEMOLITION AREA, INCLUDING OUTFALL PIPING THROUGH THE BULKHEAD. REMOVE CITY OUTFALL STRUCTURES AND TRIM PIPE TO CLEAR NEW CONSTRUCTION.

CONSTRUCTION NOTES

1. CONSTRUCT VERTICAL 24" CONCRETE SECANT TYPE DRILLED PILE WALL USING CONTINUOUS FLIGHT AUGER; SEE SH.D–1.
2. APPLY 6" SHOTCRETE (STEEL MESH REINFORCED) OVER PILE SURFACE WATERSIDE. SANDBLAST PILES BEFORE SHOTCRETE; SEE SH. D–1.
3. CONSTRUCT RIPRAP REVETMENT W/ RSP FABRIC LAYER PER CALTRANS STANDARD SPECS–SECTION 72; ROCK SIZE 75 LB, CLASS NO.2 GRADING OF ROCK SLOPE PROTECTION
4. CONSTRUCT 42" HIGH ORNAMENTAL STEEL FENCE, SEE SH.D–3.
5. NOT USED
6. DEMOLISH AND REMOVE. PULL EXISTING PILES, WOODEN FENCES & LAGGING, TYPICAL; SEE SH.C–2.
7. PROTECT IN PLACE
8. CONSTRUCT 24"x24" REINFORCED BOND BEAM AS PER DETAILS ON SH.D–1.
9. CONSTRUCT #3 SPIRAL STEEL CAGE WITH 3" PITCH. TOP OF SPIRAL SHALL BE 6" BELOW TOP OF PILE. BOTTOM OF SPIRAL SHALL BE 6" ABOVE BOTTOM OF PILE
10. PLACE WATER STOP PER DETAIL ON SH. D–1
11. INSTALL BOULDER CLUSTER. BOULDER SIZE 2T.
12. SAWCUT AND REMOVE EXISTING PCC CURB AND PAVEMENT AND RECONSTRUCT BOLLARDS AS NEEDED TO CONSTRUCT PROPOSED IMPROVEMENTS.
13. RECONSTRUCT PCC CURB AND PAVEMENT, SEE SH.D–4.



SURVEY MAPPING NOTES

1. MAPPING

TOPOGRAPHIC MAPPING WAS COMPILED AT A SCALE OF 1"=200', WITH A 1 FOOT CONTOUR INTERVAL, USING STANDARD PHOTOGRAMMETRIC METHODS AND PROCEDURES BY ARROWHEAD MAPPING CORPORATION, FROM AERIAL PHOTOGRAPHY DATED MAY 5, 2003.

MAPPING IS SUPPLEMENTED BY DATA COLLECTED IN A FIELD SURVEY USING CONVENTIONAL METHODS AND PROCEDURES IN JUNE 2003 AND IN APRIL 2010 BY PENFIELD & SMITH, AND IN AUGUST 2003 BY JOHNSON FRANK & ASSOCIATES.

AERIAL PHOTOGRAPHY

THE AERIAL PHOTOGRAPHY USED AS THE BACKGROUND FOR THIS MAP WAS OBTAINED ON MAY 5, 2003 BY ARROWHEAD MAPPING CORPORATION, THE PHOTOGRAPHY HAS BEEN CONVERTED INTO A DIGITAL FORMAT AND CORRECTED FOR HORIZONTAL AND VERTICAL DISTORTION USING STANDARD PHOTOGRAMMETRIC METHODS.

2. BASIS OF BEARINGS AND COORDINATES

BEARINGS SHOWN ON THIS MAP ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, NAD 83, ZONE 5 GRID (EPOCH 1991.35), DEFINED LOCALLY BY THE SANTA BARBARA CONTROL NETWORK AS SHOWN ON RECORD OF SURVEY FILED WITH THE COUNTY SURVEYOR IN BOOK 147 PAGES 70–74. DISTANCES AND COORDINATES SHOWN AS MEASURED OR CALCULATED ARE EXPRESSED IN CCS, NAD 83, ZONE V GRID US SURVEY FOOT UNITS.

3. ELEVATIONS

ELEVATIONS SHOWN HEREON ARE EXPRESSED IN U.S. SURVEY FEET AND ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), DEFINED LOCALLY BY THE SANTA BARBARA CONTROL NETWORK AS SHOWN ON RECORD OF SURVEY FILED WITH THE COUNTY SURVEYOR IN BOOK 147 PAGES 70–74.

UTILITIES:
THE EXISTING UTILITIES SHOWN HEREON HAVE BEEN COMPILED FROM ATLAS MAPS OBTAINED FROM THE FOLLOWING PUBLIC AND PRIVATE ENTITIES:

ELECTRIC – SOUTHERN CALIFORNIA EDISON COMPANY
GAS – SOUTHERN CALIFORNIA GAS COMPANY
CATV – COX COMMUNICATIONS
TELEPHONE COMMUNICATIONS – VERIZON
FIBER OPTIC CABLE – AT&T
FIBER OPTIC CABLE – U.S. SPRINT
FIBER OPTIC CABLE – MCI NETWORK SERVICES INC.
WATER – CITY OF SANTA BARBARA
SEWER – CITY OF SANTA BARBARA
STORM DRAIN – CITY OF SANTA BARBARA

COMPILED UTILITIES HAVE BEEN GEOREFERENCED TO VISIBLE SURFACE UTILITIES LOCATED BY SAID AERIAL MAPPING AND SUPPLEMENTAL FIELD SURVEYS.

THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ACCURACY, AND COMPLETENESS OF INFORMATION OBTAINED FROM SAID ATLAS MAPS.

BENCHMARK

BM1	FOUND STANDARD USC&GS BRASS TIDAL STATION DISK (DESIGNATION 941 1340 TIDAL 1) STAMPED "BM 1 1930" NEAR THE INTERSECTION OF HELENA AVENUE AND EAST CABRILLO BLVD., SET IN THE TOP OF THE NE'LY END OF A 4' HIGH CONC. GUARDRAIL OF THE BRIDGE OVER MISSION CREEK, 52.5, SE'LY OF THE CENTERLINE OF CABRILLO BLVD. ELEVATION = 4.921 METERS NAVD88.

UNDERGROUND SERVICE ALERT

1–800–227–2600

TWO (2) WORKING DAYS BEFORE YOU DIG ARTICLE 2, SECTION 4216 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFI– CATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT AT THE NUMBER ABOVE.

INDEX TO SHEETS

ABBREVIATIONS USED

SBCFCD – SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT
SPPWC – STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
BP – BEGIN POINT
EP – END POINT
PC – POINT OF CURVE
PT – POINT OF TANGENT
BC – BEGIN CURVE
EC – END CURVE
PCC – POINT OF COMPOUND CURVE
ROW – RIGHT OF WAY
FS – FINISHED SURFACE
WSE – WATER SURFACE ELEVATION
TOW – TOP OF WALL

LEGEND

- PROPOSED CHANNEL WALL
- FUTURE CHANNEL WALL
- MERGED PARCEL BOUNDARY
- EASEMENT LINE
- PROPOSED RIPRAP TOE
- P/L — PROPERTY LINE
- STRUCTURES TO BE DEMOLISHED
- STRUCTURES TO BE PROTECTED
- TEMPORARY SECURITY FENCE

- CATCH BASIN
- CATCH BASIN
- FIRE HYDRANT
- IRRIGATION CONTROL VALVE
- METER
- MANHOLE
- OBSERVATION MONITORING WELL
- POWER POLE
- PULLBOX
- STREET LIGHT
- WATER VALVE

CIP – CAST IRON PIPE
VCP – VITRIFIED CLAY PIPE
ABAN. – ABANDONED
CMP – CORRUGATED METAL PIPE
PE – POLYETHYLENE
DI – DROP INLET
ELEC. – ELECTRIC
FL – FLOWLINE
GV – GAS VALVE
INV – INVERT
ICV – IRRIGATION CONTROL VALVE
LP – LIGHT POLE
PB – PULL BOX
RCP – REINFORCED CONCRETE PIPE
SCO – SEWER CLEAN OUT
SD – STORM DRAIN
SMH – SEWER MANHOLE
TEL – TELEPHONE
VLV – VALVE
VLT – VAULT
WM – WATER METER
EG – EXISTING GROUND
HGL – HYDRAULIC GRADIENT LINE
EGL – ENERGY GRADIENT LINE

- S — UNDERGROUND SEWER
- W — UNDERGROUND WATER
- G — UNDERGROUND GAS
- OHW — OVERHEAD WIRE
- E — UNDERGROUND ELECTRIC
- SD — UNDERGROUND STORM DRAIN
- SL — UNDERGROUND STREET LIGHT (ELEC.)
- T — UNDERGROUND TELEPHONE
- AW — UNDERGROUND ABANDONED WATER
- FOC — UNDERGROUND FIBER OPTIC CABLE
- TR — UNDERGROUND TRAFFIC SIGNAL (ELEC.)
- AS — UNDERGROUND ABANDONED SEWER
- CTV — UNDERGROUND CABLE TV
- EXISTING LIGHT

REGISTERED PROFESSIONAL ENGINEER
WILLIAM E. STRACKER
NO. C 025082
Exp. 12/31/2013
STATE OF CALIFORNIA – CIVIL

SHEET INDEX NO. G–1

DESIGNED BY: RW & VM	PLANS PREPARED UNDER THE SUPERVISION OF
DRAWN BY: VM	DATE: 09/06/2013
CHECKED BY: WS	R.C.E. NO: 25082
FILE: 1910GBS01–#1–2	WILLIAM E STRACKER, REGISTERED CIVIL ENGINEER — EXP: 12/31/2013

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
0	FINAL SUBMITTAL	12/20/13	

REVISIONS

REACH 1A – LOWER MISSION CREEK
PHASE 2
TITLE SHEET, KEY MAP, VICINITY MAP
CITY OF SANTA BARBARA, CALIFORNIA

PREPARED BY:
D R Consultants & Designers, Inc.

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

CITY OF SANTA BARBARA, APPROVED:
CITY ENGINEER — DATE 1/6/14
ORIGINAL SIGNED DATE 1/6/2014

SANTA BARBARA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
DEPUTY DIRECTOR, PUBLIC WORKS — DATE 1-7-14

SCALE AS SHOWN
SHEET 1 OF 13 SHEETS

12/20/2013 8:31:41 AM

CURVE TABLE				
CURVE	POINTS	LENGTH	RADIUS	Δ
C1	G–H	65.19'	680'	5°29'35"
C2	N–O	142.76'	341'	23°57'28"

LINE TABLE			
LINE	POINTS	LENGTH	DIRECTION
L1			
L2			
L3			
L4			
L5	F–E	171.70'	N48° 01' 07.07"W
L6	G–F	5.67'	N42° 25' 43.34"E
L9	J–H	113.04'	S61° 21' 16.05"E
L10	E–J	51.61'	S42° 25' 48.68"W
L11	J–P	32.95'	S42° 25' 48.68"W
L12	P–O	120.89'	S61° 21' 16.05"E
L13	N–M	39.20'	N44° 31' 40.02"E

LINE AND CURVE DATA FOR THE PROPOSED TEMPORARY CONSTRUCTION EASEMENTS & TEMPORARY RIGHT OF ENTRY

N

MASON STREET

APN: 033-102-018
35 STATE ST. SANTA BARBARA
BEACH HOLDING LLC

033-102-003
15 W. MASON ST.

APN: 033-102-017
22 W. CARRILLO BLVD.
ROMASANTA

HOTEL

EXISTING MASON STREET BRIDGE

EXISTING STATE STREET BRIDGE

AREA=5216 S.F.
PERPETUAL EASEMENT

PROJECT LIMIT

ACCESS ONLY

EXISTING ELECTRICAL VAULT/TRANSFORMER, PROTECT IN PLACE

CREEK ℄

BEGIN PHASE 2 RIGHT BANK WALL STA:12+61.24

EXIST. WATER LINE TO BE RELOCATED BY OTHERS

FUTURE RELOCATED WATER LINE

EXISTING PEDESTRIAN BRIDGE AND UTILITIES CONDUITS AT C/L STA:14+54.73 PROTECT IN PLACE

EXIST. WALL

20' TEMP EASEMENT

5' PERPETUAL EASEMENT

60' PERPETUAL EASEMENT

10' PERPETUAL EASEMENT

UTILITY PB PROTECT IN PLACE

EXIST. UTILITIES CONDUITS PROTECT IN PLACE

PHASE 1
EXISTING

ELADIO'S RESTAURANT

APN: 033-102-007 22 W. CABRILLO BLVD. ROMASANTA

APN: 033-102-002
28 W. CARRILLO BLVD.
BEACH MOTEL PARTNERS

CABRILLO BLVD.

LEGEND

- PROPOSED CHANNEL WALL
- MERGED PARCEL BOUNDARY
- EASEMENT LINE
- PROPOSED RIPRAP TOE
- P/L PROPERTY LINE
- STRUCTURES TO BE DEMOLISHED
- STRUCTURES TO BE PROTECTED
- NOT USED
- NOT USED
- TEMPORARY RIGHT OF ENTRY LINE

⚠1 CONTRACTOR ACCESS PROHIBITED

PERPETUAL EASEMENTS

INSTRUMENT No. 2011–0029044
INSTRUMENT No. 2004–0132181
INSTRUMENT No. 2004–0132182
INSTRUMENT No. 2004–0132183

EXISTING AND PROPOSED EASEMENTS – PLAN

SCALE: 1"=20'
0 20 40 60

NOTE: ACCESS ONLY

WITHIN THE TEMPORARY RIGHT OF ENTRY AREA LABELED AS "ACCESS ONLY" THE CONTRACTOR SHALL NOT STOCKPILE MATERIALS OR STAGE CONSTRUCTION EQUIPMENT. PARKING STALLS SHALL BE MADE ACCESSIBLE TO HOTEL GUESTS TO THE MAXIMUM EXTENT FEASIBLE AND CLOSURE OF HOTEL PARKING SHALL ONLY BE DONE WITH PRIOR APPROVAL BY THE ENGINEER AND ONLY FOR CONTRACTOR ACCESS TO THE WORK SITE.

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
	REVISIONS		
0	FINAL SUBMITTAL	12/20/13	
⚠	PROHIBIT ACCESS	3-24-2014	MS

REACH 1A – LOWER MISSION CREEK
PHASE 2 – PROJECT LIMITS, EXISTING AND PROPOSED EASEMENTS AND TEMPORARY RIGHT OF ENTRY
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREAPERD BY:

D R Consultants & Designers, Inc.

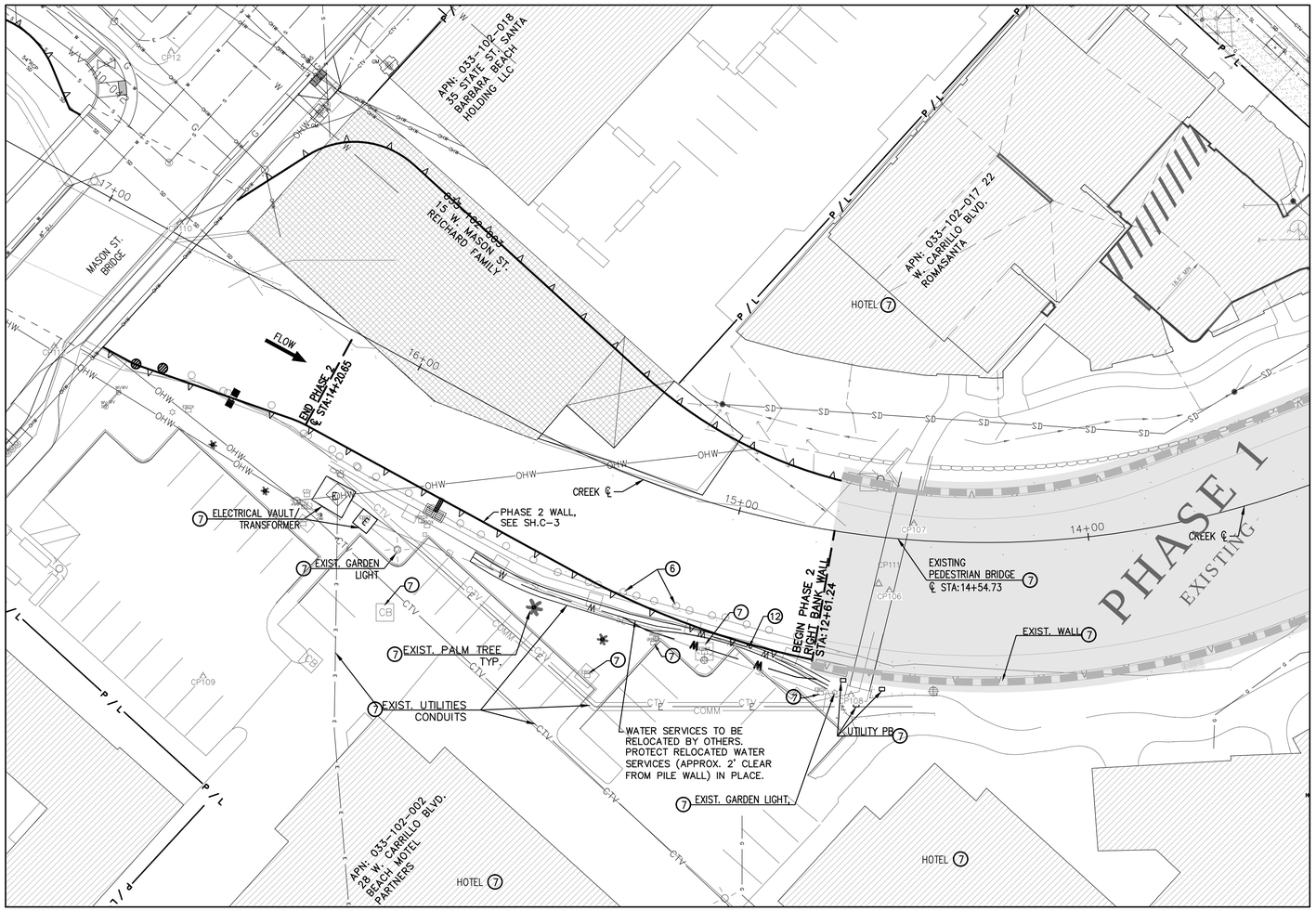
DESIGNED BY: RW & WM
DRAWN BY: VM
CHECKED BY: WS

SCALE AS SHOWN
SHEET 2 OF 13 SHEETS
FILE NAME: 1910CSP01-#2-2

C-1

CONSTRUCTION NOTES

(6) DEMOLISH AND REMOVE. PULL EXISTING PILES, WOODEN FENCES & LAGGING, TYPICAL
(7) PROTECT IN PLACE
(12) SAWCUT AND REMOVE EXISTING PCC CURB AND PAVEMENT AND RECONSTRUCT BOLLARDS AS NEEDED TO CONSTRUCT PROPOSED IMPROVEMENTS.



PHASE 2 – DEMOLITION PLAN

SCALE: 1"=20'
0 20 40 60

0	FINAL SUBMITTAL	12/20/13	APPROVAL
SYMBOL	DESCRIPTIONS	DATE	REVISIONS

REACH 1A – LOWER MISSION CREEK
PHASE 2
DEMOLITION PLAN
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREAPERD BY:
D R Consultants & Designers, Inc.

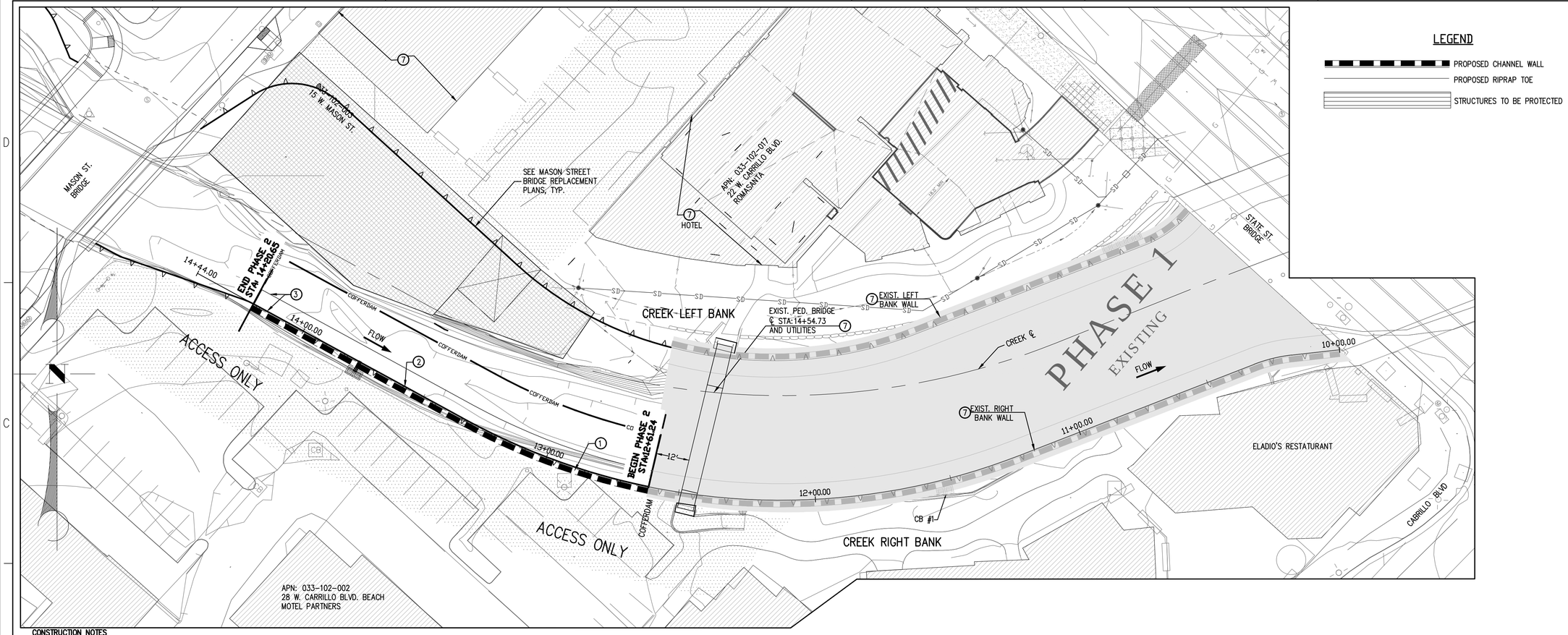
DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS

SCALE AS SHOWN

SHEET 7 OF 13 SHEETS

FILE NAME: 1910CSP02-#3-2

C-2



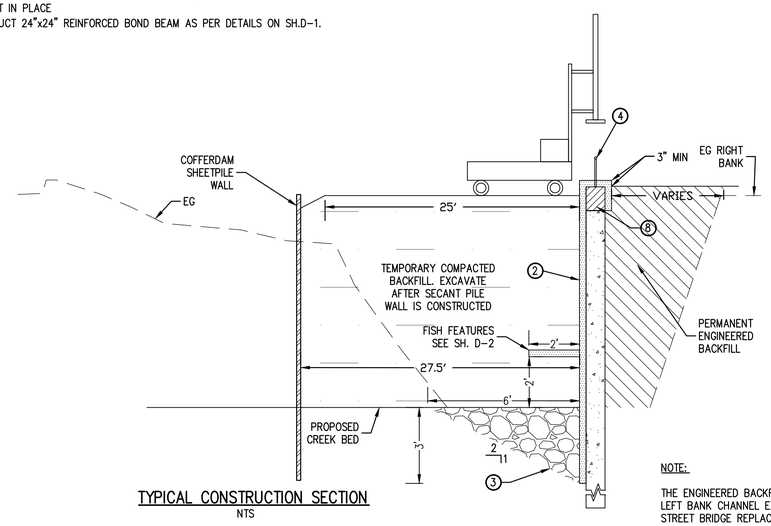
CONSTRUCTION NOTES

1. CONSTRUCT VERTICAL 24" CONCRETE SECANT TYPE DRILLED PILE WALL USING CONTINUOUS FLIGHT AUGER; SEE SH.D-1.
2. APPLY 6" SHOTCRETE (STEEL MESH REINFORCED) OVER PILE SURFACE WATERSIDE. SANDBLAST PILES BEFORE SHOTCRETE; SEE SH. D-1.
3. CONSTRUCT RIPRAP REVETMENT W/ RSP FABRIC LAYER PER CALTRANS STANDARD SPECS-SECTION 72; ROCK SIZE 75 LB, CLASS NO.2 GRADING OF ROCK SLOPE PROTECTION
4. CONSTRUCT 42" HIGH ORNAMENTAL STEEL FENCE, SEE SH.D-3.
7. PROTECT IN PLACE
8. CONSTRUCT 24"x24" REINFORCED BOND BEAM AS PER DETAILS ON SH.D-1.

SEQUENCE OF CONSTRUCTION WORK

SCALE: 1"=20'

0 20 40 60



TYPICAL CONSTRUCTION SECTION

NTS

NOTE:

THE ENGINEERED BACKFILL BEHIND THE WALL SHALL BE PLACED WITH THE TEMPORARY BACKFILL PRIOR TO WALL CONSTRUCTION. LEFT BANK CHANNEL EXCAVATION, MEASURED FROM THE TOE OF SLOPE, SHALL BE MEASURED AND ACCOUNTED IN THE MASON STREET BRIDGE REPLACEMENT PROJECT QUANTITIES.

NOTES TO CONTRACTOR

SEQUENCE OF CONSTRUCTION

INSTALL TEMPORARY SECURITY FENCE.

1. CONSTRUCT COFFER DAM (USING SHEET PILE WALL) ALONG THE GEOMETRICAL CENTER LINE OF THE PROPOSED CREEK BED AND THE RESPECTIVE BULKHEADS AT THE MASON STREET BRIDGE (OR IN CONJUNCTION WITH COFFERDAM AND BULKHEAD PLACEMENT ASSOCIATED WITH THE MASON STREET BRIDGE REPLACEMENT PROJECT) AND UPSTREAM OF THE PEDESTRIAN BRIDGE SO THAT THE RIGHT BANK FROM MASON STREET BRIDGE TO THE AREA UPSTREAM OF THE PEDESTRIAN BRIDGE IS FULLY ISOLATED FROM THE FLOW. THE CONTRACTOR SHALL UTILIZE THE EXISTING SHEETPILE AT THE DOWNSTREAM END (PER WALL TRANSITION PLAN SH.D-4) TO CONSTRUCT THE BULKHEAD UPSTREAM OF THE EXISTING PEDESTRIAN BRIDGE, OR REMOVE OR MODIFY THE EXISTING SHEETPILE AS NEEDED.
2. INSTALL AND OPERATE DEWATERING SYSTEM.
3. PULL AND REMOVE EXISTING PILES. DEMOLISH AND REMOVE EXISTING WOOD FENCE AND PILE LAGGING.
4. GRADE AND FILL RIGHT BANK AS NECESSARY TO PLACE THE SECANT PILE WALL. CONSTRUCT 24" SECANT CONCRETE PILE WALL STARTING UPSTREAM OF THE PEDESTRIAN BRIDGE TO THE PROJECT LIMIT.
5. EXCAVATE EXCESS SOIL BETWEEN THE COFFER DAM AND THE NEW SECANT CONCRETE PILE WALL..
6. COMPLETE THE NEW WALL WITH 24"X24" BOND BEAM , SHOTCRETE (COLORED AND TEXTURED), FISH LEDGES AND ORNAMENTAL STEEL FENCE.
7. CONSTRUCT RIP-RAP REVETMENT ALONG THE FOOT OF THE NEW WALL. FINE GRADE THE NEW CREEK BED AND SCATTER ROCK CLUSTERS WITH D>24". PLACE ROCK CLUSTERS WITHIN 5 FT FROM THE FACE OF THE NEW WALL. THE ROCK CLUSTERS BETWEEN THE FISH LEDGES SHALL SERVE AS TIDE WATER GOBY'S HIDEOUTS
7. REMOVE COFFERDAM AND TEMPORARY SECURITY FENCE. CLEANUP SITE, REPAIR DAMAGE TO TEMPORARY STAGING AND ACCESS ONLY AREAS. LEAVE SITE IN CLEAN, REPAIRED AND ORDERLY CONDITION.

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
0	FINAL SUBMITTAL	12/20/13	

REVISIONS

REACH 1A - LOWER MISSION CREEK
PHASE 2
SEQUENCE OF CONSTRUCTION
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 - Appendix G

PREAPERD BY:
D R Consultants & Designers, Inc.

DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS

SCALE AS SHOWN

SHEET 4 OF 13 SHEETS

FILE NAME: 1910CSP03-#4-2

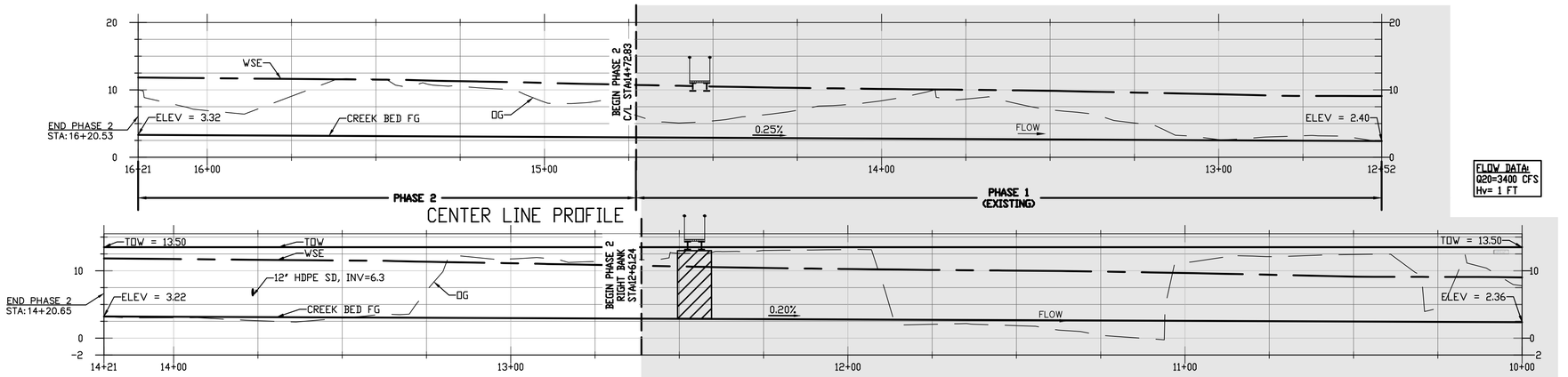
C-3

Line Table: Alignments		
Line #	Length	Direction
L1	53.019	S88° 17' 13.81"W
L2	243.69	N61° 18' 29.09"W
L3	17.499	S83° 35' 31.15"W
L4	91.98	S68° 46' 47.83"W
L5	111.43	N61° 21' 16.05"W

Curve Table: Alignments			
Curve #	Radius	Length	Δ
C1	1500.000	207.004	7° 54' 25"
C2	270.000	237.53	50° 24' 17"
C3	55.000	14.219	14° 48' 43"
C4	240.000	208.88	49° 51' 56"

NOTE
1. LANDSCAPING BY OTHERS.
2. ALL EXIST.TREES & UTILITIES BEYOND THE SBCFCD ROW TO BE PROTECTED IN PLACE
3. MASON STREET BRIDGE REPLACEMENT PLAN WW (RIGHT BANK) TRANSITION WALL TOW = 14.5 AT STA 14+20.65

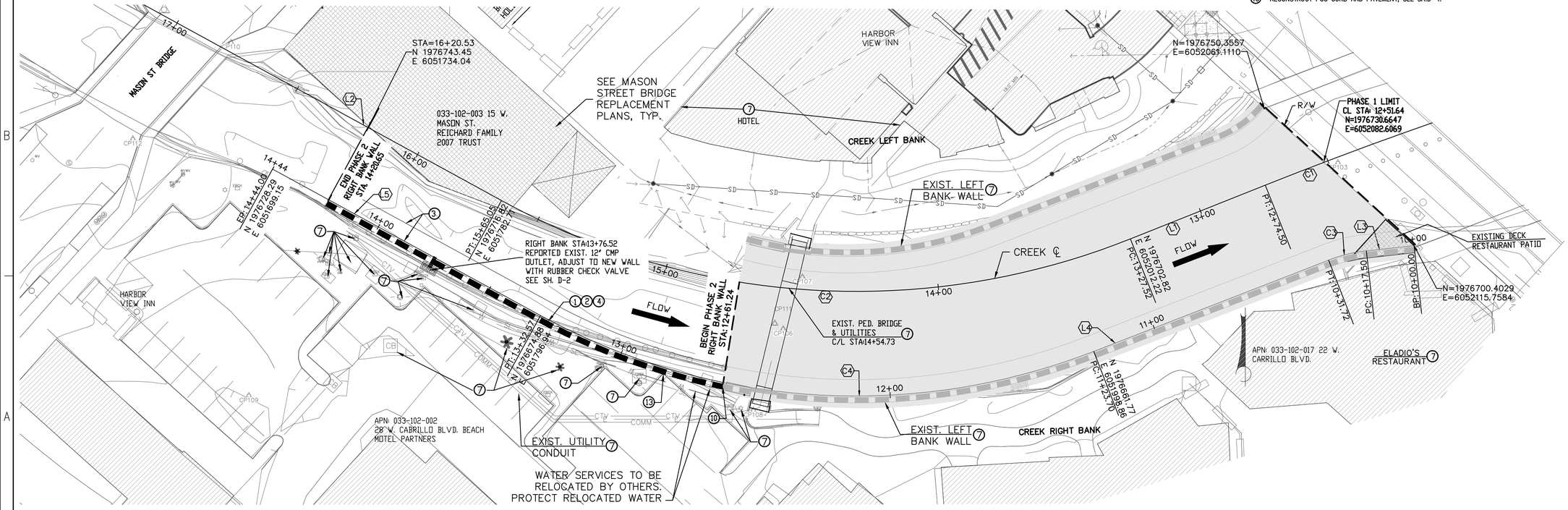
LEGEND
- PROPOSED CHANNEL WALL
- PROPOSED RIPRAP TOE
- STRUCTURES TO BE DEMOLISHED
- STRUCTURES TO BE PROTECTED



PROFILE SCALE:
HORIZONTAL – 1:20
VERTICAL – 1:10

CONSTRUCTION NOTES

1. CONSTRUCT VERTICAL 24" CONCRETE SECANT TYPE DRILLED PILE WALL USING CONTINUOUS FLIGHT AUGER; SEE SH.D-1.
2. APPLY 6" SHOTCRETE (STEEL MESH REINFORCED) OVER PILE SURFACE WATERSIDE. SANDBLAST PILES BEFORE SHOTCRETE; SEE SH. D-1.
3. CONSTRUCT RIPRAP REVETMENT W/ RSP FABRIC LAYER PER CALTRANS STANDARD SPECS-SECTION 72; ROCK SIZE 75 LB, CLASS NO.2 GRADING OF ROCK SLOPE PROTECTION
4. CONSTRUCT 42" HIGH ORNAMENTAL STEEL FENCE, SEE SH.D-3.
7. PROTECT IN PLACE
10. PLACE WATER STOP PER DETAIL ON SH.D-1.
13. RECONSTRUCT PCC CURB AND PAVEMENT, SEE SH.D-4.



SCALE: 1"=20'
0 20 40 60

LOWER MISSION CREEK – REACH 1A – PHASE 2

0	SYMBOL	FINAL SUBMITTAL	12/20/13
		DESCRIPTIONS	DATE
		REVISIONS	APPROVAL

REACH 1A – LOWER MISSION CREEK
PHASE 2
PLAN AND PROFILES
STA:14+72.61 TO STA:16+44.15
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREAPERD BY:
D R Consultants & Designers, Inc.

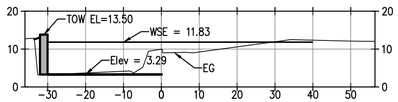
DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS
SCALE AS SHOWN
SHEET 5 OF 13 SHEETS
FILE NAME: 1910CPR01-#5-2

C-4

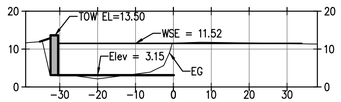
NOTES

1. TOP OF WALL ELEVATION IS TYPICALLY 13.50 UNLESS NOTED OTHERWISE
2. FINISH GROUND AT BACK OF WALL STARTING 3" BELOW TOP OF WALL. SLOPE TO DRAIN AWAY FROM WALL.
3. STA:0+00.00 ON THE CROSS SECTIONS REPRESENTS THE CREEK CENTER LINE
4. LEFT BANK CHANNEL EXCAVATION, MEASURED FROM THE TOE OF SLOPE, SHALL BE MEASURED AND ACCOUNTED IN THE MASON STREET BRIDGE REPLACEMENT PROJECT QUANTITIES.
5. CREEK BED HAS NO CROSS SLOPE

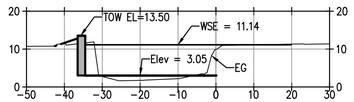
16+20.00



15+50.00



15+10.00



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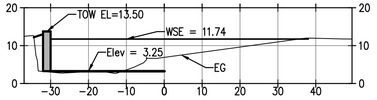

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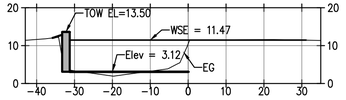

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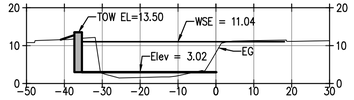

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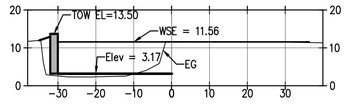
15+30.00

14+90.00

15+60.00



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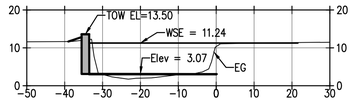

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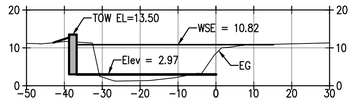


PROPOSED PHASE 2 CHANNEL CROSS SECTIONS
VIEWED UPSTREAM

HORIZONTAL SCALE 1"=20'
VERTICAL SCALE 1"=20'

NO	DESCRIPTIONS	DATE	APPROVAL
0	FINAL SUBMITTAL	12/20/13	
SYMBOL	REVISIONS		

REACH 1A - LOWER MISSION CREEK
PHASE 2
CHANNEL CROSS SECTIONS
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREAPERD BY:
D R Consultants & Designers, Inc.

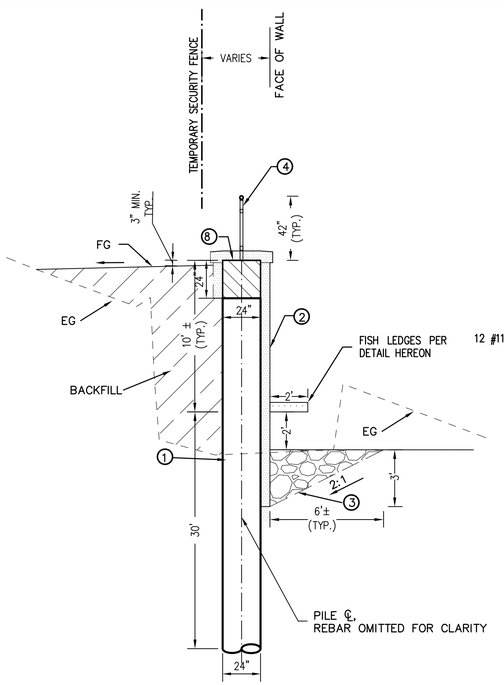
DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS

SCALE AS SHOWN

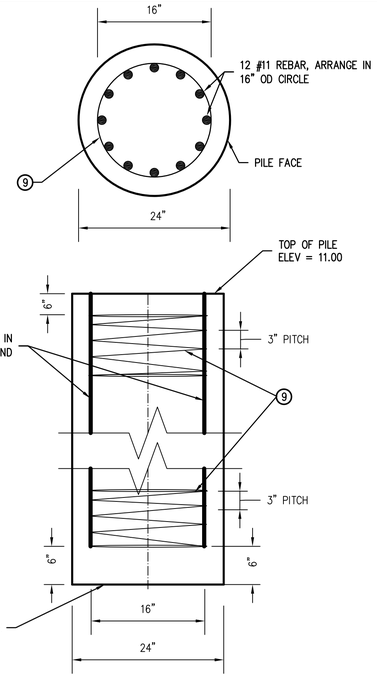
SHEET 6 OF 13 SHEETS

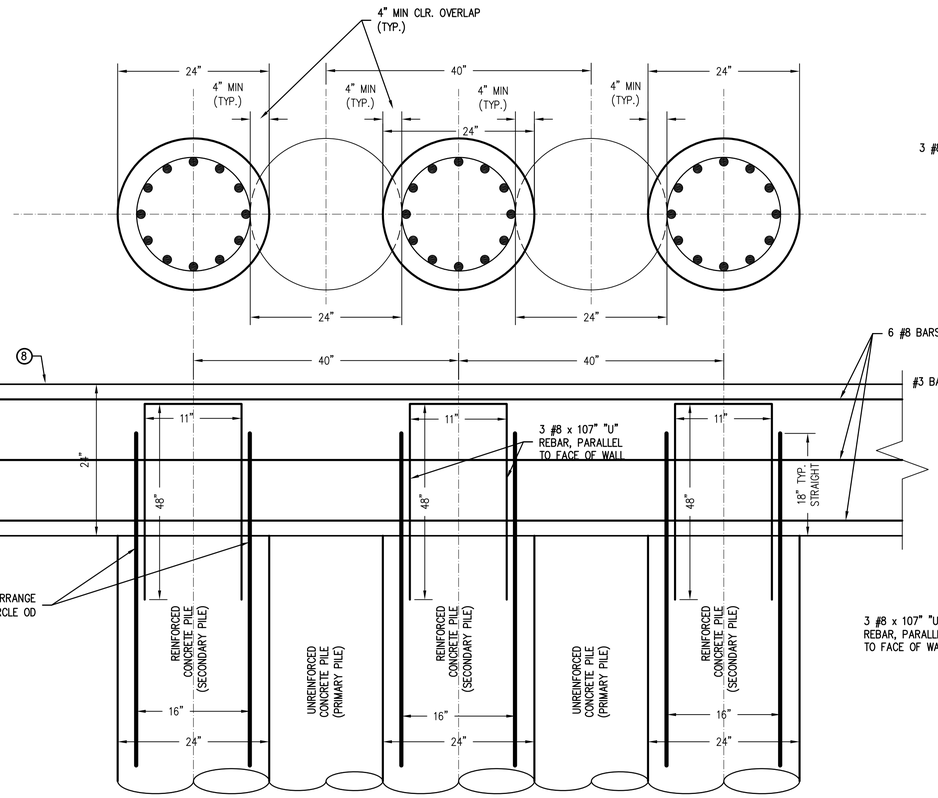
FILE NAME: 1910CSC01-#6-2

C-5

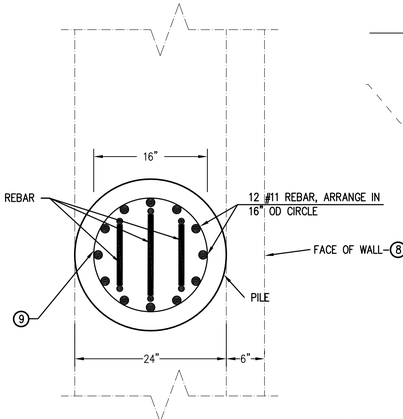


DRILLED (SECANT) PILE RETAINING WALL (TYP.)
NTS

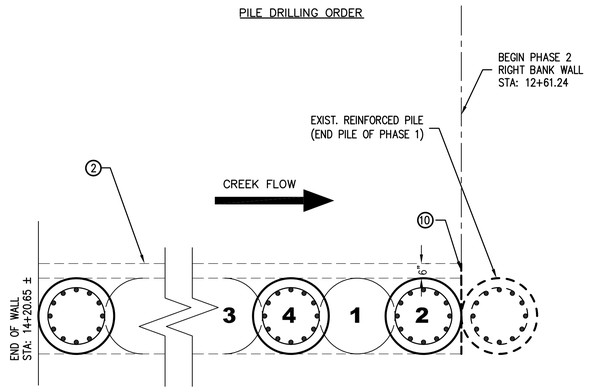




TYPICAL DRILLED PILE RETAINING WALL DETAILS
NTS



PILE DRILLING ORDER

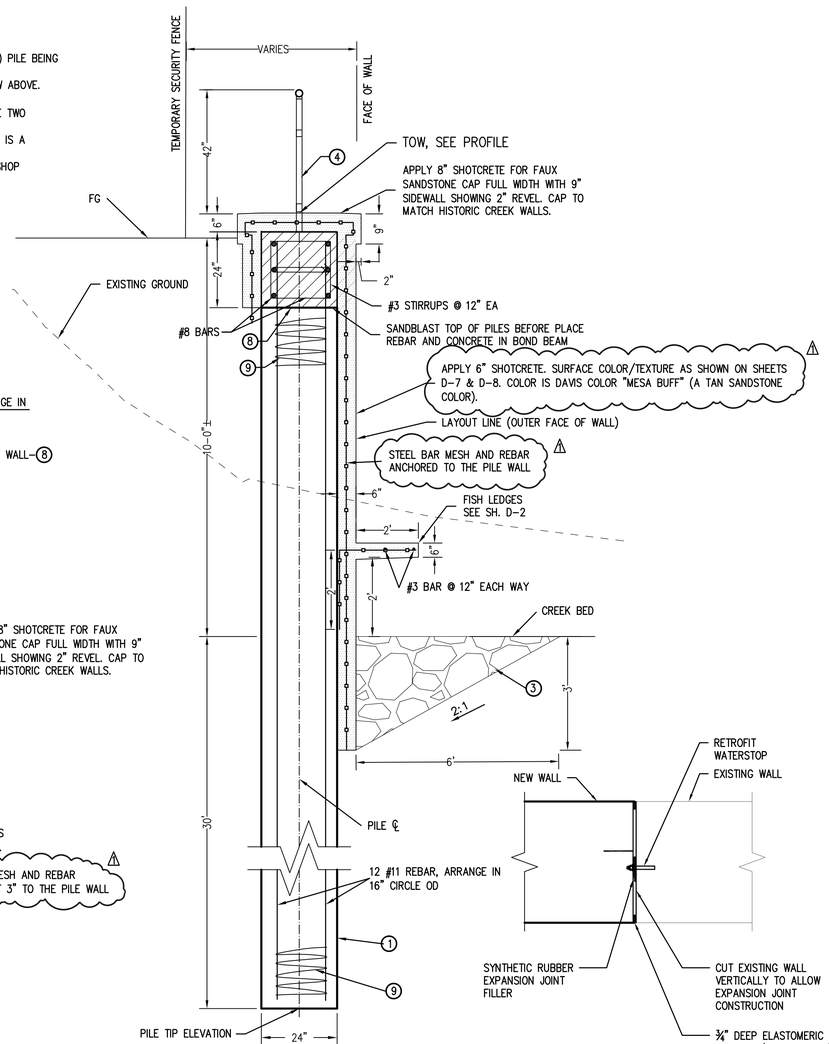


NOTE:

1. ALL PILE WALLS BEGIN AND END WITH A REINFORCED (SECONDARY) PILE.
2. THE CONSTRUCTION STARTS WITH THE DRILLING OF A PRIMARY (UNREINFORCED) PILE BEING #1 IN THE ROW ABOVE.
3. THEN THE FIRST REINFORCED (SECONDARY) PILE IS DRILLED AS #2 IN THE ROW ABOVE.
4. NEXT PRIMARY (UNREINFORCED) PILE IS DRILLED AS #3 IN THE ROW.
5. A REINFORCED (SECONDARY) PILE IS DRILLED AS #4 IN THE ROW BETWEEN THE TWO PRIMARY (UNREINFORCED) PILES.
6. THIS PROCESS CONTINUES UNTIL THE END OF THE WALL WHERE THE LAST PILE IS A REINFORCED (SECONDARY) ONE.
7. FIELD WELDING AND SPLICING IS NOT PERMITTED. ALL STEEL CAGES MUST BE SHOP MANUFACTURED

CONSTRUCTION NOTES

1. CONSTRUCT VERTICAL 24" CONCRETE SECANT TYPE DRILLED PILE WALL USING CONTINUOUS FLIGHT AUGER; SEE SH.D-1.
2. APPLY 6" SHOTCRETE (STEEL MESH REINFORCED) OVER PILE SURFACE WATERSIDE. SANDBLAST PILES BEFORE SHOTCRETE; SEE SH. D-1.
3. CONSTRUCT RIPRAP REVETMENT W/ RSP FABRIC LAYER PER CALTRANS STANDARD SPECS-SECTION 72; ROCK SIZE 75 LB, CLASS NO.2 GRADING OF ROCK SLOPE PROTECTION
4. CONSTRUCT 42" HIGH ORNAMENTAL STEEL FENCE, SEE SH.D-3.
5. NOT USED
6. DEMOLISH AND REMOVE. PULL EXISTING PILES, WOODEN FENCES & LAGGING, TYPICAL; SEE SH.C-2.
7. PROTECT IN PLACE
8. CONSTRUCT 24"x24" REINFORCED BOND BEAM AS PER DETAILS ON SH.D-1.
9. CONSTRUCT #3 SPIRAL STEEL CAGE WITH 3" PITCH. TOP OF SPIRAL SHALL BE 6" BELOW TOP OF PILE. BOTTOM OF SPIRAL SHALL BE 6" ABOVE BOTTOM OF PILE
10. PLACE WATER STOP PER DETAIL ON SH. D-1
11. NOT USED



TYPICAL DRILLED PILE RETAINING WALL DETAIL
NTS

WATER STOP DETAIL
NTS

D-1

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
	REVISIONS		
0	FINAL SUBMITTAL	12/20/13	
⚠	REBAR REVISION AND SHOTCRETE COLOR	3-24-2014	WS

REACH 1A - LOWER MISSION CREEK
PHASE 2
SECANT PILE WALL DETAILS
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 - Appendix G

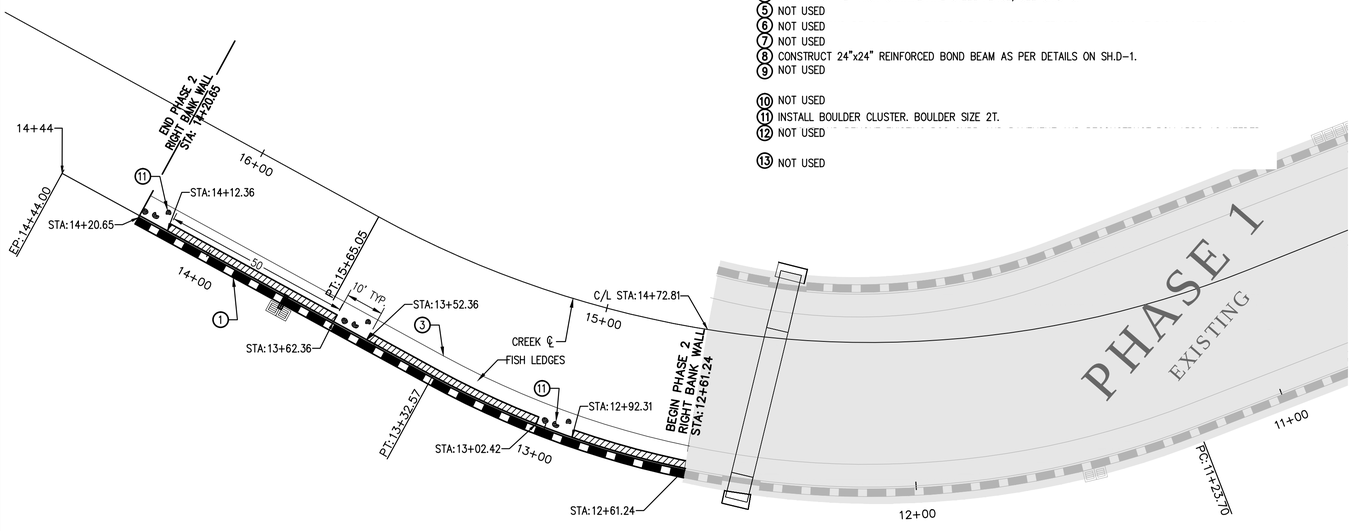
PREAPERD BY:
D R Consultants & Designers, Inc.

DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS
FILE NAME: 1910CD01-#7-2

SCALE AS SHOWN
SHEET 7 OF 13 SHEETS

CONSTRUCTION NOTES

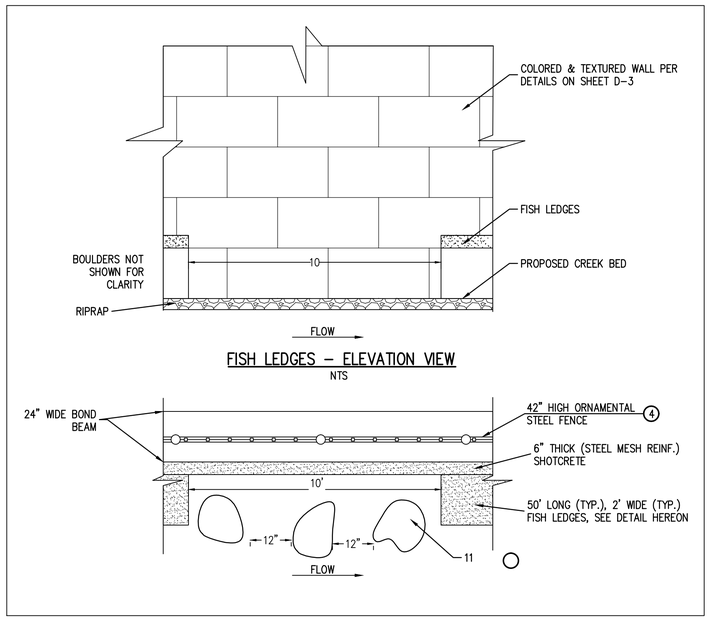
1. CONSTRUCT VERTICAL 24" CONCRETE SECANT TYPE DRILLED PILE WALL USING CONTINUOUS FLIGHT AUGER; SEE SH.D-1.
2. APPLY 6" SHOTCRETE (STEEL MESH REINFORCED) OVER PILE SURFACE WATERSIDE. SANDBLAST PILES BEFORE SHOTCRETE; SEE SH. D-1.
3. CONSTRUCT RIPRAP REVETMENT W/ RSP FABRIC LAYER PER CALTRANS STANDARD SPECS-SECTION 72; ROCK SIZE 75 LB, CLASS NO.2 GRADING OF ROCK SLOPE PROTECTION
4. CONSTRUCT 42" HIGH ORNAMENTAL STEEL FENCE, SEE SH.D-3.
5. NOT USED
6. NOT USED
7. NOT USED
8. CONSTRUCT 24"x24" REINFORCED BOND BEAM AS PER DETAILS ON SH.D-1.
9. NOT USED
10. NOT USED
11. INSTALL BOULDER CLUSTER. BOULDER SIZE 2T.
12. NOT USED
13. NOT USED



FISH LEDGES – PLAN

SCALE: 1"=20'

0 20 40 60

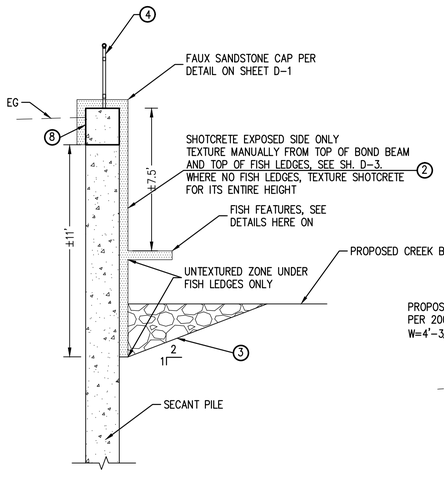


FISH LEDGES – ELEVATION VIEW

NTS

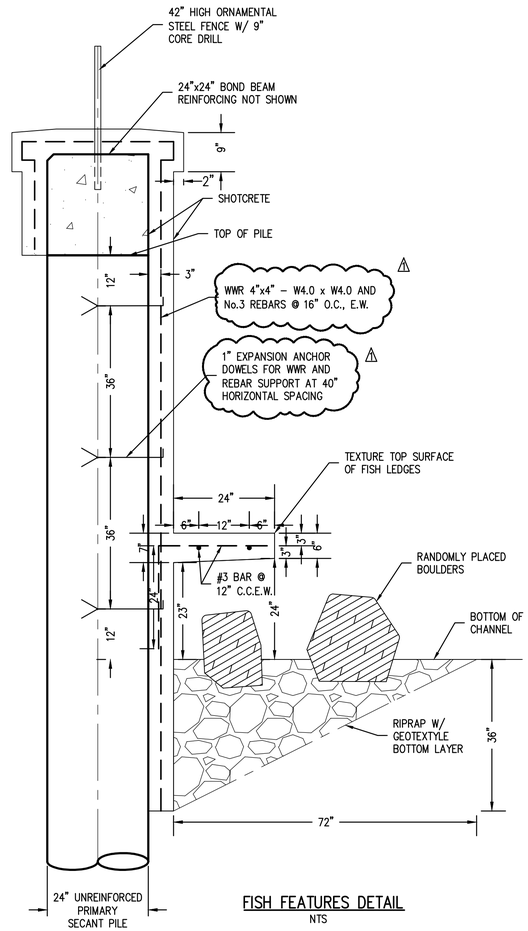
FISH LEDGES – PLAN VIEW

NTS



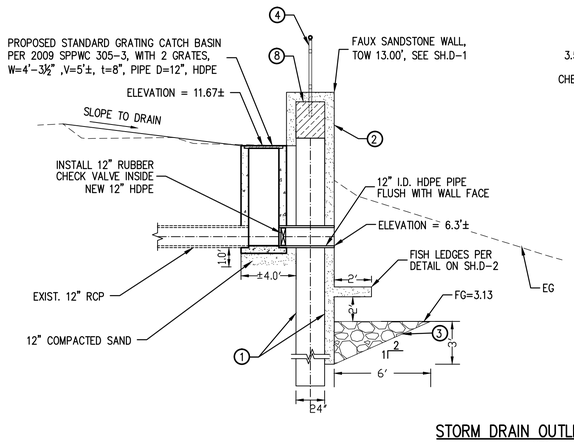
TEXTURE ZONES SECTION

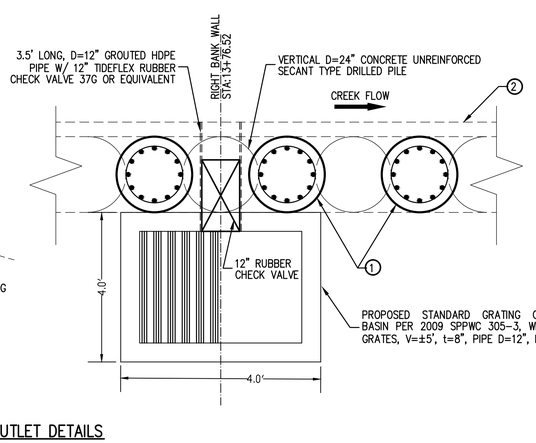
NTS



FISH FEATURES DETAIL

NTS





STORM DRAIN OUTLET DETAILS

NTS

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
	REVISIONS		
0	FINAL SUBMITTAL	12/20/13	
⚠	REBAR REVISION	3-24-2014	MS

REACH 1A – LOWER MISSION CREEK

PHASE 2
PLAN & DETAILS
FISH LEDGES

CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREPARED BY:

D R Consultants & Designers, Inc.

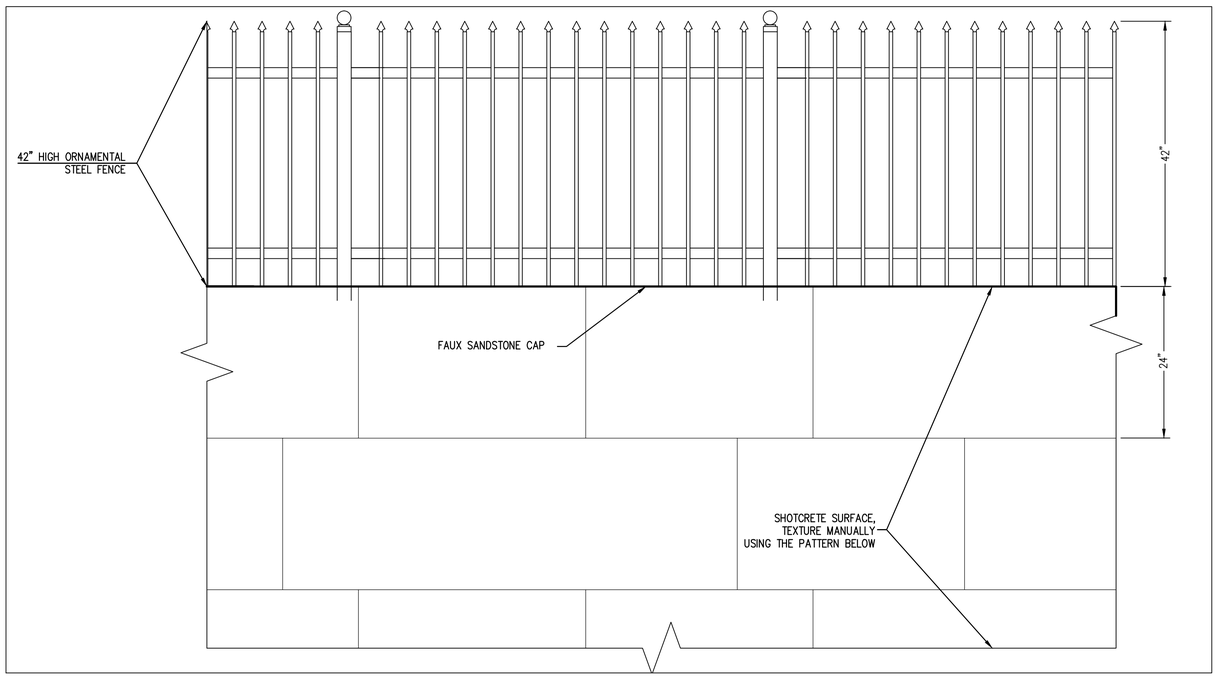
DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS

FILE NAME: 1910CD002-#8-2

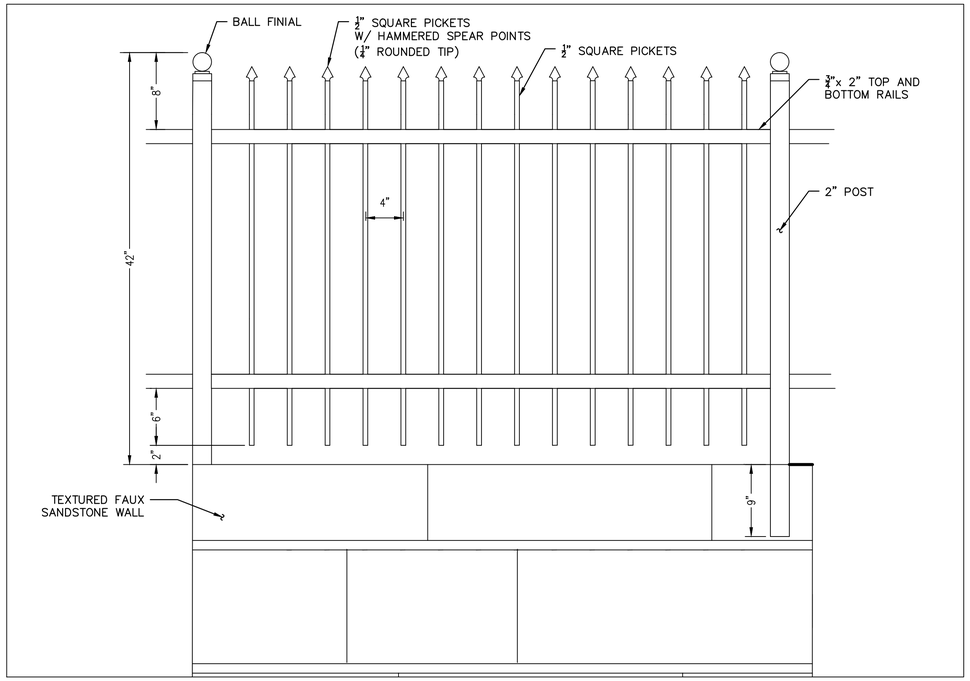
SCALE AS SHOWN

SHEET 8 OF 13 SHEETS

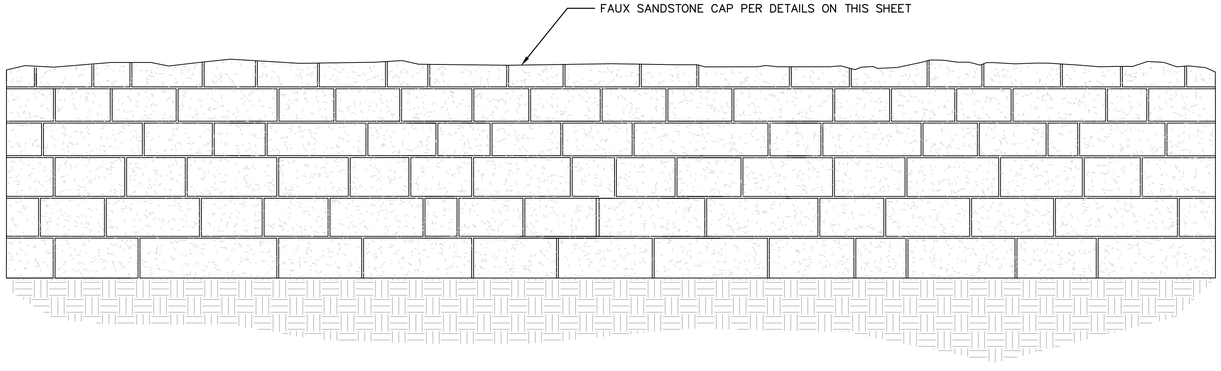
D-2

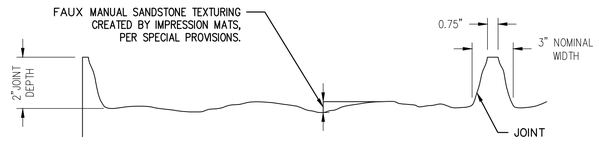


TYPICAL WALL TEXTURE PATTERN – ELEVATION VIEW
NTS



ORNAMENTAL STEEL FENCE
NTS





WALL TEXTURE SECTION VIEW
NTS

FENCING AND WALL TEXTURE NOTES:

1. SANDSTONE BLACK LENGTHS VARY 12", 18", 34", 40", 43" TYP.
2. SANDSTONE BLOCK HEIGHTS VARY FROM 20" TO 22" TYP. BLOCK HEIGHTS SHALL NOT BE GREATER THAN THE BLOCK HEIGHTS IN THE UNDERLYING ROW.
3. FAUX GROUTED JOINT DIMENSIONS AND TEXTURE VARIATION SHALL BE PER THE DETAIL ON THIS SHEET.
4. SANDSTONE CAP 9"–11" HEIGHT x 24" WIDTH x 24"–30" LENGTH.
5. SHOTCRETE SHALL BE INTEGRALLY COLORED DAVIS– COLOR "SAN DIEGO BUFF", OR APPROVED EQUIVALENT.
6. ORNAMENTAL STEEL FENCE SHALL BE PAINTED MELAGA GREEN.
7. ORNAMENTAL STEEL FENCE SPEAR POINT TIPS SHALL BE LOCATED BETWEEN THE BOTTOM OF THE BALL FINIAL AND THE MID–POINT OF THE FINIAL.

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
0	FINAL SUBMITTAL	12/20/13	

REVISIONS

REACH 1A – LOWER MISSION CREEK
PHASE 2 – DETAILS
BOND BEAM, HANDRAIL & SHOTCRETE TEXTURE
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREAPERD BY:
D R Consultants & Designers, Inc.

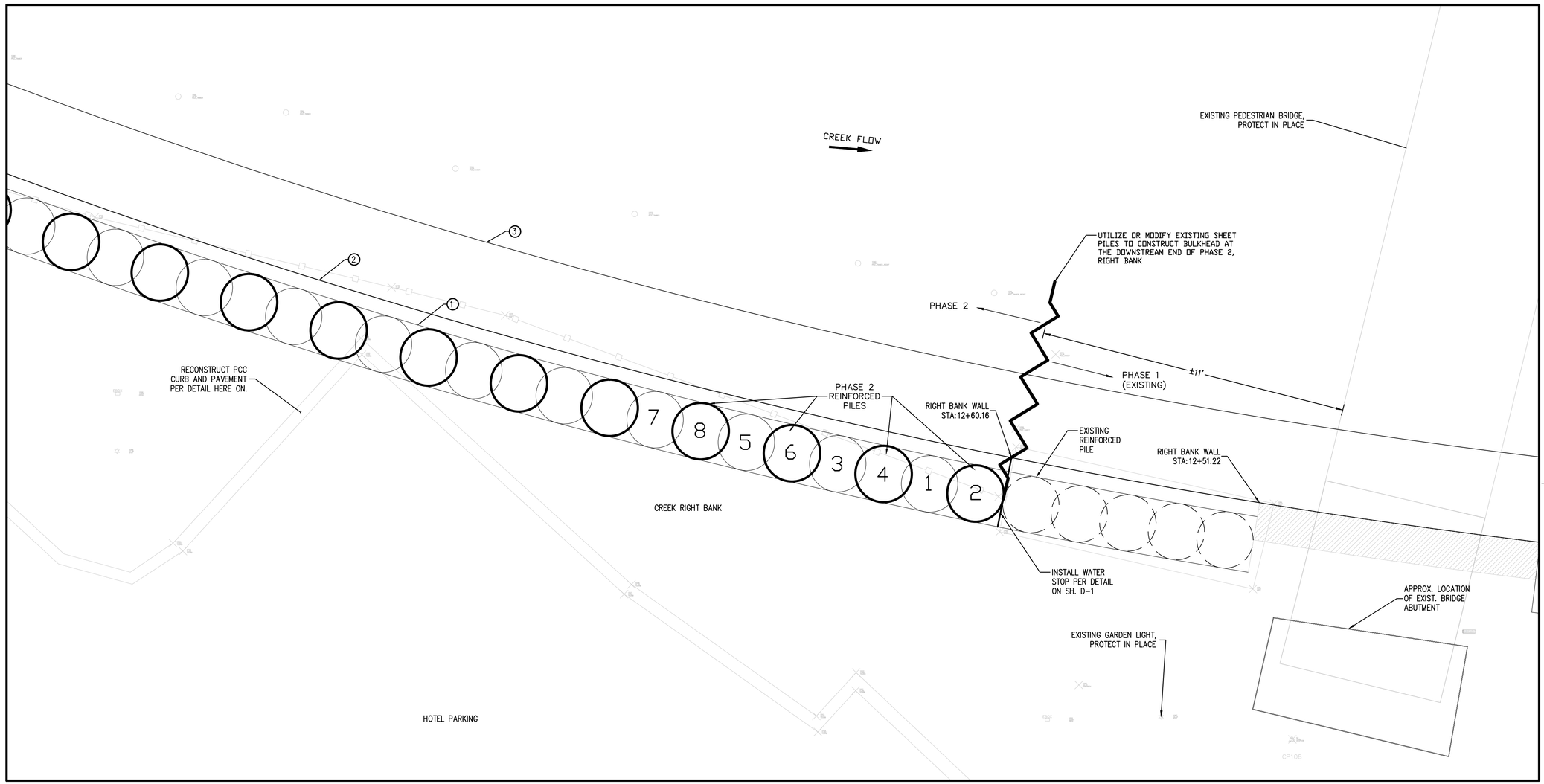
DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS

SCALE AS SHOWN

SHEET 9 OF 13 SHEETS

FILE NAME: 1910CD003-#9-2

D-3



PHASE 1/PHASE 2 WALL TRANSITION - PLAN

SCALE: 1"=2'

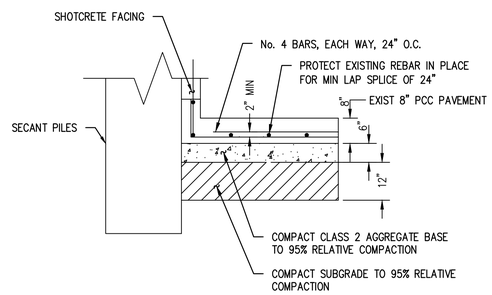
0 2 4 6

CONSTRUCTION NOTES

1. CONSTRUCT VERTICAL 24" CONCRETE SECANT TYPE DRILLED PILE WALL USING CONTINUOUS FLIGHT AUGER; SEE SH.D-1.
2. APPLY 6" SHOTCRETE (STEEL MESH REINFORCED) OVER PILE SURFACE WATERSIDE. SANDBLAST PILES BEFORE SHOTCRETE; SEE SH. D-1.
3. CONSTRUCT RIPRAP REVETMENT W/ RSP FABRIC LAYER PER CALTRANS STANDARD SPECS-SECTION 72; ROCK SIZE 75 LB, CLASS NO.2 GRADING OF ROCK SLOPE PROTECTION

NOTES:

1. PROPOSED CHANNEL WIDTH IS TYPICALLY 55 FEET UNLESS OTHERWISE INDICATED HEREON; WALL HEIGHT IS APPROXIMATELY 10 FEET.
2. SBCFCD SURVEYORS SHALL INSTALL SURVEY MONUMENTS ON THE TOPS OF BOTH THE RIGHT BANK WALL AND THE LEFT BANK WALL FOR PURPOSES OF MONITORING SETTLEMENT AND MOVEMENT OF THE TOPS OF THE WALLS. THE MONUMENTS SHALL BE PLACED ON THE TOPS OF THE BOND BEAMS NOT THE HANDRAILS. THE AS-BUILT ELEVATIONS AND THE COORDINATE LOCATION OF EACH MONUMENT SHALL BE RECORDED FOR FUTURE REFERENCE. IN ORDER TO BE ABLE TO MEASURE ALL MOVEMENT, THE MONUMENTS SHOULD BE SET AFTER THE CONCRETE IN THE PILES AND IN THE BOND BEAM HAS GAINED ITS STRENGTH AND BEFORE THE CHANNEL EXCAVATION IS DONE IN FRONT OF THE WALL. THE MONUMENTS SHOULD BE SPACED ABOUT 100 FEET APART. THERE SHOULD BE A SURVEY MONUMENT AT THE END OF EACH WALL NEAR THE STATE STREET BRIDGE AND ONE UPSTREAM OF THE PEDESTRIAN BRIDGE IN THE PHASE ONE WALL."



RECONSTRUCT PCC CURB AND PAVEMENT DETAIL

NTS

NO.	SYMBOL	DESCRIPTIONS	DATE	APPROVAL
0		FINAL SUBMITTAL	12/20/13	

REVISIONS

REACH 1A - LOWER MISSION CREEK
PHASE 2
WALL TRANSITION PLAN AND DETAILS
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 - Appendix G

PREAPERD BY:

D R Consultants & Designers, Inc.

DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS

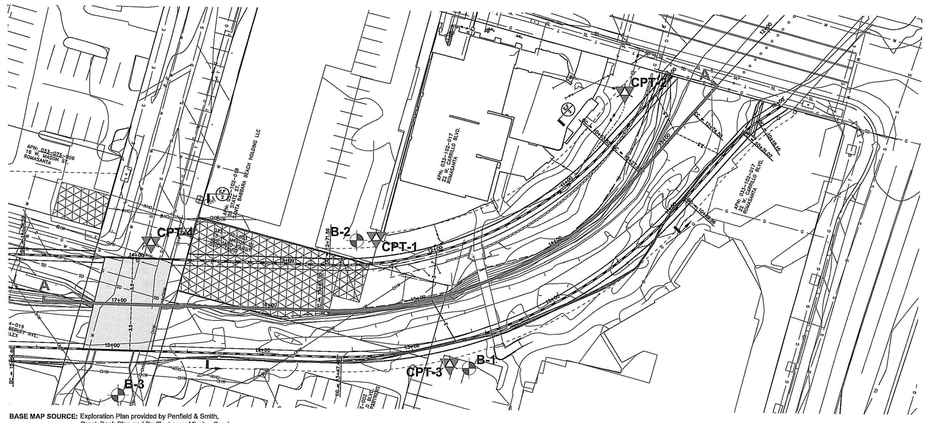
SCALE AS SHOWN

SHEET 10 OF 13 SHEETS

FILE NAME: 1910C004-#10-2

D-4

Santa Barbara County Public Works
Project No. 3190.050



BASE MAP SOURCE: Exploration Plan provided by Penfield & Smith, Creek Bank Plan and Profile, Lower Mission Creek, (Shhets 4 and 5), dated 3/11/08.

LEGEND

B-3 Approximate Drill Hole Location

CPT-4 Approximate CPT Location

A A' Cross Section A-A'

NORTH

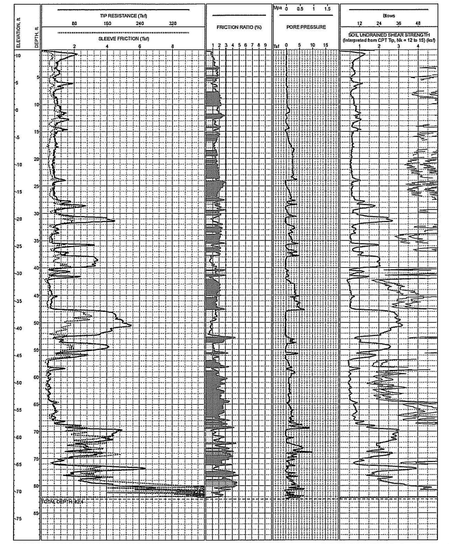
0 40 80

FEET

SUBSURFACE EXPLORATION LOCATION PLAN
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE 2

Santa Barbara County
Project No. 3190.050



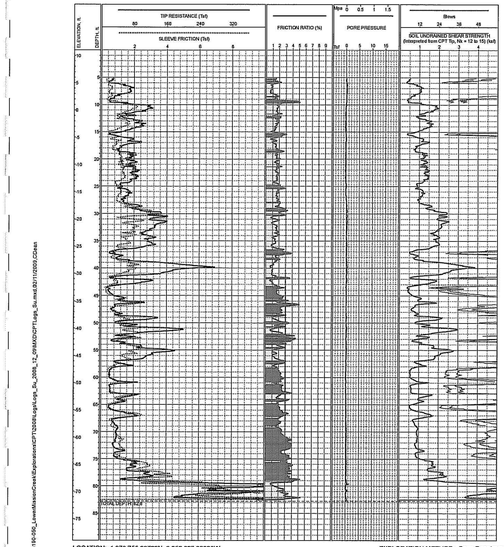
LOCATION: 1,976,743.51034N, 6,051,836.71099W
SURFACE EL: 11.0ft +/- (MSL)
COMPLETION DEPTH: 82.4ft
TESTDATE: 12/4/2008

EXPLORATION METHOD: Cone Penetrometer
PERFORMED BY: Kehoe Testing
REVIEWED BY: G S Denlinger

LOG OF CPT NO: CPT-1
Lower Mission Creek Improvements
Santa Barbara County, California

PLATE A1

Santa Barbara County
Project No. 3190.050



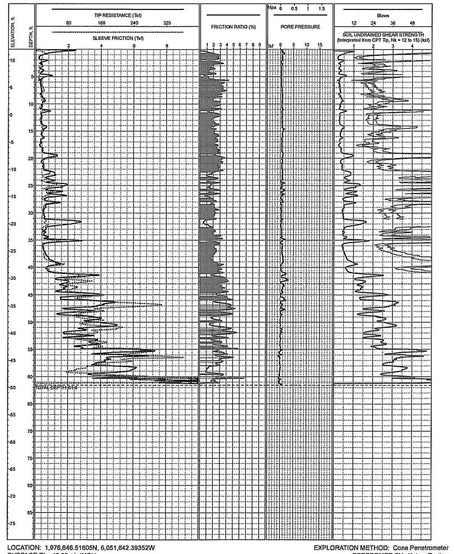
LOCATION: 1,976,755.26723N, 6,052,027.38830W
SURFACE EL: 11.0ft +/- (MSL)
COMPLETION DEPTH: 82.8ft
TESTDATE: 12/4/2008

EXPLORATION METHOD: Cone Penetrometer
PERFORMED BY: Kehoe Testing
REVIEWED BY: G S Denlinger

LOG OF CPT NO: CPT-2
Lower Mission Creek Improvements
Santa Barbara County, California

PLATE A2

Santa Barbara County
Project No. 3190.050



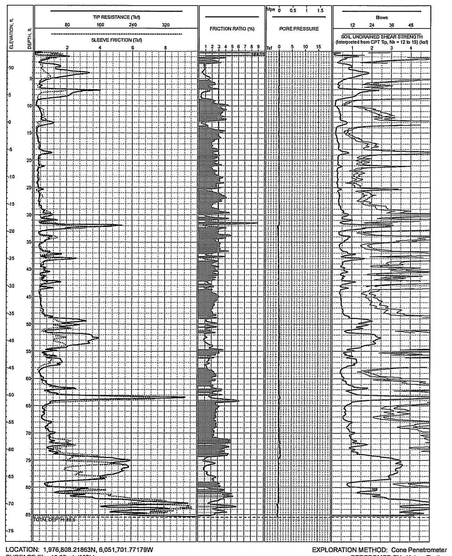
LOCATION: 1,976,646.51655N, 6,051,842.39352W
SURFACE EL: 12.0ft +/- (MSL)
COMPLETION DEPTH: 61.6ft
TESTDATE: 12/4/2008

EXPLORATION METHOD: Cone Penetrometer
PERFORMED BY: Kehoe Testing
REVIEWED BY: G S Denlinger

LOG OF CPT NO: CPT-3
Lower Mission Creek Improvements
Santa Barbara County, California

PLATE A3

Santa Barbara County
Project No. 3190.050



LOCATION: 1,976,808.21863N, 6,051,701.77179W
SURFACE EL: 13.0ft +/- (MSL)
COMPLETION DEPTH: 85.5ft
TESTDATE: 12/4/2008

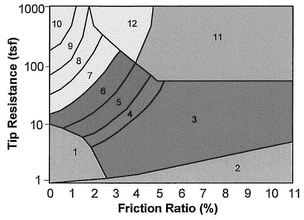
EXPLORATION METHOD: Cone Penetrometer
PERFORMED BY: Kehoe Testing
REVIEWED BY: G S Denlinger

LOG OF CPT NO: CPT-4
Lower Mission Creek Improvements
Santa Barbara County, California

PLATE A4

Santa Barbara County
Project No. 3190.050

COLOR LEGEND FOR FRICTION RATIO TRACES



Zone	Soil Behavior Type	U.S.C.S.
1	Sensitive Fine-grained	OL-CH
2	Organic Material	OL-OH
3	Clay	CH
4	Silty Clay to Clay	CL-CH
5	Clayey Silt to Silty Clay	MH-CL
6	Sandy Silt to Clayey Silt	ML-MH
7	Silty Sand to Sandy Silt	SM-ML
8	Sand to Silty Sand	SM-SP
9	Sand	SW-SP
10	Gravelly Sand to Sand	SW-GW
11	Very Stiff Fine-grained *	CH-CL
12	Sand to Clayey Sand *	SC-SM

*overconsolidated or cemented

CPT CORRELATION CHART
(Robertson and Campanella, 1984)

KEY TO CPT LOGS
Lower Mission Creek Improvements
Santa Barbara County, California

PLATE A5

0	FINAL SUBMITTAL	12/20/13	APPROVAL
SYMBOL	DESCRIPTIONS	DATE	

REVISIONS

REACH 1A – LOWER MISSION CREEK
PHASE 2
CONE PENETROMETERS & BOREHOLES
LOCATION PLAN & LOGS
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREAPERD BY:

D R Consultants & Designers, Inc.

SCALE AS SHOWN
DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS
SHEET 11 OF 13 SHEETS
FILE NAME: 1910C801-#11-#11-2

B–1

Santa Barbara County Public Works
Project No. 3190.050

LOCATION: Harbor View Inn Parking Lot, See Plate 2 - Subsurface Exploration Location Plan
N 1,976,638 E 6,051,853 CA State Plane, Zone 5, NAD83, Feet
SURFACE EL: 12 ft +/- (rel. MSL datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOW COUNT	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	UNDRAINED SHEAR STRENGTH, S_u, tsf
-10	2				(4)							
-8	4		1			109	79	38				
-6	6											
-4	8		2A 2B		(8)	128	104	23		30	11	
-2	10			push		109	85	28				
0	12		3					30	38			
2	14		4		(13)	133	110	21	52			
4	16											
6	18											
8	20		5		23			34		50	30	
10	22											
12	24				(33)							
14	26		6					24	56			
16	28		7		16			27	46			
18	30											
20	32		8A 8B		(31)	125	101	25 24	17			
22	34											
24	36		9		4			34		54	32	p 0.8
26	38		10A 10B		(35)	134 135	114 115	18 17	53			

MATERIAL DESCRIPTION

ARTIFICIAL FILL (af)
CONCRETE: ~9" thick concrete parking lot
Sandy CLAY (CL): stiff, dark yellowish brown, moist, fine sand with wood debris/chips

ALLUVIUM (Qal)
Lean CLAY (CL) with silt and sand lenses: soft, dusky brown, dry to moist, trace rootlets, with some silt and some fine sand
- gray brown with moderate brown mottling, with fine sand pockets
- dusky brown near ~6-1/2', higher plasticity, with brown mottling and trace fine rootlets

- gravelly lean clay at ~9', medium stiff, olive gray

Silty SAND (SM): very loose to loose, olive gray, wet, with light brown inclusions, fine to medium sand, trace rootlets and fine gravels
- with trace shell fragments

Sandy Lean CLAY (CL): stiff, black, wet, trace coarse sand and rootlets, less sand near ~18'

Lean to Fat CLAY (CL to CH): very stiff, olive gray, wet, with rootlets

- with woody debris and trace charcoal fragments

Sandy SILT (ML): very stiff, olive gray, wet, with fine sand and trace organics

Silty SAND (SM): medium dense, dark gray, wet, with fine to medium sand

Fat CLAY (CH): soft to medium stiff, olive gray to dark gray, wet, with woody debris and organics

Sandy CLAY (CL): very stiff, olive gray to dark gray, wet, with fine sand, trace organics and roots, possible older alluvium (Qoa)

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

COMPLETION DEPTH: 67.0 ft
DEPTH TO WATER: Not Measured
BACKFILLED WITH: Cement/bentonite grout
DRILLING DATE: December 17, 2008

DRILLING METHOD: 4-inch-dia. Mud Rotary Wash
HAMMER TYPE: Automatic Trip
DRILLED BY: Gregg Drilling
LOGGED BY: K Nelson
CHECKED BY: G S Denlinger

LOG OF DRILL HOLE NO. DH-01 (B-1)
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE A-6a

BORING LOG VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 2/22/09 04:56:p

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Santa Barbara County Public Works
Project No. 3190.050

LOCATION: Harbor View Inn Parking Lot, See Plate 2 - Subsurface Exploration Location Plan
N 1,976,638 E 6,051,853 CA State Plane, Zone 5, NAD83, Feet
SURFACE EL: 12 ft +/- (rel. MSL datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOW COUNT	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	UNDRAINED SHEAR STRENGTH, S_u, tsf
-30	42											
-32	44		11		42							
-34	46											
-36	48											
-38	50		12		42							
-40	52											
-42	54		13		77							
-44	56											
-46	58											
-48	60		14		Ref/0"							
-50	62											
-52	64											
-54	66				Ref/4"							
-56	68											
-58	70											
-60	72											
-62	74											
-64	76											
-66	78											

MATERIAL DESCRIPTION

- becomes hard at ~43', greenish gray with light olive brown inclusions

- dark green gray

Clayey SAND (SC): very dense, dark greenish gray to dusky blue gray, wet, with fine sand, possible Santa Barbara Formation (Qsb)

- with fine angular to subangular gravel, less than ~1-1/4" diameter

- gravel layer encountered during drilling at ~62'

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

COMPLETION DEPTH: 67.0 ft
DEPTH TO WATER: Not Measured
BACKFILLED WITH: Cement/bentonite grout
DRILLING DATE: December 17, 2008

DRILLING METHOD: 4-inch-dia. Mud Rotary Wash
HAMMER TYPE: Automatic Trip
DRILLED BY: Gregg Drilling
LOGGED BY: K Nelson
CHECKED BY: G S Denlinger

LOG OF DRILL HOLE NO. DH-01
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE A-6b

BORING LOG VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 2/22/09 04:33:p

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Santa Barbara County Public Works
Project No. 3190.050

LOCATION: Empty Lot behind Former California Hotel, See Plate 2 - Subsurface Exploration Location Plan
N 1,976,748 E 6,051,824 CA State Plane, Zone 5, NAD83, Feet
SURFACE EL: Zone 5, NAD83, Feet (rel. MSL datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOW COUNT	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	UNDRAINED SHEAR STRENGTH, S_u, tsf
-10	2											
-8	4				(15)							
-6	6		1			133	117	13	52			
-4	8											
-2	10		2		(16)	125	100	25		41	25	p 0.6 t 1.3
0	12		3A 3B		7			19 23	29			
2	14											
4	16		4		100 psi			36		41	22	
6	18											
8	20		5A 5B		(7)	119	90	32 33				
10	22		6	push				29		36	17	
12	24											
14	26		7		200 psi							
16	28											
18	30		8		16			26	66			
20	32											
22	34		9A 9B		(32)	124 125	99 98	26 28	97			
24	36											
26	38				(29)							
28												

MATERIAL DESCRIPTION

ARTIFICIAL FILL (af)
Silty SAND (SM): moderate brown, moist, fine to medium sand
- sandy silt lens at ~3-1/2'

ALLUVIUM (Qal)
Sandy SILT (ML) with clay and sand lenses: stiff, gray brown to dark yellow brown, moist, with moderate brown mottling, fine to coarse sand, with some fine to medium, subangular gravel ~1" in diameter, with rust inclusions and rootlets in clay lens at ~5-1/2'
- grades to silty clay at ~6-1/2', trace charcoal fragments

Lean CLAY (CL): stiff, olive gray with trace rust inclusions, wet, trace pin-sized voids and fine rootlets, trace fine angular gravels

Silty SAND (SM) with sandy silt lenses: loose, olive gray with rust inclusions, wet, with clay pockets, few fine angular gravel ~1" diameter, fine sand
- clayey silty sand (SC-SM) at 14', dark greenish gray

Gravelly to Sandy Lean CLAY (CL): wet, gravelly clay at ~14.6', dark gray, w/ trace rootlets, fine angular gravel
- sandy clay with gravel at ~15', gray black

- lean clay at ~19', medium stiff, trace rootlets

- lean clay at 20-1/2', soft, trace fine gravel

- lean clay with sand and gravel at ~25', greenish black
- clayey sand lens at ~25.6', olive gray w/ rust mottling
- gravelly clay near ~26', dark gray
- lens of well-graded sand with silt at ~26-1/2'

Clayey SAND (SC): dark gray with olive brown inclusions, wet, fine sand

Sandy SILT (ML) to Sandy CLAY (CL): stiff, dark gray, wet, fine sand, sandy silt, trace clay pockets, possible older alluvium (Qoa)

- grades to sandy clay near 35-1/2'
- silty clay lens at ~36', dark olive gray, trace rootlets

Silty SAND (SM): medium dense, wet, fine sand, dark gray

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

COMPLETION DEPTH: 101.6 ft
DEPTH TO WATER: 6.8 ft
BACKFILLED WITH: Cement/bentonite grout
DRILLING DATE: December 19, 2008

DRILLING METHOD: 4-inch-dia. Mud Rotary Wash
HAMMER TYPE: Automatic Trip
DRILLED BY: Gregg Drilling
LOGGED BY: K Nelson
CHECKED BY: G S Denlinger

LOG OF DRILL HOLE NO. DH-02 (B-2)
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE A-7a

BORING LOG VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 2/22/09 04:33:p

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Santa Barbara County Public Works
Project No. 3190.050

LOCATION: Empty Lot behind Former California Hotel, See Plate 2 - Subsurface Exploration Location Plan
N 1,976,748 E 6,051,824 CA State Plane, Zone 5, NAD83, Feet
SURFACE EL: Zone 5, NAD83, Feet (rel. MSL datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOW COUNT	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	UNDRAINED SHEAR STRENGTH, S_u, tsf
-30	42		10			125	96	30				
-32	44											
-34	46		11		13			25	77			
-36	48											
-38	50		12		(70)							
-40	52					130	105	23				
-42	54											
-44	56		13									
-46	58		13A 13B					22 30	90	66	41	
-48	60		14A 14B		(28)							p 1.9
-50	62											
-52	64		15		23			30	84	34	14	
-54	66											
-56	68											
-58	70											
-60	72		16 17		(97) 42	130	108	21 27				
-62	74											
-64	76											
-66	78											

MATERIAL DESCRIPTION

Silty CLAY with sand (CL-ML): stiff, dark gray, wet, with charcoal pieces and black spotting

- grades to lean clay with sand at ~44', with very trace rootlets and light gray inclusions

Silty SAND (SM): dense, dark gray, wet, fine sand becomes fine to coarse sand near ~50-1/2' with some fine gravels

Fat CLAY (CH): stiff, olive gray to dark gray, wet, with abundant charcoal staining and trace rootlets

- turns to silt at ~55', with trace fine sand

Lean CLAY with sand (CL): dark gray to dark blue gray, wet, fine sand

- very stiff, fine sand, trace medium sand and silt near ~59'

- dusky yellow with gray mottling, trace rootlets, very fine sand

OLDER ALLUVIUM (Qoal) ??
Silty SAND (SM): dense to very dense, light gray with pockets of yellow orange and green gray inclusions, wet, fine sand, possible Santa Barbara Formation (Qsb)

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

COMPLETION DEPTH: 101.5 ft
DEPTH TO WATER: 6.8 ft
BACKFILLED WITH: Cement/bentonite grout
DRILLING DATE: December 19, 2008

DRILLING METHOD: 4-inch-dia. Mud Rotary Wash
HAMMER TYPE: Automatic Trip
DRILLED BY: Gregg Drilling
LOGGED BY: K Nelson
CHECKED BY: G S Denlinger

LOG OF DRILL HOLE NO. DH-02
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE A-7b

BORING LOG VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 2/22/09 04:33:p

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Santa Barbara County Public Works
Project No. 3190.050

LOCATION: Empty Lot behind Former California Hotel, See Plate 2 - Subsurface Exploration Location Plan
N 1,976,748 E 6,051,824 CA State Plane, Zone 5, NAD83, Feet
SURFACE EL: Zone 5, NAD83, Feet (rel. MSL datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOW COUNT	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	UNDRAINED SHEAR STRENGTH, S_u, tsf
-12	2		1		(18)							
-14	4											
-16	6		2		(30)							
-18	8											
-20	10		3		(50)							
-22	12											
-24	14		4		(50)							
-26	16											
-28	18		5		(50)							
-30	20											
-32	22		6		(50)							
-34	24											
-36	26		7		(50)							
-38	28											
-40	30		8		(50)							
-42	32											
-44	34		9		(50)							
-46	36											
-48	38		10		(50)							

MATERIAL DESCRIPTION

Well graded GRAVEL (GW)

Poorly graded GRAVEL (GP)

Well graded SAND (SW)

Poorly graded SAND (SP)

Silty SAND (SM)

Clayey SAND (SC)

Silty, Clayey SAND (SC-SM)

Elastic SILT (MH)

SILT (ML)

Silty CLAY (CL-ML)

Fat CLAY (CH)

Lean CLAY (CL)

CONGLOMERATE

SANDSTONE

SILTSTONE

MUDSTONE

CLAYSTONE

BASALT

ANDESITE BRECCIA

Paving and/or Base Materials

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

COMPLETION DEPTH: 101.5 ft
DEPTH TO WATER: 6.8 ft
BACKFILLED WITH: Cement/bentonite grout
DRILLING DATE: December 19, 2008

DRILLING METHOD: 4-inch-dia. Mud Rotary Wash
HAMMER TYPE: Automatic Trip
DRILLED BY: Gregg Drilling
LOGGED BY: K Nelson
CHECKED BY: G S Denlinger

LOG OF DRILL HOLE NO. DH-02
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE A-7c

BORING LOG VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 2/22/09 04:33:p

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Santa Barbara County Public Works
Project No. 3190.050

LOCATION: West Side of Mason Street Bridge, See Plate 2 - Subsurface Exploration Location Plan
N 1,976,728 E 6,051,636 CA State Plane, Zone 5, NAD83, Feet
SURFACE EL: Zone 5, NAD83, Feet (rel. MSL datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOW COUNT	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	UNDRAINED SHEAR STRENGTH, S_u, tsf
-12	2		1		(3)							
-10	4					128	105	22				
-8	6		2		(10)							
-6	8					124	97	27				
-4	10											
-2	12		3		(15)	130	109	20				p 1.5 u 1.0
0	14											
2	16											
4	18		4		(15)	117	84	39	90			
6	20											
8	22											
10	24											
12	26		5		(26)	131	107	23				u 2.1
14	28											
16	30		6		(27)	131	107	22				
18	32											
20	34											
22	36		7		(30)	124	98	28	54			
24	38											

MATERIAL DESCRIPTION

ARTIFICIAL FILL (af)
AC over concrete
SILT (ML) to Silty SAND (SM): dark yellowish brown to pale brown, moist, fine sand

ALLUVIUM (Qal)
Sandy CLAY (CL): gray brown, moist, with abundant rootlets and light gray mottling

Silty SAND (SM): very loose, moderate brown, moist to wet

Lean CLAY with sand (CL): medium stiff, blue gray, wet, with fine sand at ~10', light gray mottling, rust inclusions, organics and charcoal bits

- becomes stiff at ~15', with fine charcoal and rootlets, blue gray to olive gray, becomes silty near ~16-1/2

- grades to lean clay at ~20'

Sandy CLAY (CL) to Sandy SILT (ML): very stiff, blue gray, fine sand, sandy clayey silt at ~25', with fine sand lenses at ~28', possible older alluvium (Qoa)

- sandy clay at ~30', dark olive gray, fine sand, with silty fine sand lens near ~31-1/2'

- sandy silt at ~35'

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

COMPLETION DEPTH: 71.5 ft
DEPTH TO WATER: Not Measured
BACKFILLED WITH: Cement/bentonite grout
DRILLING DATE: December 22, 2008

DRILLING METHOD: 4-inch-dia. Hollow Stem Auger
HAMMER TYPE: Automatic Trip
DRILLED BY: Gregg Drilling
LOGGED BY: K Nelson
CHECKED BY: G S Denlinger

LOG OF DRILL HOLE NO. DH-03 (B-3)
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE A

BORING LOG VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 2/22/09 04:33:p

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Santa Barbara County Public Works
Project No. 3190.050

LOCATION: West Side of Mason Street Bridge, See Plate 2 - Subsurface Exploration Location Plan
N 1,976,728 E 6,051,636 CA State Plane, Zone 5, NAD83, Feet
SURFACE EL: Zone 5, NAD83, Feet (rel. MSL datum)

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	SAMPLER BLOW COUNT	UNIT WET WEIGHT, pcf	UNIT DRY WEIGHT, pcf	WATER CONTENT, %	% PASSING #200 SIEVE	LIQUID LIMIT, %	PLASTICITY INDEX, %	UNDRAINED SHEAR STRENGTH, S_u, tsf
-28	42		8		(26)	128	104	23				p 1.5
-30	44											
-32	46		9		(41)	131	109	20				
-34	48											
-36	50		10		21				63			
-38	52											
-40	54		11		40			28	97			
-42	56											
-44	58											
-46	60											
-48	62											
-50	64											
-52	66											
-54	68											
-56	70											
-58	72											
-60	74											
-62	76											
-64	78											

MATERIAL DESCRIPTION

- grades to lean clay at ~40', with trace charcoal, rootlets, and dark olive green mottling, higher plasticity

- sandy silt at ~45'

- dark blue gray to olive gray, with rootlets, trace medium sand

- sandy silt lens near ~60'

OLDER ALLUVIUM (Qoal) ??
Lean CLAY (CL): hard, gray green

- with fine sand at ~70', green gray with rusty brown inclusions

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

COMPLETION DEPTH: 71.5 ft
DEPTH TO WATER: Not Measured
BACKFILLED WITH: Cement/bentonite grout
DRILLING DATE: December 22, 2008

DRILLING METHOD: 4-inch-dia. Hollow Stem Auger
HAMMER TYPE: Automatic Trip
DRILLED BY: Gregg Drilling
LOGGED BY: K Nelson
CHECKED BY: G S Denlinger

LOG OF DRILL HOLE NO. DH-03
Lower Mission Creek Channel Improvements
Mason Street to State Street
Santa Barbara, California

PLATE A-

BORING LOG VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 2/22/09 04:33:p

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Santa Barbara County Public Works
Project No. 3190.050

LOCATION: The drill hole location referencing local landmarks or coordinates
SURFACE EL: Using local, MSL, MLLW or other datum

ELEVATION, ft	DEPTH, ft	MATERIAL SYMBOL	SAMPLE NO.	SAMPLERS	BLOW COUNT / RECOVERY
-12	2		1		25
-14	4		2		(25)
-16	6		3		(25)
-18	8		4		(25)
-20	10		5		18" / 30"
-22	12		6		
-24	14		7		
-26	16		8		20" / 24"
-28	18		9		(25)
-30	20		10		30" / 30"
-32	22		11		20" / 24"
-34	24		12		
-36	26		13		
-38	28				
-40	30				
-42	32				
-44	34				
-46	36				
-48	38				

MATERIAL DESCRIPTION

COARSE GRAINED (more than 50% retained on #200 sieve)
FINE GRAINED (50% or more passing #200 sieve)
ROCK

General Notes

Soil Texture Symbol

Sloped line in symbol column indicates transitional boundary

Samplers and sampler dimensions (unless otherwise noted in report text) are as follows:

Symbol for:
1 SPT Sampler, driven 1-3/8" ID, 2" OD
2 CA Liner Sampler, driven 2-3/8" ID, 3" OD
3 CA Liner Sampler, disturbed 2-3/8" ID, 3" OD
4 Thin-walled Tube, pushed 2-7/8" ID, 3" OD
5 Bulk Bag Sample (from cuttings)
6 CA Liner Sampler, Bagged
7 Hand Auger Sample
8 CME Core Sample
9 Pitcher Sample
10 Lexan Sample
11 Vibracore Sample
12 No Sample Recovered
13 Sonic Soil Core Sample

Sampler Driving Resistance
Number of blows with 140 lb. hammer, falling 30" to drive sampler 1 ft. after seating sampler 6"; for example,

Blows/ft	Description
25	25 blows drove sampler 12" after initial 6" of seating
86/11"	After driving sampler the initial 6" of seating, 36 blows drove sampler through the second 6" interval, and 50 blows drove the sampler 5" into the third interval
50/6"	50 blows drove sampler 6" after initial 6" of seating
Ref/3"	50 blows drove sampler 3" during initial 6" seating interval

Blow counts for California Liner Sampler shown in ( )

Length of sample symbol approximates recovery length

Classification of Soils per ASTM D2487 or D2488

Geologic Formation noted in bold font at the top of interpreted interval

Strength Legend
Q = Unconfined Compression
u = Unconsolidated Undrained Triaxial
t = Torvane
p = Pocket Penetrometer
m = Miniature Vane

Water Level Symbols
▽ Initial or perched water level
▼ Final ground water level
⊻ Seepages encountered

Rock Quality Designation (RQD) is the sum of recovered core pieces greater than 4 inches divided by the length of the cored interval.

KEY TO TERMS & SYMBOLS USED ON LOGS

PLATE A-9

BORING LOG KEY VENTURA G:\GINT\PROJECTS\3190.050 DISCONTVTC LMC DEC 2008.GPJ 3/3/09 09:53:e

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		12/20/13	APPROVAL
			DATE
0	FINAL SUBMITTAL		DESCRIPTIONS
SYMBOL			REVISIONS

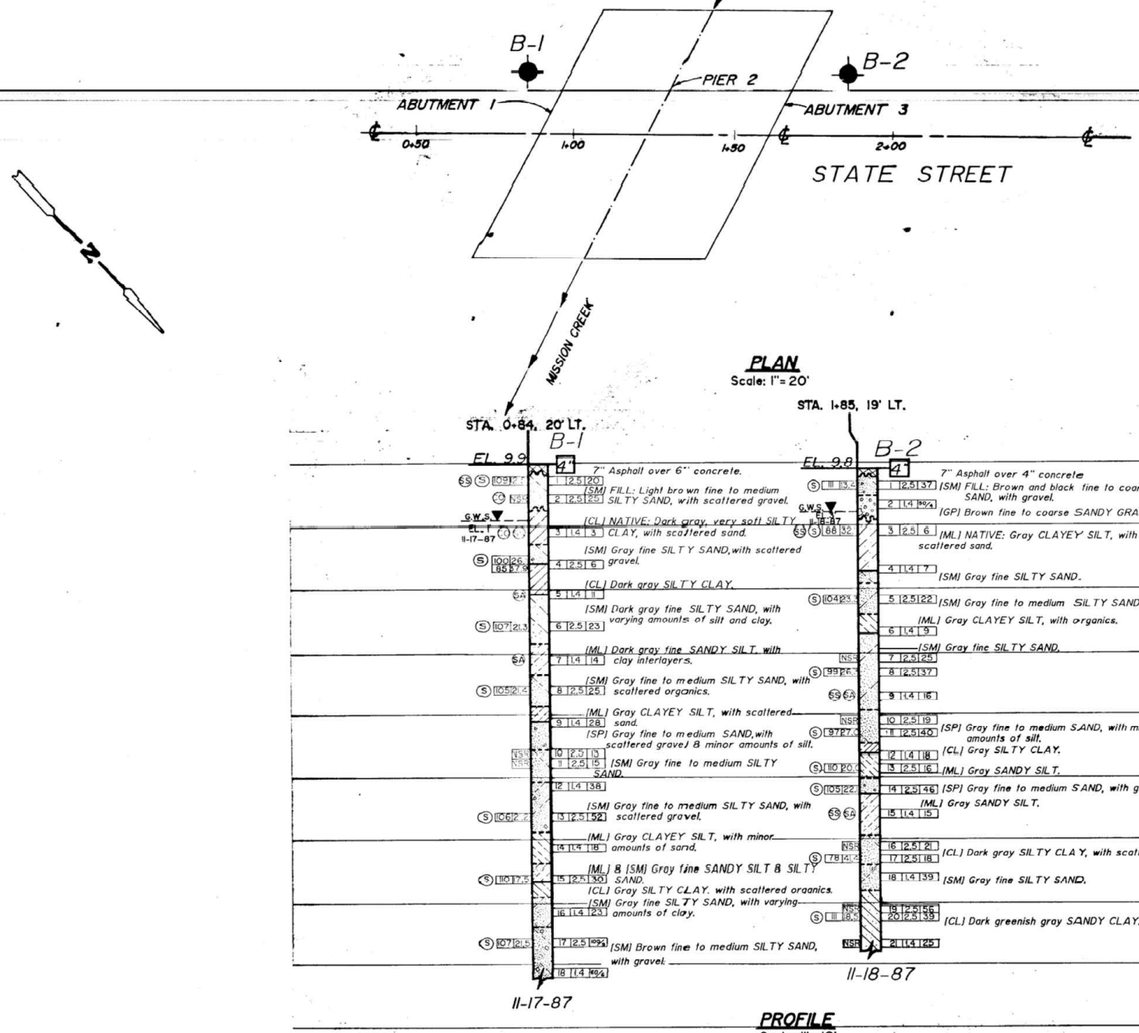
REACH 1A – LOWER MISSION CREEK
PHASE 2
BOREHOLES LOGS
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 – Appendix G

PREAPERD BY:

D R Consultants & Designers, Inc.

SCALE AS SHOWN	DESIGNED BY: RW & VM	SHEET 12 OF 13 SHEETS	B-2
	DRAWN BY: VM		
	CHECKED BY: WS		
	FILE NAME: 1910C802-#12-#12-2		



PROFILE
Scale: 1"= 10'

LEGEND OF EARTH MATERIALS

UNIFIED SOIL CLASSIFICATION

Pt	OH GH MH	OL GL ML	SC SM	SP SW	GC GM	GP GW
Highly organic soils	Silts and clays Liquid limit greater than 50	Silts and clays Liquid limit less than 50	Sands with fines >12% fines	Clean sands <5% fines	Gravels with fines >12% fines	Clean gravels <5% fines
	Fine grained soils (More than 50 % is smaller than Nº 200 sieve)		Sands - more than 50% of coarse fraction is smaller than Nº 4 sieve.	Coarse grained soils (More than 50 % is larger than Nº 200 sieve)	Gravels - more than 50% of coarse fraction is larger than Nº 4 sieve.	

LABORATORY CLASSIFICATION CRITERIA

GW and SW - $C_u = \frac{D_{60}}{D_{10}}$ greater than 4 for GW & 6 for SW; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 & 3.

GP and SP - Clean gravel or sand not meeting requirements for GW and SW.

GM and SM - Atterberg limits below "A" line or P.I. less than 4.

GC and SC - Atterberg limits above "A" line with P.I. greater than 7.

Fines (silt or clay)	Fine sand	Medium sand	Coarse sand	Fine gravel	Coarse gravel	Cobbles	Boulders
Sieve sizes	#200	#40	#10	#4	3/4"	3"	12"

Classification of earth materials shown on this sheet is based on field inspection and should not be construed to imply laboratory analysis unless so stated.

MATERIAL SYMBOLS

Gravel; Sand; Silt; Clay; Sandy clay or clayey sand; Sandy silt or silty sand; Silty clay or clayey silt; Peat or organic matter; Fill material; Shale; Sandstone; Limestone; Metamorphic rock; Igneous rock

CONSISTENCY CLASSIFICATION FOR SOILS

According to the Standard Penetration Test

Nº of blows	Granular	Cohesive
0 - 5	Very loose	Very soft
6 - 10	Loose	Soft
11 - 20	Semicompact	Stiff
21 - 35	Compact	Very stiff
36 - 70	Dense	Hard
>70	Very dense	Very hard

LEGEND OF BORING OPERATIONS

Plan of any boring; Rotary boring; Diamond core boring; Auger boring; Sample boring; Jet boring; Test pit; 2¼" Cone penetrometer; 2½" Cone penetrometer

SS- Soluble sulphate
CO-Corrosivity
NSR-No sample recovered

ROTARY BORING

Location; B-Nº.; Top hole elev.; Casing Set; Moisture (% dry wt.); Dry density (lbs./cu.ft.); Unconfined compressive strength (tons/sq.ft.); Designates other soils tests: C - Consolidation, S - Direct shear, E - Expansion, T - Triaxial compression; Elevation Date; Sample number; Size of sample (inches); Blows per foot (Using a 140 lb. hammer with a 30" drop); Conformable material change; Approximate material change; Unconformable material change; Date of boring

THESE BORING LOG SUMMARIES APPLY ONLY AT THE TIME AND LOCATION INDICATED. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND TIMES.

PENETRATION TEST

Location; B-Nº.; Top hole elev.; Pushed; Blows per foot (Using 140 lb. hammer with 30" drop); Graphic representation of driving rate; Date; Blows per foot

MOORE & TABER
CONSULTING ENGINEERS AND GEOLOGISTS
Approved George P. Hattrup
REGISTERED GEOTECHNICAL ENGINEER No.
JOB Nº. 187-136A

CITY OF SANTA BARBARA

STATE STREET BRIDGE REPLACEMENT
OVER MISSION CREEK
SANTA BARBARA, CALIFORNIA

LOG OF TEST BORINGS

Scale: Horiz.- 1"=20' Vert.-1"=10' | Date: REVISED 5-18-90 | By: R.W.K. | Check by: D.L.C. | Drawing: B6 of B6

C-3-674

REGISTERED PROFESSIONAL ENGINEER GEORGE P. HATTRUP No. 43979 Exp. 6-30-92 CIVIL STATE OF CALIFORNIA

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
0	FINAL SUBMITTAL	12/20/13	

REVISIONS

REACH 1A - LOWER MISSION CREEK
PHASE 2
BOREHOLES LOGS
AT STATE ST. BRIDGE
CITY OF SANTA BARBARA, CALIFORNIA

CITY OF SANTA BARBARA
BID No.3588 - Appendix G

PREPARED BY: D R Consultants & Designers, Inc.

DESIGNED BY: RW & VM
DRAWN BY: VM
CHECKED BY: WS

SCALE AS SHOWN
SHEET 13 OF 13 SHEETS

FILE NAME: 19100803-#13-#11-2

B-3