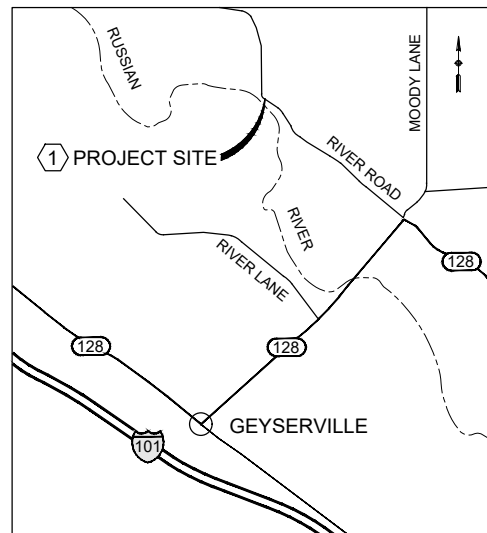
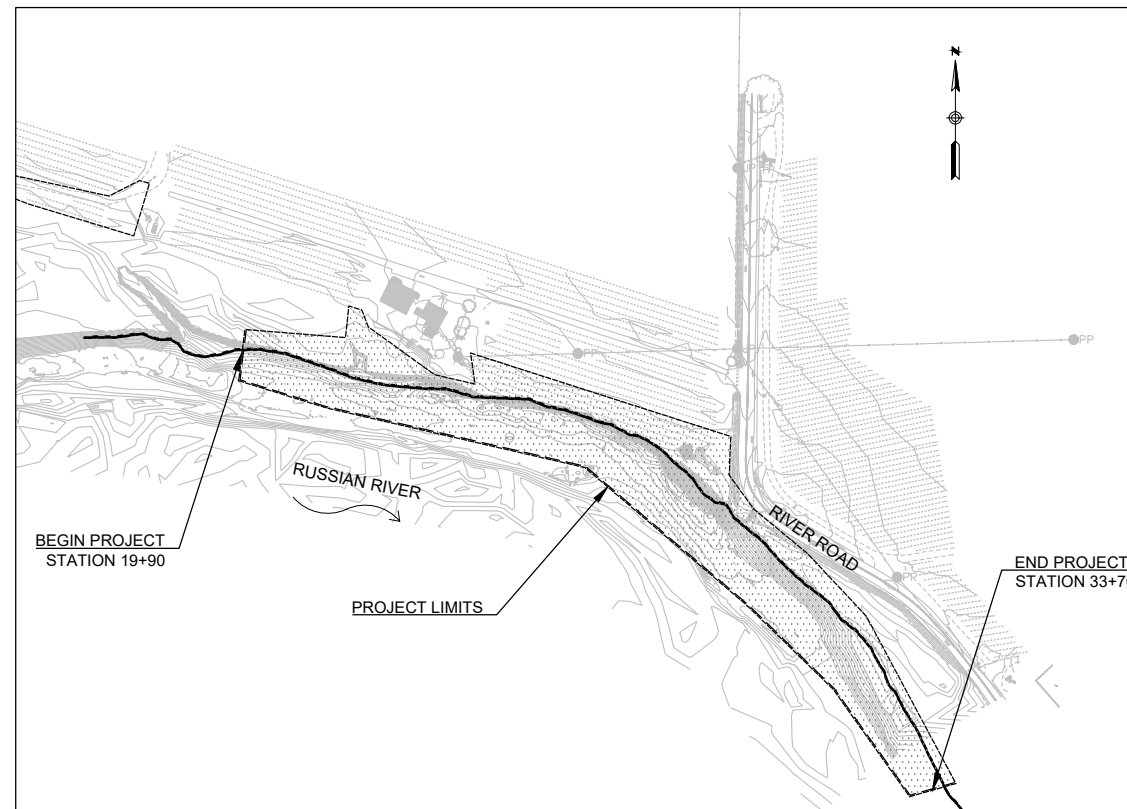


# COUNTY OF SONOMA SONOMA COUNTY PUBLIC INFRASTRUCTURE PROJECT DRAWINGS FOR CONSTRUCTION OF **RIVER ROAD BANK STABILIZATION**

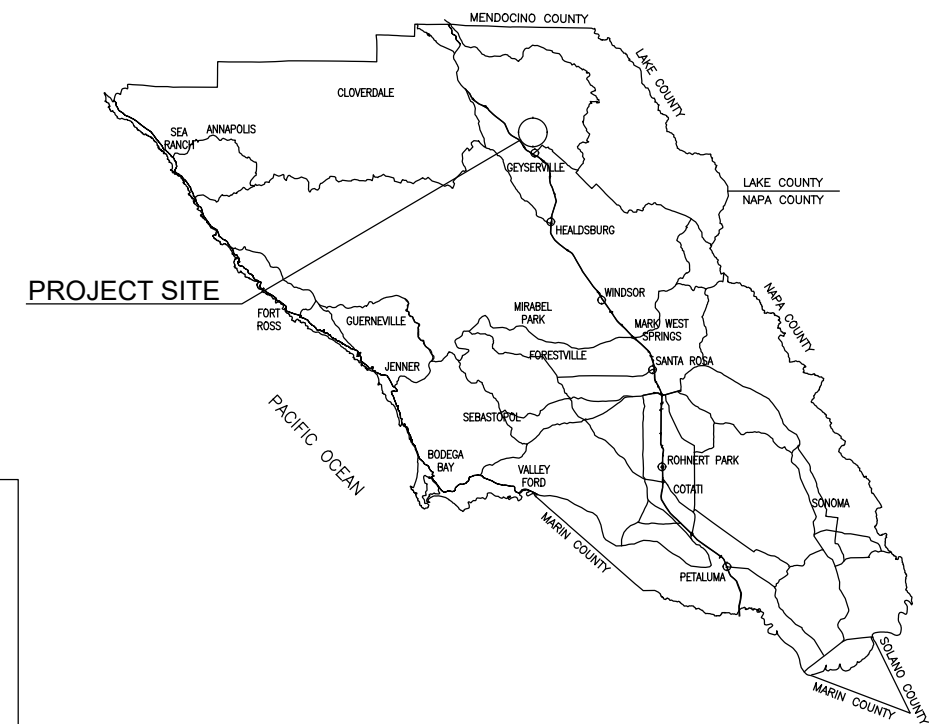
COUNTY OF SONOMA PROJECT NO. C21900  
FEMA HMGP DR-4344-270-072R  
RIVER ROAD COUNTY ROAD # \_\_\_\_\_ PM START \_\_\_\_\_ PM END \_\_\_\_\_



**VICINITY MAP**  
NOT TO SCALE



**SITE MAP**  
NOT TO SCALE



**INDEX OF SHEETS**

- 1 TITLE SHEET
- 2 LEGEND AND ABBREVIATIONS
- 3 SURVEY AND HORIZONTAL CONTROL
- 4 PLAN AND PROFILE 1
- 5 PLAN AND PROFILE 2
- 6 CONSTRUCTION DETAILS 1
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- 8 CONSTRUCTION DETAILS 3
- 9 EARTHWORK CROSS SECTIONS 1
- 10 EARTHWORK CROSS SECTIONS 2
- 11 EARTHWORK CROSS SECTIONS 3
- 12 REVEGETATION PLAN
- 13 REVEGETATION CROSS SECTIONS
- 14 REVEGETATION DETAILS AND PLANT PALETTES
- 15 EROSION CONTROL DETAILS

**VERTICAL DATUM:**

NAVD 88

**BASIS OF BEARINGS:**

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2, NAD 83, EPOCH 2017.50 AS DETERMINED LOCALLY BY A LINE BETWEEN CONTINUOUS GLOBAL POSITIONING SYSTEMS (CGPS) STATION P195 AND STATION P203; BEING NORTH 9°55'41" EAST AS DERIVED FROM GEODETIC VALUES PUBLISHED BY THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC).

**NOTE:**

THE CONTRACTOR SHALL POSSESS A CLASS A LICENSE AND A HAZARDOUS MATERIALS CERTIFICATE AT THE TIME OF AWARD.

**LOCATION TABLE**

SITE NO.	DESCRIPTION	LATITUDE	LONGITUDE
1	RIVER ROAD	38.720940	-122.900555

**July 31, 2024  
PROGRESS PRINT  
NOT FOR CONSTRUCTION**

APPROVED FOR CONSTRUCTION BY:

JOHANNES J. HOEVERTSZ, R.C.E. 67468 DIRECTOR DATE  
SONOMA COUNTY PUBLIC INFRASTRUCTURE

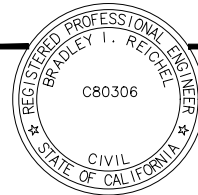
YOASH TILLES, R.C.E. 76467 ENGINEER DATE  
SONOMA COUNTY PUBLIC INFRASTRUCTURE

BRADLEY I. REICHEL, C80306 ENGINEER DATE  
MGE ENGINEERING, INC.

**SUMMARY OF EARTHWORK (PRELIMINARY)**

AREA OF DISTURBANCE: 4.50 ACRES  
TOTAL CUT VOLUME: 1,877 CY  
TOTAL FILL VOLUME: 18,870 CY  
FILL VOLUME BELOW OHWM: 12,640 CY

Title: River Road Bank Stabilization - Sonoma County Public Infrastructure Project - Sheet No. 1 of 15  
 Date: July 31, 2024  
 Project No: C21900  
 Drawing No: 001  
 Scale: As Shown  
 Author: J. Patrick  
 Checker: J. Patrick  
 Designer: B. Reichel  
 Engineer: B. Reichel  
 Project Manager: J. Patrick  
 Date Plotted: 7/31/24 10:00 AM  
 Plot Scale: 1:1  
 Plot Size: 11x17  
 Plot Orientation: Portrait  
 Plot Title: River Road Bank Stabilization - Sonoma County Public Infrastructure Project - Sheet No. 1 of 15  
 Plot Date: 7/31/24 10:00 AM  
 Plot User: J. Patrick



DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER	C80306
PLANS APPROVAL DATE	

CONSTRUCTION COMPLETED:			
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

**MGE ENGINEERING, INC.**  
7415 GREENHAVEN DRIVE, SUITE 100  
SACRAMENTO, CALIFORNIA 95831  
TEL: (916) 421-1000

**SONOMA COUNTY  
PUBLIC INFRASTRUCTURE**  
JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

TITLE SHEET	ROAD NUMBER	09018
<b>RIVER ROAD BANK STABILIZATION</b>	BUDGET NUMBER	C21900
	FISCAL YEAR	2022-23
	SHEET NUMBER	1
	TOTAL SHEETS	15

# ABBREVIATIONS

AB	AGGREGATE BASE
AC	ASPHALT CONCRETE
APN	ASSESSORS PARCEL NUMBER
BVCE	BEGIN VERTICAL CURVE ELEVATION
BVCS	BEGIN VERTICAL CURVE STATION
BW	BARBED WIRE
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CP	CONTROL POINT
CTRL	CONTROL
E:	EASTING
EL	ELEVATION
EP	EDGE OF PAVING
EX, (E)	EXISTING
EVCE	END VERTICAL CURVE ELEVATION
EVCS	END VERTICAL CURVE STATION
FG	FINISHED GRADE
FT	FEET
GB	GRADE BREAK
LF	LINEAR FEET
LT	LEFT
LVC	LENGTH VERTICAL CURVE
MAX	MAXIMUM
MIN	MINIMUM
(N)	NEW
N:	NORTHING
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NG	NATURAL GROUND
OG	ORIGINAL GROUND
PC, POC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
PVIE	POINT OF VERTICAL INTERSECTION ELEVATION
PVIS	POINT OF VERTICAL INTERSECTION STATION
RC	REVERSE CROWN
RSP	ROCK SLOPE PROTECTION
RT	RIGHT
R/W	RIGHT OF WAY
SF	SQUARE FEET
TB	TOP OF BANK
TC	TOP OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TG	TOP OF GRADE
TOE	TOE OF BANK
TYP	TYPICAL
VSL	VEGETATED SOIL LIFT
WSE	WATER SURFACE ELEVATION

# CALTRANS STANDARD PLANS - 2022

A3A	ABBREVIATIONS (SHEET 1 OF 3)
A3B	ABBREVIATIONS (SHEET 2 OF 3)
A3C	ABBREVIATIONS (SHEET 3 OF 3)
A10A	LEGEND LINES AND SYMBOLS (SHEET 1 OF 5)
A10B	LEGEND LINES AND SYMBOLS (SHEET 2 OF 5)
A10C	LEGEND LINES AND SYMBOLS (SHEET 3 OF 5)
A10E	LEGEND LINES AND SYMBOLS (SHEET 5 OF 5)

## GENERAL NOTES:

- DIMENSIONS SHOWN ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

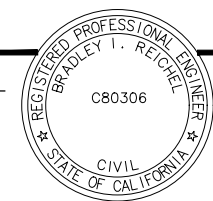
## UTILITY NOTES:

HORIZONTAL LOCATIONS FOR EXISTING UNDERGROUND FACILITIES ARE APPROXIMATE. EXACT HORIZONTAL AND VERTICAL LOCATIONS ARE UNKNOWN. CONTRACTOR SHALL FIELD LOCATE UTILITIES PRIOR TO THE START OF CONSTRUCTION.  
 \*\*CALL UNDERGROUND SERVICE ALERT (USA) 811

## LEGEND

	RIGHT OF WAY/PROPERTY LINE
	CENTERLINE OF ROADWAY
	LIMITS OF GRADING
	LIMITS OF ROCK SLOPE PROTECTION (RSP)
	ORIGINAL GROUND
	PROPOSED CONTOUR
	EXISTING CONTOUR
	FINISHED GRADE
	UNDERGROUND UTILITY LINE
	SURVEY CONTROL POINTS

Title Block (CALTRANS) 4x  
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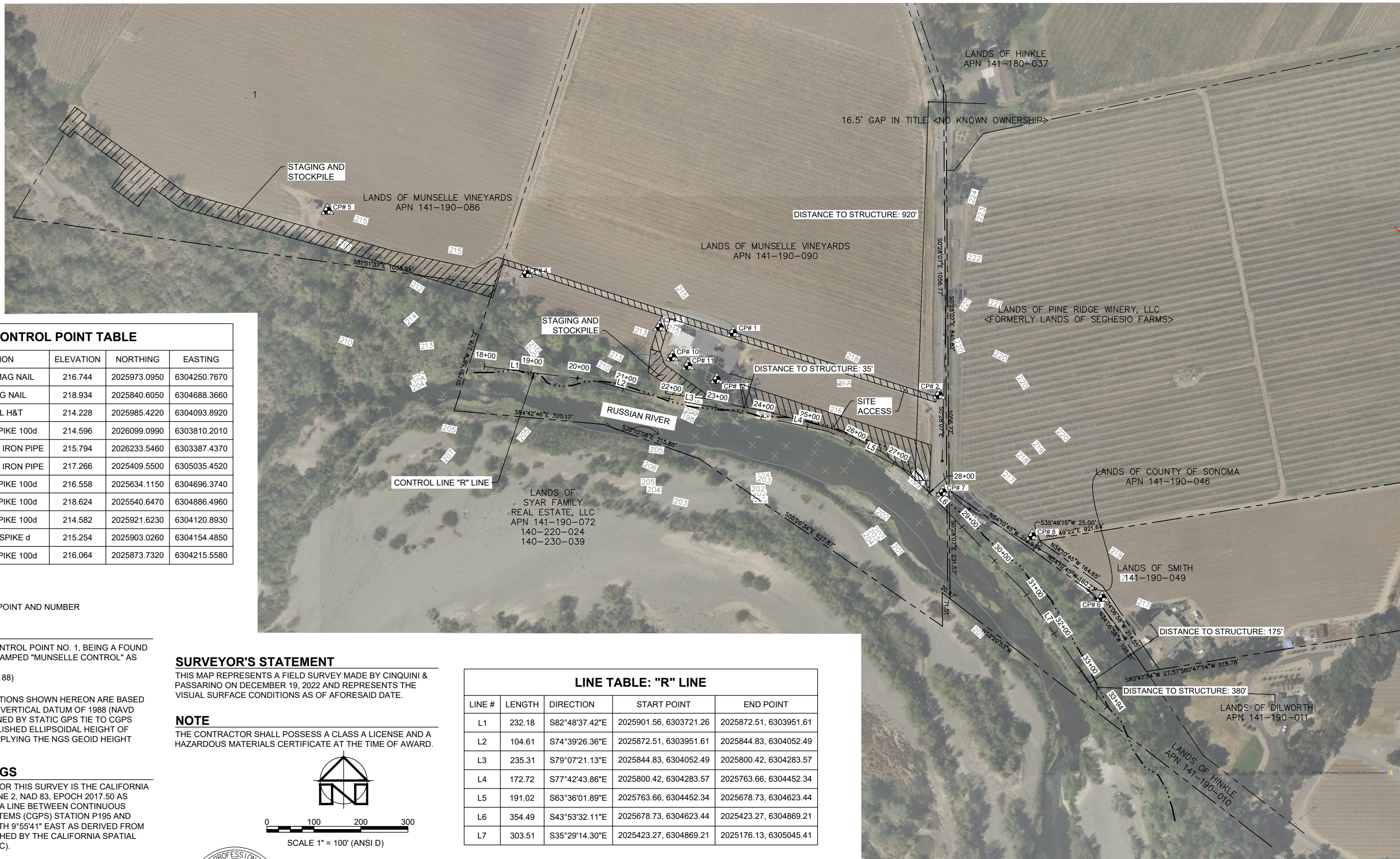
DESIGN BY	B. REICHEL	REGISTERED CIVIL ENGINEER C80306 PLANS APPROVAL DATE _____
DRAWING BY	B. REICHEL	
CHECKED BY	J. PATRICK	

CONSTRUCTION COMPLETED:			
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION		RESIDENT ENGINEER AS BUILT DRAWINGS BY:	
DATE	REVISION	BY	APPROVED

**MGE** ENGINEERING, INC.  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
 TEL: (916) 421-1000



LEGEND AND ABBREVIATIONS		ROAD NUMBER	09018
<b>RIVER ROAD BANK STABILIZATION</b>		BUDGET NUMBER	C21900
		FISCAL YEAR	2022-23
		SHEET NUMBER	2
		TOTAL SHEETS	15



**CONTROL POINT TABLE**

CP#	DESCRIPTION	ELEVATION	NORTHING	EASTING
1	SET CPI CTRL MAG NAIL	216.744	2025973.0950	6304250.7670
2	FND CTRL MAG NAIL	218.934	2025840.6050	6304688.3660
3	SET CPI CTRL H&T	214.228	2025985.4220	6304093.8920
4	SET CPI CTRL SPIKE 100d	214.596	2026099.0990	6303810.2010
5	SET CPI CTRL 1/2" IRON PIPE	215.794	2026233.5460	6303387.4370
6	SET CPI CTRL 1/2" IRON PIPE	217.266	2025409.5500	6305035.4520
7	SET CPI CTRL SPIKE 100d	216.558	2025634.1150	6304696.3740
8	SET CPI CTRL SPIKE 100d	218.624	2025540.6470	6304886.4960
10	SET CPI CTRL SPIKE 100d	214.582	2025921.6230	6304120.8930
11	SET CPI CTRL SPIKE d	215.254	2025903.0260	6304154.4850
12	SET CPI CTRL SPIKE 100d	216.064	2025873.7320	6304215.5580

**LEGEND**

▲ CP# 12 CONTROL POINT AND NUMBER

**BENCHMARK**

CINQUINI & PASSARINO CONTROL POINT NO. 1, BEING A FOUND MAG NAIL AND WASHER STAMPED "MUNSELLE CONTROL" AS SHOWN HEREON.  
ELEVATION = 216.74' (NAVD 88)

THE ORTHOMETRIC ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988) AND WERE DETERMINED BY STATIC GPS TIE TO CGPS STATION P195 WITH A PUBLISHED ELLIPSOIDAL HEIGHT OF 483.292' IN ADDITION TO APPLYING THE NGS GEOID HEIGHT MODEL "GEOID2018".

**BASIS OF BEARINGS**

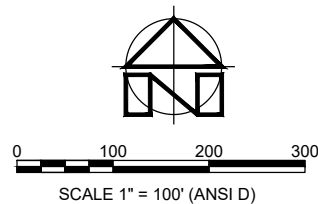
THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 2, NAD 83, EPOCH 2017.50 AS DETERMINED LOCALLY BY A LINE BETWEEN CONTINUOUS GLOBAL POSITIONING SYSTEMS (CGPS) STATION P195 AND STATION P203; BEING NORTH 9°55'41" EAST AS DERIVED FROM GEODETIC VALUES PUBLISHED BY THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC).

**SURVEYOR'S STATEMENT**

THIS MAP REPRESENTS A FIELD SURVEY MADE BY CINQUINI & PASSARINO ON DECEMBER 19, 2022 AND REPRESENTS THE VISUAL SURFACE CONDITIONS AS OF AFORESAID DATE.

**NOTE**

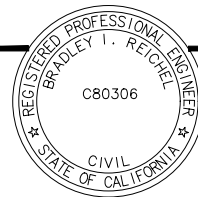
THE CONTRACTOR SHALL POSSESS A CLASS A LICENSE AND A HAZARDOUS MATERIALS CERTIFICATE AT THE TIME OF AWARD.



**LINE TABLE: "R" LINE**

LINE #	LENGTH	DIRECTION	START POINT	END POINT
L1	232.18	S82°48'37.42"E	2025901.56, 6303721.26	2025872.51, 6303951.61
L2	104.61	S74°39'26.36"E	2025872.51, 6303951.61	2025844.83, 6304052.49
L3	235.31	S79°07'21.13"E	2025844.83, 6304052.49	2025800.42, 6304283.57
L4	172.72	S77°42'43.86"E	2025800.42, 6304283.57	2025763.66, 6304452.34
L5	191.02	S63°36'01.89"E	2025763.66, 6304452.34	2025678.73, 6304623.44
L6	354.49	S43°53'32.11"E	2025678.73, 6304623.44	2025423.27, 6304869.21
L7	303.51	S35°29'14.30"E	2025423.27, 6304869.21	2025176.13, 6305045.41

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CONSTRUCTION COMPLETED:			
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

**MGE ENGINEERING, INC.**  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
 TEL: (916) 421-1000



**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR


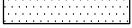

SURVEY AND HORIZONTAL CONTROL	
<b>RIVER ROAD BANK STABILIZATION</b>	

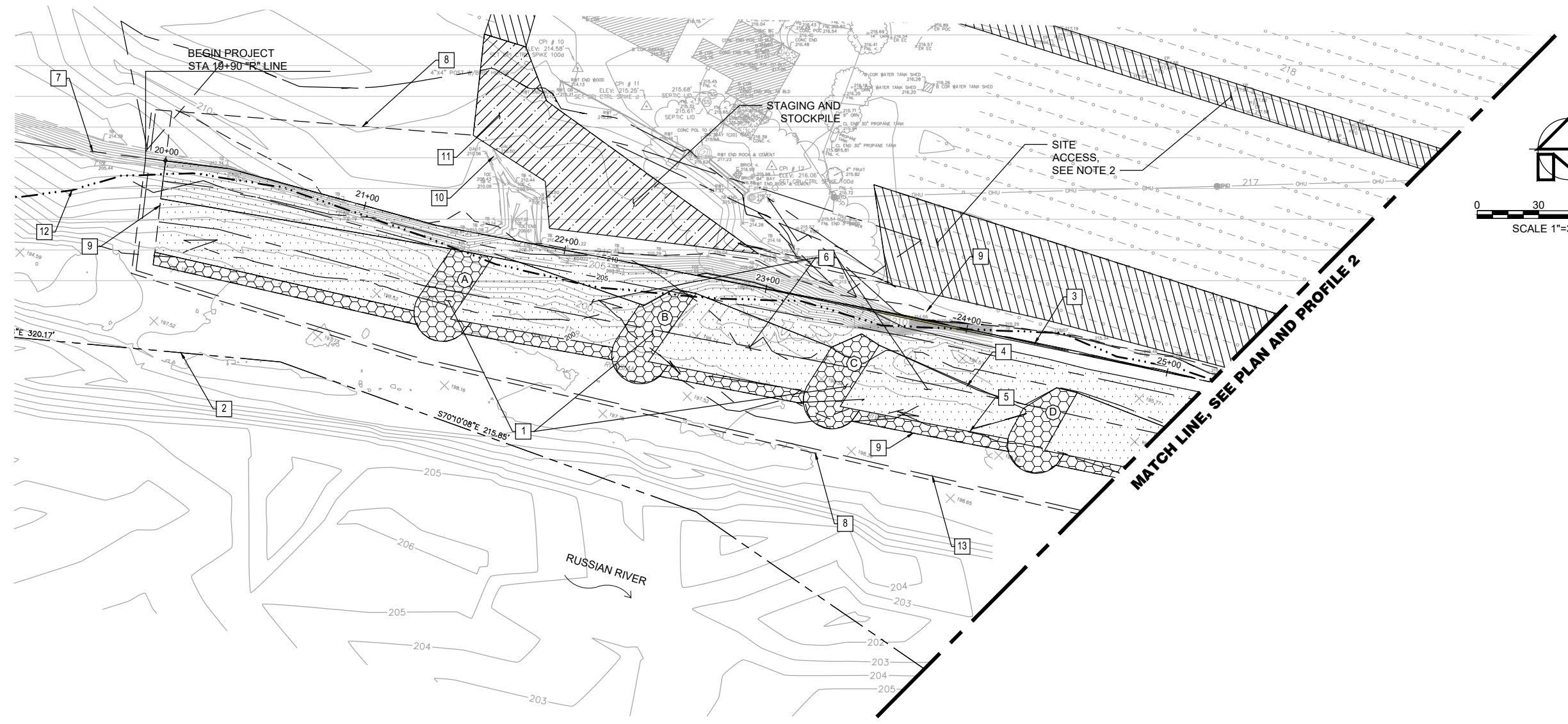
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BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	3
TOTAL SHEETS	15

**KEYNOTES**

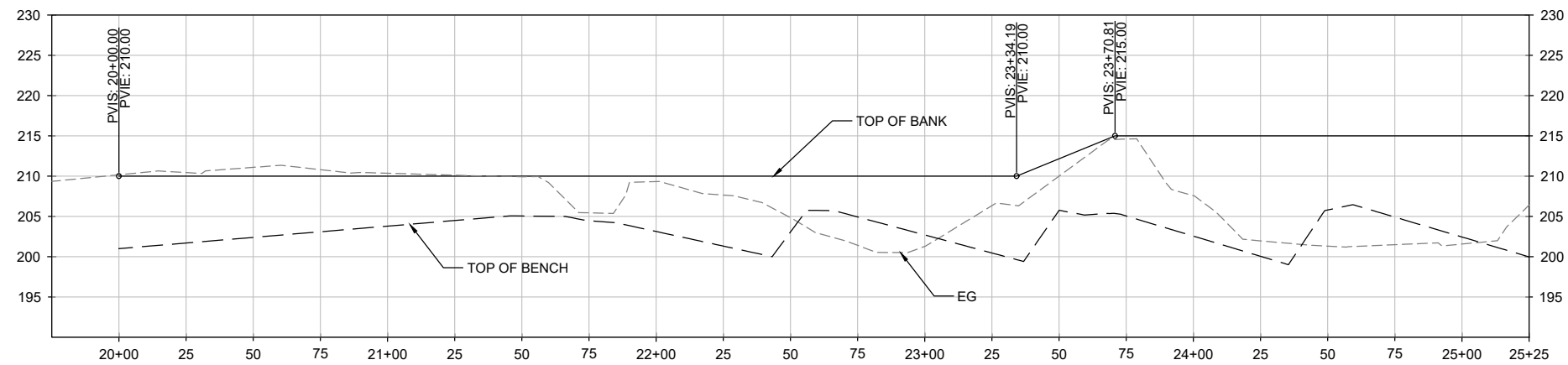
- 1 CONSTRUCT WEIR STRUCTURE, TYP
- 2 PROPERTY LINE, TYP
- 3 TOP OF BANK
- 4 TOP OF BENCH
- 5 BENCH HINGE
- 6 PLANTING BENCH, TYP
- 7 CONTROL LINE - "R" LINE
- 8 LIMITS OF WORK
- 9 LIMITS OF GRADING
- 10 DRAINAGE STRUCTURE
- 11 STAGING AREA
- 12 ORDINARY HIGH WATER MARK (OHWM)
- 13 DIVERSION BARRIER

**LEGEND**

-  WEIR STRUCTURE
-  ROCK SLOPE PROTECTION
-  WEIR IDENTIFIER



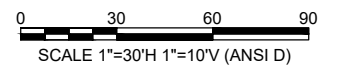
**PLAN**



**PROFILE  
CONTROL LINE - "R" LINE**

**NOTES:**

- 1. TOP OF BANK ALIGNED WITH CONTROL LINE - "R" LINE. SEE TYPICAL SECTIONS FOR LOCATION OF TOP OF BANK.
- 2. REMOVE VINEYARD WITHIN LIMITS AND COORDINATE DRIVEWAY ACCESS WITH THE DIRECTION AND COOPERATION OF THE LAND OWNER.
- 3. DIVERSION BARRIER TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.



Note: Refer to the Sonoma County Register of Professional Engineers for the full list of registered engineers. The information on this drawing is the property of MGE Engineering, Inc. and is not to be used for any other project without the written consent of MGE Engineering, Inc.

DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER  
C80306  
PLANS APPROVAL DATE

CONSTRUCTION COMPLETED:

DATE	REVISION	BY	APPROVED

**MGE ENGINEERING, INC.**  
7415 GREENHAVEN DRIVE, SUITE 100  
SACRAMENTO, CALIFORNIA 95831  
TEL: (916) 421-1000

**SONOMA COUNTY**  
PUBLIC INFRASTRUCTURE  
JOHANNES J. HOEVERTSZ, P.E., DIRECTOR


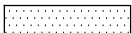

PLAN AND PROFILE 1  
**RIVER ROAD BANK STABILIZATION**

ROAD NUMBER	09018
BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	4
TOTAL SHEETS	15

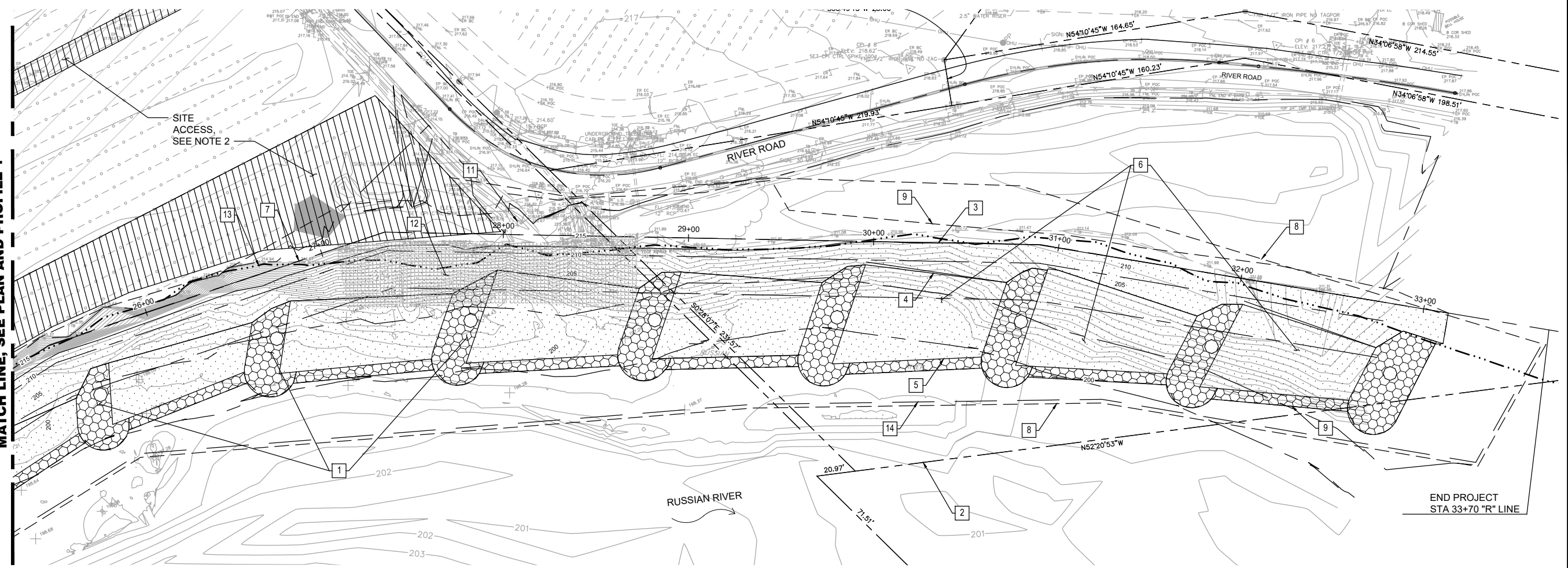
**KEYNOTES**

- 1 CONSTRUCT WEIR STRUCTURE, TYP
- 2 PROPERTY LINE, TYP
- 3 TOP OF BANK
- 4 TOP OF BENCH
- 5 BENCH HINGE
- 6 PLANTING BENCH, TYP
- 7 CONTROL LINE - "R" LINE
- 8 LIMITS OF WORK
- 9 LIMITS OF GRADING
- 10 DRAINAGE STRUCTURE
- 11 10' STEEL PIPE (TO BE REMOVED)
- 12 RELOCATE ROCK SLOPE PROTECTION
- 13 ORDINARY HIGH WATER MARK (OHWM)
- 14 DIVERSION BARRIER

**LEGEND**

-  WEIR STRUCTURE
-  ROCK SLOPE PROTECTION
-  WEIR IDENTIFIER

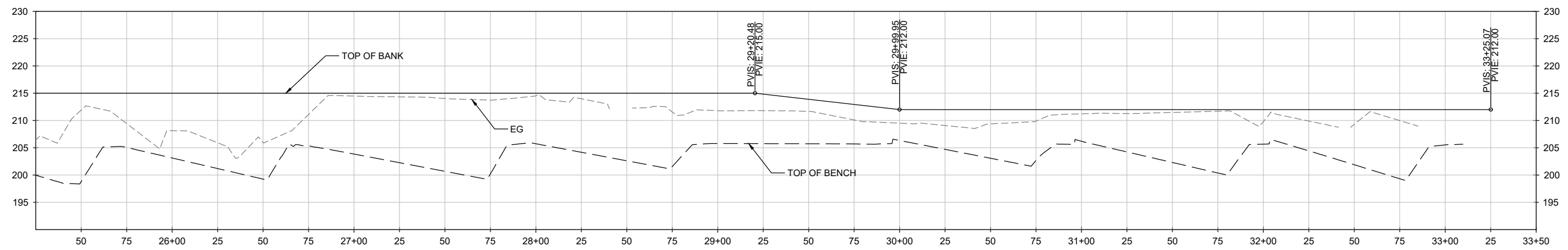
MATCH LINE, SEE PLAN AND PROFILE 1



**PLAN**

**NOTES:**

- 1. TOP OF BANK ALIGNED WITH CONTROL LINE - "R" LINE. SEE TYPICAL SECTIONS FOR LOCATION OF TOP OF BANK.
- 2. REMOVE VINEYARD WITHIN LIMITS AND COORDINATE DRIVEWAY ACCESS WITH THE DIRECTION AND COOPERATION OF THE LAND OWNER.
- 3. DIVERSION BARRIER TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.



**PROFILE  
CONTROL LINE - "R" LINE**

Note: Refer to the Sonoma County Public Infrastructure Department's website for the most current information regarding the Sonoma County Public Infrastructure Department's policies and procedures. The information on this drawing is current as of the date of printing.

DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER	C80306
PLANS APPROVAL DATE	

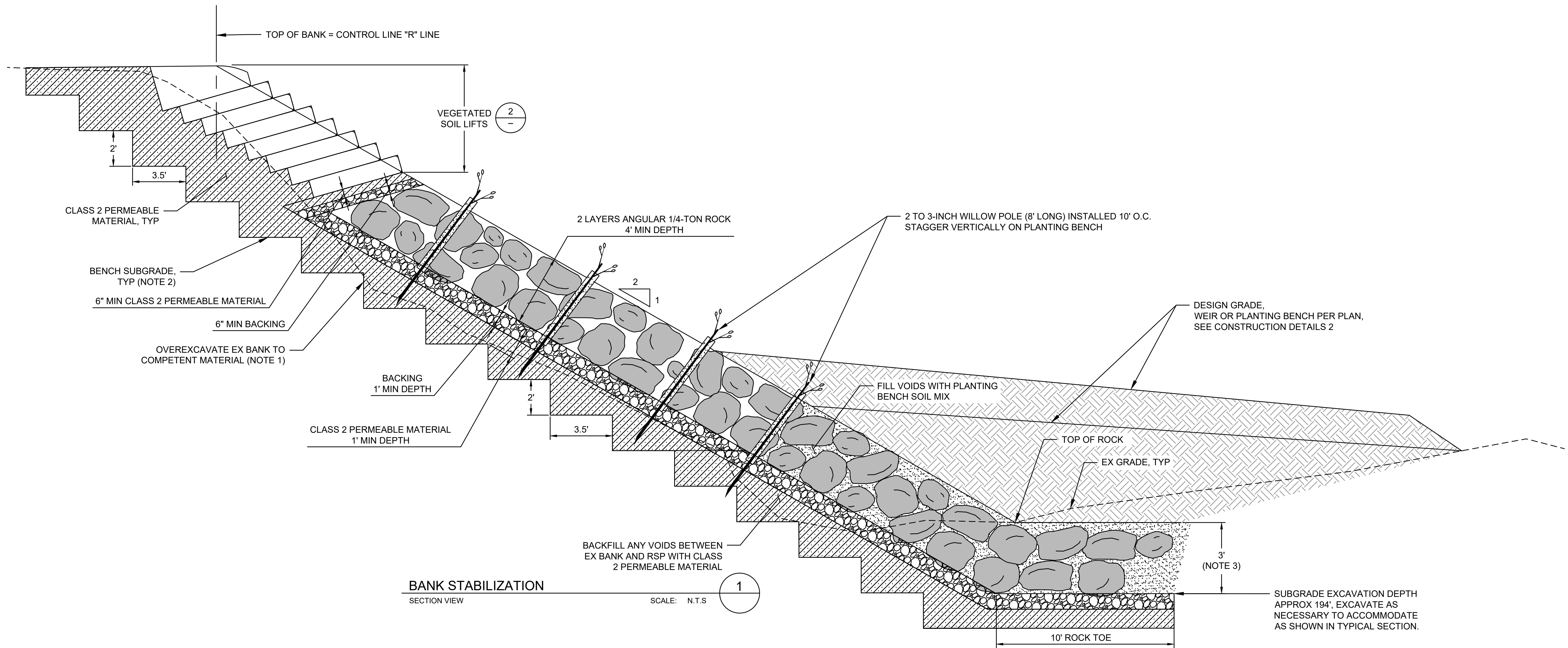
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"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

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 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
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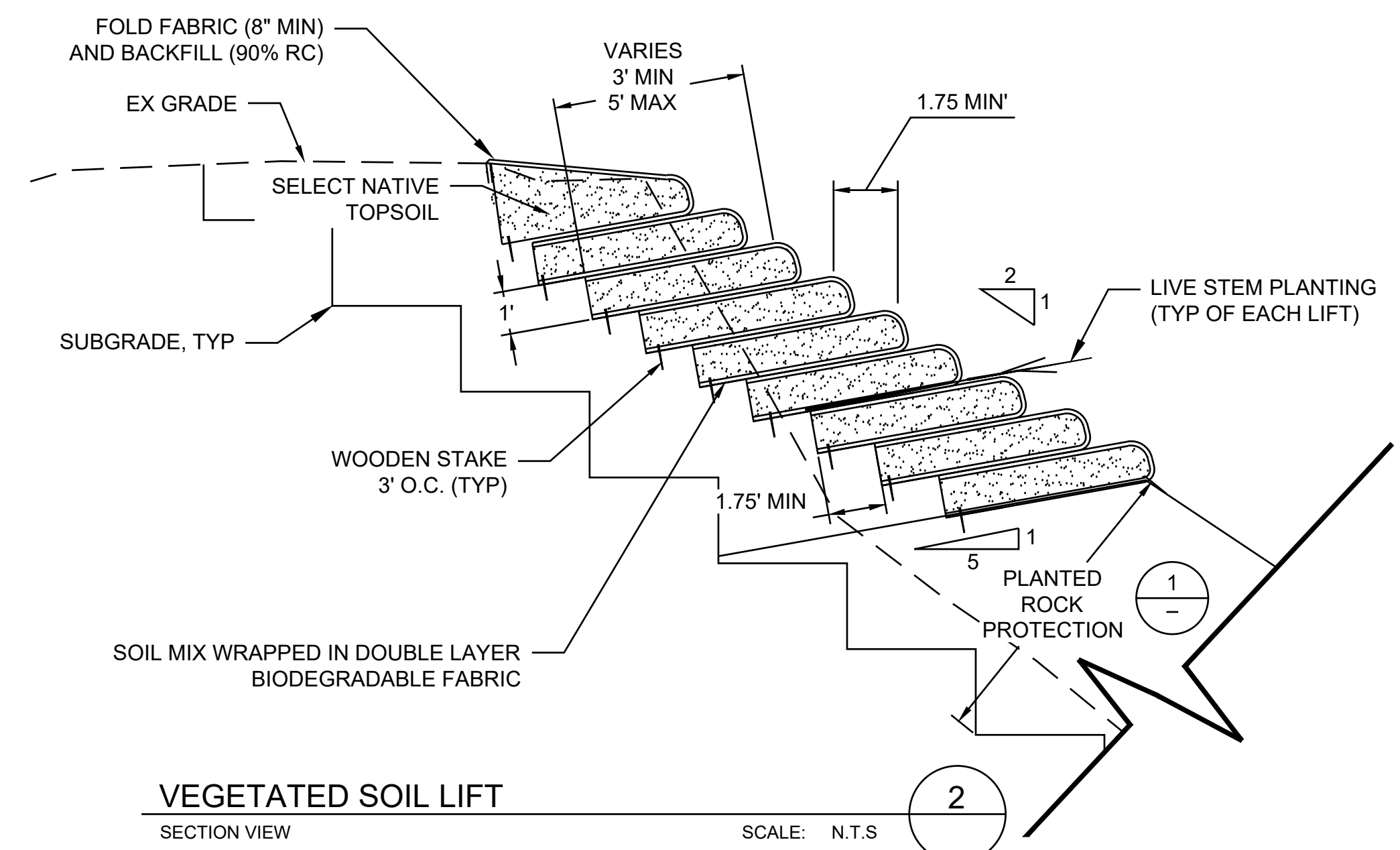

**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

PLAN AND PROFILE 2	
ROAD NUMBER	09018
BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	5
TOTAL SHEETS	15

**RIVER ROAD BANK STABILIZATION**

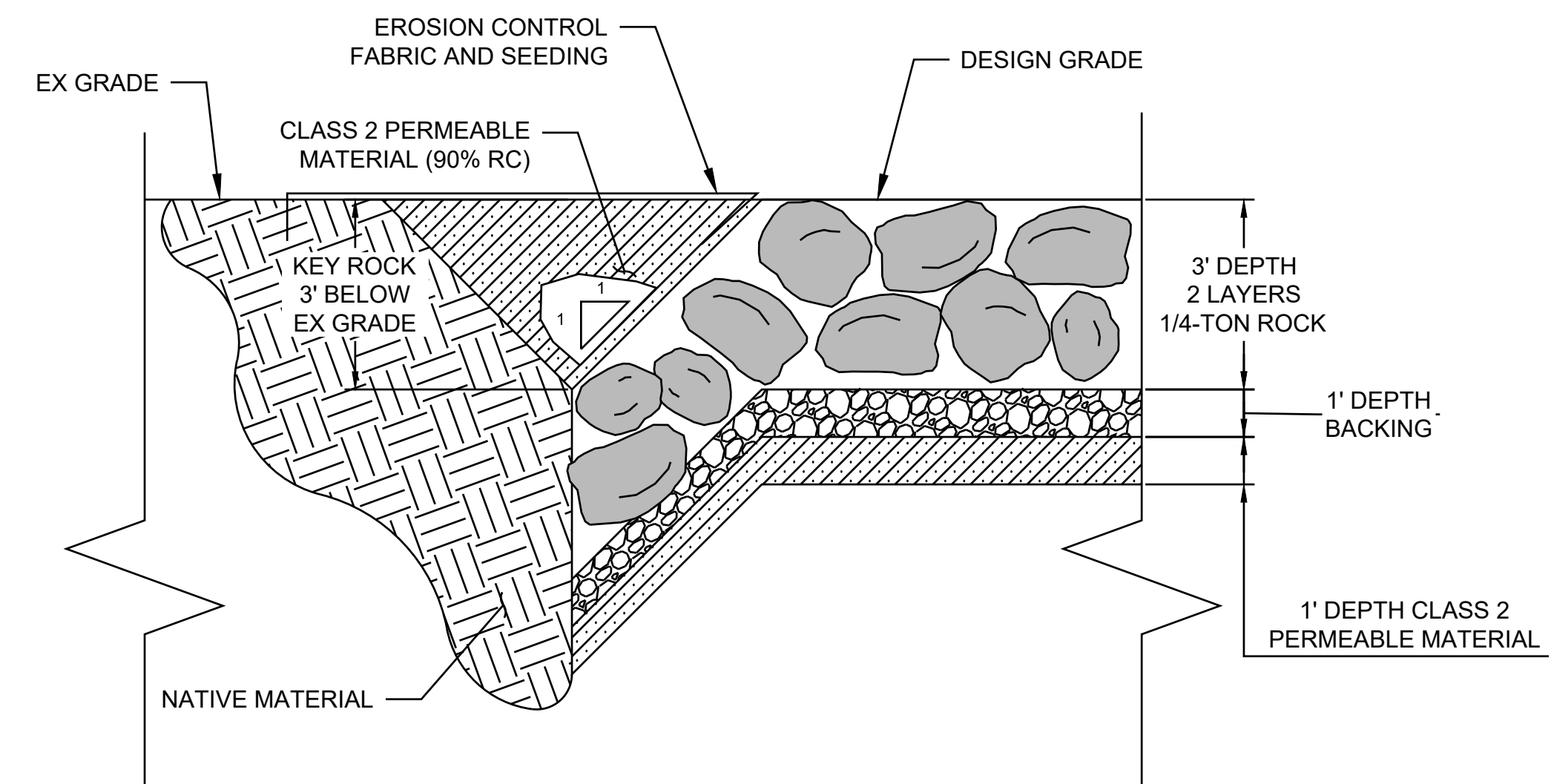


**BANK STABILIZATION**  
SECTION VIEW  
SCALE: N.T.S.



**VEGETATED SOIL LIFT**  
SECTION VIEW  
SCALE: N.T.S.

- NOTES**
1. REMOVE ALL VEGETATION, DEBRIS, AND LOOSE, INCOMPETENT MATERIAL. SUBGRADE SHALL BE APPROVED BY PROJECT GEOTECHNICAL ENGINEER BEFORE ANY FILL PLACEMENT.
  2. BENCHES SHALL BE APPROXIMATELY 2-FT HIGH. CUT SLOPES NOT TO EXCEED 1.5:1 HORIZONTAL TO VERTICAL. GEOTECHNICAL ENGINEER TO APPROVE EXCAVATED SUBGRADE PRIOR TO BACKFILLING.
  3. ROCK TOE SHALL BE 3 FT MIN BELOW EXISTING CHANNEL INVERT
  4. GEOTECHNICAL ENGINEER TO APPROVE EMBEDMENT DEPTH OF ROCK TOE.
  5. SEE EROSION CONTROL PLANS FOR PLANTINGS AND SEED MIX.
  6. CONTRACTOR TO CONTROL SURFACE AND GROUNDWATER AT TOE OF SLOPE TO ALLOW ROCK TOE INSTALLATION, AS NEEDED.



**ROCK SLOPE PROTECTION LATERAL KEY**  
SECTION VIEW  
SCALE: N.T.S.

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 Plot: P:\140001\140001.dwg  
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 Date: 01/11/2024 10:23 AM  
 User: J.PATRICK

DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER  
 C80306  
 BRADLEY I. REICHEL  
 CIVIL  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE

CONSTRUCTION COMPLETED:

DATE	REVISION	BY	APPROVED

RESIDENT ENGINEER AS BUILT DRAWINGS BY:

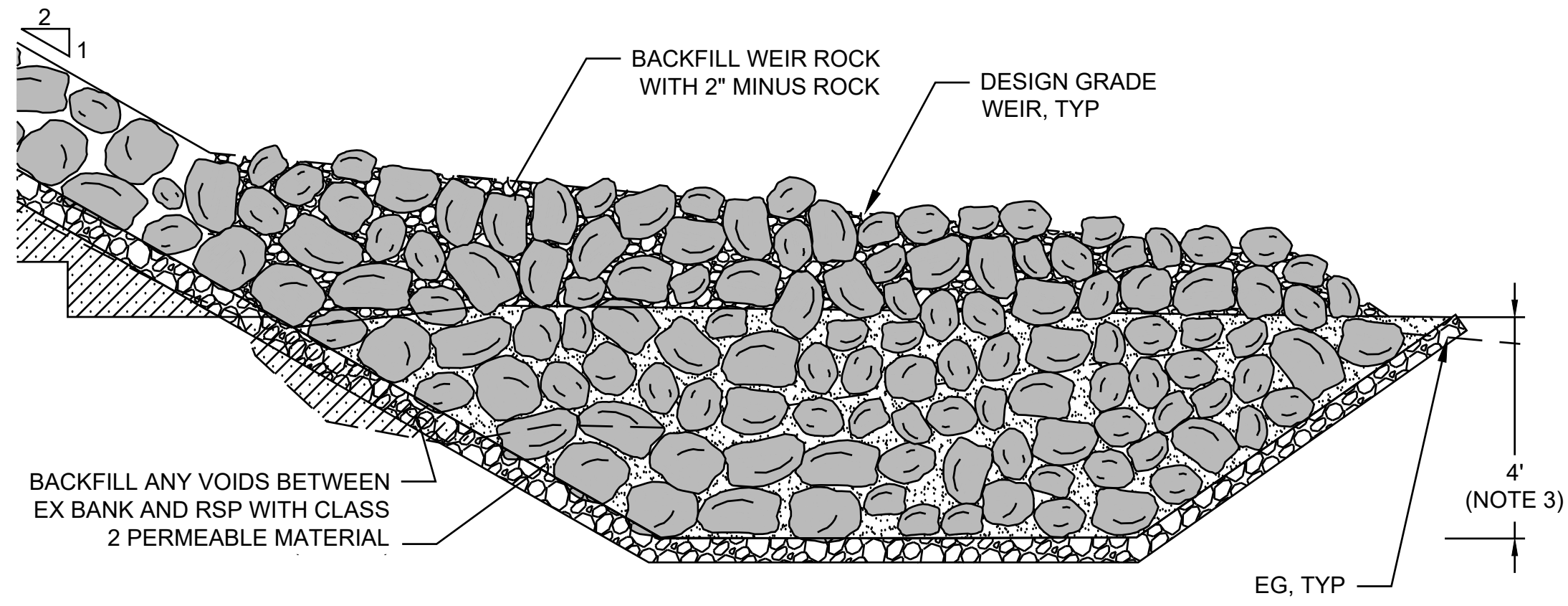
**MGE ENGINEERING, INC.**  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
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**SONOMA COUNTY**  
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 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

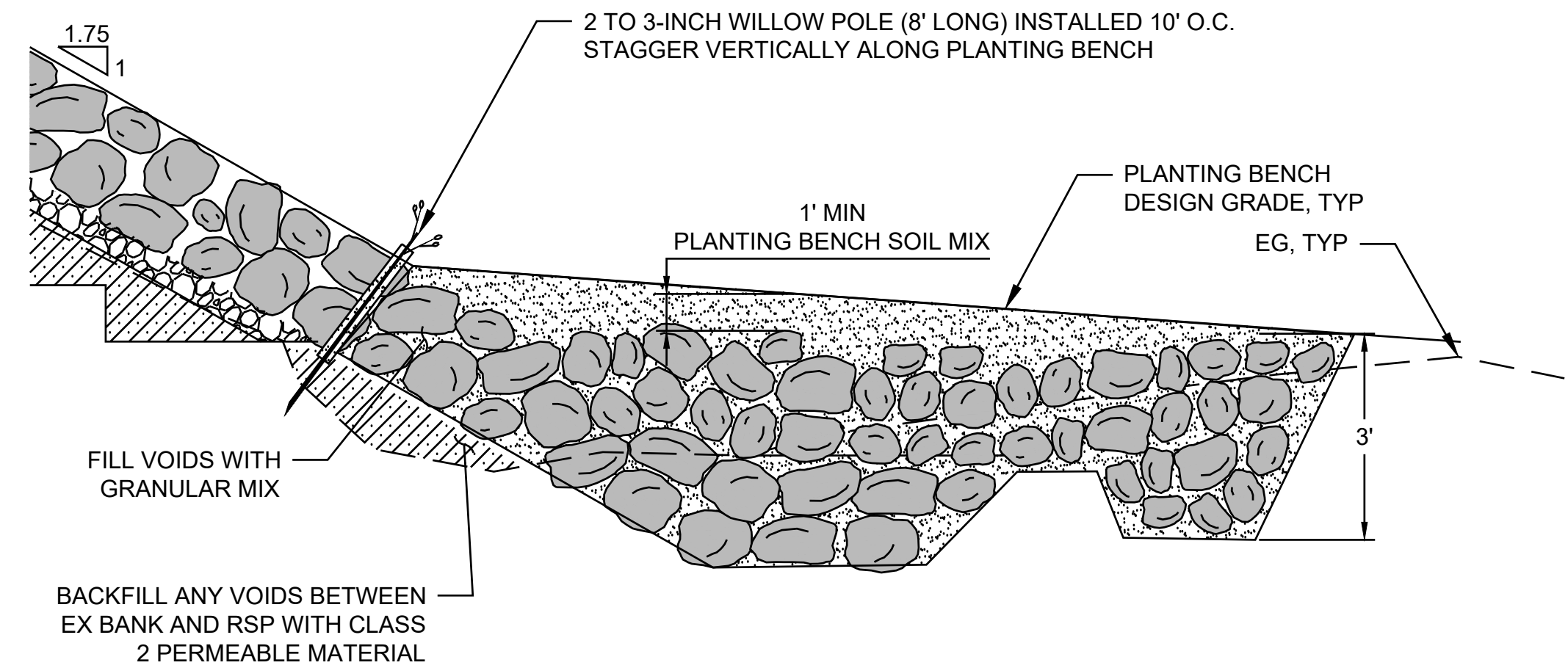
CONSTRUCTION DETAILS 1

**RIVER ROAD BANK STABILIZATION**

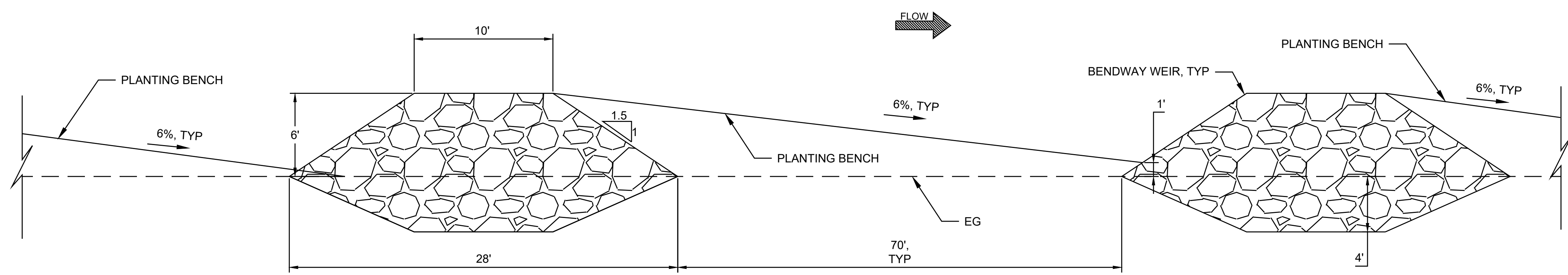
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BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	6
TOTAL SHEETS	15



**BENDWAY WEIR**  
SECTION VIEW  
SCALE: N.T.S. 1



**PLANTING BENCH**  
SECTION VIEW  
SCALE: N.T.S. 2



**BENDWAY WEIR ELEVATION**  
ELEVATION VIEW  
SCALE: N.T.S. 3

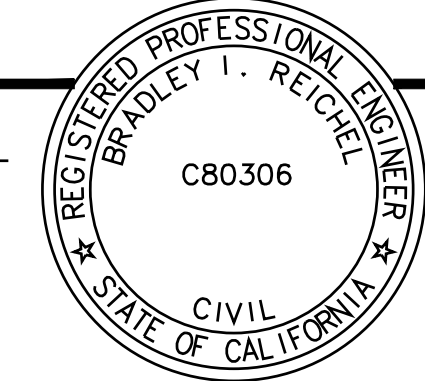
**NOTES**

1. FILL VOIDS WITHIN 2-FOOT RADIUS DOWNSLOPE OF WILLOW POLES WITH TOPSOIL. FILL ALL OTHER ROCK VOIDS BELOW WILLOW POLES WITH BACKING.
2. PROFILES FOR DESIGN GRADES PENDING.

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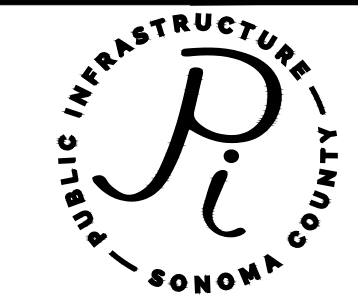
DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER  
 C80306  
 PLANS APPROVAL DATE



"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

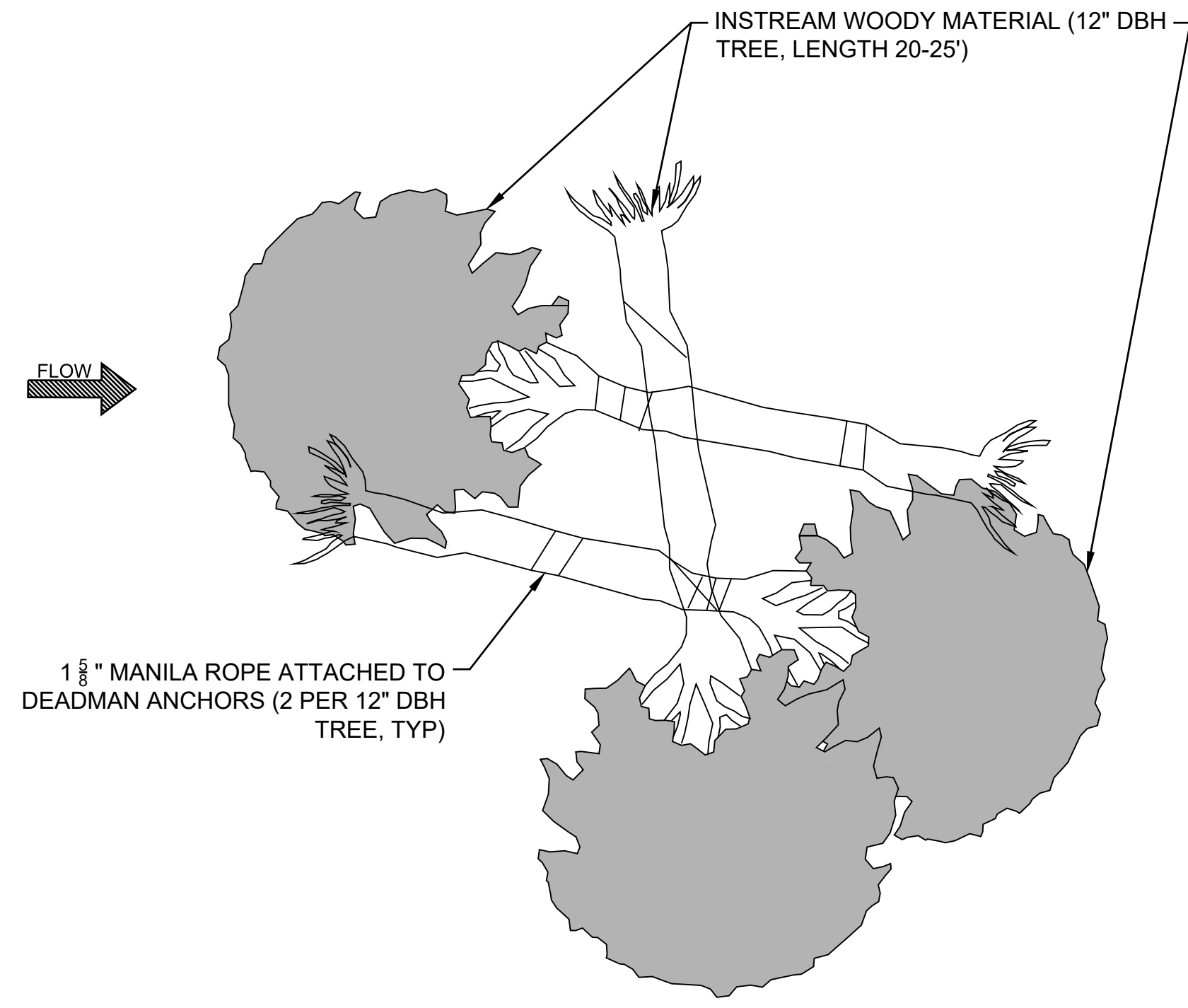
**MGE ENGINEERING, INC.**  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
 TEL: (916) 421-1000



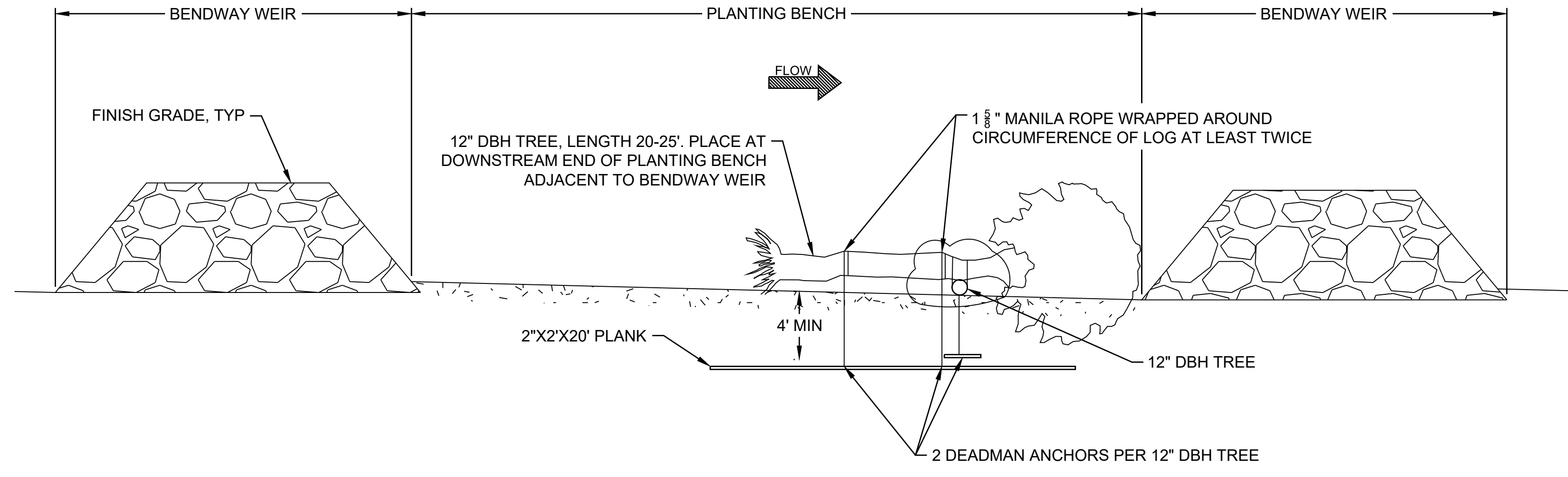
**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

CONSTRUCTION DETAILS 2	
<b>RIVER ROAD BANK STABILIZATION</b>	

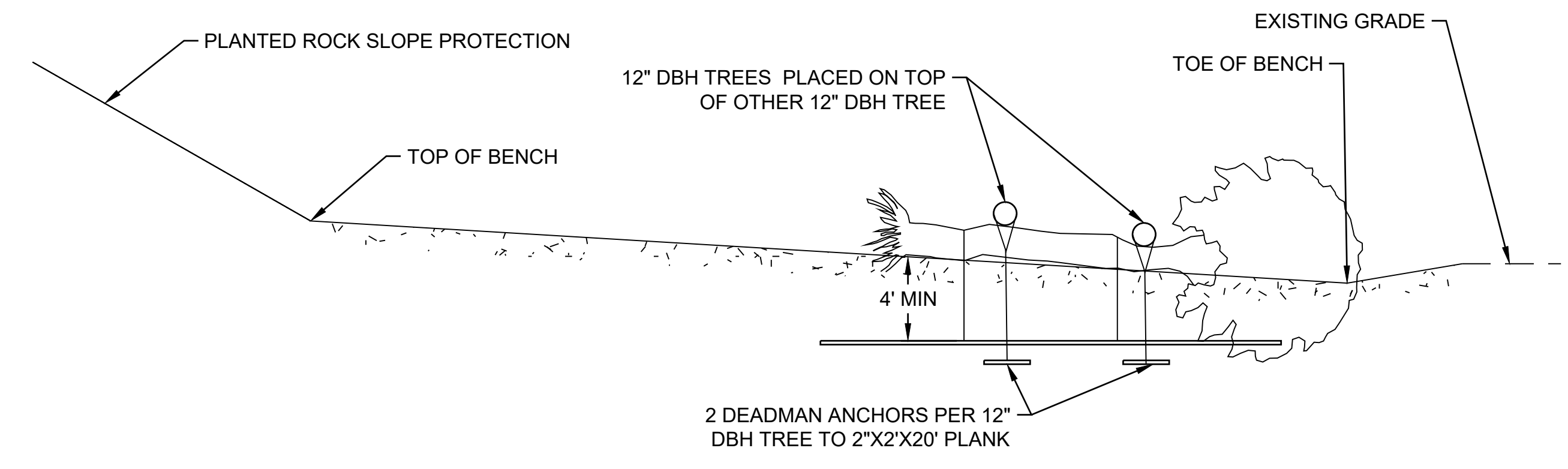
ROAD NUMBER	09018
BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	7
TOTAL SHEETS	15



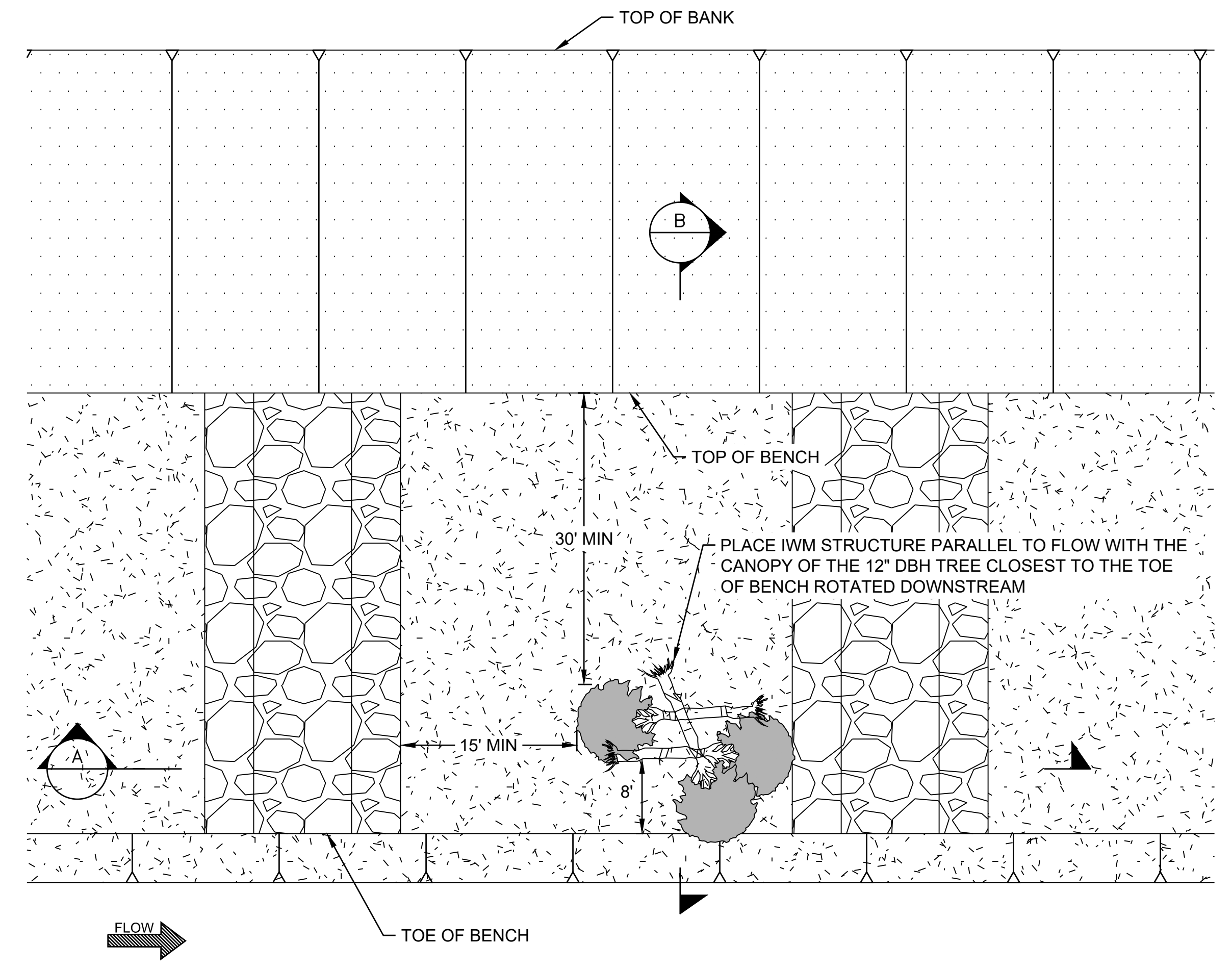
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STRUCTURE OVERVIEW SCALE: N.T.S



**INSTREAM WOODY MATERIAL STRUCTURE**  
SECTION SCALE: N.T.S



**INSTREAM WOODY MATERIAL STRUCTURE**  
SECTION SCALE: N.T.S



**INSTREAM WOODY MATERIAL STRUCTURE**  
PLAN SCALE: N.T.S

Title Block: P:\Projects\2022\09018\_River Road Bank Stabilization - Sonoma County Public Infrastructure\Construction\REVISIONS.dwg Plot Date: Jul 21, 2024 at 12:23  
 P:\Projects\2022\09018\_River Road Bank Stabilization - Sonoma County Public Infrastructure\Construction\REVISIONS.dwg Plot Date: Jul 21, 2024 at 12:23

DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER  
 BRADLEY I. REICHEL  
 C80306  
 CIVIL ENGINEER  
 STATE OF CALIFORNIA

CONSTRUCTION COMPLETED: \_\_\_\_\_  
 RESIDENT ENGINEER AS BUILT DRAWINGS BY: \_\_\_\_\_

DATE	REVISION	BY	APPROVED

PLANS APPROVAL DATE \_\_\_\_\_

**MGE ENGINEERING, INC.**  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
 TEL: (916) 421-1000

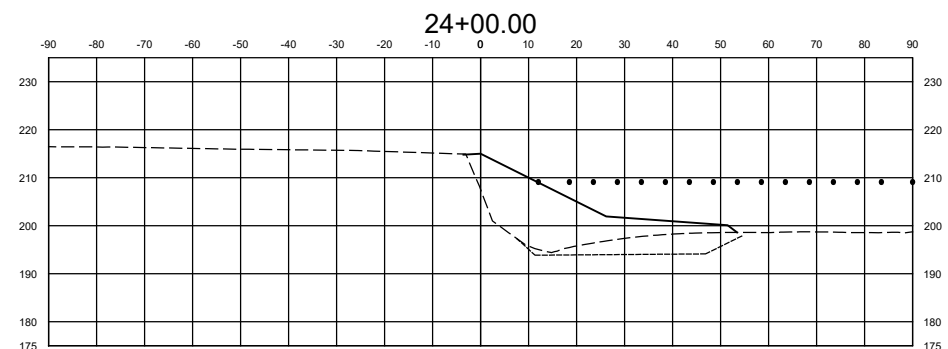
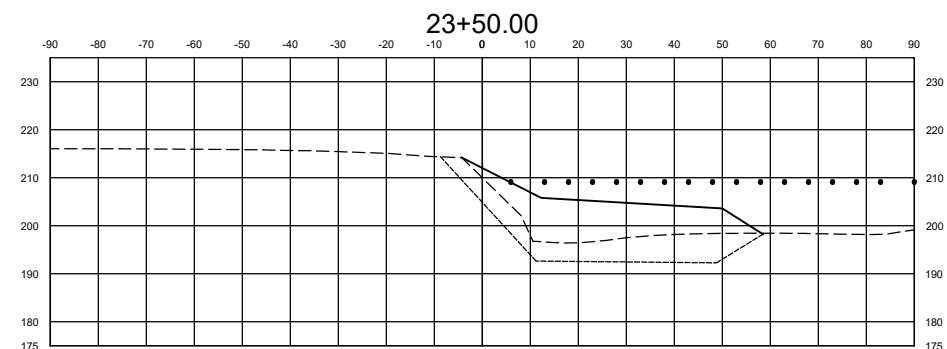
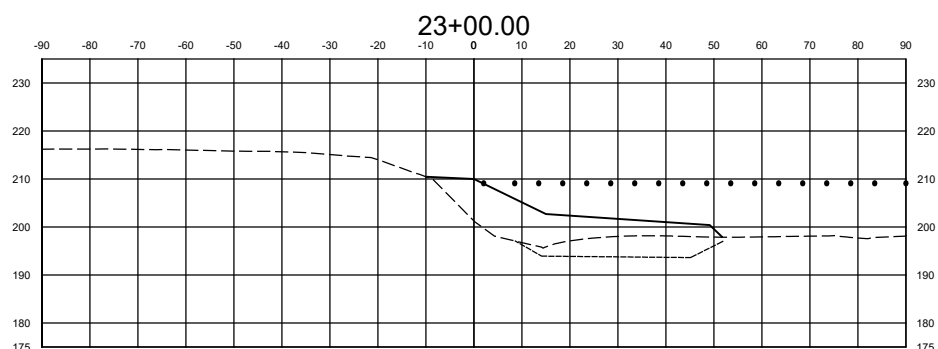
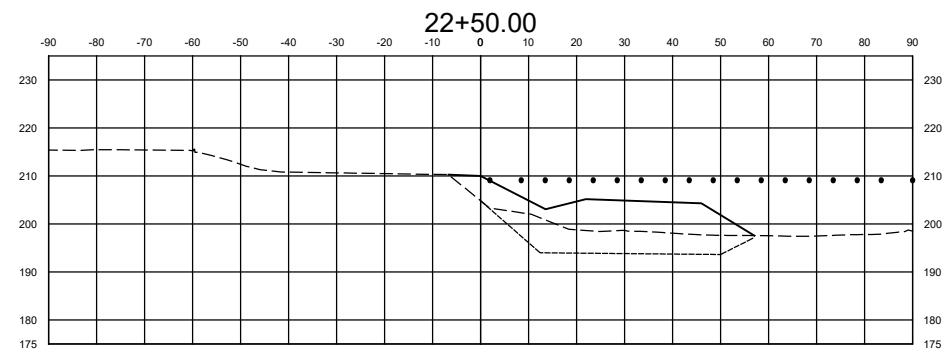
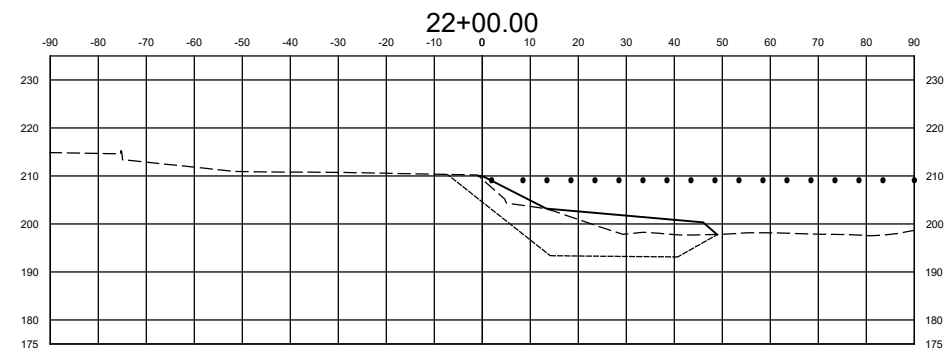
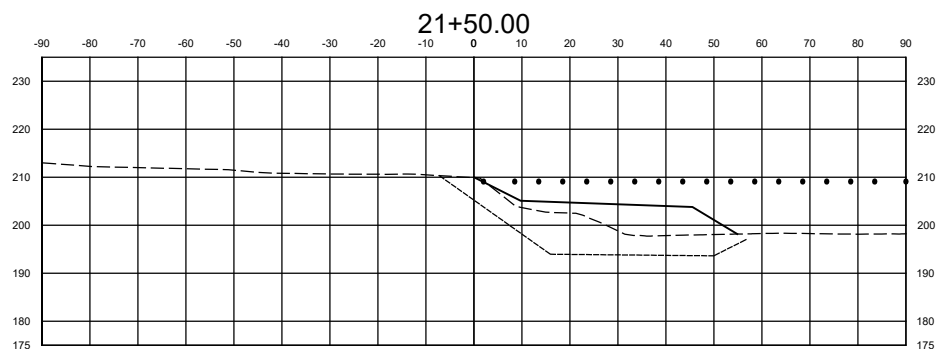
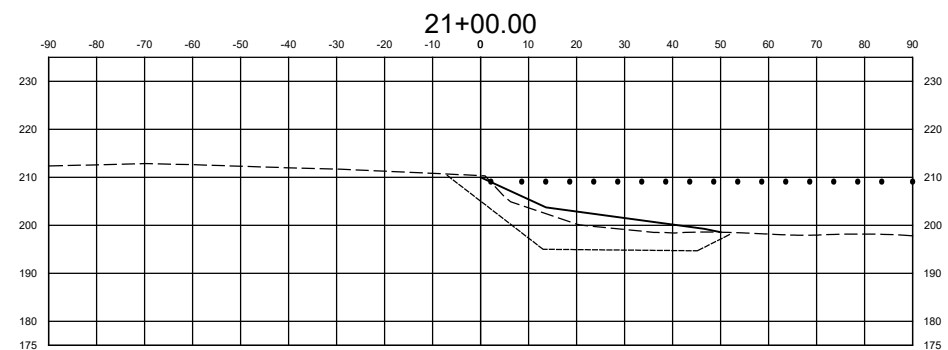
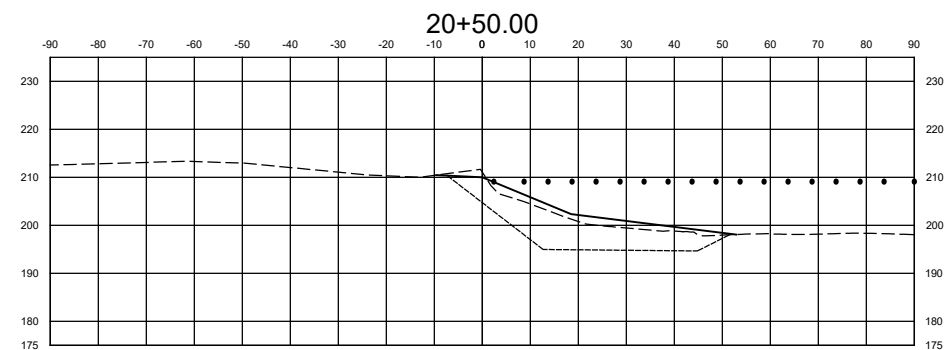
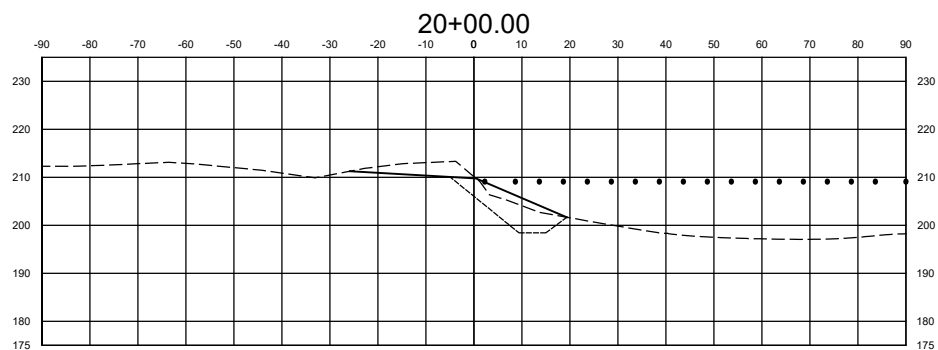
**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

CONSTRUCTION DETAILS 3

**RIVER ROAD BANK STABILIZATION**

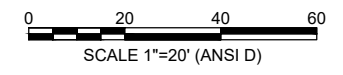
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BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	8
TOTAL SHEETS	15





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 FINAL GRADE \_\_\_\_\_  
 SUBEXCAVATION GRADE - - - - -  
 APPROX. OHWM EL. . . . .

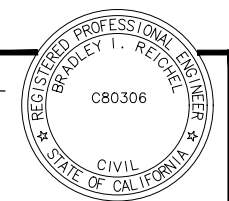
**NOTE:**  
 CROSS SECTIONS DEPICT ALL MATERIALS INCLUDING  
 ROCK SLOPE PROTECTION AND WEIRS AS FINAL GRADE  
 ELEVATIONS.



Note: Refer to the 2020/2021 Road Construction Manual, Chapter 10, Section 10.01, for details on the use of this drawing. The use of this drawing is limited to the project for which it was prepared. No other use is permitted without the written consent of the engineer.

DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER  
 \_\_\_\_\_  
 C80306  
 PLANS APPROVAL DATE \_\_\_\_\_



CONSTRUCTION COMPLETED:			
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

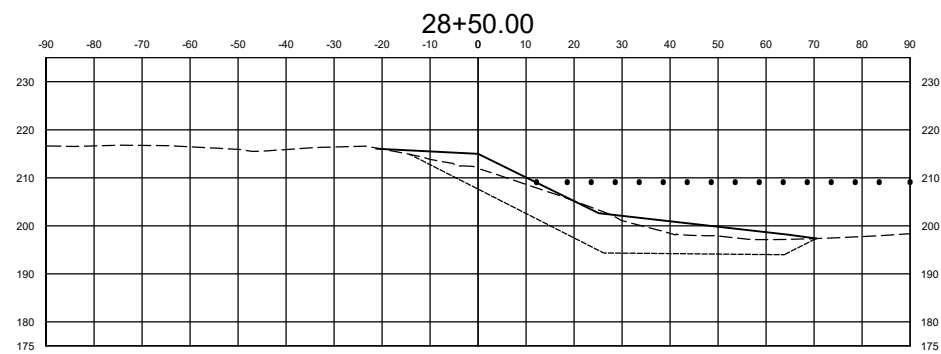
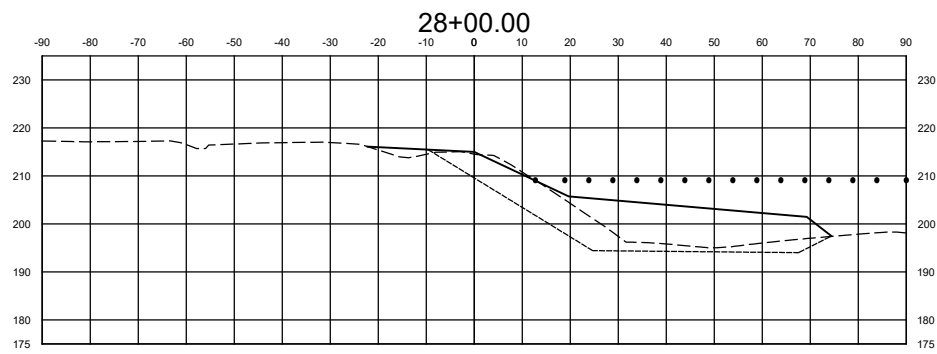
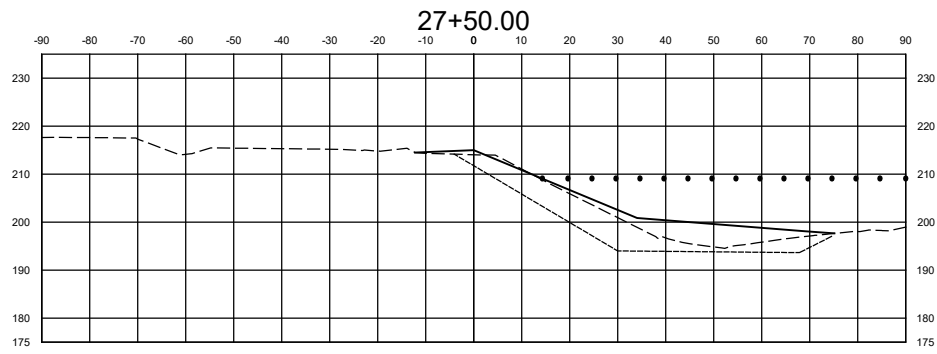
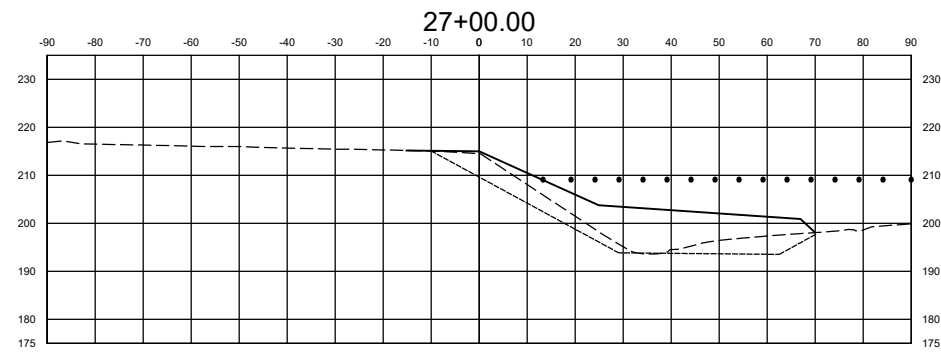
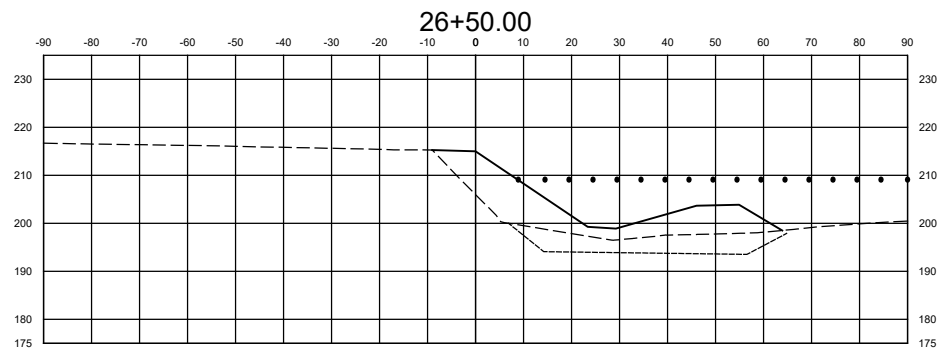
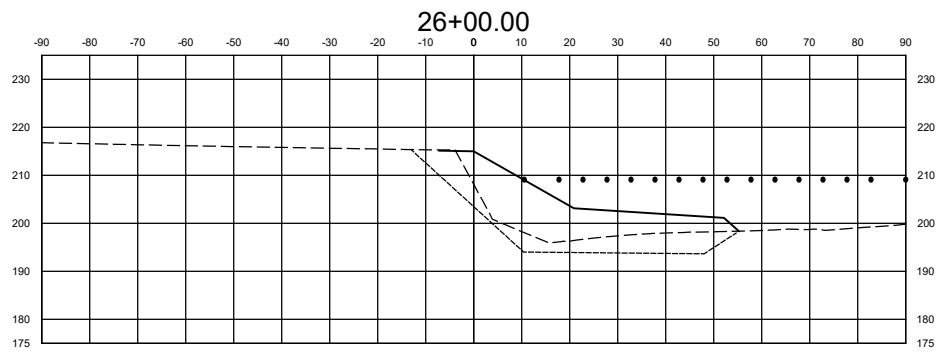
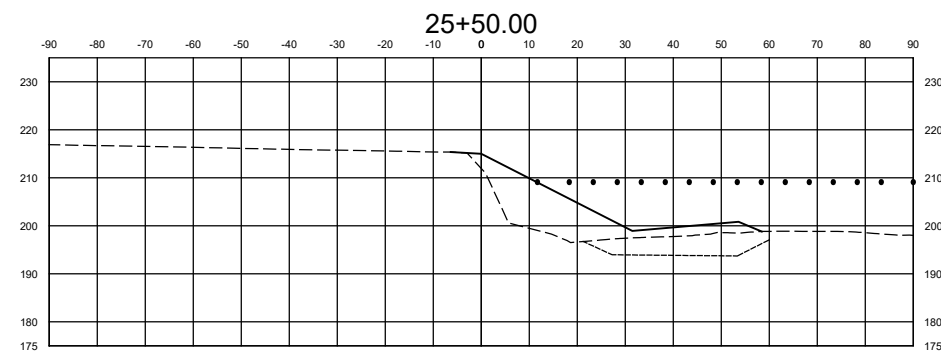
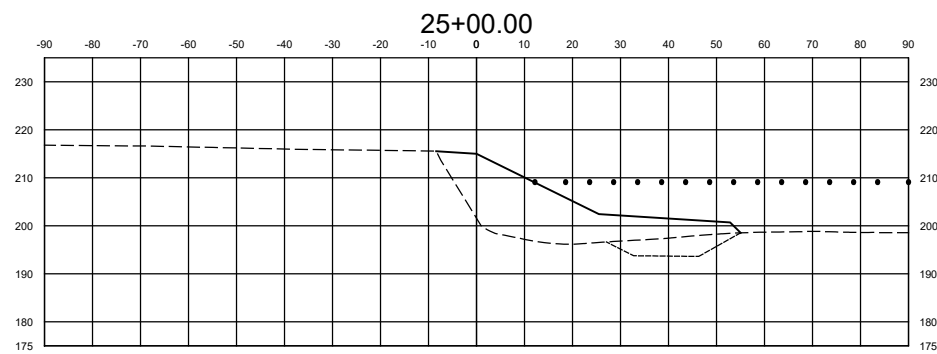
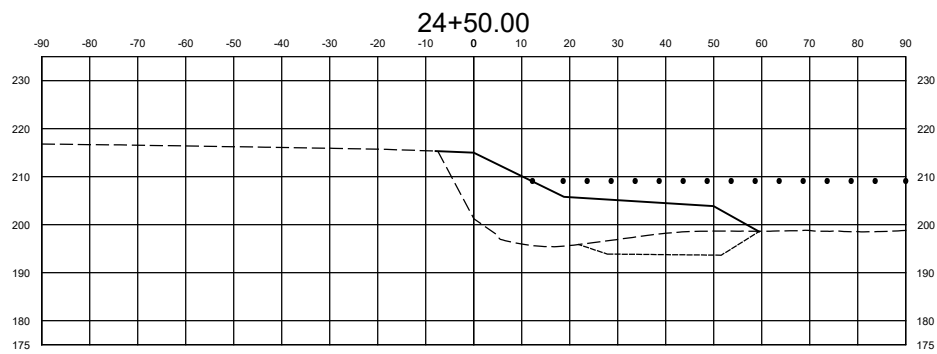
**MGE ENGINEERING, INC.**  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
 TEL: (916) 421-1000



**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

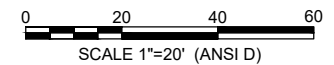
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**RIVER ROAD BANK STABILIZATION**

ROAD NUMBER	09018
BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	9
TOTAL SHEETS	15



EXISTING GRADE      - - - - -  
 FINAL GRADE        —————  
 SUBEXCAVATION GRADE      - · - · - · -  
 APPROX. OHWM EL.      · · · · ·

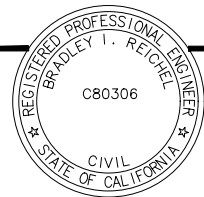
**NOTE:**  
 CROSS SECTIONS DEPICT ALL MATERIALS INCLUDING  
 ROCK SLOPE PROTECTION AND WEIRS AS FINAL GRADE  
 ELEVATIONS.



Note: Refer to the 2022/2023 Road Construction Schedule for the 2022/2023 project schedule. All dates are subject to change without notice.

DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER  
 C80306  
 PLANS APPROVAL DATE



CONSTRUCTION COMPLETED:			
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

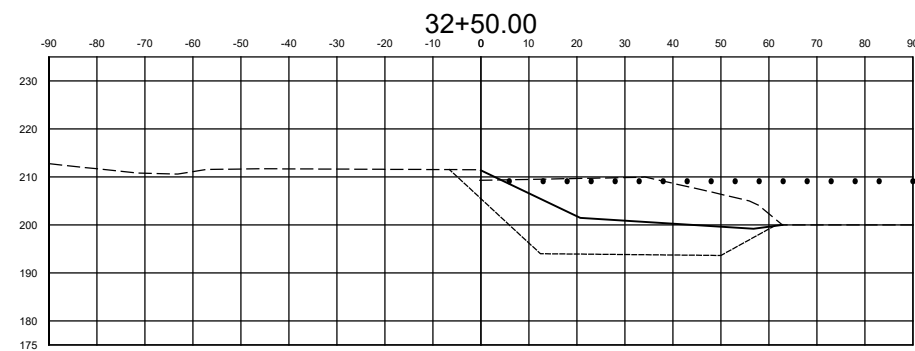
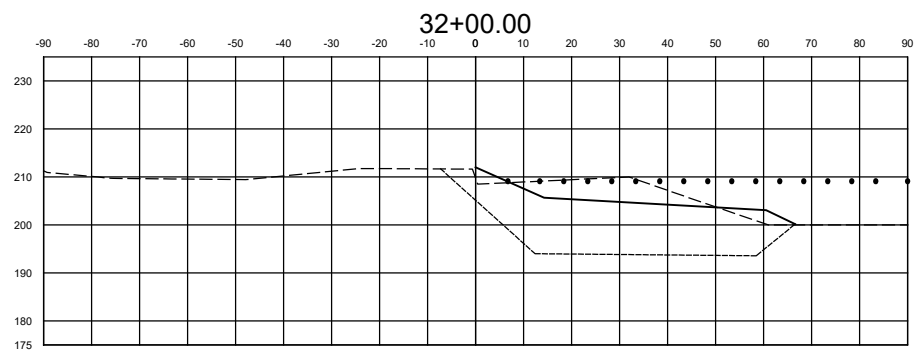
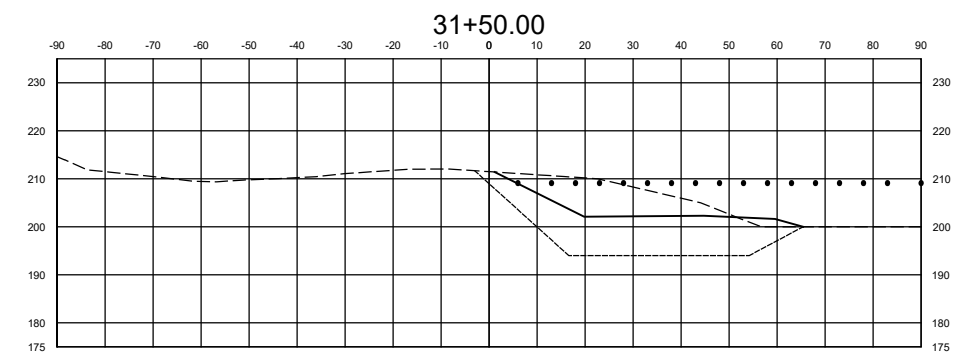
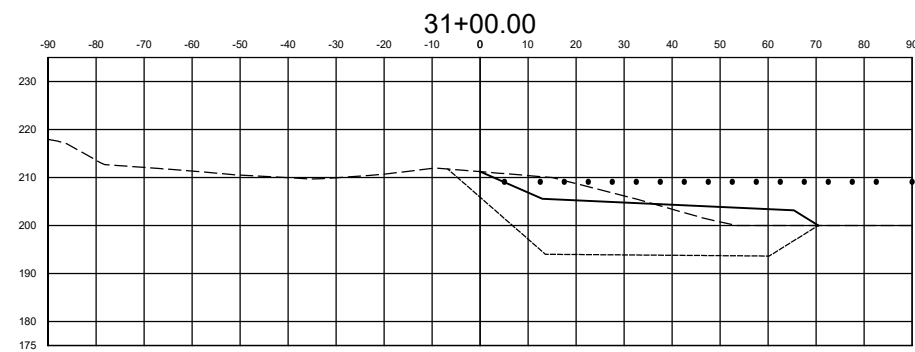
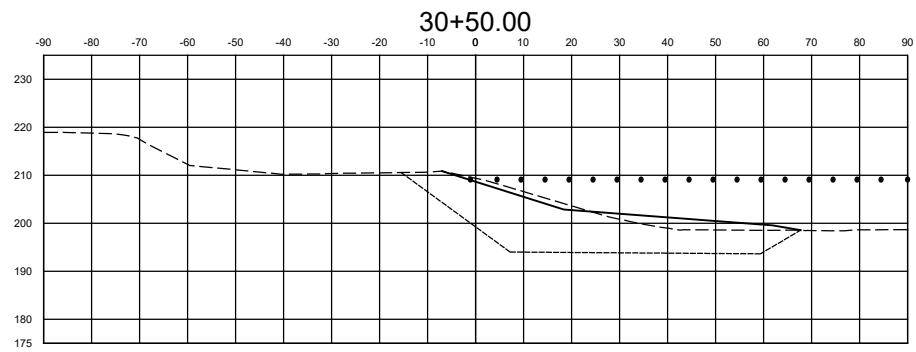
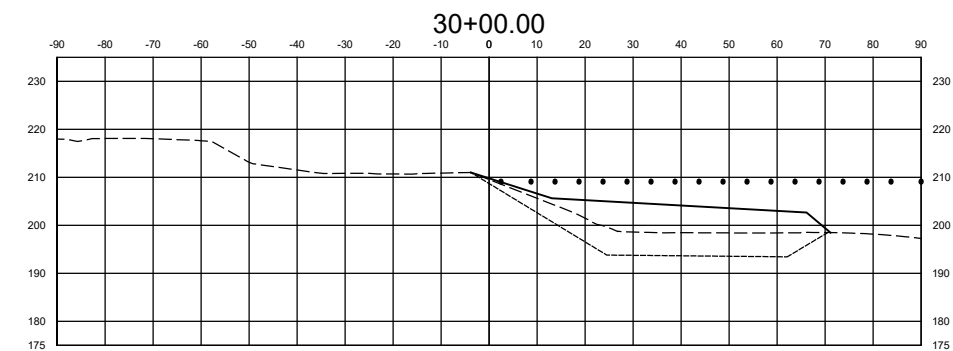
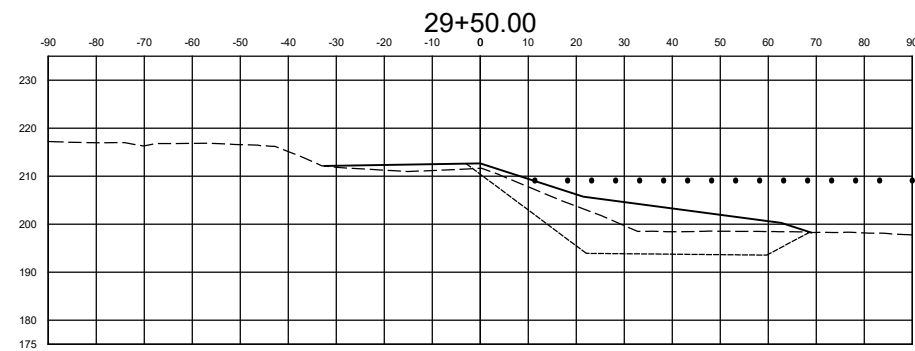
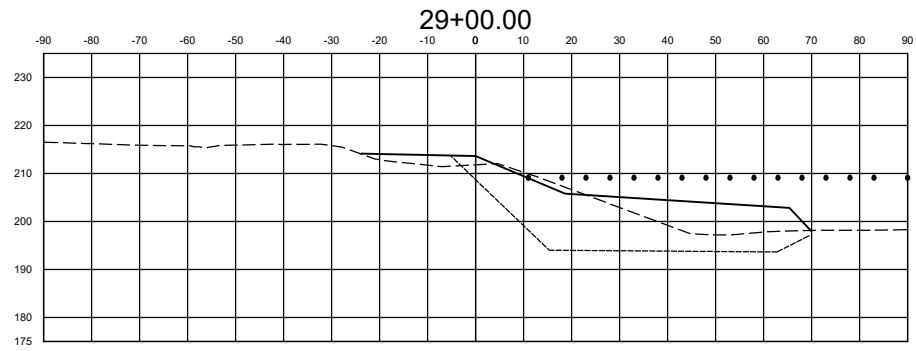
**MGE** ENGINEERING, INC.  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
 TEL: (916) 421-1000



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 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

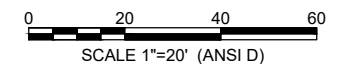
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**RIVER ROAD BANK STABILIZATION**

ROAD NUMBER	09018
BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	10
TOTAL SHEETS	15



EXISTING GRADE      - - - - -  
 FINAL GRADE        \_\_\_\_\_  
 SUBEXCAVATION GRADE      - - - - -  
 APPROX. OHWM EL.      . . . . .

**NOTE:**  
 CROSS SECTIONS DEPICT ALL MATERIALS INCLUDING  
 ROCK SLOPE PROTECTION AND WEIRS AS FINAL GRADE  
 ELEVATIONS.



Note: Refer to the Sonoma County Road Construction Manual, Section 1001000, dated 2018/08/06, available online at: <http://www.sonomacounty.ca.gov/transportation/roads/road-construction-manual>.  
 Note: For more information on Road Construction Manual, please contact the Sonoma County Public Works Department, Planning and Design Section, 1000 Broadway, Sonoma, CA 94968, (707) 438-2200.

DESIGN BY	B. REICHEL
DRAWING BY	B. REICHEL
CHECKED BY	J. PATRICK

REGISTERED CIVIL ENGINEER  
 C80306  
 BRADLEY I. REICHEL  
 CIVIL ENGINEER  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE \_\_\_\_\_

"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
CONSTRUCTION COMPLETED:			
RESIDENT ENGINEER AS BUILT DRAWINGS BY:			
DATE	REVISION	BY	APPROVED

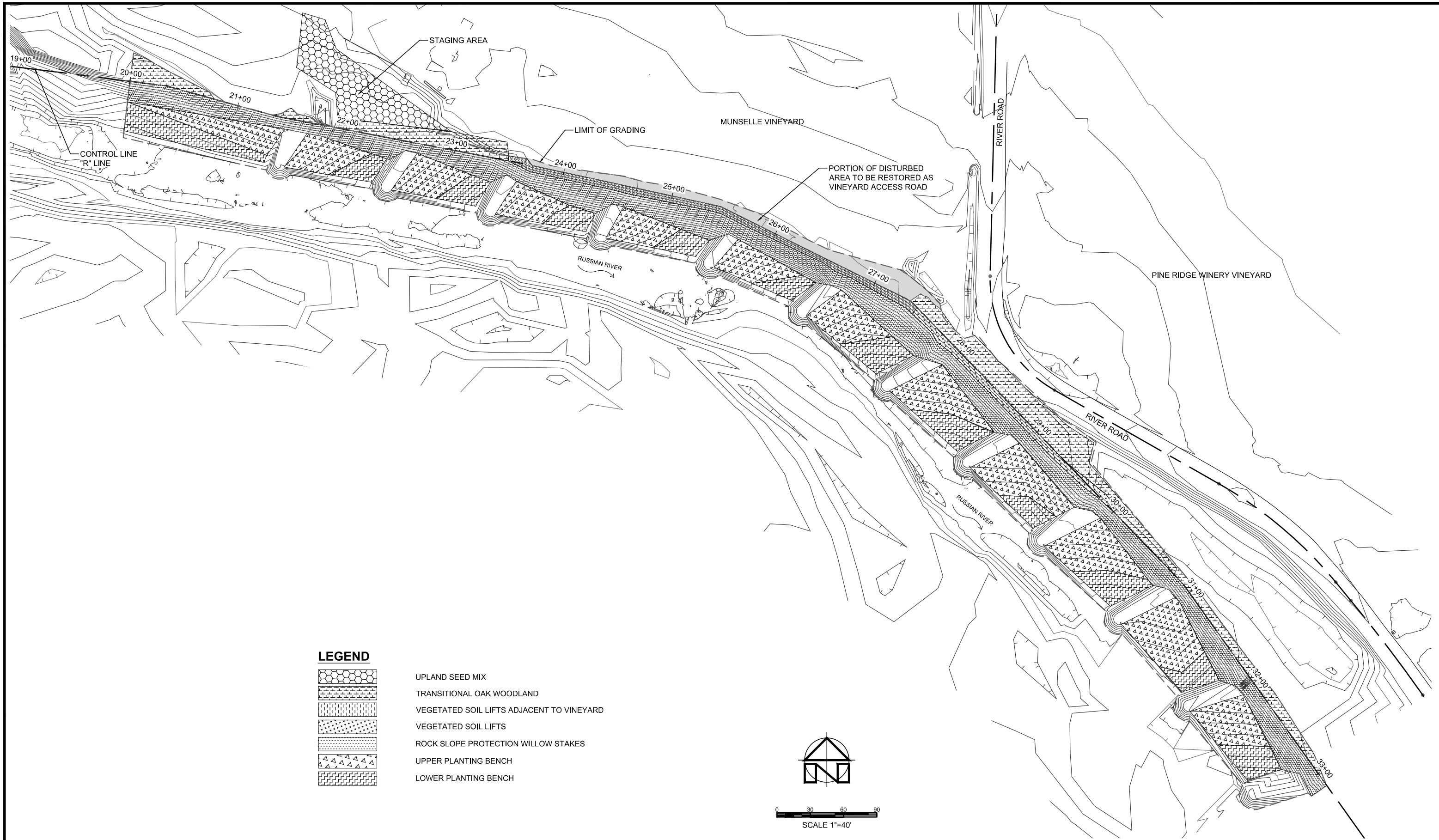
**MGE** ENGINEERING, INC.  
 7415 GREENHAVEN DRIVE, SUITE 100  
 SACRAMENTO, CALIFORNIA 95831  
 TEL: (916) 421-1000

**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

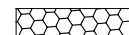



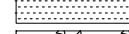
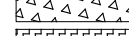

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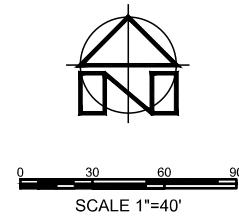
**RIVER ROAD BANK STABILIZATION**

ROAD NUMBER	09018
BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	11
TOTAL SHEETS	15



**LEGEND**

-  UPLAND SEED MIX
-  TRANSITIONAL OAK WOODLAND
-  VEGETATED SOIL LIFTS ADJACENT TO VINEYARD
-  VEGETATED SOIL LIFTS
-  ROCK SLOPE PROTECTION WILLOW STAKES
-  UPPER PLANTING BENCH
-  LOWER PLANTING BENCH



Title: RIVER ROAD BANK STABILIZATION; Date: 07/31/2024; Author: C. CACCAMO; Designer: C. CACCAMO; Checker: R. PRANGE; State: CALIFORNIA; Project: RIVER ROAD BANK STABILIZATION; Scale: 1"=40'; Drawing No.: 09018; Revision: 0; Date: 07/31/2024; 11:53 AM

DESIGN BY	C. CACCAMO
DRAWING BY	C. CACCAMO
CHECKED BY	R. PRANGE

LICENSED LANDSCAPE ARCHITECT

RUSSELL PRANGE NO. 8058

Signature: \_\_\_\_\_  
 Date: July 31, 2024  
 Removal Date: \_\_\_\_\_

PLANS APPROVAL DATE: \_\_\_\_\_

CONSTRUCTION COMPLETED:			
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

**ESA**

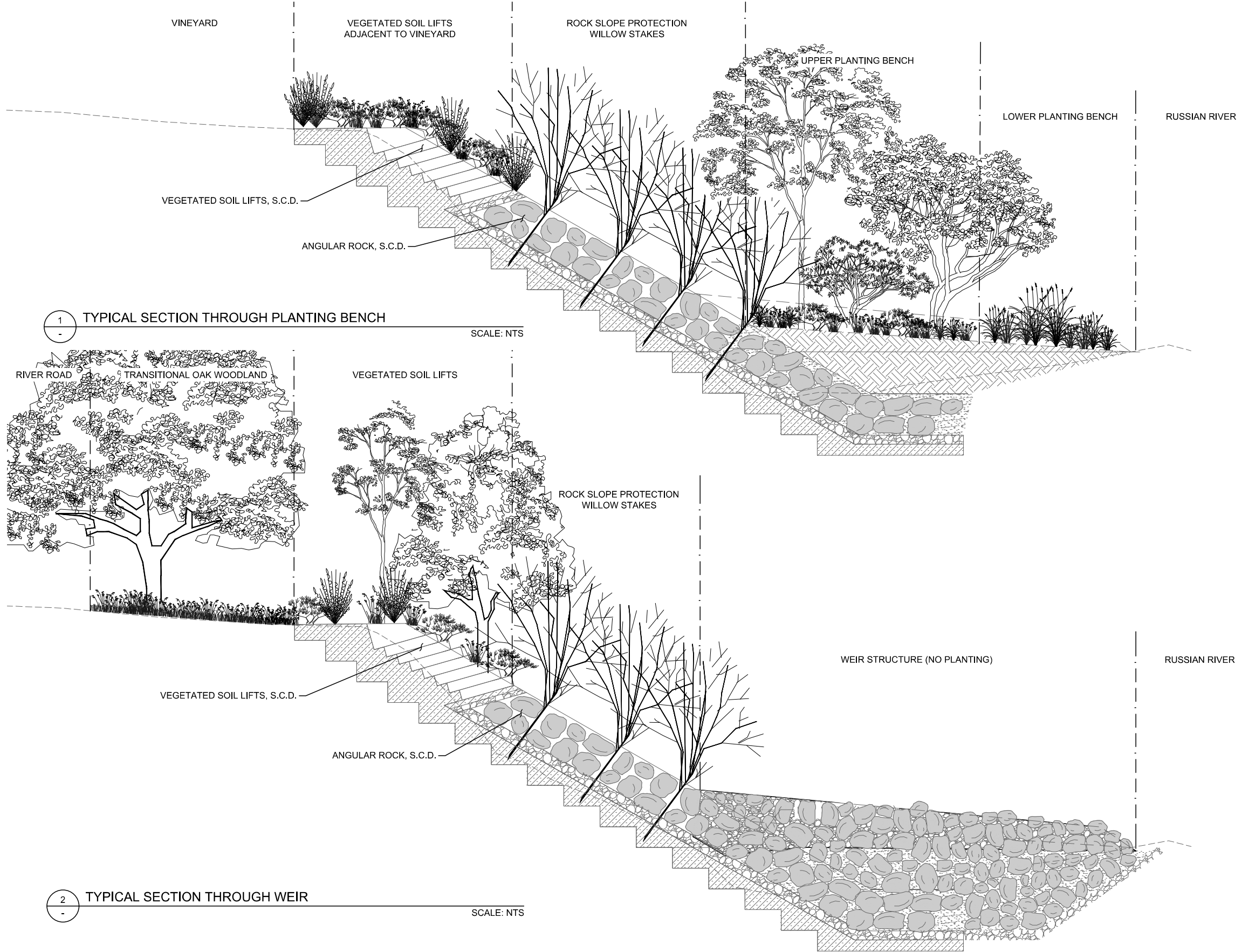
180 GRAND AVENUE  
 SUITE 1050  
 OAKLAND, CALIFORNIA 94612  
 WWW.ESASSOC.COM

**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

REVEGETATION PLAN

**RIVER ROAD BANK STABILIZATION**

ROAD NUMBER	09018
BUDGET NUMBER	C21900
FISCAL YEAR	2022-23
SHEET NUMBER	12
TOTAL SHEETS	15



1 TYPICAL SECTION THROUGH PLANTING BENCH  
SCALE: NTS

2 TYPICAL SECTION THROUGH WEIR  
SCALE: NTS

- NOTES:
- 1) TYPICAL SECTIONS ILLUSTRATE PROJECT CONDITIONS AND VEGETATION ESTABLISHMENT 15-20 YEARS POST CONSTRUCTION
  - 2) SECTION 2 ILLUSTRATES PLANTING ZONES BETWEEN STA. 2013+00 TO STA. 2018+00 AND STA. 2004+00 TO STA. 2008+50
  - 3) UPLAND SEED MIX WILL BE APPLIED AT TOP OF BANK BETWEEN STA. 2008+50 TO STA. 2013+00 IN PLACE OF TRANSITIONAL OAK WOODLAND

Title Block: C:\WORK\2024\River Road Bank Stabilization.dwg; Plot: P:\RIVER Road Bank Stabilization - Sonoma County Public Infrastructure (P)\Russell Prange\13.dwg; Plot Date: Apr 04, 2024 at 10:54 AM

DESIGN BY	C.CACCAMO
DRAWING BY	C. CACCAMO
CHECKED BY	R. PRANGE

LICENSED LANDSCAPE ARCHITECT

PLANS APPROVAL DATE



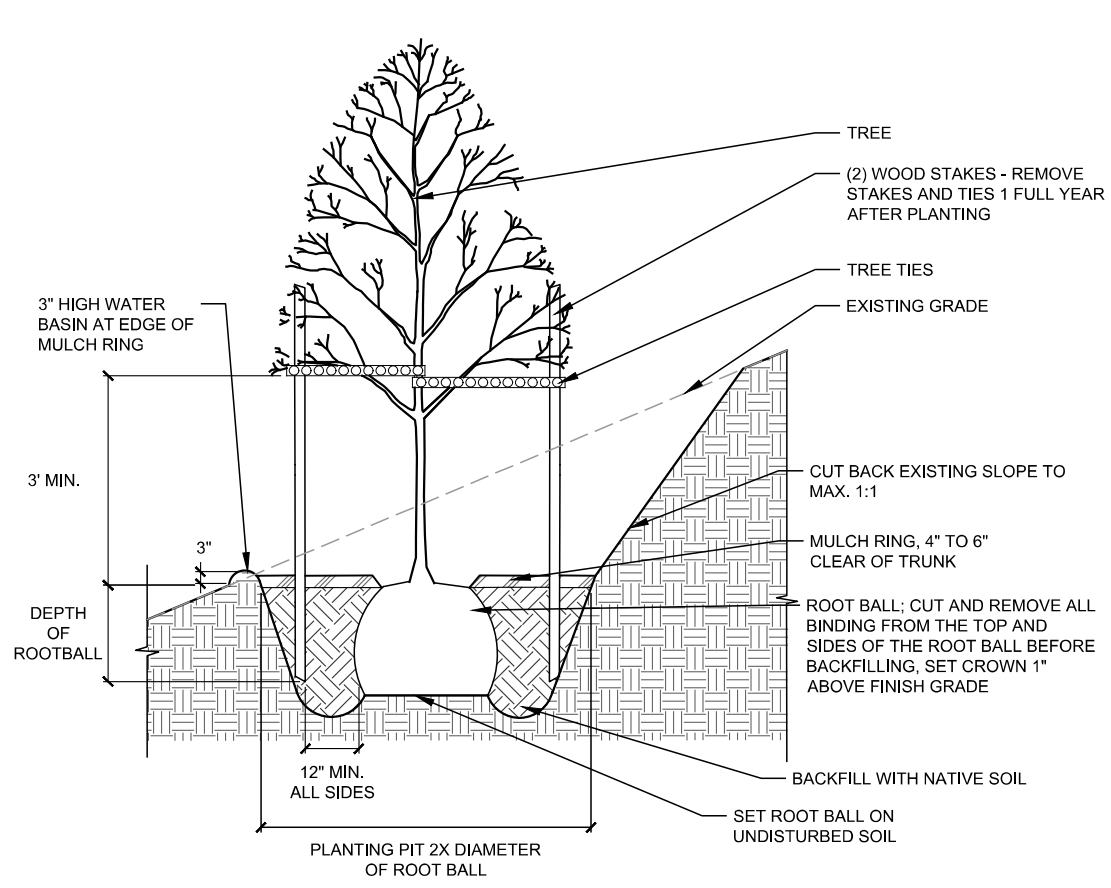
CONSTRUCTION COMPLETED:

"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
DATE	REVISION	BY	APPROVED

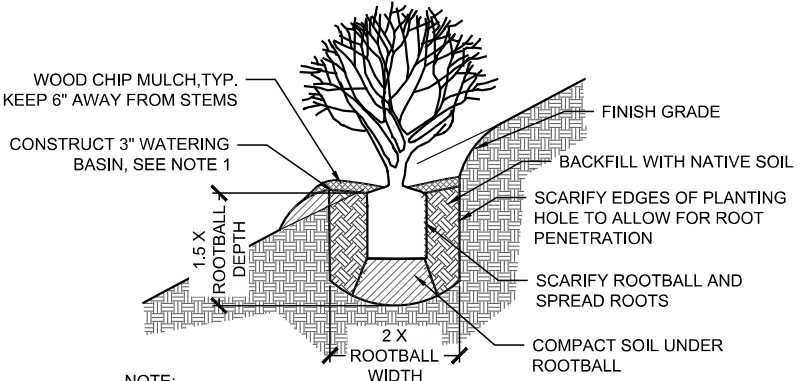
180 GRAND AVENUE  
SUITE 1050  
OAKLAND, CALIFORNIA 94612  
WWW.ESASSOC.COM

**SONOMA COUNTY**  
PUBLIC INFRASTRUCTURE  
JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

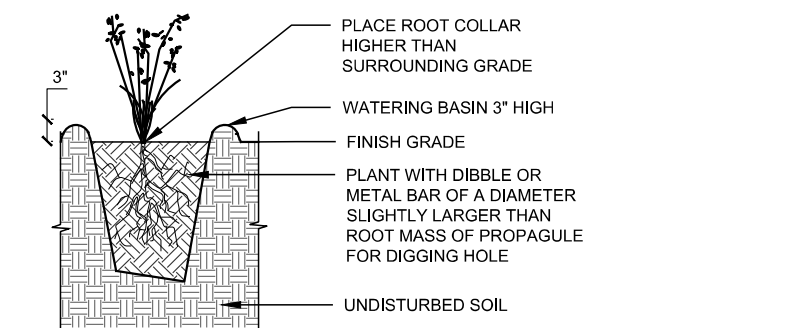
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RIVER ROAD BANK STABILIZATION		BUDGET NUMBER	C21900
		FISCAL YEAR	2022-23
		SHEET NUMBER	13
		TOTAL SHEETS	15



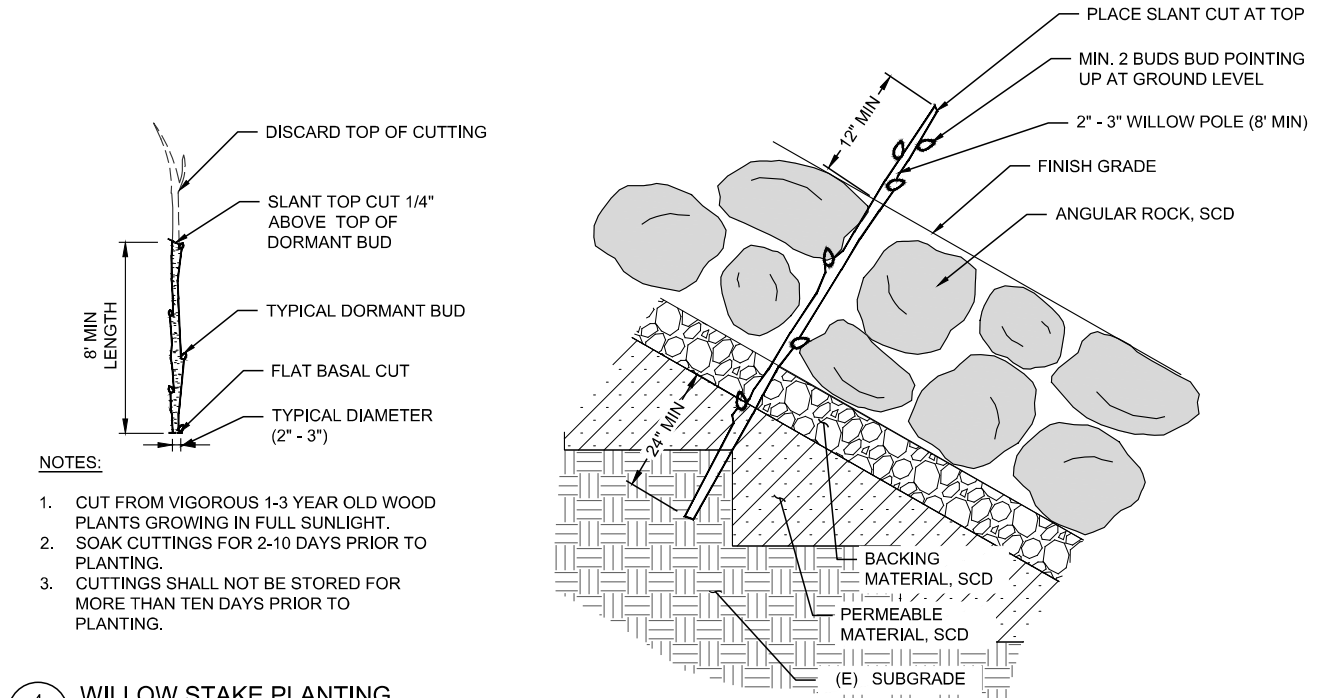
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SCALE: NTS



2 SHRUB PLANTING ON SLOPE  
DETAIL - SECTION  
SCALE: NTS



3 PLUG PLANTING  
DETAIL - SECTION  
SCALE: 3/4\"/>



4 WILLOW STAKE PLANTING  
DETAIL  
SCALE: NTS

- NOTES:
- CUT FROM VIGOROUS 1-3 YEAR OLD WOOD PLANTS GROWING IN FULL SUNLIGHT.
  - SOAK CUTTINGS FOR 2-10 DAYS PRIOR TO PLANTING.
  - CUTTINGS SHALL NOT BE STORED FOR MORE THAN TEN DAYS PRIOR TO PLANTING.

PLANTING PALETTES

Habitat Type: Lower Planting Bench			Acres	0.27	
Biological Name / Common Name	Container	Spacing (ft. o.c.)	Quantity Req.	Notes	
Carex nudata / Torment Sedge	Liner		302		
Carex praegracilis / California Field Sedge	Liner		377		
Eleocharis palustris / Common Spikerush	Liner		226		
Juncus balticus / Baltic Rush	Liner		151		
Juncus effusus var. brunneus / Common Rush	Liner		302		
Juncus xiphioides / Iris Leaf Rush	Liner		151		
			<b>1,509</b>	Total	

Habitat Type: Upper Planting Bench			Acres	0.50	
Biological Name / Common Name	Container	Spacing (ft. o.c.)	Quantity Req.	Notes	
Alnus rhombifolia / White Alder	1-Gallon		17	Plant in lower third of zone	
Fraxinus latifolia / Oregon Ash	1-Gallon		17		
Populus fremontii / Fremont Cottonwood	Treepot 4		9		
Salix lasiolepis / Red Willow	Treepot 4		17	Plant in clusters of 3 to 5 at 8' O.C.	
Cornus sericea / Rotosier Dogwood	1-Gallon		151	Locate in part shade. Plant in clusters of 3-10	
Rosa californica / California Wild Rose	1-Gallon		236	Plant in clusters of 5-10	
Rubus ursinus / California Blackberry	1-Gallon		157	Plant in clusters of 5-10	
Symphoricarpos albus / Snowberry	1-Gallon		157	Plant in clusters of 5-20	
Carex praegracilis / California Field Sedge	Liner		70		
Elymus tricooides / Creeping Wildrye	Liner		140	Plant in clusters of 10 to 50	
Juncus balticus / Baltic Rush	Liner		70		
Juncus effusus var. brunneus / Pacific Rush	Liner		140		
			<b>1,181</b>	Total	

Habitat Type: Rock Slope Protection Willow Stakes			Acres	0.50	
Biological Name / Common Name	Container	Spacing (ft. o.c.)	Quantity Req.	Notes	
Salix lasiolepis / Red Willow	stake		98		
Salix lasiolepis / Arroyo Willow	stake		295		
			<b>393</b>	Total	

Habitat Type: Vegetated Soil Lifts Adjacent to Vineyard			Acres	0.05	
Biological Name / Common Name	Container	Spacing (ft. o.c.)	Quantity Req.	Notes	
Baccharis pilularis / Coyote Bush	1-Gallon		1		
Calycanthus occidentalis / Western Spice Bush	1-Gallon		1	Locate in shade	
Rosa californica / California Wild Rose	1-Gallon		16	Plant in clusters of 5-20	
Symphoricarpos albus / Snowberry	1-Gallon		16	Plant in clusters of 5-20	
Carex barbarae / Santa Barbara Sedge	Liner		126	Plant in clusters of 10-50, partial shade	
Elymus tricooides / Creeping Wildrye	Liner		220		
Scrophularia californica / California Bee Plant	Liner		15	Interplant with wildrye and sedge, 5' spacing	
			<b>395</b>	Total	

Habitat Type: Vegetated Soil Lifts			Acres	0.04	
Biological Name / Common Name	Container	Spacing (ft. o.c.)	Quantity Req.	Notes	
Acer macrophyllum / Big Leaf Maple	1-Gallon		0		
Aesculus californica / California Buckeye	1-Gallon		0		
Populus fremontii / Fremont Cottonwood	Treepot 4		0		
Quercus agrifolia / Coast Live Oak	Treepot 4		1		
Baccharis pilularis / Coyote Bush	1-Gallon		2		
Calycanthus occidentalis / Western Spice Bush	1-Gallon		1	Locate in shade	
Heteromeles arbutifolia / Toyon	1-Gallon		1		
Rosa californica / California Wild Rose	1-Gallon		5	Plant in clusters of 5-20	
Symphoricarpos albus / Snowberry	1-Gallon		3	Plant in clusters of 5-20	
Carex barbarae / Santa Barbara Sedge	Liner		13	Plant in clusters of 10-50, partial shade	
Elymus tricooides / Creeping Wildrye	Liner		13		
			<b>39</b>	Total	

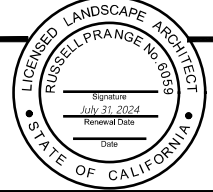
Habitat Type: Transitional Oak Woodland			Acres	0.16	
Biological Name / Common Name	Container	Spacing (ft. o.c.)	Quantity Req.	Notes	
Aesculus californica / California Buckeye	1-Gallon		1		
Quercus agrifolia / Coast Live Oak	Treepot 4		3		
Quercus lobata / Valley Oak	Treepot 4		1		
Baccharis pilularis / Coyote Bush	1-Gallon		12		
Calycanthus occidentalis / Western Spice Bush	1-Gallon		4	Locate in shade	
Heteromeles arbutifolia / Toyon	1-Gallon		8		
Rosa californica / California Wild Rose	1-Gallon		50	Plant in clusters of 5-20 with mixed container size	
Symphoricarpos albus / Snowberry	1-Gallon		25	Plant in clusters of 5-20 with mixed container size	
Elymus glaucus / Blue Wildrye	Liner		11		
Elymus tricooides / Creeping Wildrye	Liner		22	Plant in clusters of 5-20 with mixed container size	
Stipa pulchra / Purple Needlegrass	Liner		11		
Achillea millefolium / Yarrow	Liner		11		
			<b>159</b>	Total	

SEEDING

Upland Seeding Mix			Acres	0.27	
Biological Name / Common Name	PLS lbs/ac	Total Lbs	Quantity Req.	Notes	
Bromus carinatus / California Brome	5	1.4			
Elymus glaucus / Blue Wildrye	3	0.8			
Elymus tricooides / Creeping Wildrye	4	1.1			
Eschscholzia californica / California Poppy	2	0.5		For Transitional Oak Woodland and other disturbed areas.	
Festuca idahoensis / Idaho Fescue	3	0.8			
Festuca microstachys / Small Fescue	3	0.8			
Stipa pulchra / Purple Needlegrass	5	1.4			

Riparian Seeding Mix			Acres	1.36	
Biological Name / Common Name	PLS lbs/ac	Total Lbs	Quantity Req.	Notes	
Agrostis exarata / Spike Bentgrass	4	5.4			
Bromus carinatus / California Brome	4	5.4			
Lupinus bicolor / Miniature Lupine	3	4.1			
Elymus tricooides / Creeping Wildrye	5	6.8		For Riparian Bench, Rock Slope, and Vegetated Soil Lifts	
Festuca idahoensis / Idaho Fescue	3	4.1			
Festuca rubra / Red Fescue	2	2.7			
Hordeum brachyantherum var. brach. / Meadow Barley	4	5.4			

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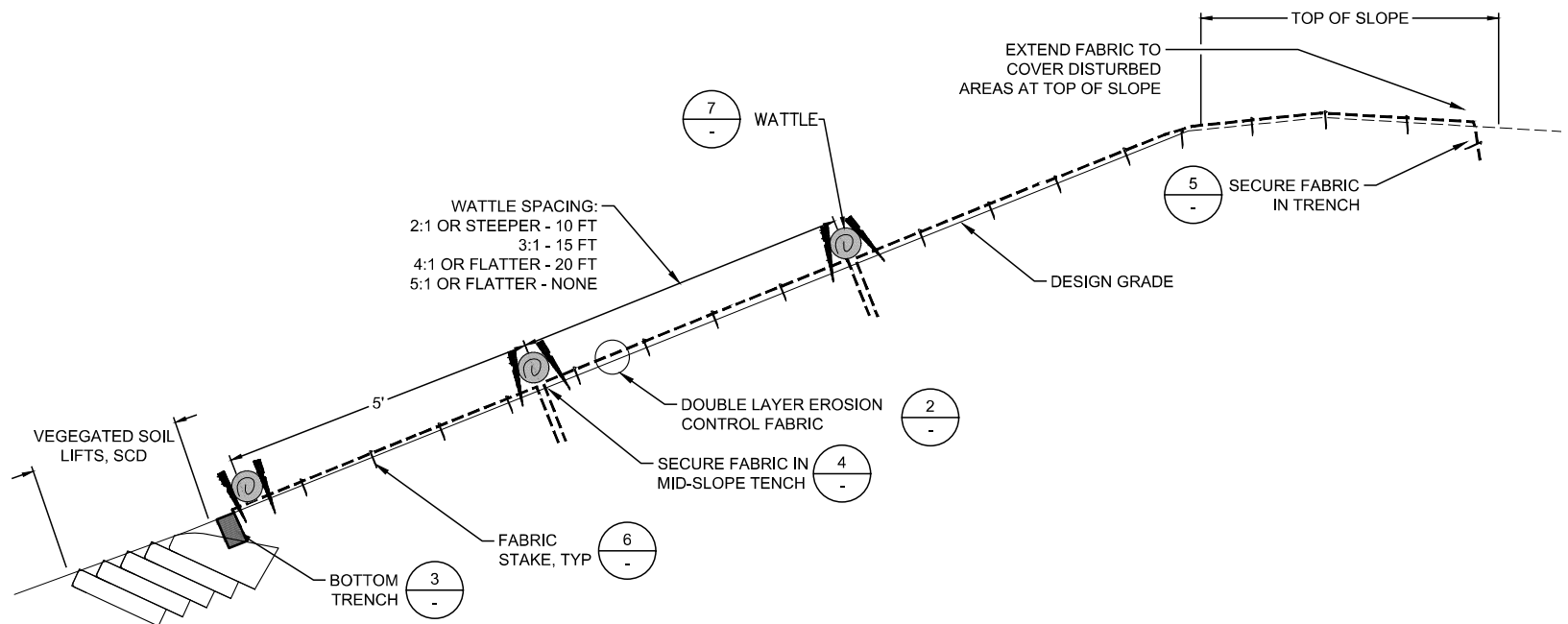
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION		CONSTRUCTION COMPLETED:	
DATE	REVISION	BY	APPROVED

**ESA**  
 180 GRAND AVENUE  
 SUITE 1050  
 OAKLAND, CALIFORNIA 94612  
 WWW.ESASSOC.COM

**SONOMA COUNTY**  
 PUBLIC INFRASTRUCTURE  
 JOHANNES J. HOEVERTSZ, P.E., DIRECTOR

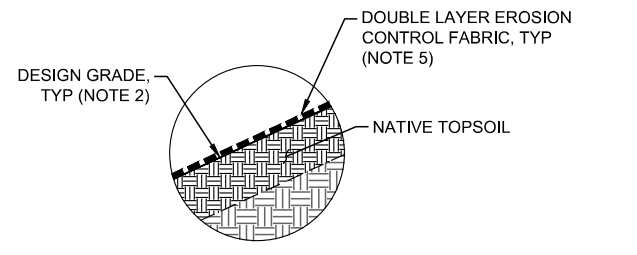
REVEGETATION DETAILS AND PLANT PALETTES		ROAD NUMBER	09018
		BUDGET NUMBER	C21900
		FISCAL YEAR	2022-23
		SHEET NUMBER	14
		TOTAL SHEETS	15

**RIVER ROAD BANK STABILIZATION**

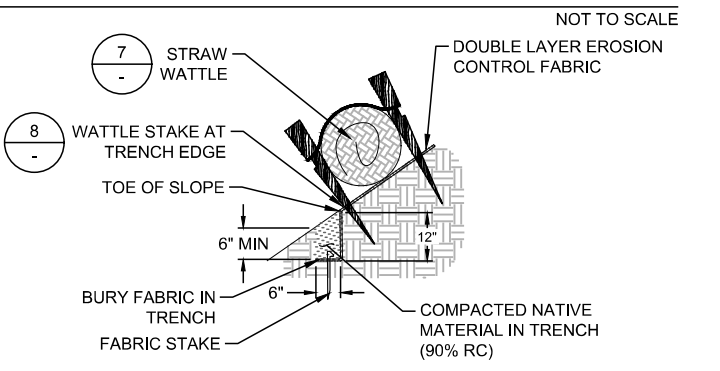


1 EROSION CONTROL FABRIC SECTION VIEW

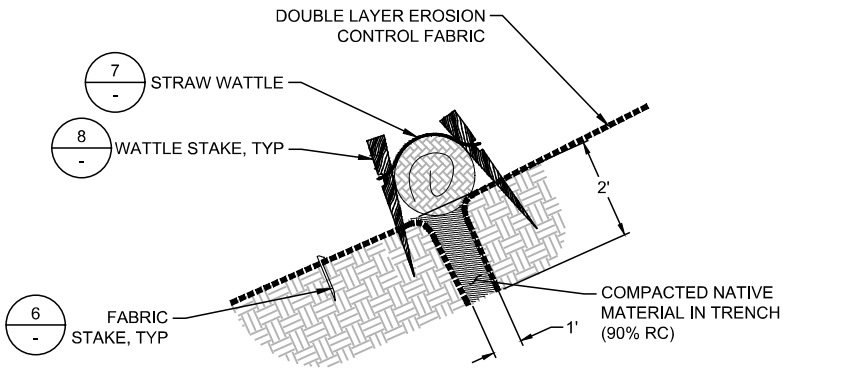
1. THIS SHEET SHOWS MINIMUM REQUIRED EROSION CONTROL MEASURES. INSTALL ADDITIONAL MEASURES AS NEEDED FOR EROSION CONTROL AND SWPPP COMPLIANCE AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE.
2. FINISH GRADE SURFACE SHALL BE CLEARED OF LOOSE ROCKS, CLODS, STICKS AND GRASS BEFORE FABRIC INSTALLATION.
3. EROSION CONTROL FABRIC SHALL BE INSTALLED ON ALL DISTURBED OR CUT-FLOODPLAIN AND BANK SLOPES.
4. TRACK WALK AND SEED SLOPE PRIOR TO EROSION CONTROL PER SPECIFICATIONS.
5. PLACE DOUBLE LAYER OF GEOCOIR 400 (TOP LAYER) AND C125BN (BOTTOM LAYER), OR APPROVED EQUIVALENT, EROSION CONTROL FABRIC PER SPECIFICATIONS.
6. LAY FABRIC LOOSELY AND STAKE 2' O.C. (VERTICAL) AND 2' O.C. (HORIZONTAL) TO MAINTAIN DIRECT CONTACT WITH THE FINISH GRADE SURFACE. DO NOT STRETCH.
7. FABRIC SHALL BE EXTENDED MIN 2' LATERALLY FROM THE TOP OF BANK, SECURED PER DETAILS 1 AND 5, THIS SHEET.
8. INSTALL BOTTOM TRENCH AT TOE OF SLOPE. FILL WITH NATIVE SOIL. COMPACT TO 90%.
9. INSTALL AND MAINTAIN SILT FENCE ALONG THE PROJECT LIMIT LINE AT TOP OF THE ACTIVE CHANNEL DURING GRADING. SILT FENCE LOCATIONS SHALL BE VERIFIED BY DISTRICT'S REPRESENTATIVE AND PROJECT LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. LIMIT ALONG EDGE OF NAPA RIVER BASED ON ORDINARY HIGH WATER MARK DEFINED IN AQUATIC RESOURCES DELINEATION REPORT AS PART OF REGULATORY PERMITS.
10. ALL WATTLES TO BE 9" DIAMETER MANUFACTURED FROM WEED FREE RICE STRAW OR EXCELSIOR AND WRAPPED IN 100% BIODEGRADABLE BURLAP OR COIR NETTING.
11. EMBED ALL WATTLES IN 2 TO 4 INCH DEEP TRENCH.



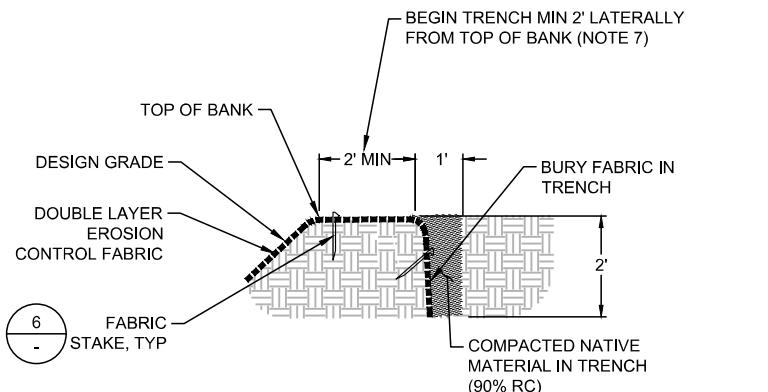
2 FABRIC SECTION VIEW SCALE: 1" = 2'



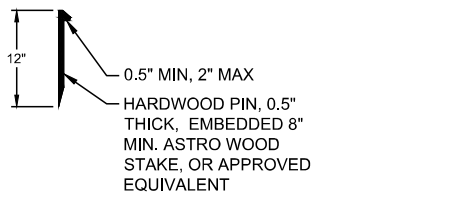
3 BOTTOM TRENCH DETAIL SECTION VIEW SCALE: 1" = 2'



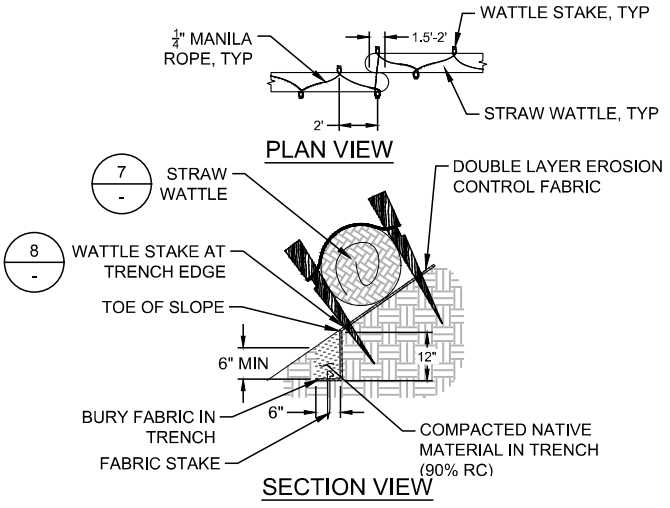
4 MID-SLOPE TRENCH DETAIL SECTION VIEW NOT TO SCALE



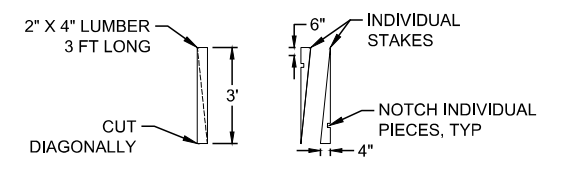
5 TOP TRENCH DETAIL SECTION VIEW SCALE: 1" = 2'



6 FABRIC STAKE DETAIL SECTION VIEW SCALE: 1" = 1'



7 WATTLE DETAIL NOT TO SCALE



8 WOODEN WATTLE STAKE FABRICATION DETAIL SCALE: 1" = 3'

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DESIGN BY	C. CACCAMO
DRAWING BY	C. CACCAMO
CHECKED BY	R. PRANGE

LICENSED LANDSCAPE ARCHITECT  
 RUSSELL PRANGE NO. 9058  
 STATE OF CALIFORNIA  
 Signature: \_\_\_\_\_  
 July 31, 2024  
 Removal Date: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 PLANS APPROVAL DATE: \_\_\_\_\_

CONSTRUCTION COMPLETED:			
"RECORD DRAWING" INFORMATION TO BE COMPLETED AFTER CONSTRUCTION			
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EROSION CONTROL DETAILS	
ROAD NUMBER	09018
BUDGET NUMBER	C21900
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**RIVER ROAD BANK STABILIZATION**