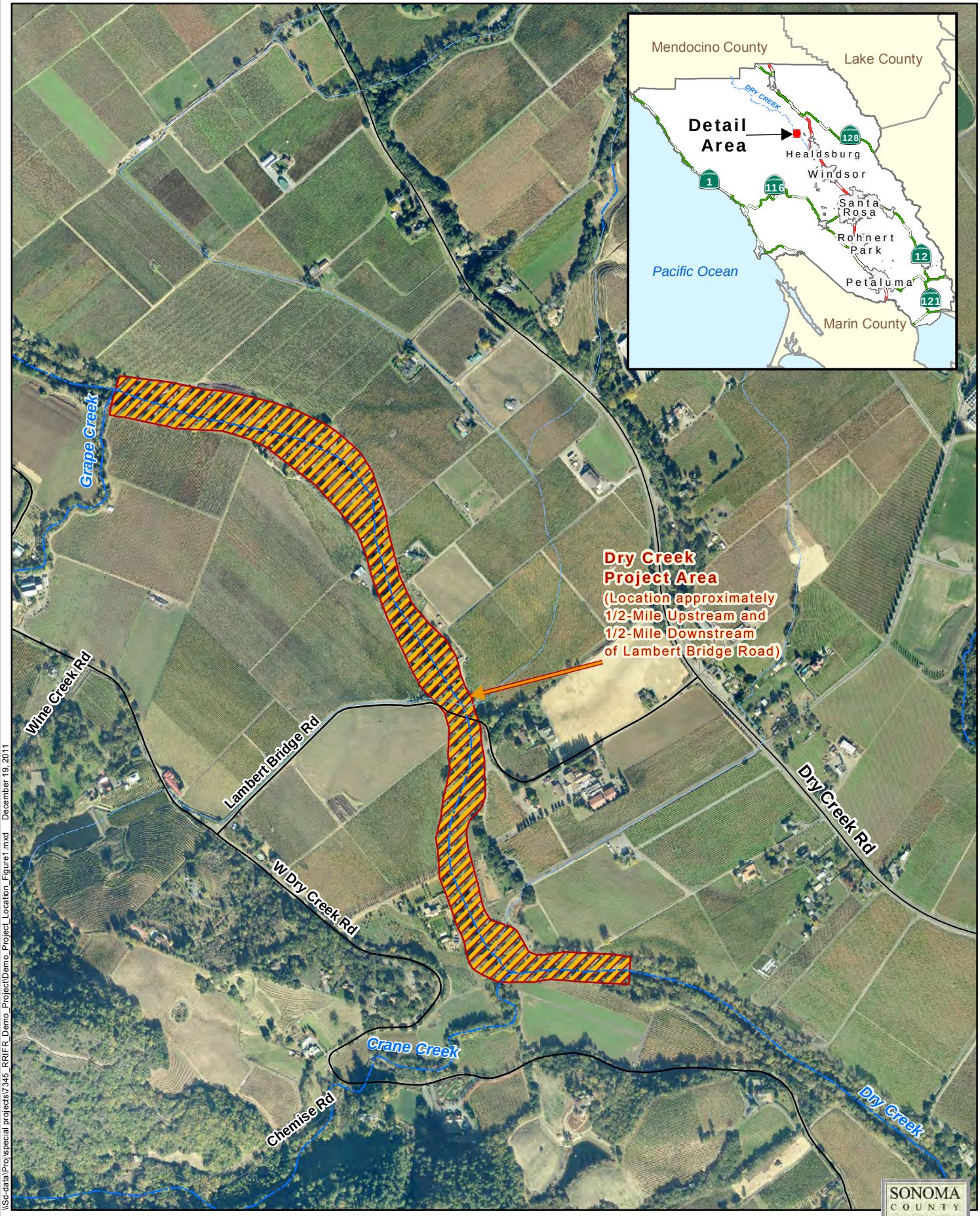

\\Sd-data\Proj\special projects\7345_RRIFR_Demo_Project\Demo_Project_Location_Figure1.mxd December 19, 2011

Dry Creek - Habitat Enhancement Demonstration Project

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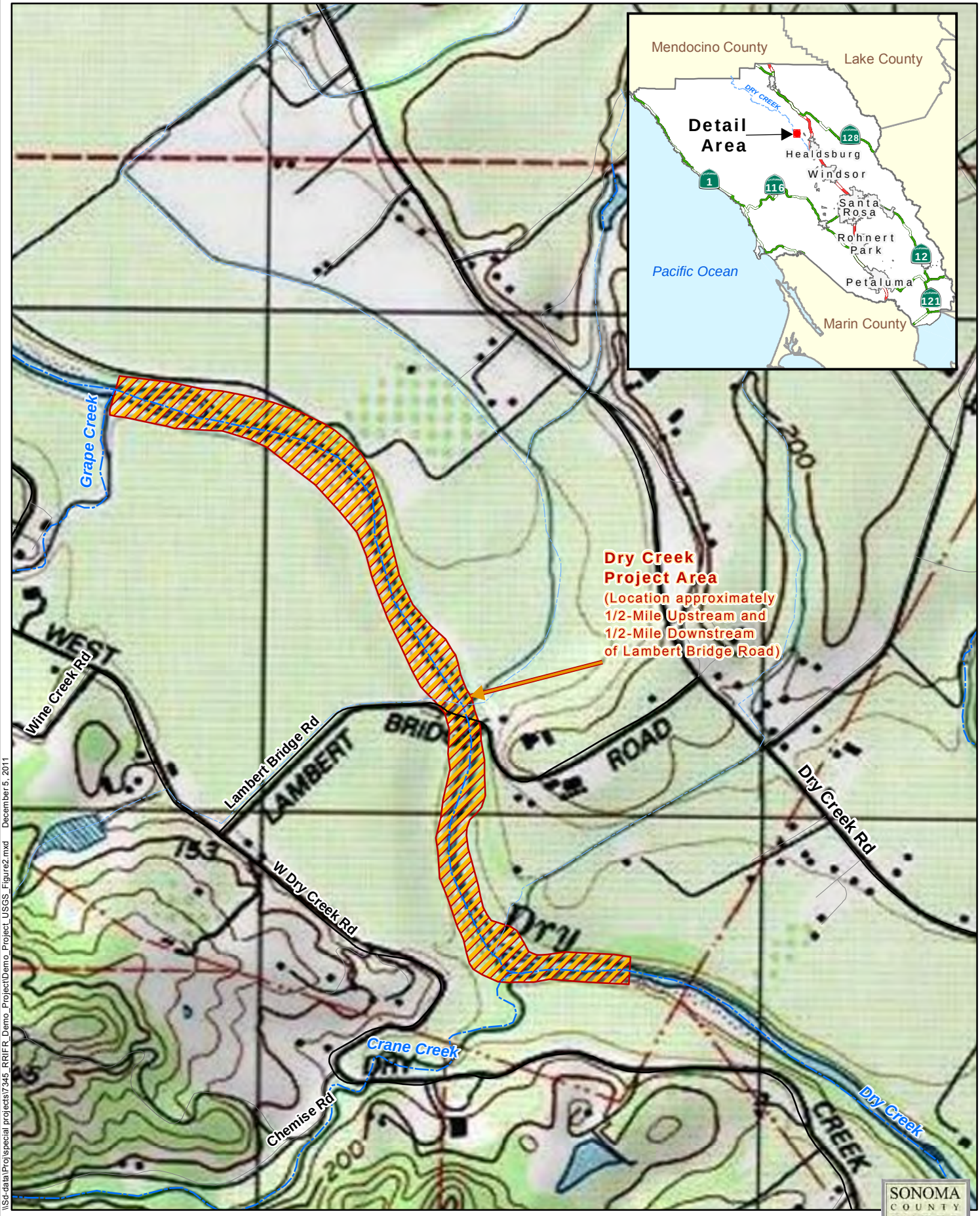
0 300 600 Feet

Figure 1

N

SONOMA COUNTY WATER AGENCY



\\Sd-data\Proj\special projects\7345_RRIFR_Demo_Project\Demo_Project_USGS_Figure2.mxd December 5, 2011

Dry Creek - Habitat Enhancement Demonstration Project

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Feet
0 300 600

N

Figure 2

SONOMA COUNTY WATER AGENCY

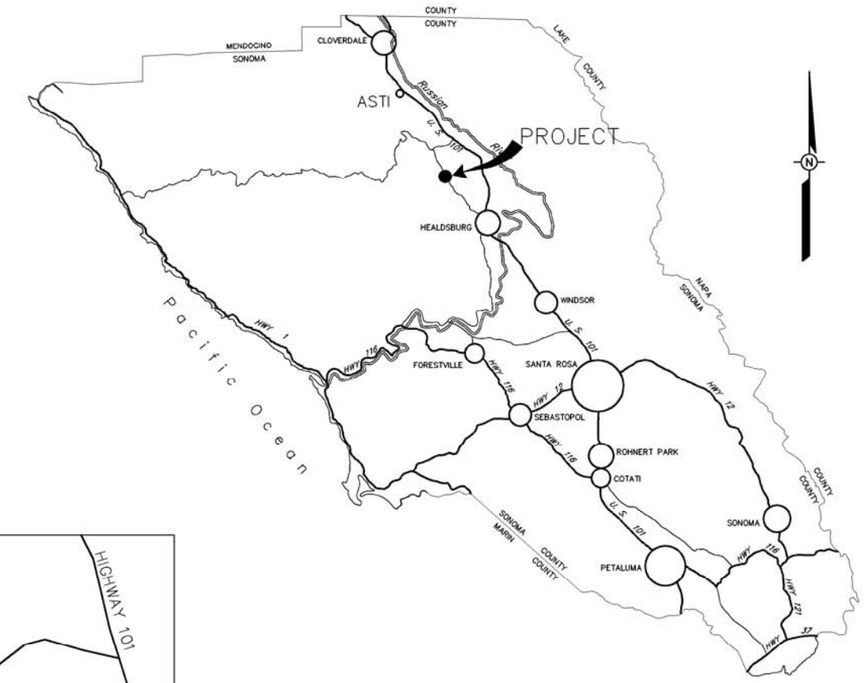
SONOMA COUNTY WATER AGENCY

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

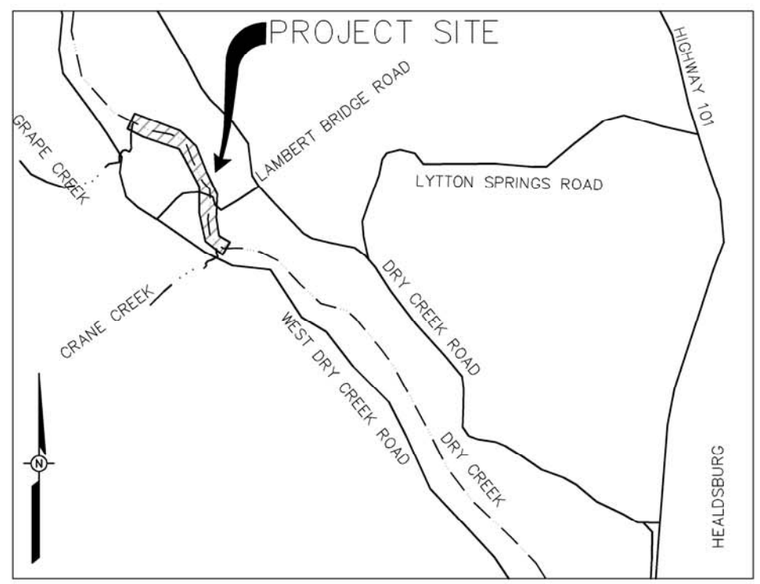
CONTRACT # XXXXX

90% COMPLETE – OCTOBER 7, 2011

SHEET NO.	DRAWING NO.	TITLE
1.		LOCATION MAP AND INDEX TO DRAWINGS
2.		GENERAL NOTES AND LEGEND
3.		EXISTING CONDITIONS
4.		SITE PLAN OVERVIEW AND PLAN SHEET KEY
5.		ACCESS AND STAGING OVERVIEW
6.		EROSION AND SEDIMENT CONTROL DETAILS 1 OF 3
7.		EROSION AND SEDIMENT CONTROL DETAILS 2 OF 3
8.		EROSION AND SEDIMENT CONTROL DETAILS 3 OF 3
9.		MAIN CHANNEL PLAN AND PROFILE STA: 324+00 TO 340+00
10.		MAIN CHANNEL PLAN AND PROFILE STA: 340+00 TO 347+00
11.		MAIN CHANNEL PLAN AND PROFILE STA: 347+00 TO 357+00
12.		MAIN CHANNEL PLAN AND PROFILE STA: 357+00 TO 370+00
13.		MAIN CHANNEL PLAN AND PROFILE STA: 370+00 TO 383+00
14.		DETAIL GRADING PLAN OFF CHANNEL ENHANCEMENT AREA A
15.		DETAIL GRADING PLAN OFF CHANNEL ENHANCEMENT AREA B
16.		DETAIL GRADING PLAN OFF CHANNEL ENHANCEMENT AREA C
17.		DETAIL GRADING PLAN OFF CHANNEL ENHANCEMENT AREA D
18.		GRADING CROSS-SECTIONS
19.		GRADING CROSS-SECTIONS
20.		GRADING CROSS-SECTIONS
21.		TYPICAL DETAILS BOULDER CLUSTER AND CONSTRUCTED RIFFLE
22.		TYPICAL SECTIONS CONSTRUCTED RIFFLES STA: 325+78 TO 349+93
23.		TYPICAL SECTIONS CONSTRUCTED RIFFLES STA: 354+39 TO 373+86
24.		TYPICAL SECTIONS LOG JAMS STA: 334+30 TO 369+03
25.		TYPICAL SECTIONS LOG JAMS STA: 374+60 TO 378+01
26.		TYPE 1-3 BANK CONSTRUCTION DETAILS
27.		TYPE 4 BANK CONSTRUCTION DETAILS
28.		TYPE 4 BANK CONSTRUCTION DETAILS
29.		TYPE 4 BANK CONSTRUCTION DETAILS CABLING AND ATTACHMENT
30.		LWD DETAILS – LOG JAM AND FLOODPLAIN LWD
31.		LWD DETAILS – BACKWATER CHANNEL AND POOL ENHANCEMENT
32.		LOG JAM DETAILS – TYPICAL SEQUENCE
33.		LWD DETAILS CABLING AND BALLASTING
34.		TYPICAL DETAILS – STORM DRAIN OUTFALL
35.		FABRIC DETAILS
36.		FES LIFT CONSTRUCTION DETAILS
37.		FES LIFT CONSTRUCTION DETAILS
38.		REVEGETATION PLAN STA: 322+00 TO 340+00
39.		REVEGETATION PLAN STA: 340+00 TO 357+00
40.		REVEGETATION PLANS STA: 357+00 TO 370+00
41.		REVEGETATION PLANS STA: 370+00 TO 383+00



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

Preliminary Not For Construction

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/07/11
DRAWN : JT
CHECKED : MB

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
LOCATION MAP AND INDEX TO DRAWINGS

FILE NAME: 7345
CONTRACT NUMBER:
DRAWING NUMBER:
1 OF 41

COORDINATION CHECK: ORG REL | DATE | CIVIL | ELECT | MECH | TECH WR | INSPECTION | OPERATIONS | SURVEY
REV
MICROFILM DATE

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PLAN LEGEND

- EXISTING CONTOURS (1 FT.)
- PROPOSED CONTOURS (1 FT.)
- EDGE OF WATER, MAY 2010 (TYP.)
- PROPOSED ACCESS CORRIDOR
- CONSTRUCTION EASEMENT (TYP.)
- OH — OH — OVERHEAD POWER LINE
- 233+00 — DRY CREEK ALIGNMENT
- PARCEL BOUNDARY
- EDGE OF WATER, MAY 2010
- SILT FENCE
- DUCTILE IRON PIPE
- POWER POLE
- (W) WELL POINTS
- INGRESS/EGRESS
- ISOLATION DAM
- COFFERDAM
- STORM DRAIN OUTFALL (SDO)
- (E) PUMP
- LARGE WOODY DEBRIS (LWD)
- LOG JAM
- EXISTING STRUCTURES
- STAGING AREA
- CONSTRUCTED RIFFLE
- BANK STABILIZATION AREA
- WETLAND
- EXISTING ROAD
- REVEGETATION
- BANK CONSTRUCTION, TYPE 1
- BANK CONSTRUCTION, TYPE 2
- BANK CONSTRUCTION, TYPE 3
- BANK CONSTRUCTION, TYPE 4

ABBREVIATIONS

LWD	LARGE WOODY DEBRIS
STA	STATION
(TYP)	TYPICAL
(N)	NEW
(E)	EXISTING
SDO	STORM DRAIN OUTFALL
HDPE	HIGH DENSITY POLYETHYLENE
NTS	NOT TO SCALE
O.C.	ON CENTER
OHW	ORDINARY HIGH WATER
FES	FABRIC ENCAPSULATED SOIL LIFT
OH	OVERHEAD
PDSCS	PUMP DISCHARGE SEDIMENT CONTROL SYSTEM

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TYPICAL SECTION AND DETAIL LETTERING SYSTEM

SECTIONS AND DETAILS CUT ON SHEET NO. 12 TO BE FOUND ON SHEET NO. 15: (A / 15) — SECTION OR DETAIL LETTER; SHEET ON WHICH IT APPEARS

ON SHEET NO. 15 THIS SECTION IS SHOWN AS: SECTION (A / 12) — SECTION OR DETAIL LETTER; SHEET FROM WHICH SECTION WAS CUT

SECTIONS AND DETAILS TO BE FOUND ON SAME SHEET AS CUT: (A / —)

TYPICAL SECTION IMPROVEMENTS (X / X)

TYPICAL SECTION PROJECT GRADING — STA: XX+XX

GENERAL NOTES

1. UNITS: FEET
2. HORIZONTAL DATUM: CALIFORNIA STATE PLANE COORDINATES (NAD83) ZONE 2, US SURVEY FEET
3. VERTICAL DATUM : NORTH AMERICAN VERTICAL DATUM (NAVD), 1988 US SURVEY FEET.
4. PROJECT BENCHMARKS:

PT	NORTHING	EASTING	ELEVATION	DESCRIPSTION
DC-03	2001363.832	6296702.537	146.48	2" DIA. BRASS DISK
DC-04	2001308.733	6295880.366	142.712	2" DIA. BRASS DISK

5. STATIONING : ALL STATIONING REPRESENTS HORIZONTAL MEASUREMENT AT ALIGNMENT OF CONSTRUCTION.
6. ORIENTATION : RIGHT AND LEFT DIRECTIONS ARE FROM CENTERLINE LOOKING DOWNSTREAM.
7. UTILITIES : THE OWNER, TO THE BEST OF ITS ABILITY, HAS DELINEATED ON THE DRAWINGS ALL UTILITY INSTALLATIONS TO BE ENCOUNTERED WITHIN THE LIMITS OF WORK. SUCH INFORMATION IS BASED UPON INFORMATION FURNISHED TO THE AGENCY BY THE UTILITY OWNERS, AND THE OWNER DOES NOT EITHER EXPRESSLY OR BY IMPLICATION GUARANTEE THAT UTILITY INSTALLATIONS WILL BE FOUND AT THE LOCATIONS OR DEPTHS INDICATED. THE OWNER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN OR THE INADVERTENT OMISSION OF ANY SUCH INFORMATION.
8. PARCEL DATA : BASED ON SONOMA COUNTY ASSESSOR PARCEL GIS DATABASE.
9. TOPOGRAPHY : BASED ON LIDAR MAPPING COLLECTED NOVEMBER 2008 BY PICTOMETRY, INC. SUPPLEMENTED WITH GROUND SURVEY BY INTER-FLUVE, INC. COLLECTED MAY 2010

SEGHESIO
SEGHESIO
MASCHERINI
MASCHERINI
RUED
RUED
RUED
DRY CREEK ROAD
(E) PUMP, (TYP.)
DRY CREEK ALIGNMENT
LAMBERT BRIDGE
RIVER MILE 6.6
(E) SDO, (TYP.)
LAMBERT BRIDGE ROAD
DRY CREEK
GRAPE CREEK
KIGHT
KIGHT
VAN ALYEA
VAN ALYEA
PASSALACQUA
DRY CREEK
VINEYARDS
DRY CREEK
VINEYARDS
DRY CREEK
VINEYARDS
WALLACE
WALLACE
FARROW
FARROW
LIPTON
WOLLMER
CRANE CREEK
OVERHEAD POWER
LINE (TYP.)
LAMBERT BRIDGE ROAD
W. DRY CREEK ROAD
382+00
380+00
378+00
376+00
374+00
372+00
370+00
368+00
366+00
364+00
362+00
360+00
358+00
356+00
354+00
352+00
350+00
348+00
346+00
344+00
342+00
340+00
338+00
336+00
334+00
332+00
330+00
328+00
326+00
324+00
OH
150 0 150 300 600
SCALE IN FEET

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SCALE:
DATE : 10/07/11
DRAWN : JT
CHECKED : MB,RP,BN,MB

APPROVED DEPUTY CHIEF ENGINEER RCE C62986
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
EXISTING CONDITIONS

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:
3 OF 41

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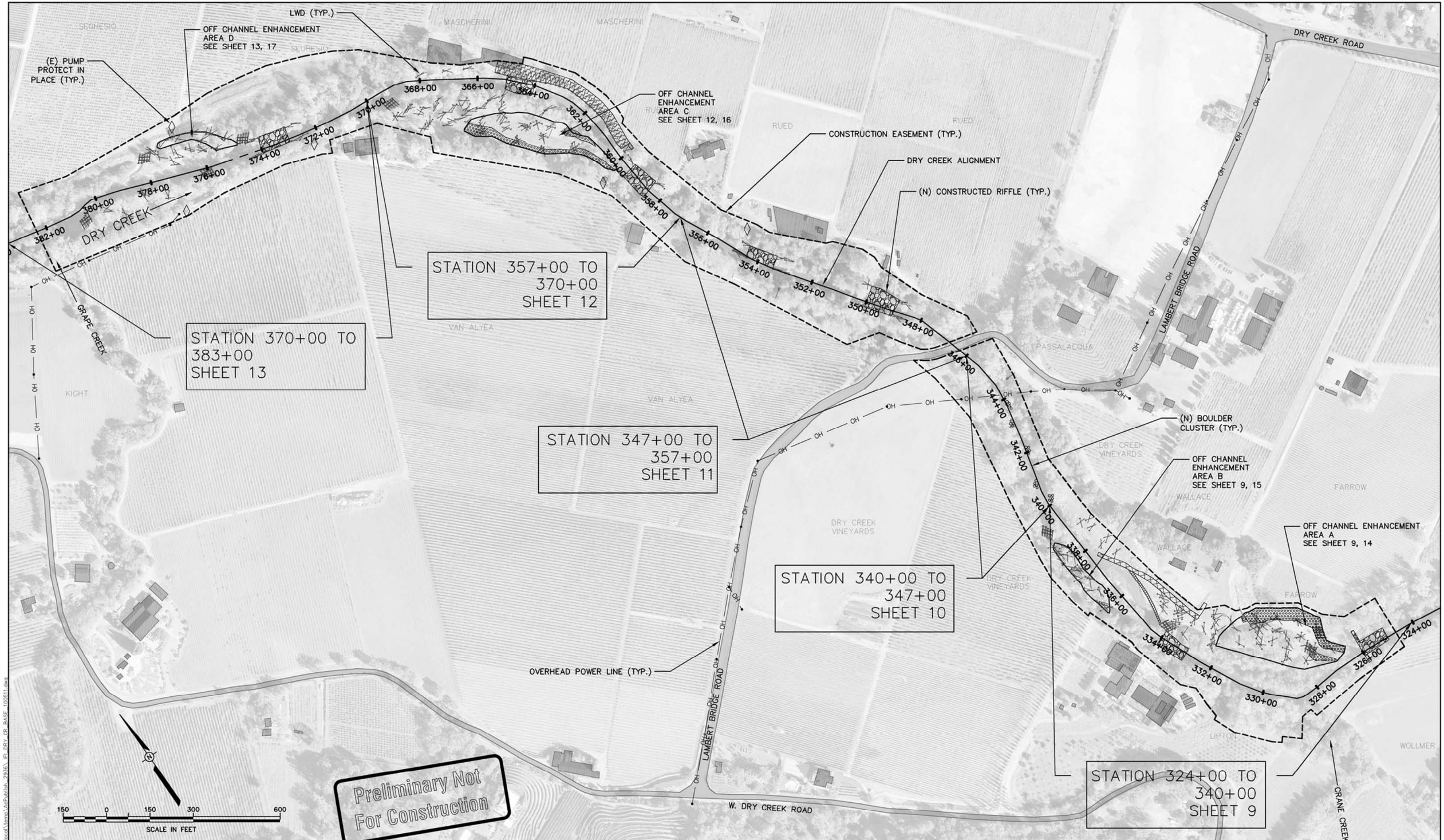

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DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
SITE PLAN OVERVIEW AND PLAN SHEET KEY

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

CONSTRUCTION EASEMENT (TYP.)

DRY CREEK

OVERHEAD POWER LINE (TYP.)

GRAPE CREEK

DRY CREEK ALIGNMENT

DRY CREEK RD.

LAMBERT BRIDGE ROAD

W. DRY CREEK RD.

STAGING AREA (TYP.)

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250 0 250 500 1000

SCALE IN FEET

NOTE:
1. ACCESS CORRIDORS FROM PUBLIC RIGHT-OF-WAY TO LIMITS OF CONSTRUCTION EASEMENT TO BE CONFIRMED BY OWNER. ALL ACCESS ALIGNMENTS TO BE RETURNED TO PRE-PROJECT CONDITION, OR BETTER, FOLLOWING PROJECT COMPLETION.

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DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

ACCESS AND STAGING OVERVIEW

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER: 5 OF 41

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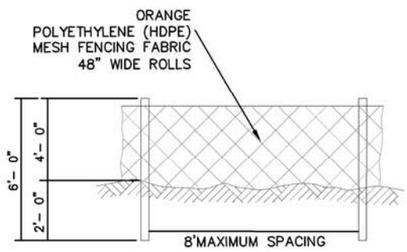
EXCLUSION ZONE FENCE

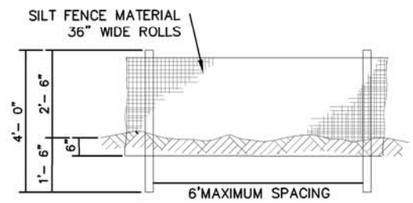
1. 2" X 2" STEEL FENCE POSTS. INSTALL AS SHOWN ON PLANS.
2. FASTEN FABRIC TO FENCE PER MANUFACTURES RECOMMENDATION.
3. ENSURE ALL POSTS ARE SET FIRM AND STABLE INTO GROUND MIN. 2'–0" DEPTH.
4. FENCING SHALL BE 4 FOOT HIGH ORANGE PLASTIC AND SECURED TO THE GROUND WITH 6 FOOT METAL POSTS, SUNK 2 FEET.

SILT FENCES

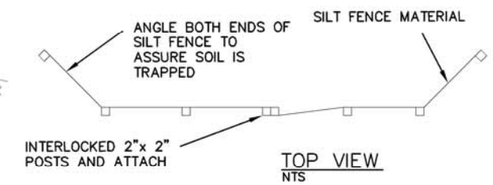
1. THE SILT FENCE SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, SILT FENCE FABRIC SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST. ALTERNATIVELY, OVERLAP AND INTERLOCK TWO POSTS WITH ATTACHED FABRIC AS APPROVED BY THE OWNER.
2. THE SILT FENCE IS TO BE INSTALLED AT LOCATIONS SHOWN ON THE PLAN ALONG THE DOWNHILL PERIMETER OF DISTURBED AREAS. THE FENCE POST SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES APART.
3. THE SILT FENCE SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6 INCHES. ALL EXCAVATED MATERIAL FROM SILT FENCE INSTALLATION SHALL BE BACK–FILLED AND COMPACTED ALONG THE ENTIRE DISTURBED AREA.
4. STANDARD OR HEAVY DUTY SILT FENCE SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2 INCHES X 2 INCHES POST INSTALLATION.
5. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED, OR AS DIRECTED BY THE OWNER.



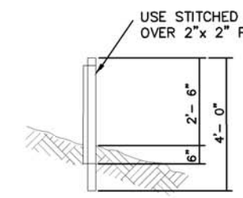
1 DETAIL EXCLUSION ZONE FENCE
NTS



FRONT VIEW
NTS

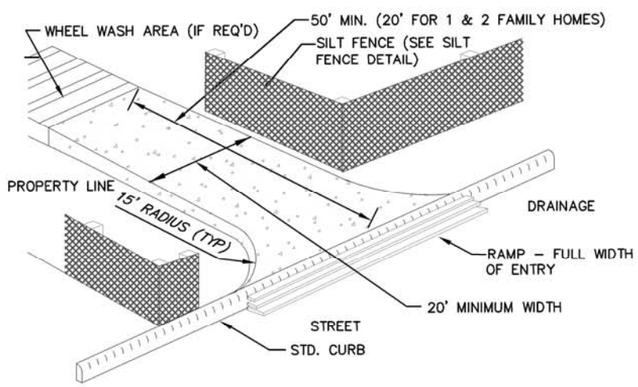


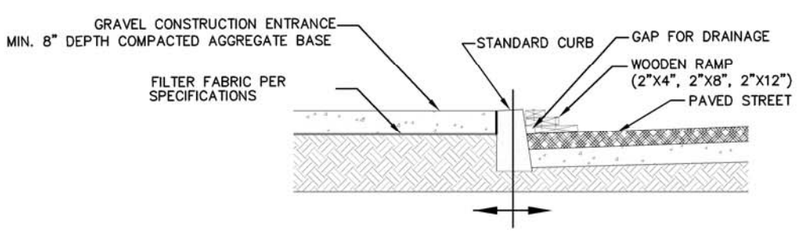
TOP VIEW
NTS



SIDE VIEW
NTS

3 DETAIL SILT FENCE
NTS





2 GRAVEL CONSTRUCTION ENTRANCE
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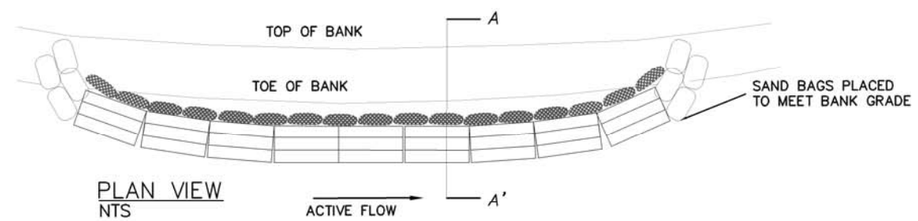
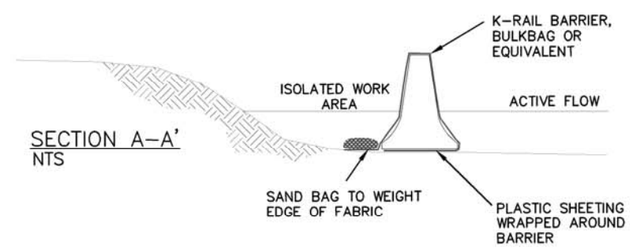


PLAN VIEW
NTS



SECTION A–A'
NTS

4 SEDIMENT CONTROL BARRIER
NTS

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
EROSION AND SEDIMENT CONTROL DETAILS
1 OF 3

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER: 6 OF 41

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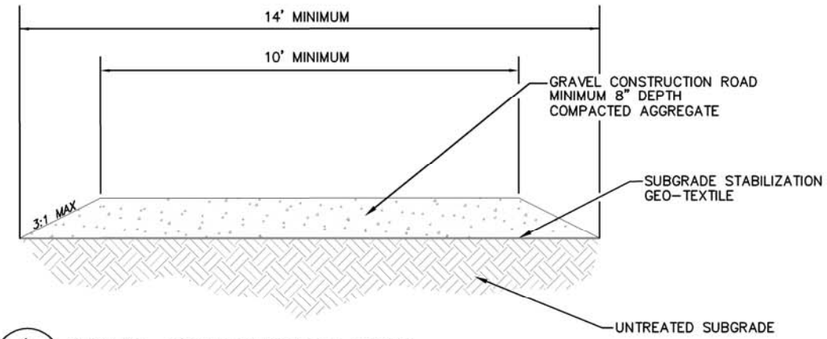
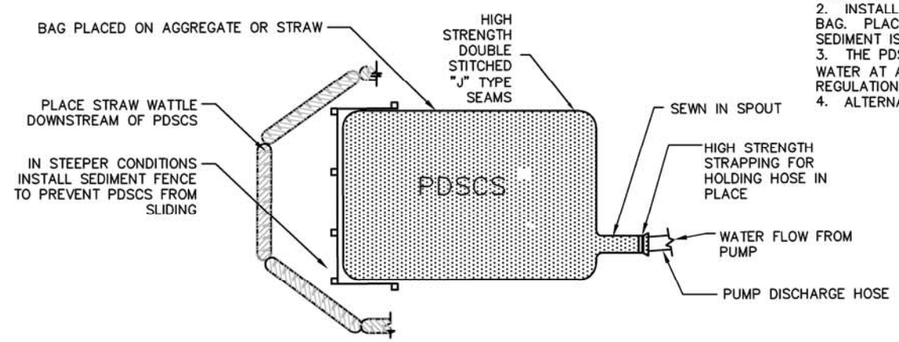


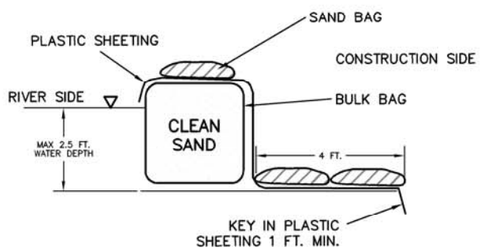
1 — GRAVEL CONSTRUCTION ROAD
NTS

1. ALTERNATE DESIGN MAY BE SUBSTITUTED WITH PRIOR REVIEW AND APPROVAL BY OWNER.

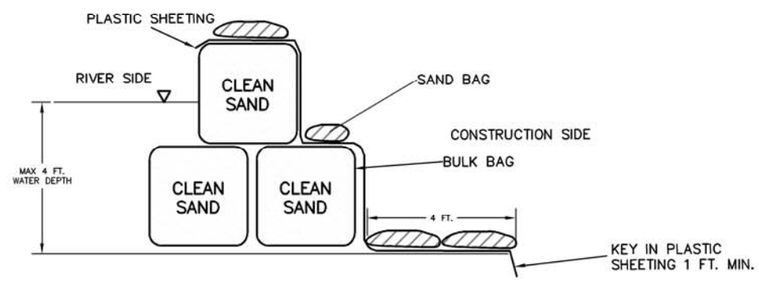


2 — PUMP DISCHARGE SEDIMENT CONTROL SYSTEM (PDSCS)
NTS

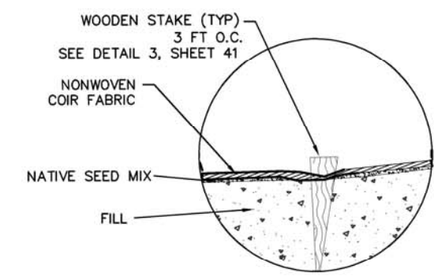
NOTES
1. AVOID PLACEMENT OF THE PDSCS ABOVE STEEP SLOPES OR WHERE SATURATED SOIL CONDITIONS MAY CAUSE SOIL INSTABILITY.
2. INSTALL THE PDSCS ON A MILD SLOPE SO INCOMING WATER FLOWS DOWNHILL THROUGH THE BAG. PLACEMENT IN A DUMP TRUCK OR ON A TRAILER MAY FACILITATE DISPOSAL IF CAPTURED SEDIMENT IS TO BE HAULED OFF SITE.
3. THE PDSCS IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE. DISPOSE OF THE "DIRT BAG" WHEN FULL PER APPLICABLE REGULATIONS.
4. ALTERNATE DESIGN MAY BE SUBSTITUTED WITH PRIOR REVIEW AND APPROVAL BY OWNER.



3 — TYPICAL SECTION
TEMPORARY COFFER DAM
WATER DEPTH LESS THAN 2.5 FEET
NTS



4 — TYPICAL SECTION
COFFER DAM SECTION IN WATER DEPTH LESS THAN 4 FEET
NTS



5 — TYPICAL DETAIL
NON-WOVEN EROSION CONTROL FABRIC AND STAKE
NTS

COFFERDAM BULK BAG GENERAL NOTES:

1. BULK BAG COFFERDAM SHALL BE CONSTRUCTED OF SEVERAL UNITS OF BULK BAGS FILLED WITH CLEAN SAND, AND ABUTTED SIDE BY SIDE TO CREATE A ROW THAT ISOLATES THE CONSTRUCTION SITE.
2. IF WATER DEPTH EXCEEDS 85% OF THE BULK BAG HEIGHT, AN ADDITIONAL TOP ROW OF BULK BAGS SHALL BE INSTALLED, SUPPORTED BY TWO BOTTOM ROWS OF BULK BAGS.
3. BULK BAG COFFERDAM SHALL BE SEALED BY COVERING THE COFFERDAM WITH PLASTIC SHEETING HELD IN PLACE BY STANDARD SANDBAGS PLACED IN ROWS ON TOP OF COFFERDAM, AND AT TOE OF COFFERDAM. THE PLASTIC SHEETING SHALL BE DRAPED ALONG THE CHANNEL BOTTOM ON THE WORK AREA SIDE OF THE COFFERDAM WITH OUTWARD EDGE OF SHEETING MINIMUM 4-FEET FROM TOE OF COFFERDAM. THE DRAPED PORTION OF PLASTIC SHEETING SHALL BE PINNED TO THE CHANNEL BED BY MINIMUM TWO ROWS OF STANDARD SANDBAGS. THE OUTWARD EDGE OF PLASTIC SHEETING SHALL BE TOED INTO THE CHANNEL BED MINIMUM 1-FT. TOEING IN THE OUTWARD EDGE OF PLASTIC SHEETING SHALL OCCUR AFTER THE COFFERDAM IS CLOSED TO PREVENT TURBIDITY RELEASE TO THE WATERWAY.
4. THE TERMINAL ENDS OF BULK BAG COFFERDAM, WHERE IT CONNECTS TO CHANNEL BANK OR HIGH GROUND SHALL BE SEALED WITH PLASTIC SHEETING AND STANDARD SANDBAGS.
5. BULK BAGS SHALL BE SHALL BE WATERPROOF CUBE-SHAPED POLYPROPYLENE WOVEN FABRIC BAGS WITH FULLY OPEN TOP, FLAT BOTTOM, FOUR LOOPS, MINIMUM 2-TON WEIGHT CAPACITY, MINIMUM 5:1 SAFETY FACTOR.
6. PLASTIC SHEETING SHALL BE MINIMUM 6-MIL THICKNESS. ROLL LENGTH SHALL COVER THE ENTIRE COFFERDAM WITHOUT SEAMS. MINIMUM 12-FT WIDE ROLL SHALL BE USED FOR SINGLE LAYER BULK BAG COFFERDAM. MINIMUM 16-FT ROLL SHALL BE USED FOR 2-LAYER STACKED BULK BAG COFFERDAM.
7. BULK BAG COFFERDAM SHALL BE COMPLETELY REMOVED AFTER CONSTRUCTION IS COMPLETED AND TURBIDITY HAS BEEN REMOVED.
8. ALTERNATE DESIGN MAY BE SUBSTITUED WITH PRIOR REVIEW AND APPROVAL BY OWNER.

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

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www.interfluve.com

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/07/11
DRAWN : JT
CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
EROSION AND SEDIMENT CONTROL DETAILS
2 OF 3

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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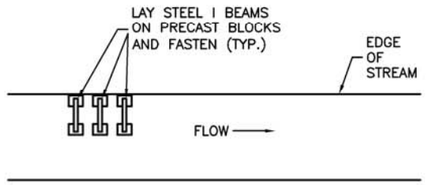
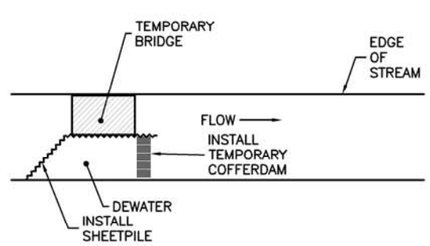


DEWATERING SEQUENCING: STEP 1
NOT TO SCALE



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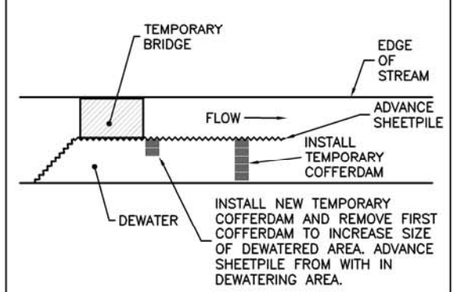

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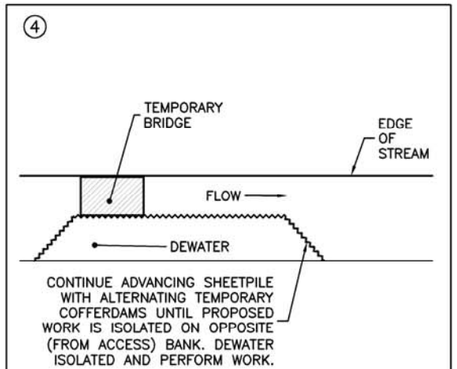

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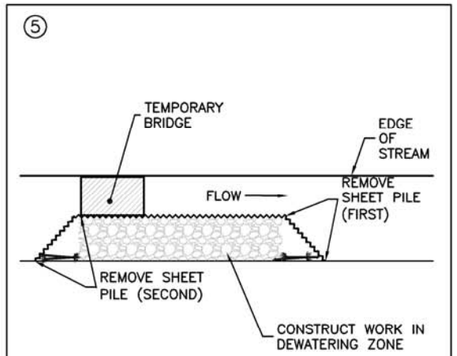
NOT TO SCALE



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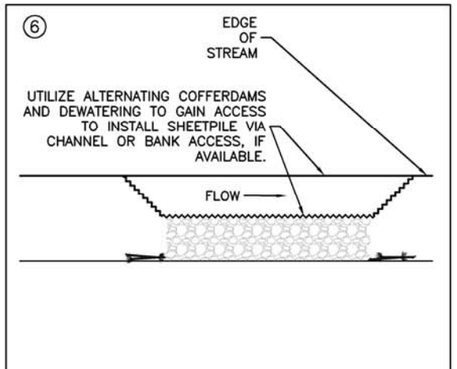
NOT TO SCALE



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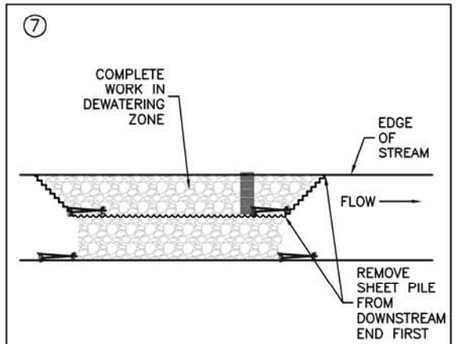
NOT TO SCALE



DEWATERING SEQUENCING: STEP 7
NOT TO SCALE

NOTE:

1. SEQUENCE SHOWN IS WHEN ACCESS AVAILABLE FROM ONE SIDE OF CREEK. CONSTRUCTION MAY BE FACILITATED IF ACCESS AVAILABLE FROM BOTH SIDES OF CREEK.
2. ALTERNATE MEANS FOR SEQUENCING CONSTRUCTION OF ISOLATED CHANNEL SPANNING FEATURES MAY BE SUBSTITUTED WITH PRIOR REVIEW AND APPROVAL BY THE OWNER.

1 / –
TYPICAL DETAIL
CONSTRUCTION SEQUENCE FOR ISOLATED CHANNEL SPANNING FEATURES
NTS

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/07/11
DRAWN : JT
CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
EROSION AND SEDIMENT CONTROL DETAILS
3 OF 3

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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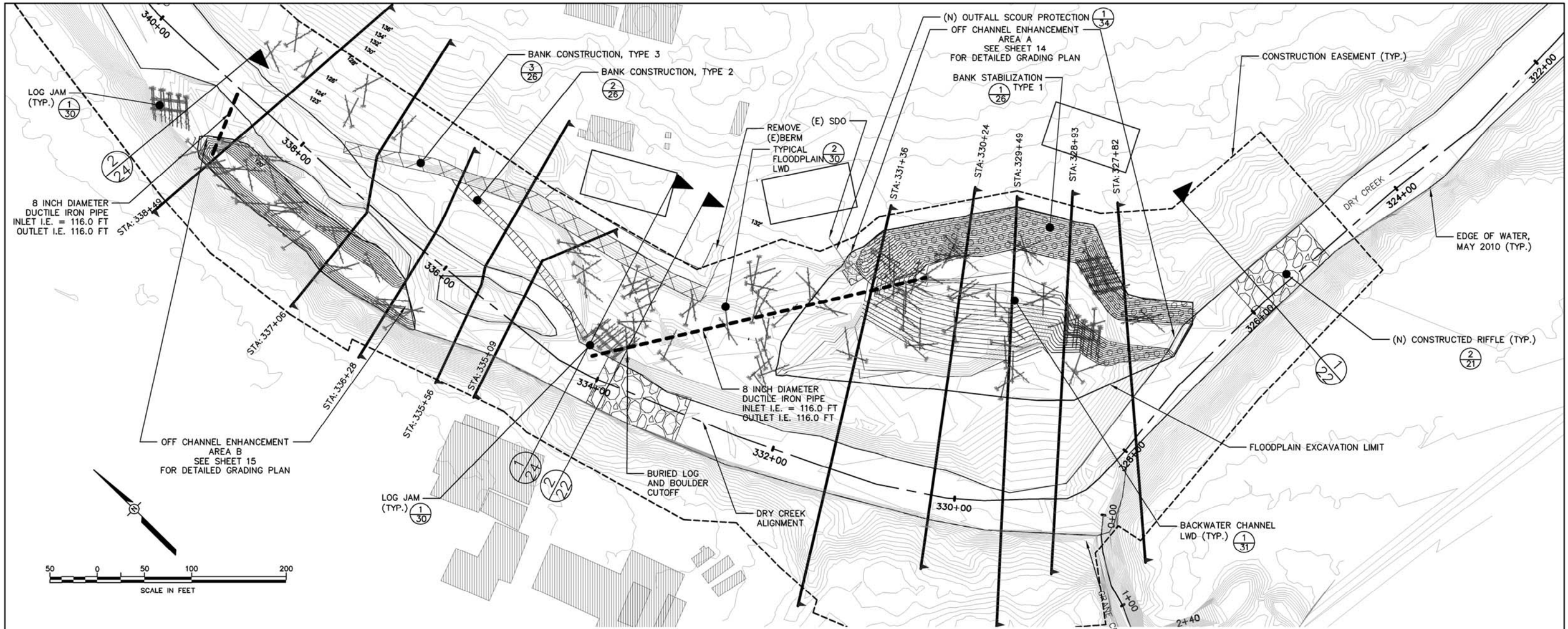

MAIN CHANNEL PROFILE

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

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SONOMA COUNTY WATER AGENCY

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APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

MAIN CHANNEL PLAN AND PROFILE
STA: 324+00 TO 340+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

350+00
348+00
346+00
344+00
342+00
340+00

BOULDER CLUSTER (TYP.) 1/21

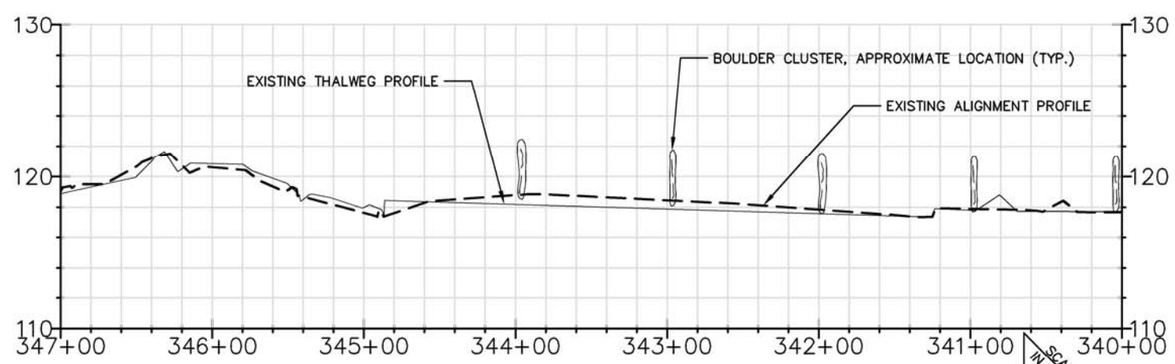
CONSTRUCTION EASEMENT (TYP.)

STATION 340+00 TO 344+00
INSTALL 5 BOULDER CLUSTERS
LOCATIONS TO BE VERIFIED DURING CONSTRUCTION
APPROVED BY OWNER

EDGE OF WATER, MAY 2010 (TYP.)

OH

50 0 50 100 200
SCALE IN FEET



MAIN CHANNEL PROFILE

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

MAIN CHANNEL PLAN AND PROFILE
STA: 340+00 TO 347+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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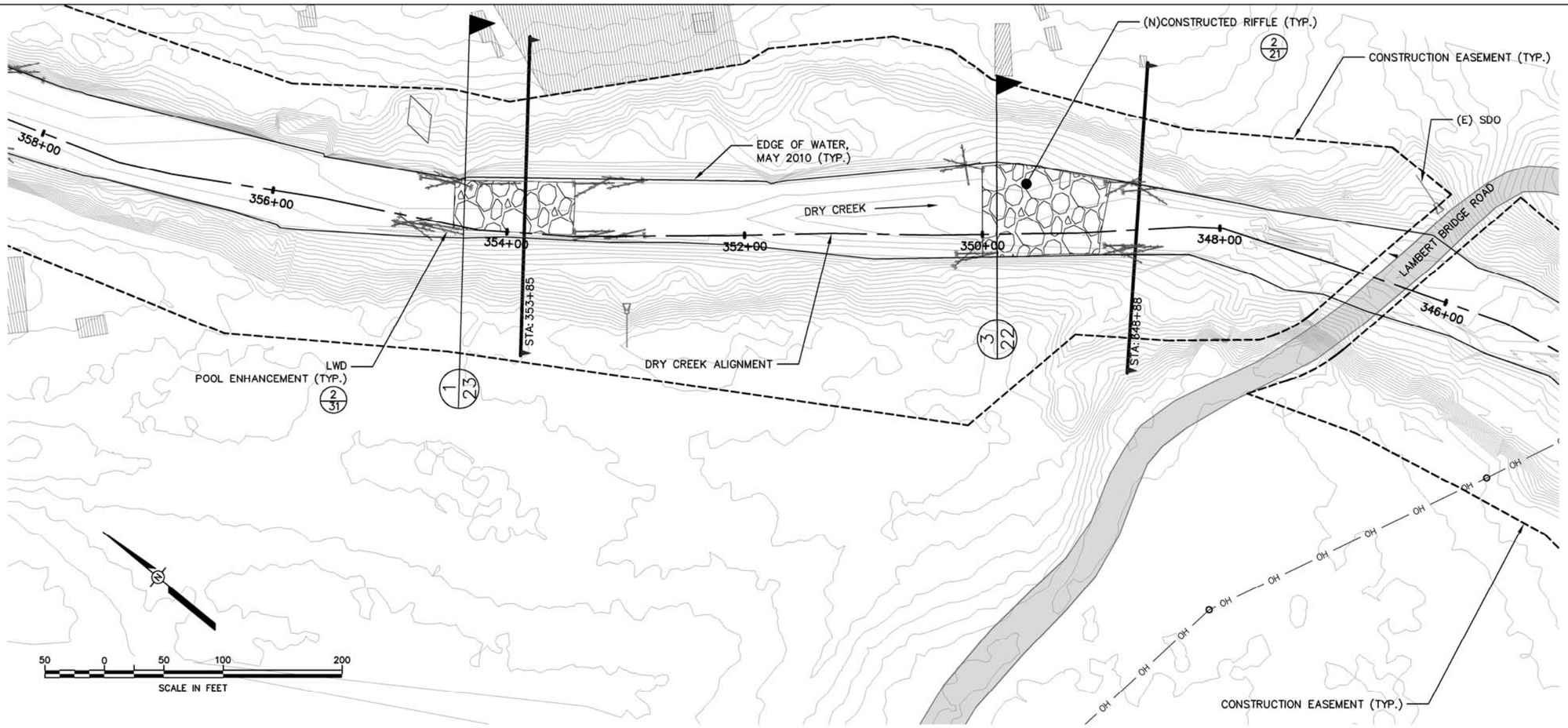

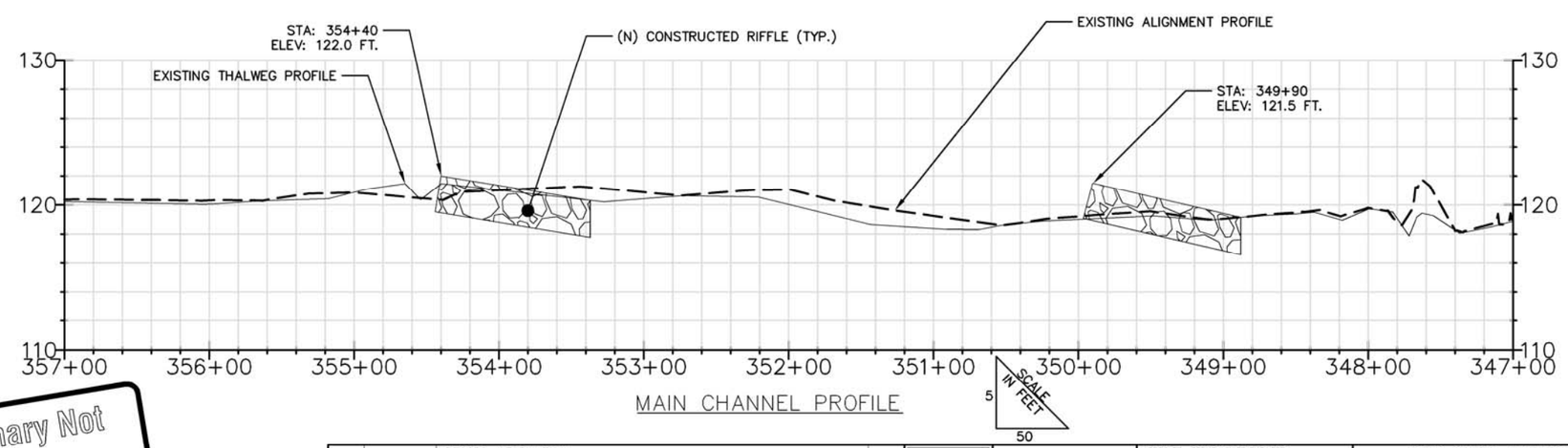

MAIN CHANNEL PROFILE

Preliminary Not For Construction

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/7/11
DRAWN : JT
CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

MAIN CHANNEL PLAN AND PROFILE
STA: 347+00 TO 357+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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LOG JAM 1/30

DRY CREEK ALIGNMENT

DRY CREEK

FLOODPLAIN LWD (TYP.) 2/30

TYPICAL FLOODPLAIN LWD 2/30

8 INCH DIAMETER DUCTILE IRON PIPE
INLET I.E. = 121.0
OUTLET I.E. = 121.0

BANK STABILIZATION, TYPE 1, (TYP.) 1/26

BACKWATER CHANNEL LWD (TYP.) 1/31

POOL ENHANCEMENT LWD (TYP.) 2/31

OFF CHANNEL ENHANCEMENT AREA C
SEE SHEET 16 FOR DETAILED GRADING PLAN

BANK STABILIZATION, TYPE 4, (TYP.) 1/27 TO 3/28

(N) CONSTRUCTED RIFFLE (TYP.) 2/21

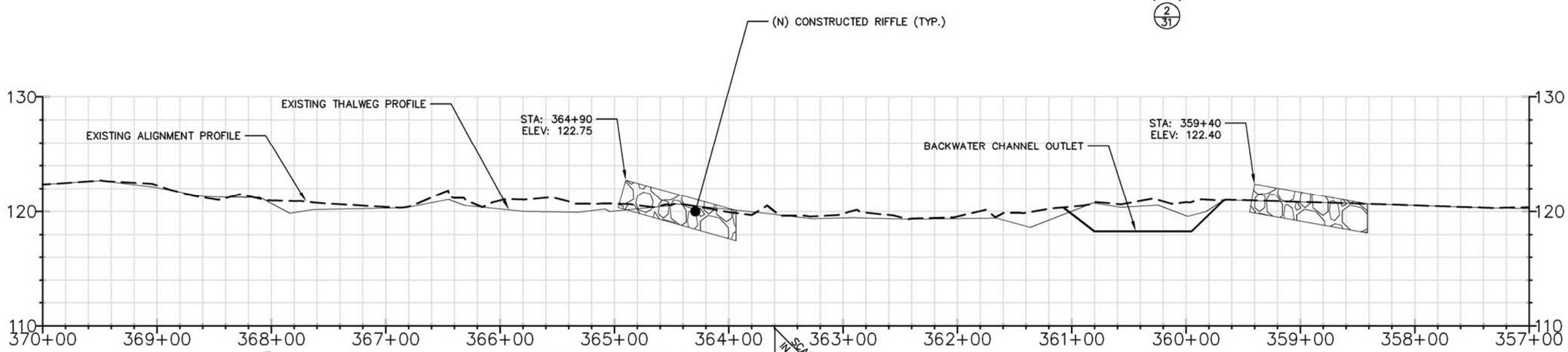
EDGE OF WATER, MAY 2010 (TYP.)

CONSTRUCTION EASEMENT (TYP.)

372+00 370+00 368+00 366+00 364+00 362+00 360+00 358+00

STA: 369+03 3/24
STA: 367+11
STA: 366+43
STA: 365+45
STA: 365+10
STA: 364+84 3/23
STA: 363+54
STA: 362+93
STA: 362+40
STA: 361+81
STA: 361+45
STA: 361+04
STA: 360+71
STA: 360+32
STA: 360+01
STA: 359+28 2/23

SCALE IN FEET: 50 0 50 100 600



MAIN CHANNEL PROFILE

Preliminary Not For Construction

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

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APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

MAIN CHANNEL PLAN AND PROFILE
STA: 357+00 TO 370+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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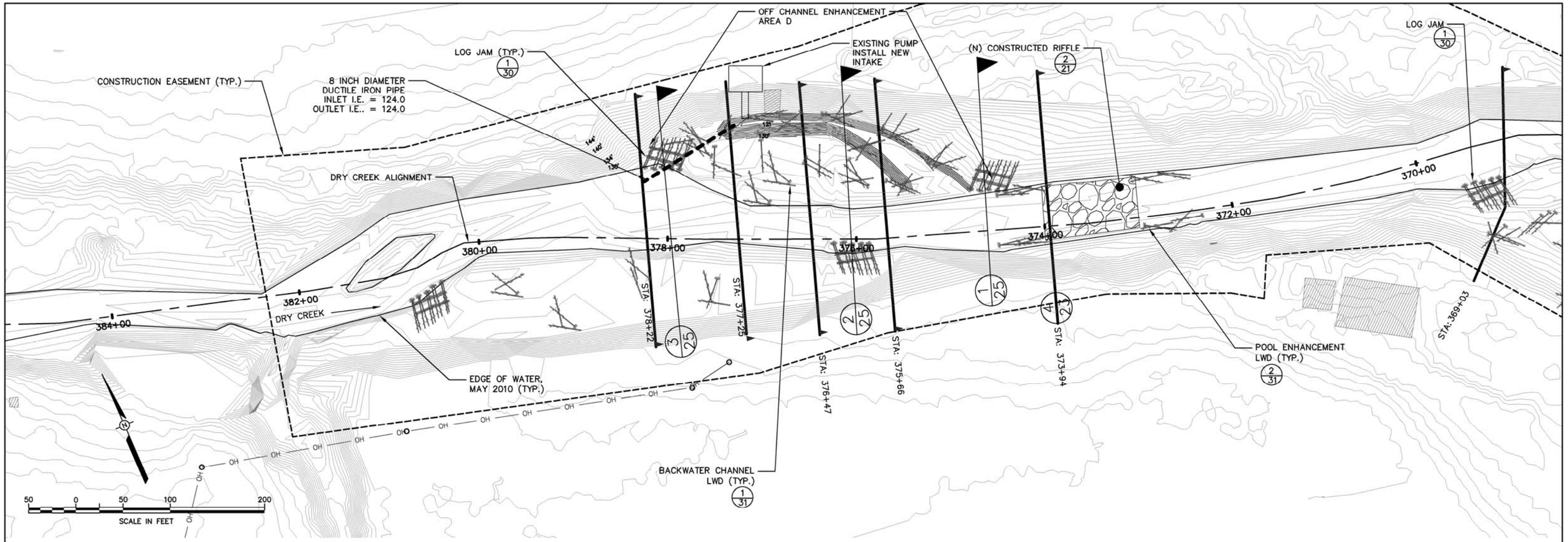

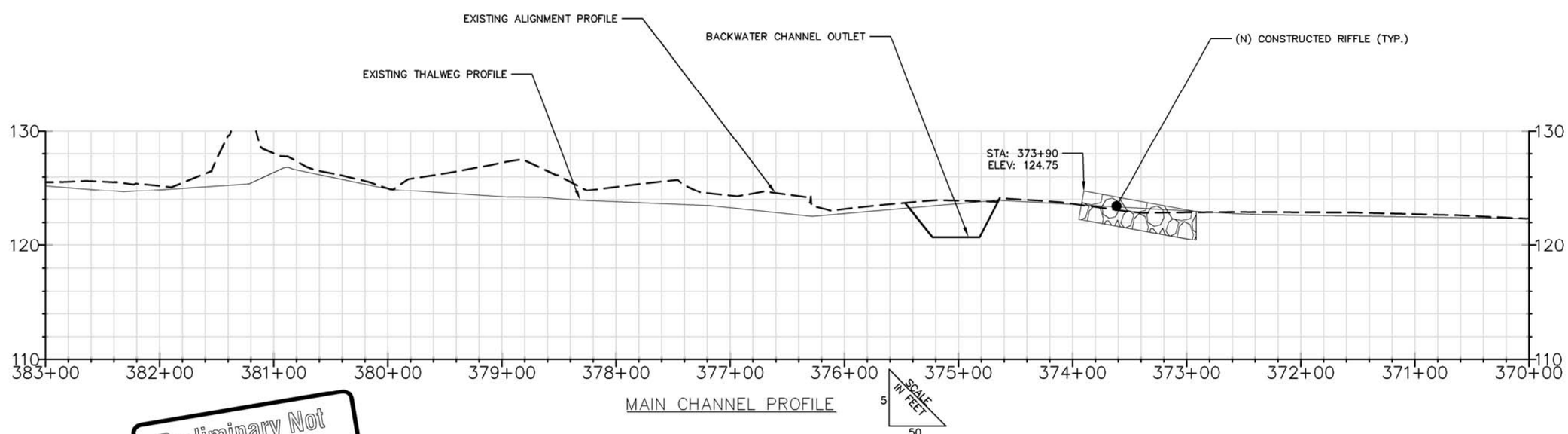

MAIN CHANNEL PROFILE

Preliminary Not For Construction

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

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Hood River, OR 97031
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NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/7/11
DRAWN : JT
CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

MAIN CHANNEL PLAN AND PROFILE
STA: 370+00 TO 383+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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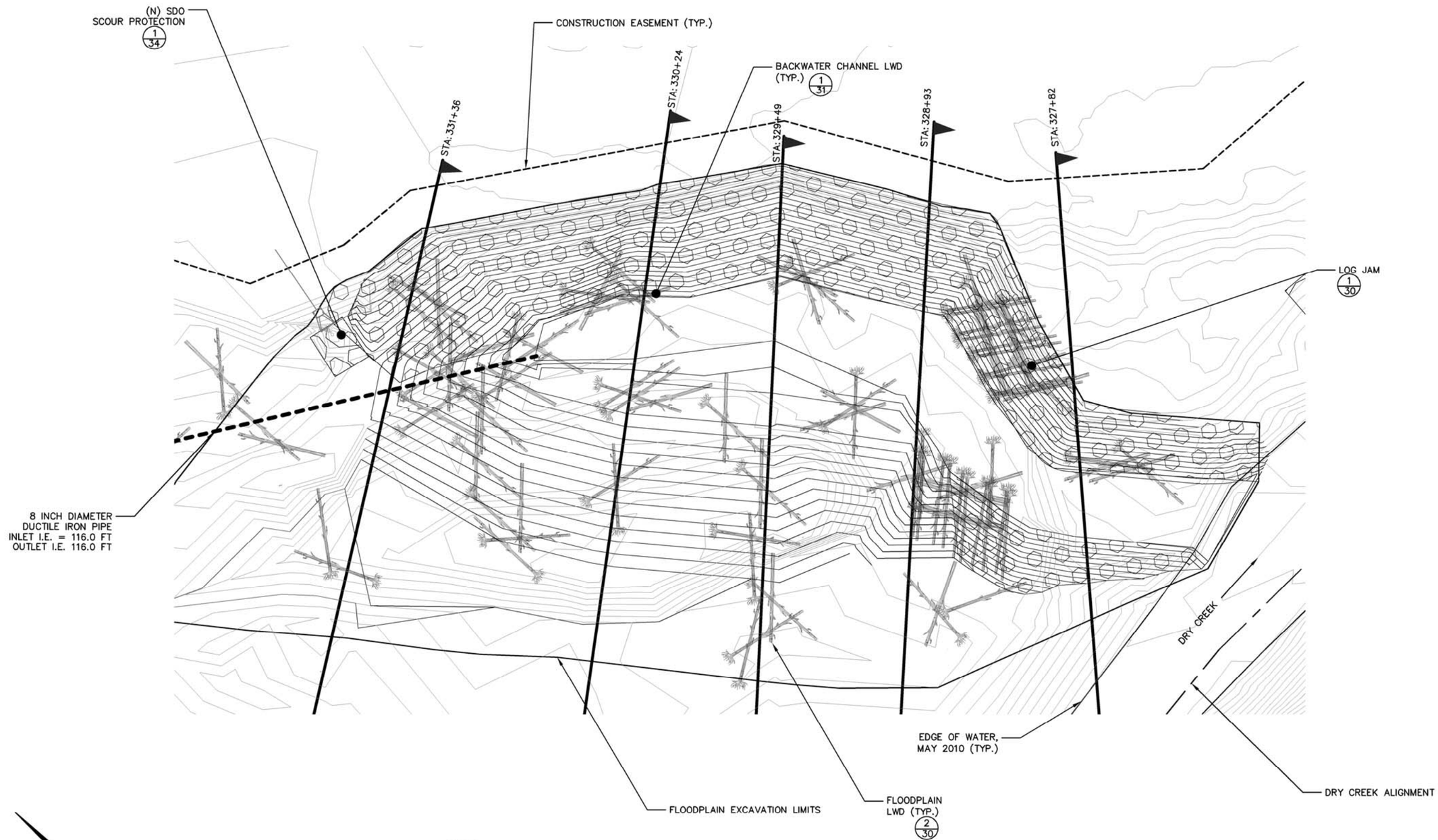

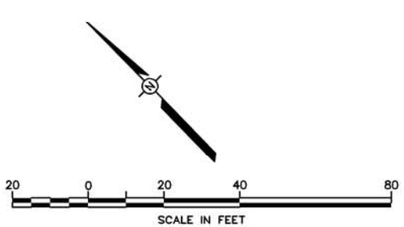

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Hood River, OR 97031
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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE:	
DATE :	10/7/11
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CHECKED :	MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
DETAIL GRADING PLAN
OFF CHANNEL ENHANCEMENT
AREA A

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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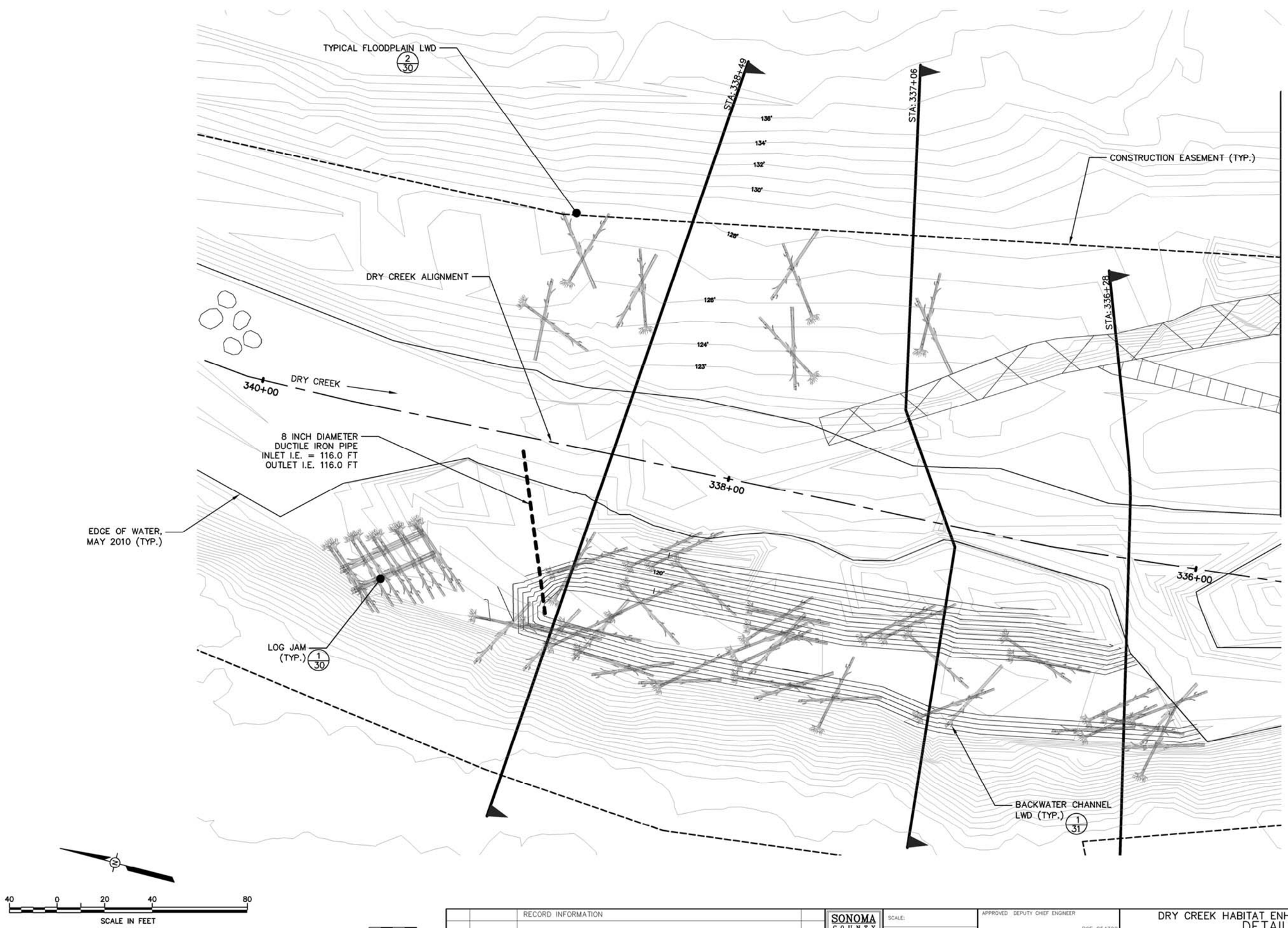

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE:	
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DRAWN :	JT
CHECKED :	MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
DETAIL GRADING PLAN
OFF CHANNEL ENHANCEMENT
AREA B

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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DRY CREEK ALIGNMENT

366+00

364+00

DRY CREEK

362+00

360+00

8 INCH DIAMETER
DUCTILE IRON PIPE
INLET I.E. = 121.0
OUTLET I.E. = 121.0

EDGE OF WATER,
MAY 2010 (TYP.)

TYPICAL
FLOODPLAIN
LWD (TYP.)
2/30

BACKWATER CHANNEL
LWD (TYP.) 1/31

STA: 366+43
STA: 365+45
STA: 365+10
STA: 364+84
STA: 363+54
STA: 362+93
STA: 362+40
STA: 361+81
STA: 361+04
STA: 361+04
STA: 360+71
STA: 360+32
STA: 360+01

CONSTRUCTION EASEMENT (TYP.)

20 0 20 40 80
SCALE IN FEET

Preliminary Not
For Construction

BAR LENGTH ON ORIGINAL
DRAWING EQUALS ONE INCH.
ADJUST SCALE ACCORDINGLY

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE:
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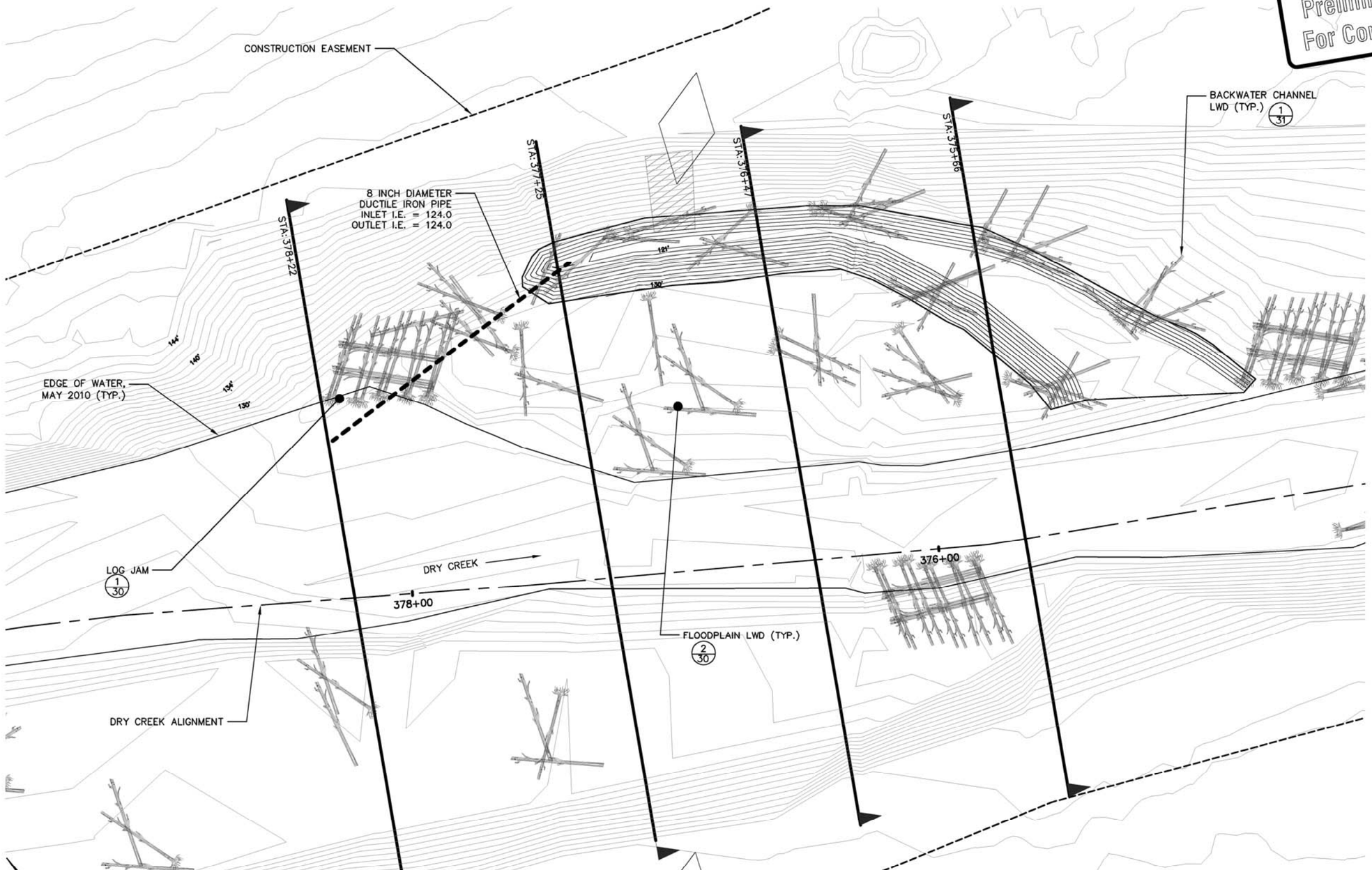
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
DETAIL GRADING PLAN
OFF CHANNEL ENHANCEMENT
AREA C

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

Preliminary Not For Construction



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SCALE IN FEET

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE: 1" = 20'
DATE : 10/7/11
DRAWN : JT
CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
DETAIL GRADING PLAN
OFF CHANNEL ENHANCEMENT
AREA D

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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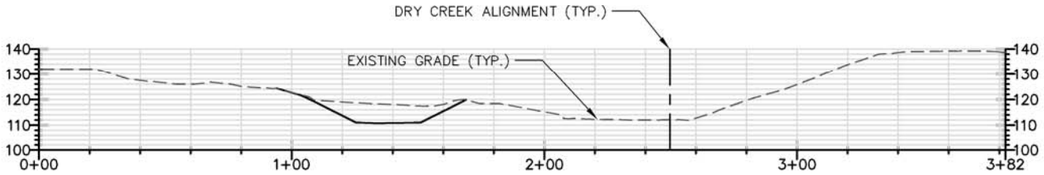
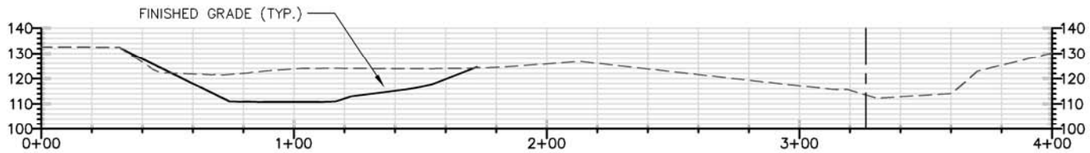


STA: 327+82



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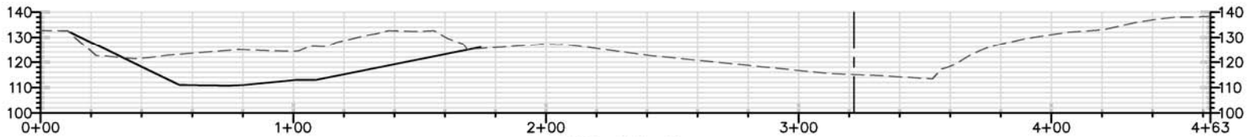
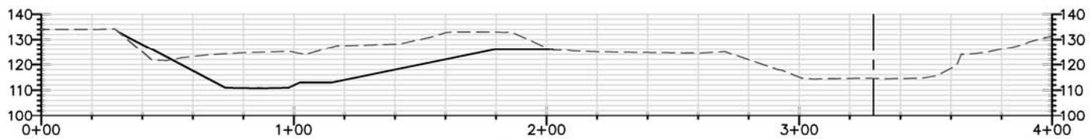


STA: 329+49



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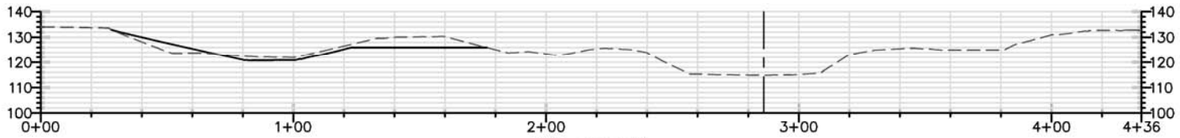

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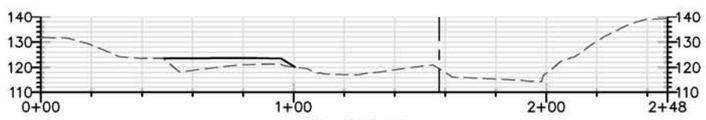

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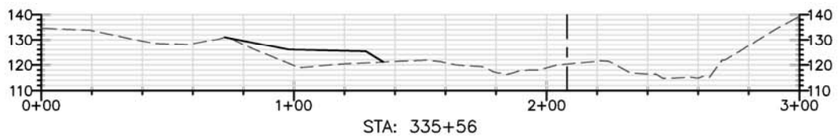
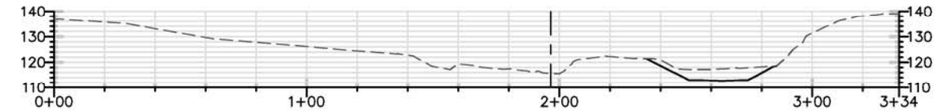


STA: 335+56

STA: 336+28



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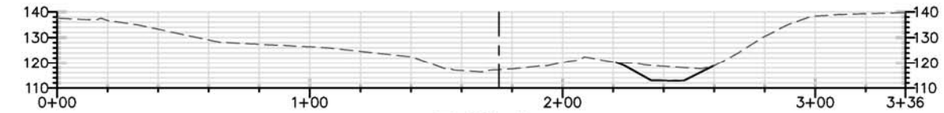
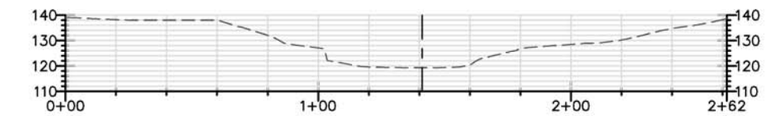
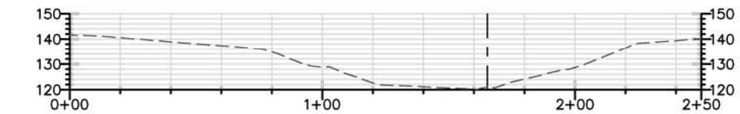


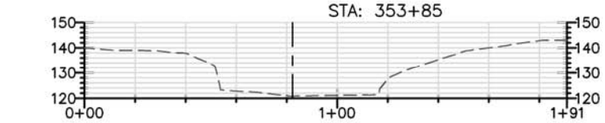
STA:338+49



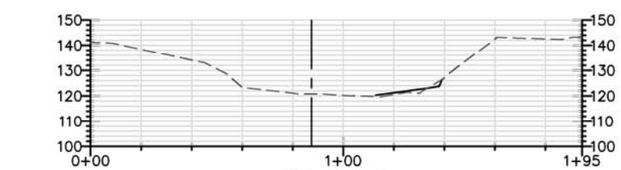
STA: 348+88



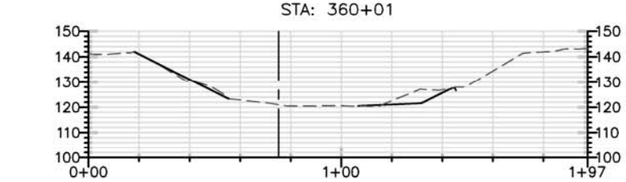
STA: 353+85



STA: 359+50



STA: 360+01



STA: 360+32

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SONOMA COUNTY WATER AGENCY

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DATE : 10/7/11
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CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

GRADING CROSS-SECTIONS

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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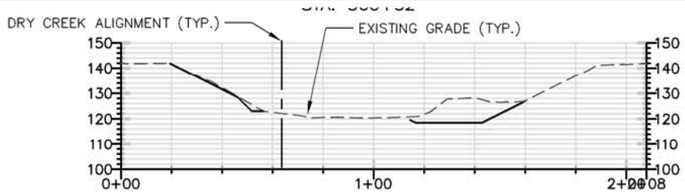
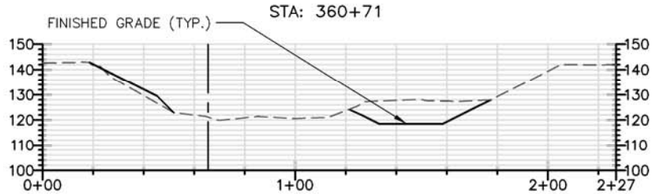
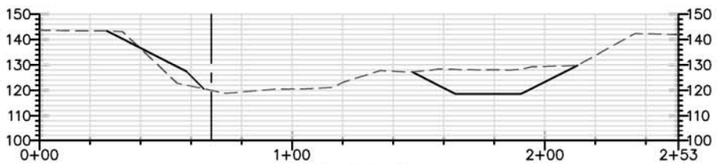


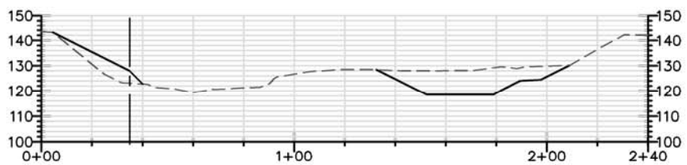
STA: 360+71



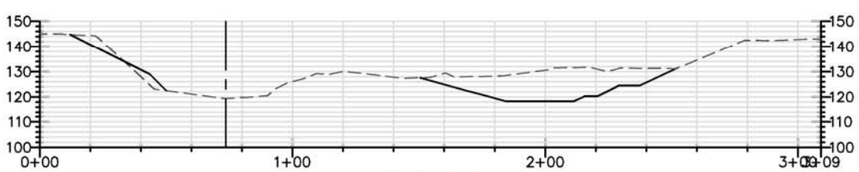
STA: 361+04



STA: 361+45



STA: 361+81



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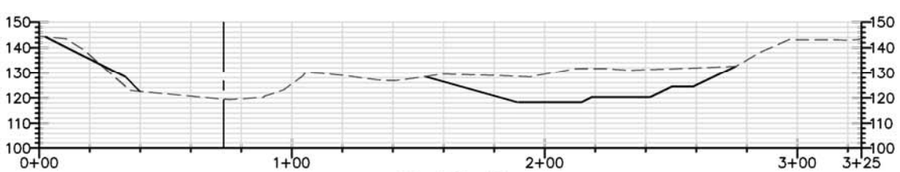
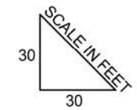
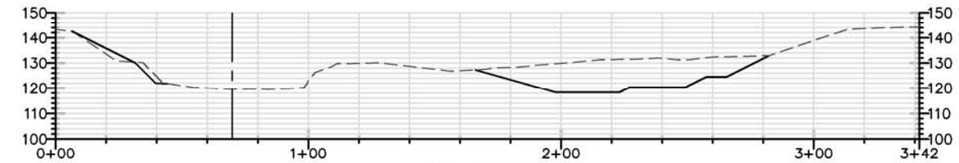
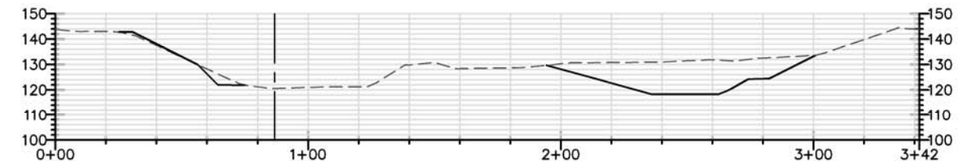


STA: 362+93

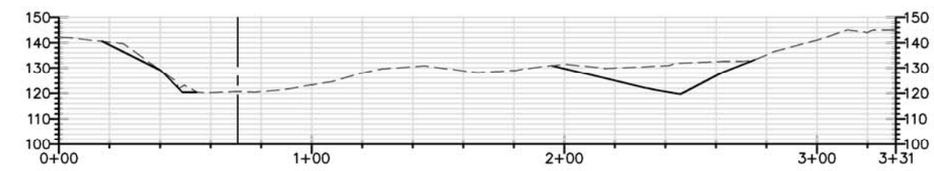




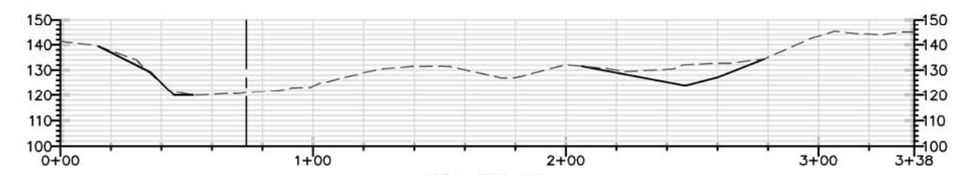
STA: 363+54



STA: 364+84



STA: 365+10



STA: 365+45

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SONOMA COUNTY WATER AGENCY

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APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

GRADING CROSS-SECTIONS

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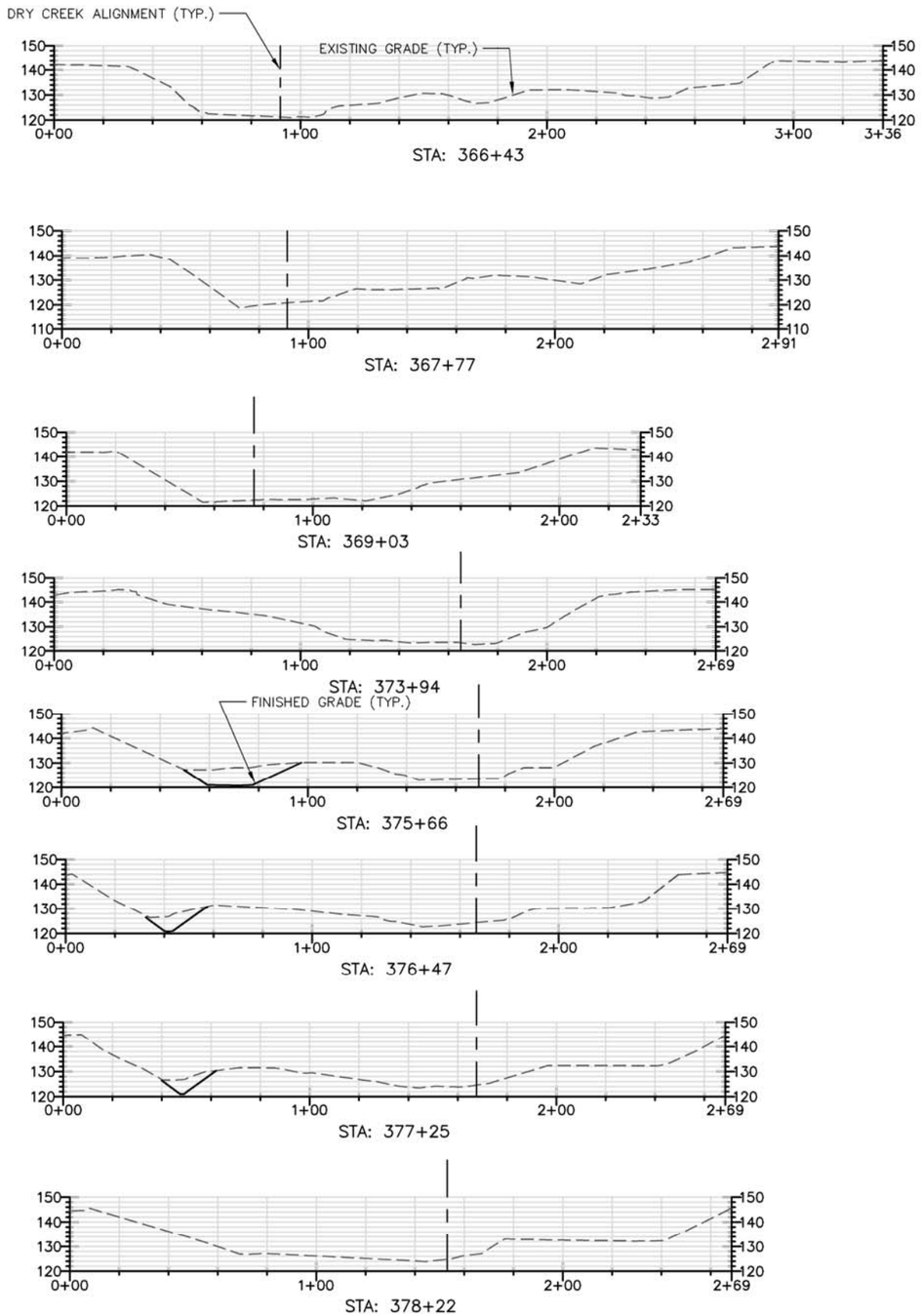

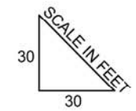

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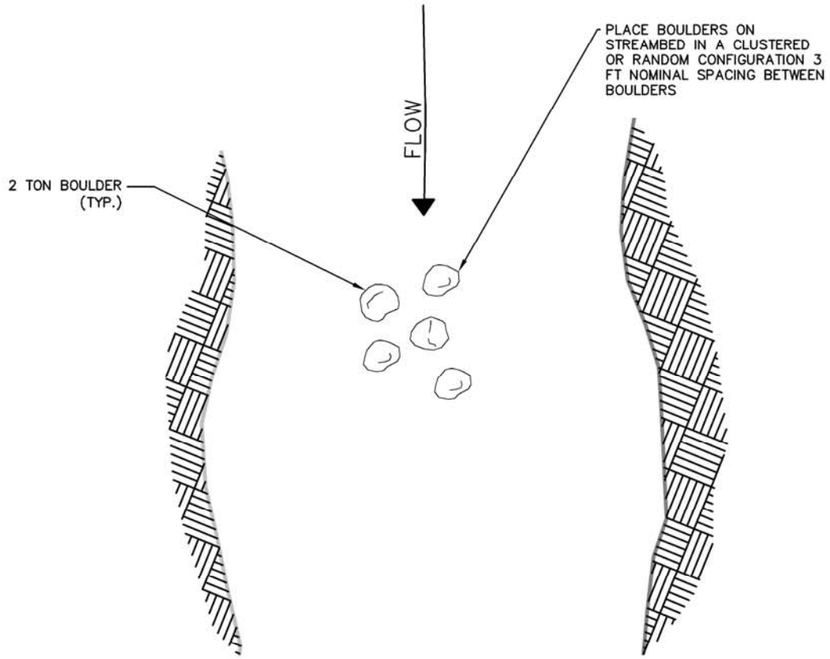
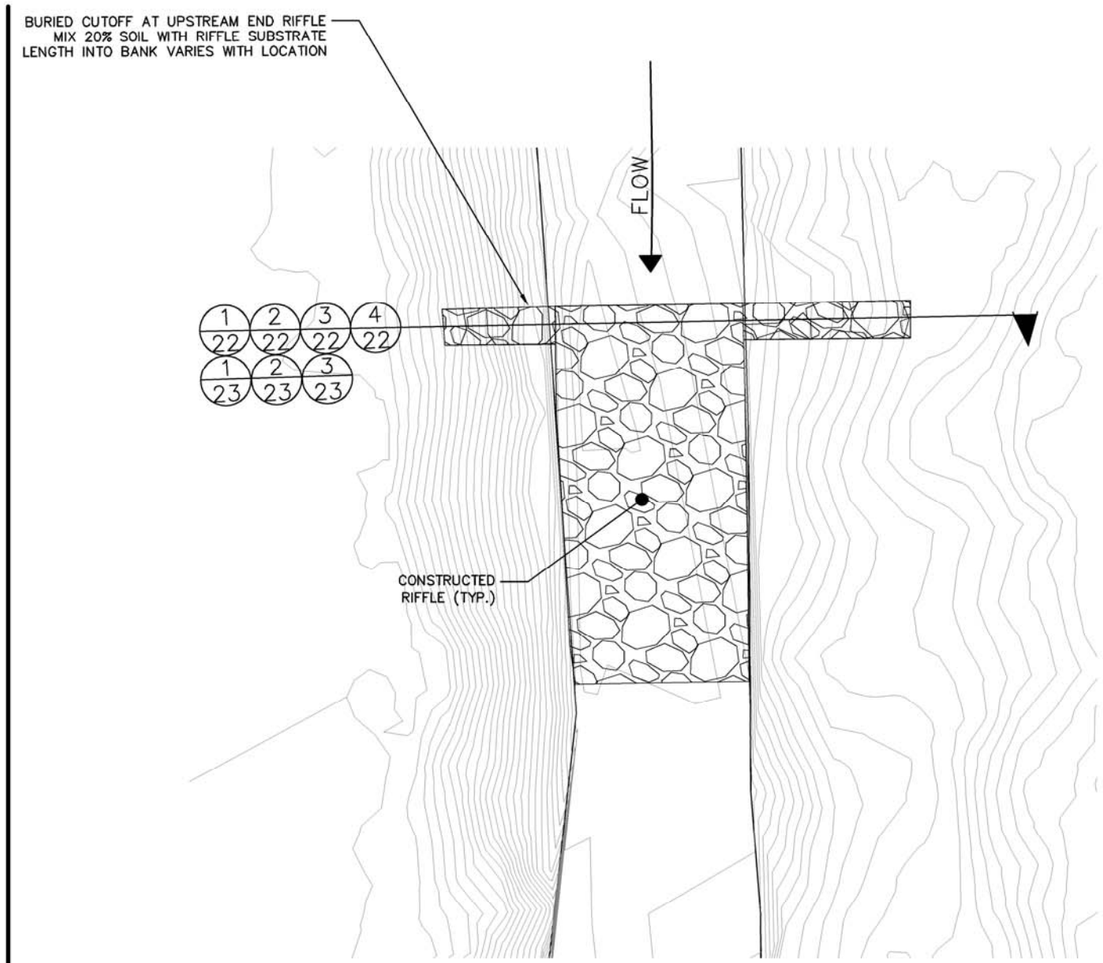


NOTE:

1. FINAL LOCATION, ALIGNMENT AND CONFIGURATION OF BOULDER CLUSTERS TO BE CONFIRMED AT TIME OF CONSTRUCTION, APPROVAL BY OWNER.

1/10 PLAN VIEW
TYPICAL BOULDER CLUSTER
SCALE: 1" = 10'



2/9 2/11 2/12 2/13 PLAN VIEW
TYPICAL RIFFLE CONSTRUCTION

20 0 20 40 80
SCALE IN FEET

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPICAL DETAILS
BOULDER CLUSTER AND CONSTRUCTED RIFFLE

FILE NAME:
CONTRACT NUMBER:
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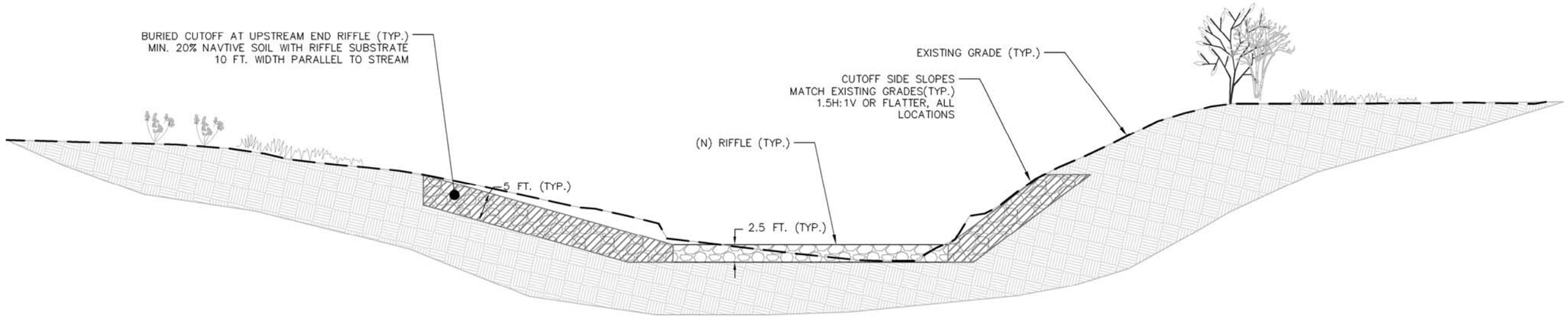
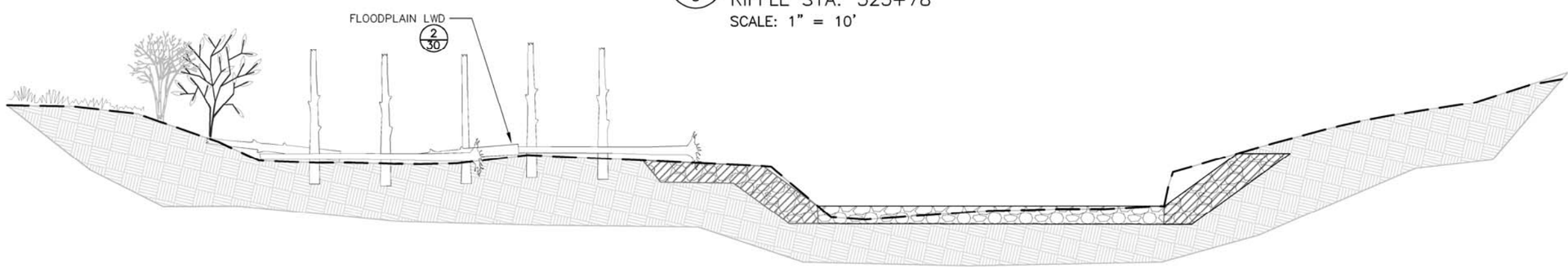
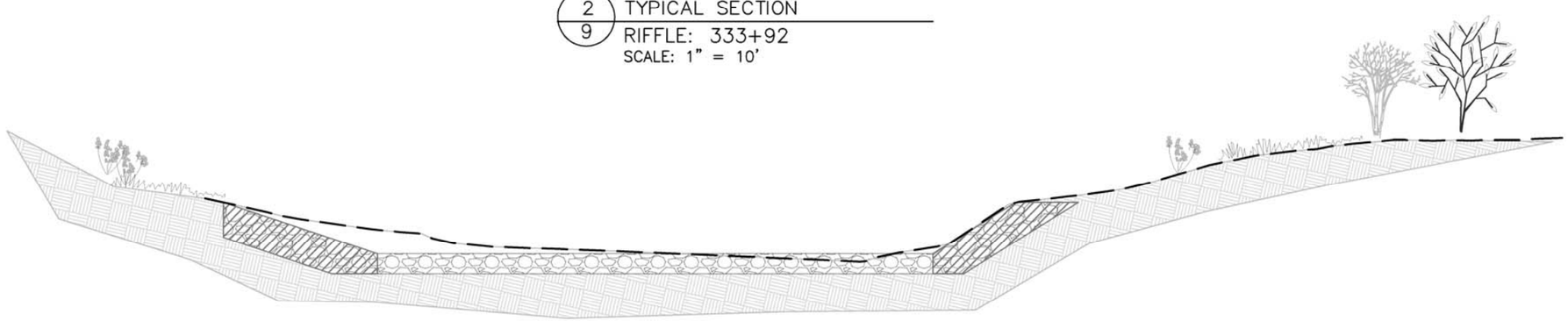


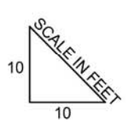
1/9 TYPICAL SECTION
RIFFLE STA: 325+78
SCALE: 1" = 10'



2/9 TYPICAL SECTION
RIFFLE: 333+92
SCALE: 1" = 10'



3/11 TYPICAL SECTION
RIFFLE STA: 349+93
SCALE: 1" = 10'



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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPICAL SECTIONS
CONSTRUCTED RIFFLES STA: 325+78 TO 349+93

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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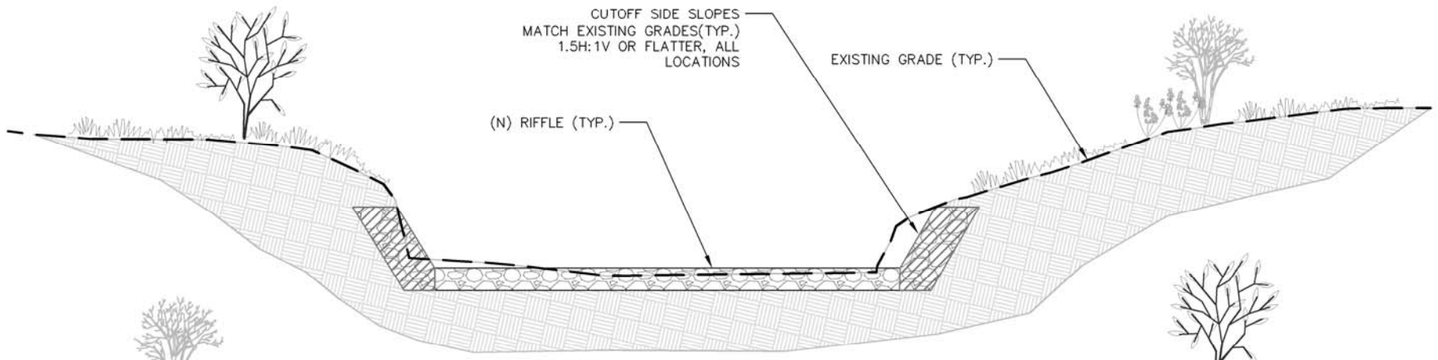
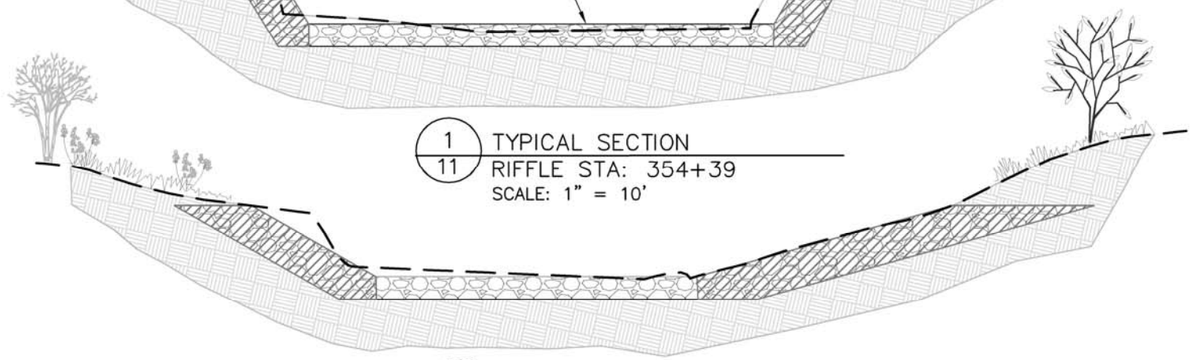
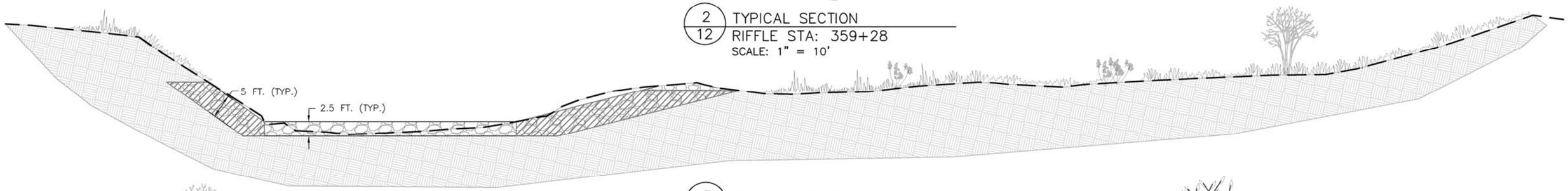


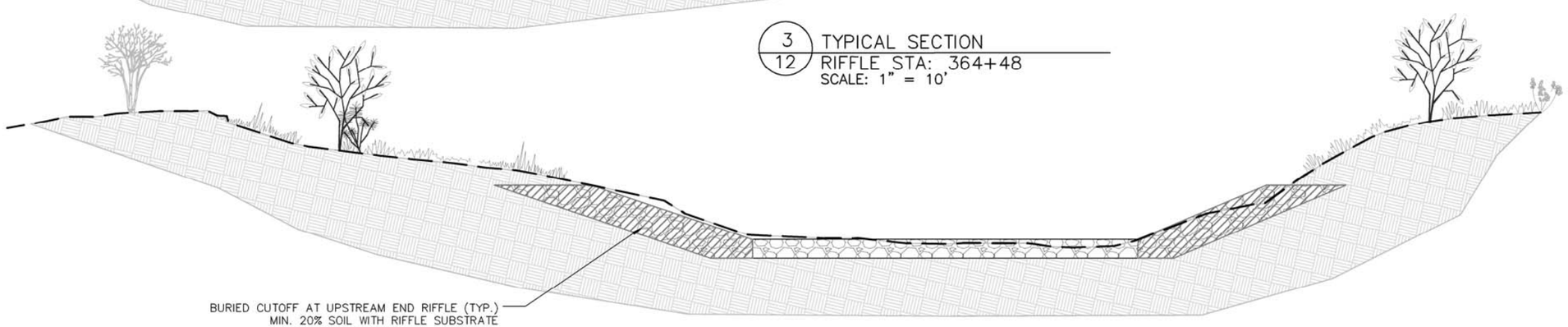
1/11 TYPICAL SECTION
RIFFLE STA: 354+39
SCALE: 1" = 10'



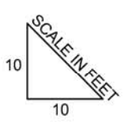
2/12 TYPICAL SECTION
RIFFLE STA: 359+28
SCALE: 1" = 10'



3/12 TYPICAL SECTION
RIFFLE STA: 364+48
SCALE: 1" = 10'



4/13 TYPICAL SECTION
RIFFLE STA: 373+86
SCALE: 1" = 10'



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DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPICAL SECTIONS
CONSTRUCTED RIFFLES STA: 354+39 TO 373+86

FILE NAME:
CONTRACT NUMBER:
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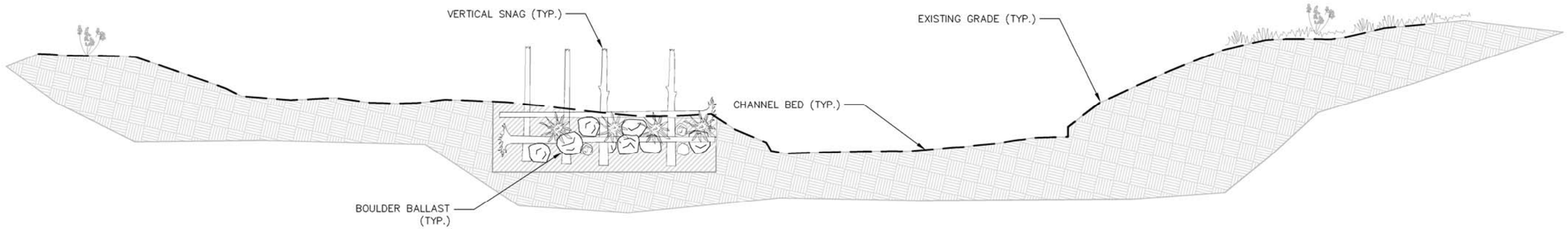
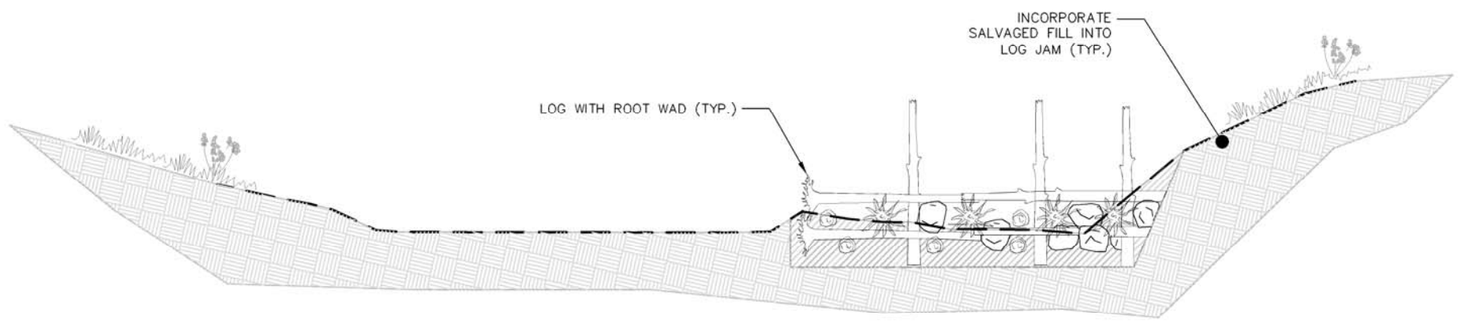
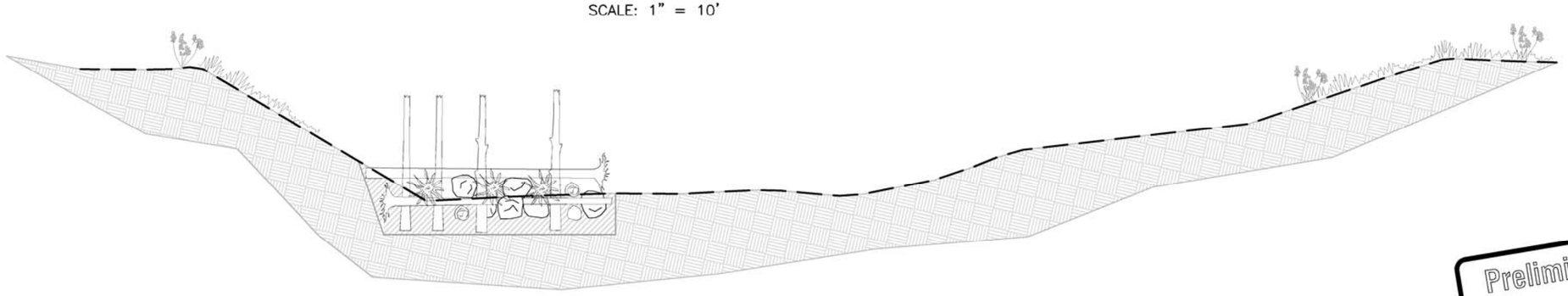


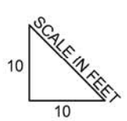
1/9 TYPICAL SECTION
LOG JAM STA: 334+30
SCALE: 1" = 10'



2/9 TYPICAL SECTION
LOG JAM STA: 339+00
SCALE: 1" = 10'



3/12 TYPICAL SECTION
LOG JAM STA: 369+03
SCALE: 1" = 10'



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SONOMA COUNTY WATER AGENCY

SCALE: 1" = 30'
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APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPICAL SECTIONS
LOG JAMS STA: 334+30 TO 369+03

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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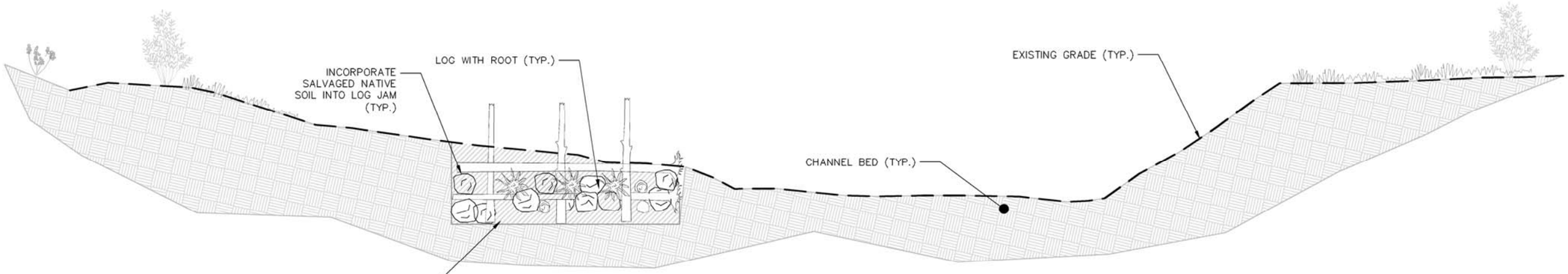
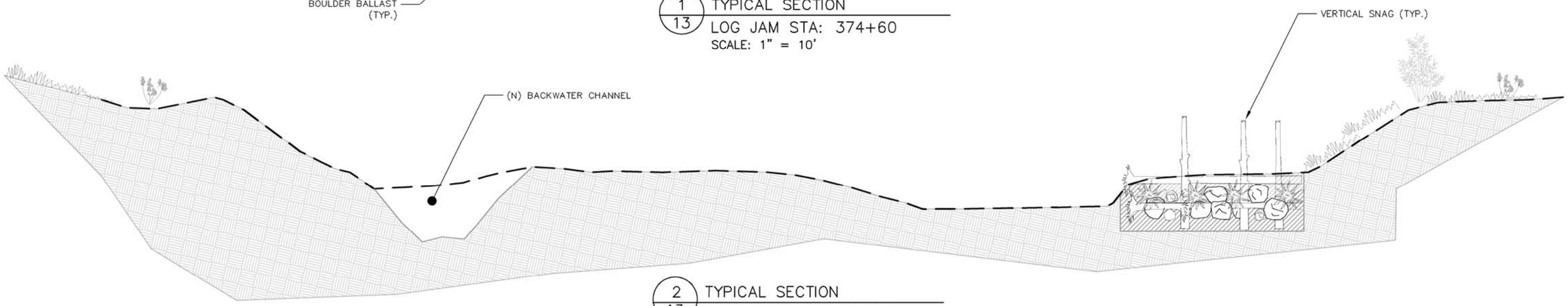
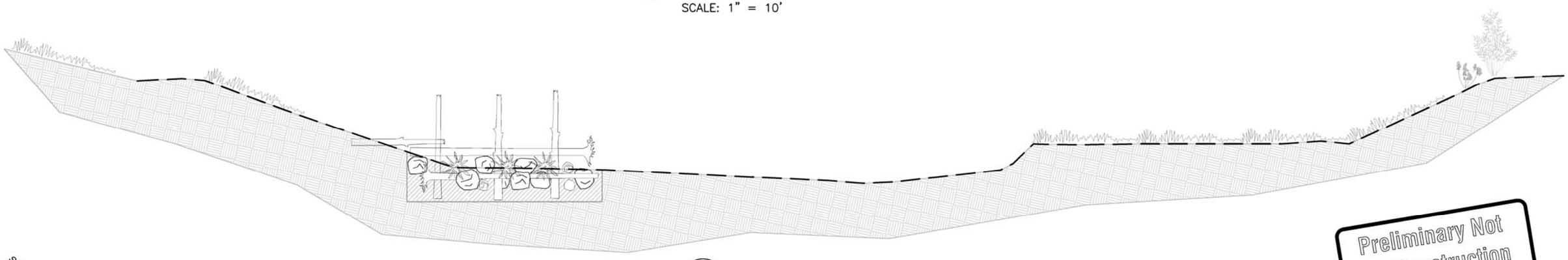


1/13 TYPICAL SECTION
LOG JAM STA: 374+60
SCALE: 1" = 10'



2/13 TYPICAL SECTION
LOG JAM STA: 376+05
SCALE: 1" = 10'



3/13 TYPICAL SECTION
LOG JAM STA: 378+01
SCALE: 1" = 10'

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SCALE IN FEET
10
10

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DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPICAL SECTIONS
LOG JAMS STA: 374+60 TO 378+01

FILE NAME:
CONTRACT NUMBER:
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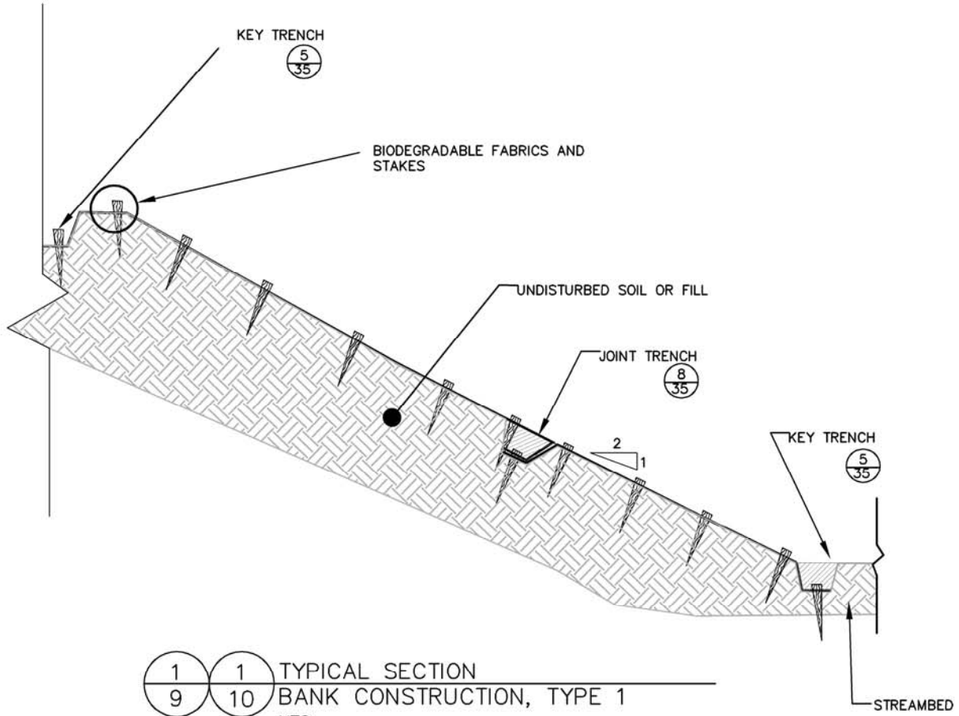
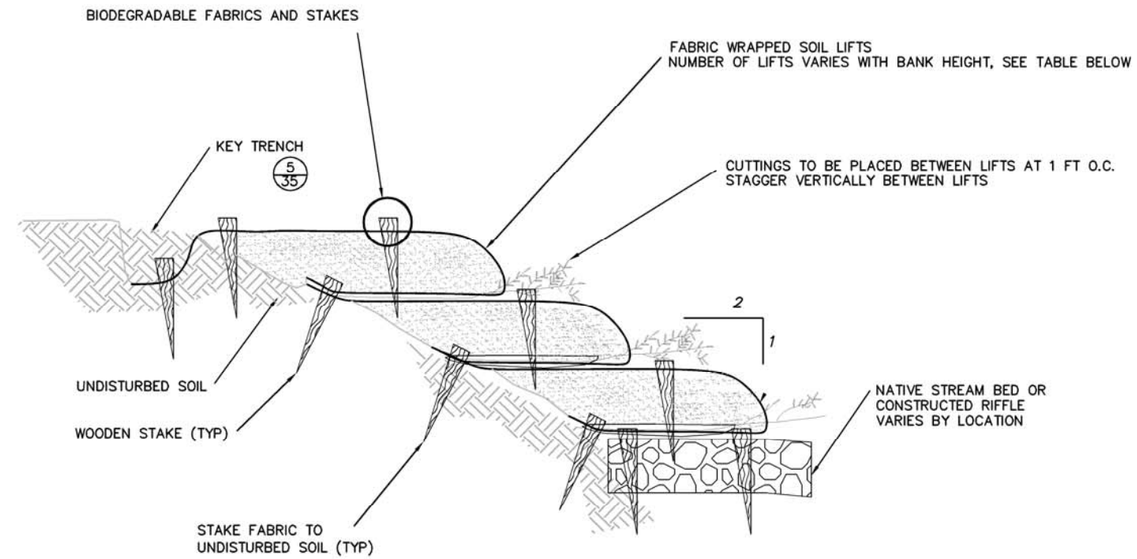


1/9 1/10 TYPICAL SECTION
BANK CONSTRUCTION, TYPE 1
NTS



TYPE 2 BANK NOTES:

1. BANKS TO BE CONSTRUCTED WITH FABRIC WRAPPED SOIL LIFTS VARY IN HEIGHT FROM 4' TO 8'
2. SEE TABLE AT RIGHT TO DETERMINE NUMBER OF LIFTS REQUIRED TO TREAT BANKS OF VARYING HEIGHTS.
3. TOP LIFT SHALL BE 12 TO 18 INCHES HIGH AND CONSTRUCTED USING 13 FEET WIDE FABRICS.
4. MIDDLE LIFTS SHALL BE 12 TO 18 INCHES HIGH AND CONSTRUCTED USING 10 FEET WIDE FABRICS.
5. BOTTOM LIFT SHALL BE 12–18 INCHES HIGH AND CONSTRUCTED USING 13 FEET WIDE FABRICS.

TOTAL VERTICAL BANK HEIGHT (FT)	NUMBER OF LIFTS
1.0 TO 1.5	1
1.6 TO 3.0	2
3.1 TO 4.5	3
4.6 TO 6.0	4
6.1 TO 7.5	5
7.6 TO 9.0	6

2/9 TYPICAL SECTION
BANK CONSTRUCTION, TYPE 2
NTS

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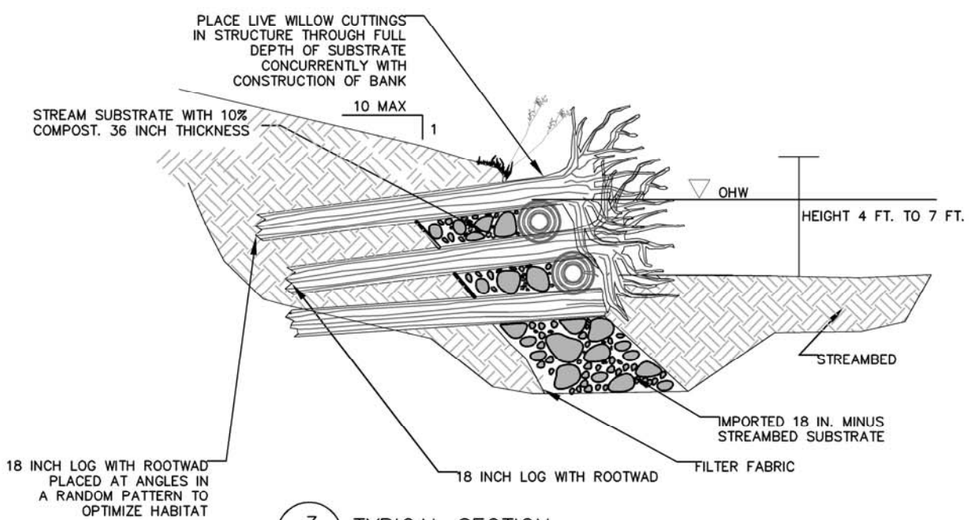

3/9 TYPICAL SECTION
BANK CONSTRUCTION, TYPE 3
NTS

inter-fluve
1020 Wasco Street, Suite I
Hood River, OR 97031
541.386.9003
www.interfluve.com

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE: 1" = 100'
DATE: 10/7/11
DRAWN: JT
CHECKED: MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPE 1–3 BANK CONSTRUCTION DETAILS

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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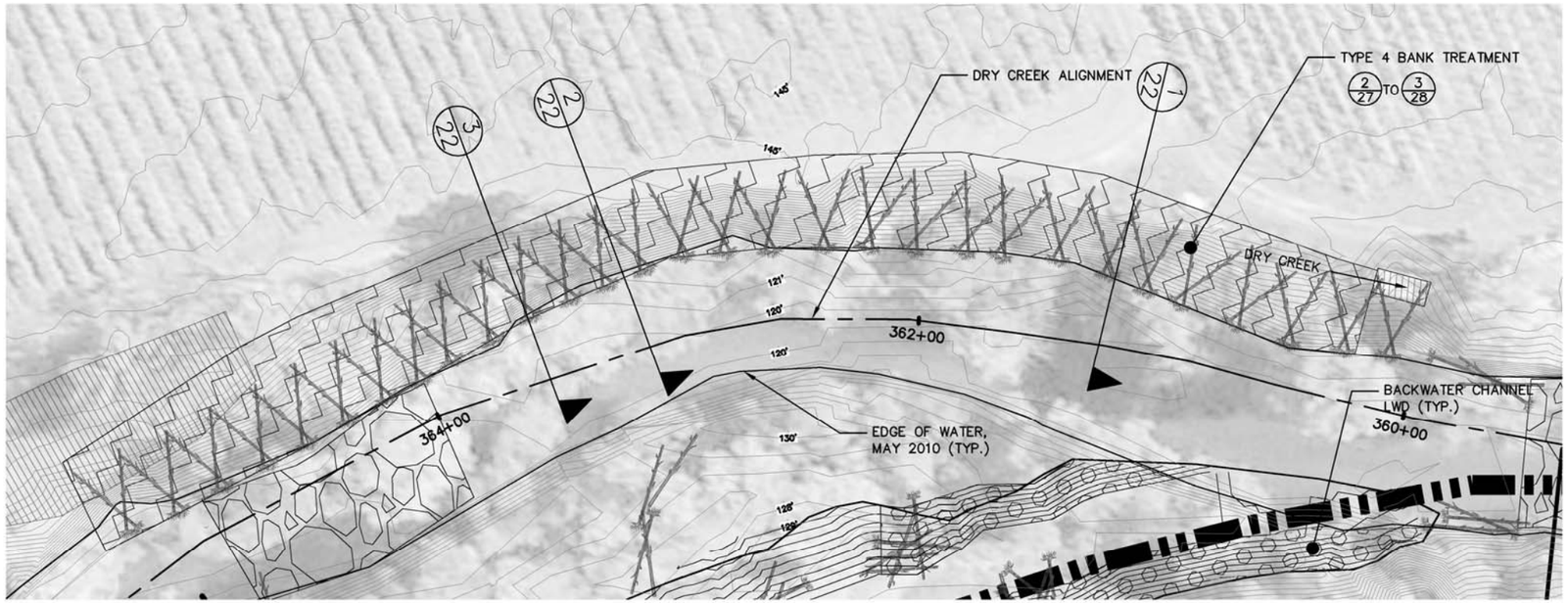
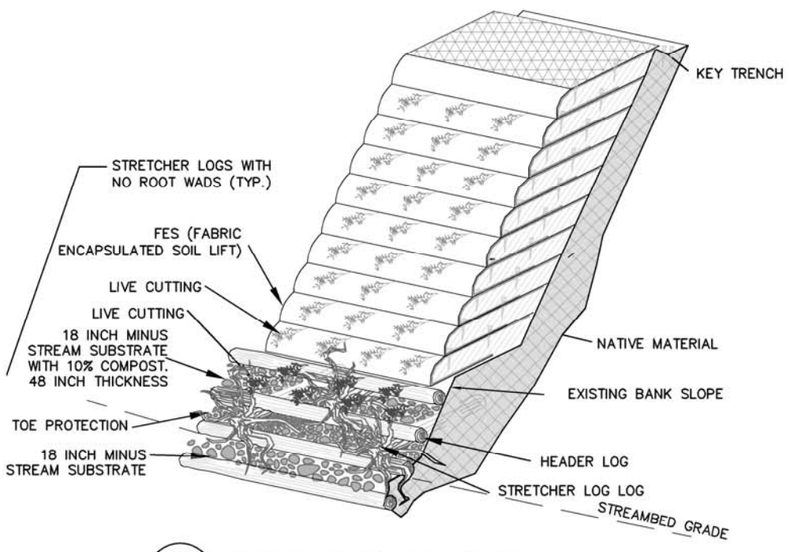
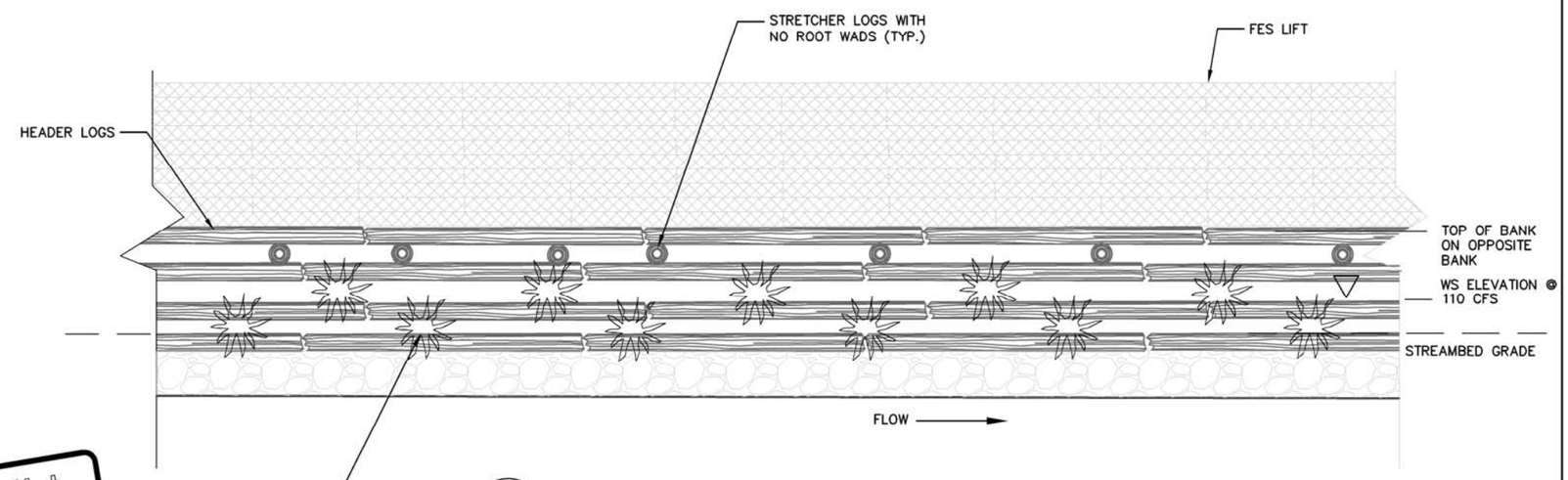


1/12 TYPICAL DETAIL PLAN VIEW
BANK CONSTRUCTION, TYPE 4
NTS

30 0 30 60 120
SCALE IN FEET



2/– TYPICAL ISOMETRIC VIEW
BANK CONSTRUCTION, TYPE 4
NTS



3/– TYPICAL ELEVATION VIEW
BANK CONSTRUCTION, TYPE 4
NTS

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SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/7/11
DRAWN : JT
CHECKED : MB

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPE 4 BANK
CONSTRUCTION DETAILS

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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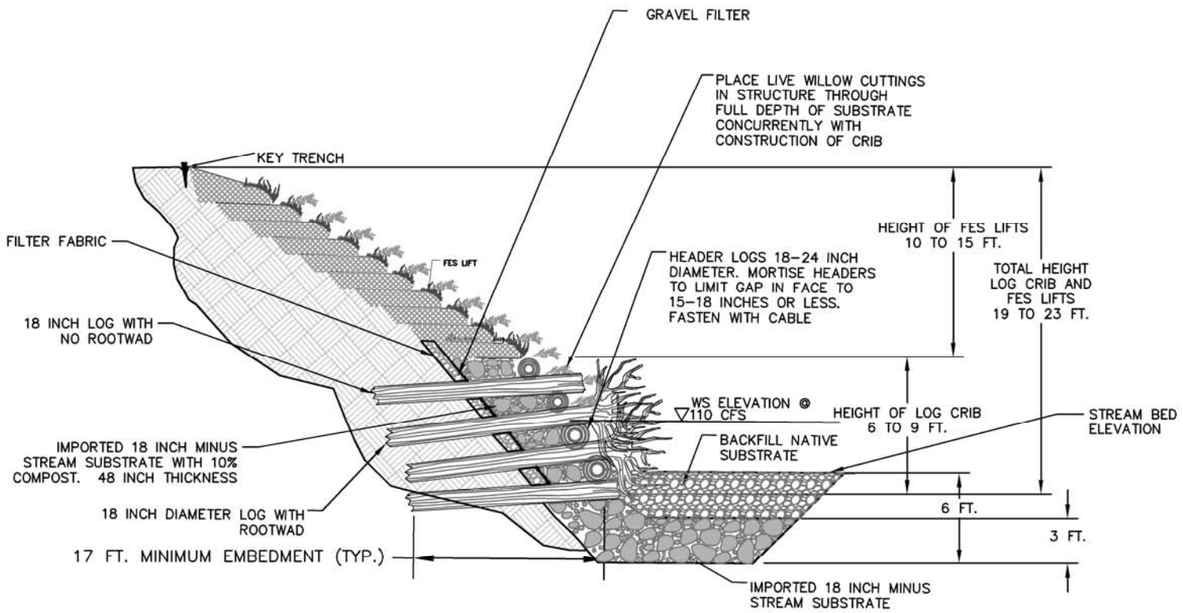
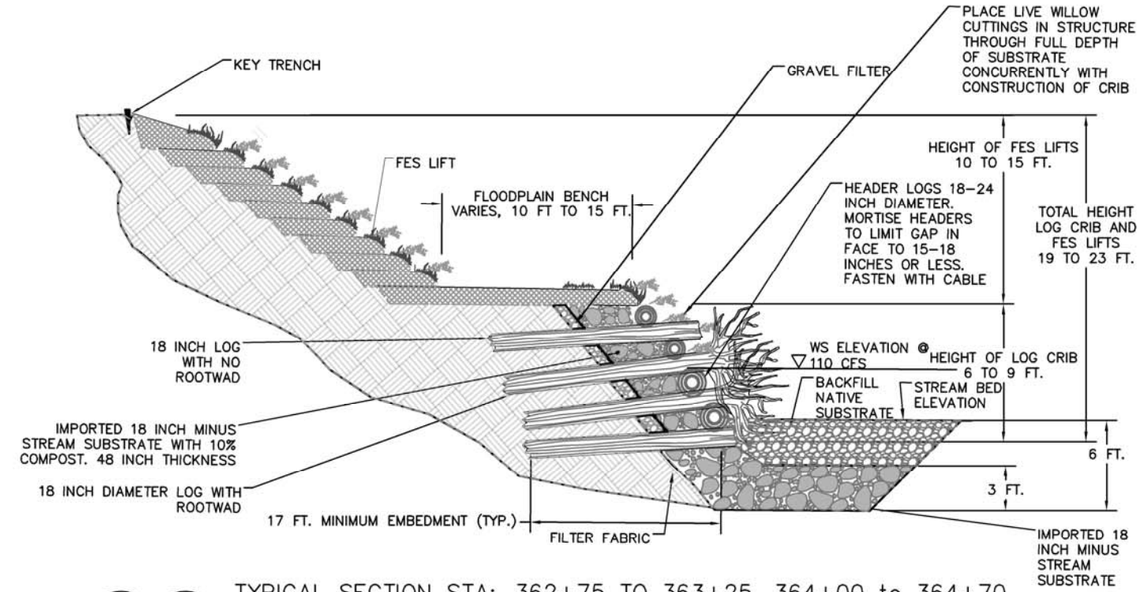


12 / – 27 / –

TYPICAL SECTION STA: 360+25 TO 360+70, 361+00 TO 362+75, 364+70 TO 365+50

BANK CONSTRUCTION, TYPE 4

SCALE: 1" = 5'

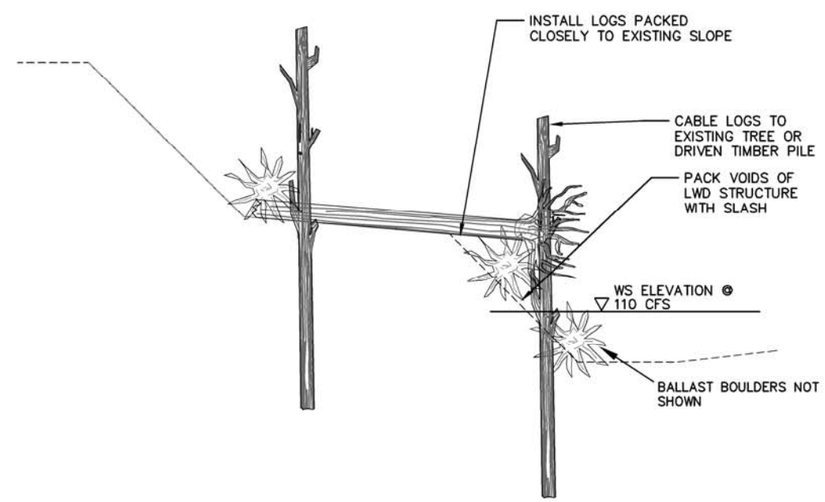


12 / – 27 / –

TYPICAL SECTION STA: 362+75 TO 363+25, 364+00 to 364+70, 660+70 to 361+00

BANK CONSTRUCTION, TYPE 4

SCALE: 1" = 5'



12 / – 27 / –

TYPICAL SECTION STA: 363+25 TO 364+00

BANK CONSTRUCTION TYPE 4

SCALE: 1" = 5'

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

TYPE 4 BANK CONSTRUCTION DETAILS

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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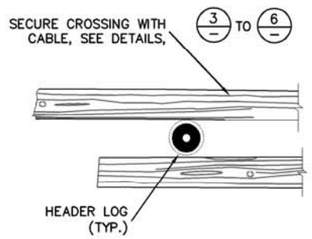
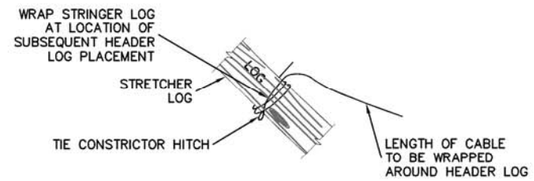
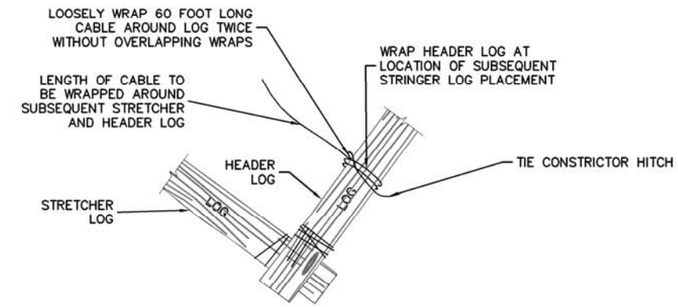


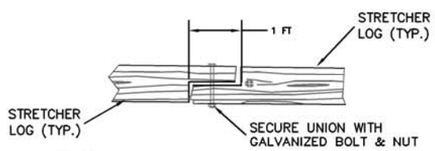
1 TYPICAL DETAIL
STRETCHER SADDLE JOINT
NTS



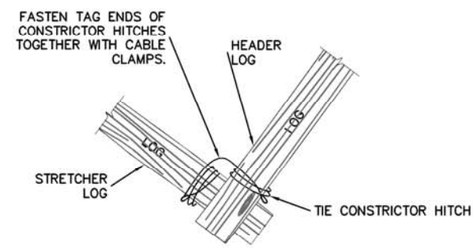
3 TYPICAL DETAIL
CABLE WRAP SEQUENCE 1
NTS



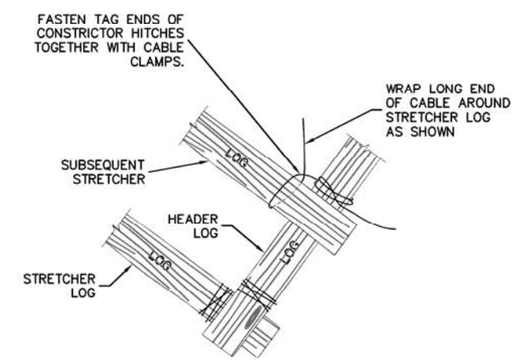
5 TYPICAL DETAIL
CABLE WRAP SEQUENCE 3
NTS



2 TYPICAL DETAIL
STRETCHER UNION
NTS



4 TYPICAL DETAIL
CABLE WRAP SEQUENCE 2
NTS



6 TYPICAL DETAIL
CABLE WRAP SEQUENCE 4
NTS

Preliminary Not For Construction

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

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SONOMA COUNTY WATER AGENCY

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APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

TYPE 4 BANK CONSTRUCTION DETAILS
CABLING AND ATTACHMENT

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

inter-fluve
1020 Wasco Street, Suite I
Hood River, OR 97031
541.386.9003
www.inter-fluve.com

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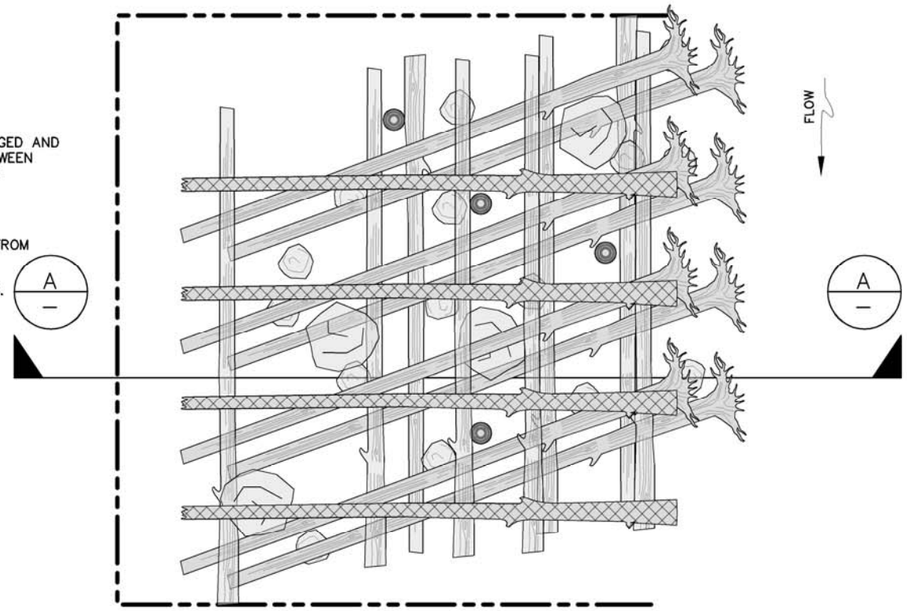
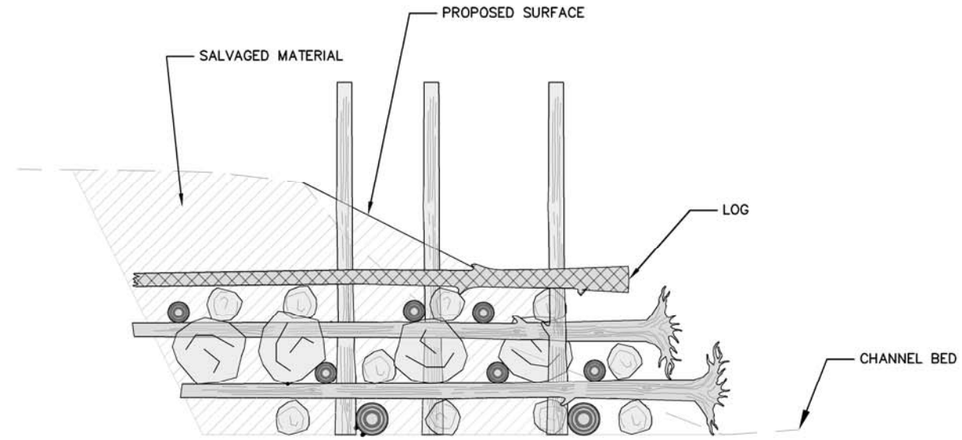
NOTES:

1. EXCAVATED MATERIAL WILL BE SALVAGED AND REPLACED IN JAM TO FILL VOIDS BETWEEN STACKED MEMBERS AND TO INCREASE STRUCTURAL MASS.
2. LOGS TO BE CABLED TO EACH OTHER AND TO BALLAST BOULDERS. CABLE BURRIED A MINIMUM OF 6 FT. BACK FROM EDGE OF CHANNEL.
3. LOGS TO BE CONIFEROUS SPECIES E.G. REDWOOD OR FIR 18 IN. MIN. DBH..



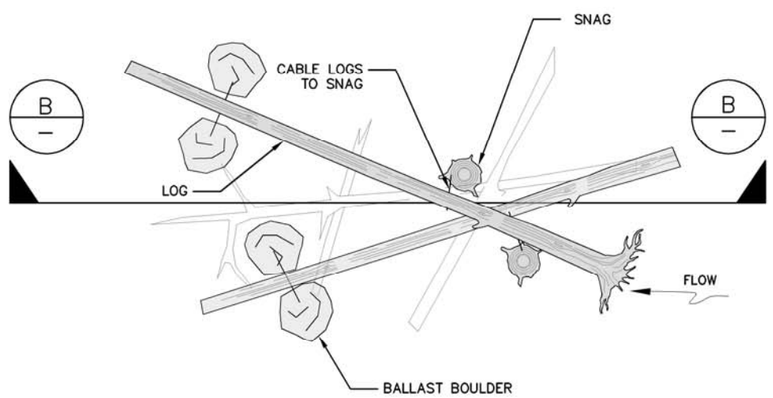
1/9 1/12 1/13 1/14 1/15 1/17 TYPICAL PLAN DETAIL
LOG JAM
NTS



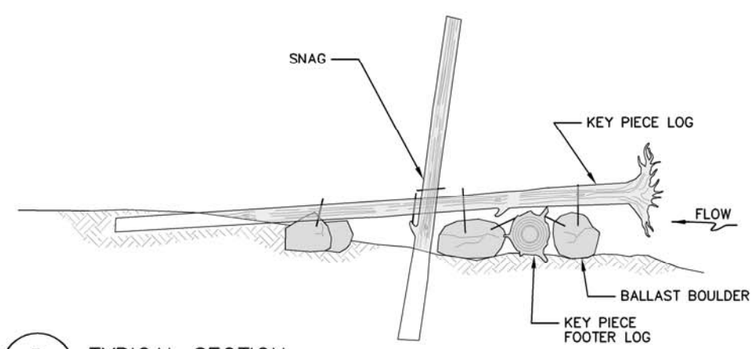
A/– TYPICAL SECTION
LOG JAM
NTS

NOTES

1. SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.
2. BRACING TO EXISTING TREES OR INSTALLED WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE HORIZONTAL STABILITY.



1/9 1/12 1/13 1/14 1/15 1/16 1/17 TYPICAL PLAN DETAIL
FLOODPLAIN LWD
NTS



B/– TYPICAL SECTION
FLOODPLAIN LWD
NTS

Preliminary Not For Construction

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

LWD DETAILS –
LOG JAM AND FLOODPLAIN LWD

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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Hood River, OR 97031
541.386.9003
www.interfluve.com

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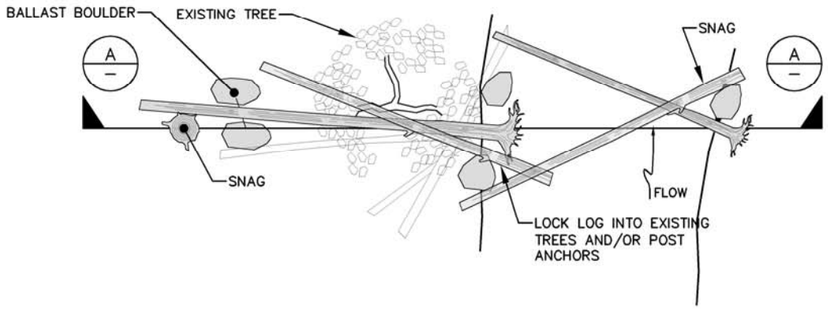
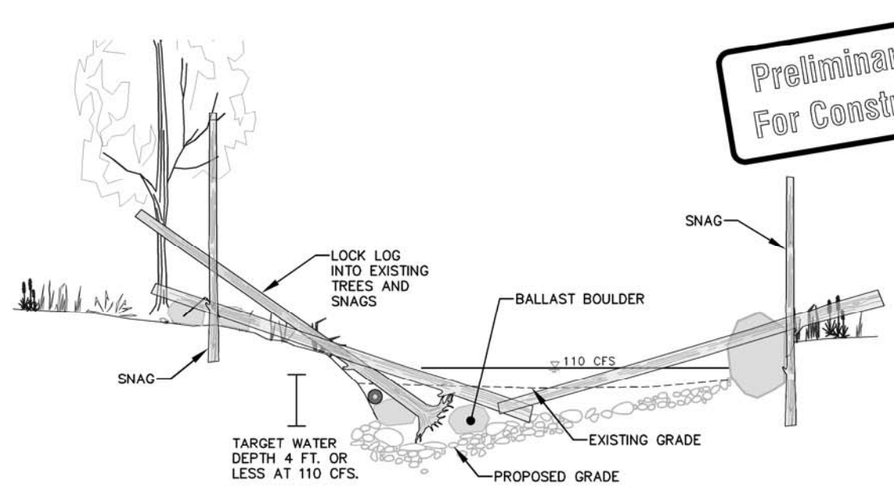


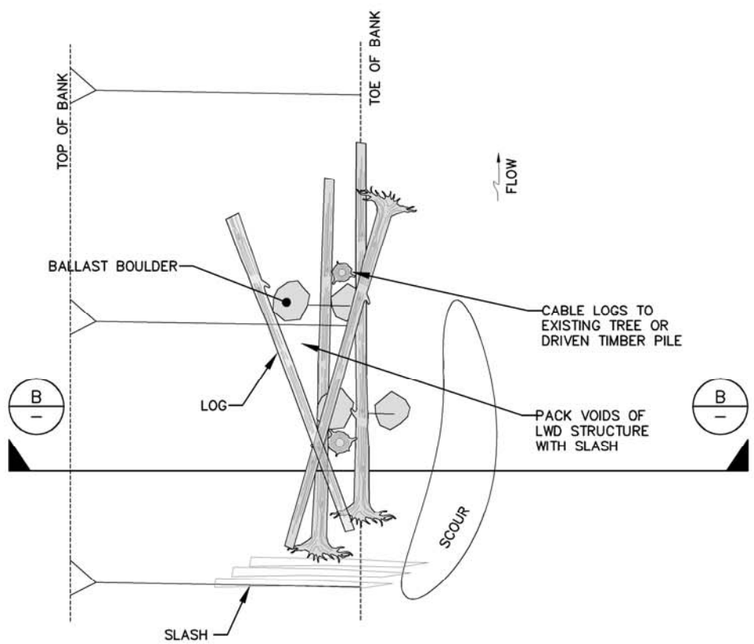
1/9 1/12 1/13 1/14 1/15 1/16 1/17 TYPICAL PLAN DETAIL
BACKWATER CHANNEL LWD
NTS



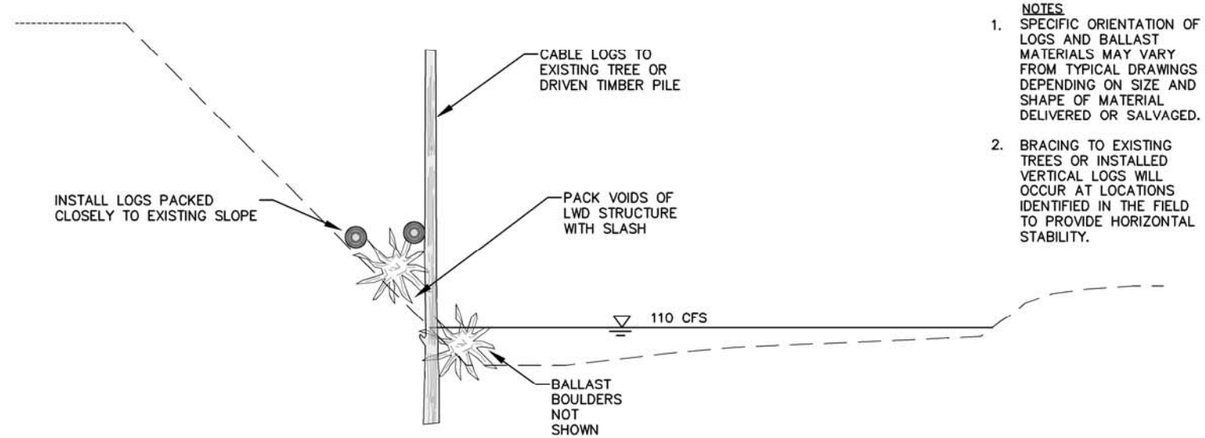
Preliminary Not For Construction

NOTES
1. SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.
2. BRACING TO EXISTING TREES OR INSTALLED VERTICAL LOGS WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE HORIZONTAL STABILITY.

A / – TYPICAL SECTION
BACKWATER CHANNEL LWD
NTS



2/11 2/12 2/13 TYPICAL PLAN DETAIL
POOL ENHANCEMENT LWD
NTS



NOTES
1. SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.
2. BRACING TO EXISTING TREES OR INSTALLED VERTICAL LOGS WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE HORIZONTAL STABILITY.

B / – TYPICAL SECTION
POOL ENHANCEMENT LWD
NTS

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

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SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
LWD DETAILS
BACKWATER CHANNEL AND POOL ENHANCEMENT

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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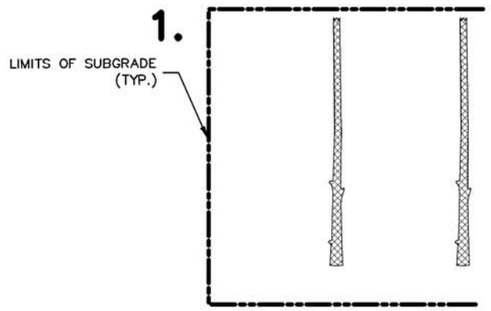
1.

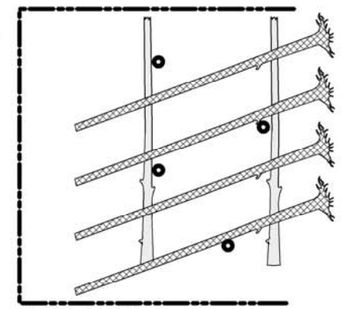


PLAN VIEW
NOT TO SCALE

TYPICAL LAYER ONE SEQUENCING

1. PREPARE SITE
2. EXCAVATE TO SUBGRADE.
3. INSTALL LAYER ONE STRINGER LOGS.

2.

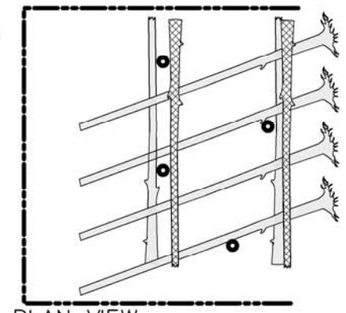


PLAN VIEW
NOT TO SCALE

TYPICAL LAYER TWO SEQUENCING

1. INSTALL LAYER TWO HEADERS (LOGS WITH ROOTWADS).
2. INSTALL VERTICAL SNAGS.
3. ANCHOR LAYER TWO HEADERS AND LAYER ONE STRINGERS TO BOULDER BALLAST WHERE CONNECTIONS ARE AVAILABLE . MINIMUM TWO CONNECTIONS PER STRINGER OR HEADER LOGS.
4. BACKFILL AND COMPACT WITH SALVAGED FILL MATERIAL TO TOP OF LAYER TWO.

3.



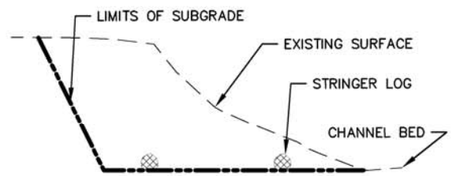
PLAN VIEW
NOT TO SCALE

TYPICAL LAYER THREE SEQUENCING

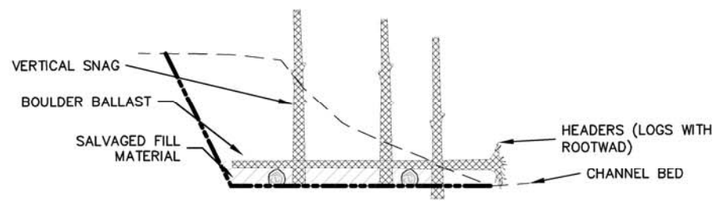
1. INSTALL LAYER THREE STRINGER LOGS.
2. ANCHOR LAYER THREE STRING LOGS TO LOGS AND BOULDERS WHERE CONNECTIONS ARE AVAILABLE. MINIMUM TWO CONNECTIONS PER STRINGER AND HEADER LOGS.

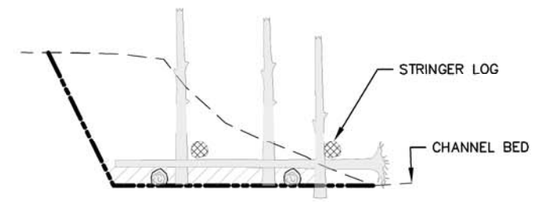
NOTES:

1. SEQUENCING PROVIDED TO REFLECT GENERAL LEVEL OF EFFORT FOR LOG JAM CONSTRUCTION
2. FIELD ADJUSTMENT AS APPROVED BY OWNER TO MATCH SITE CONDITIONS AND MATERIALS DELIVERED TO SITE.
3. IN SOME CASES BOULDERS MAY BE INSTALLED IN LAYER TWO.
4. NUMBER OF LAYERS TO VARY AT EACH SITE.
5. FOR CONNECTION DETAILS SEE SHEET 33

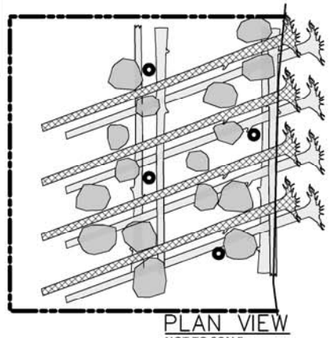


SECTION VIEW
NOT TO SCALE





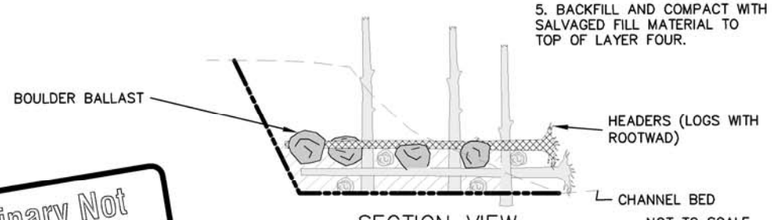
SECTION VIEW
NOT TO SCALE



PLAN VIEW
NOT TO SCALE

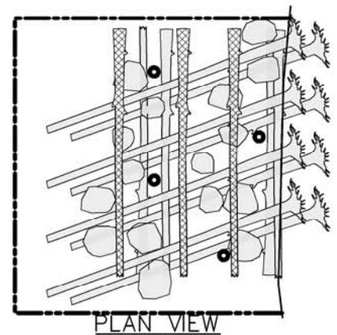
TYPICAL LAYER FOUR SEQUENCING

1. INSTALL LAYER FOUR HEADERS (LOGS WITH ROOTWADS).
2. PLACE BOULDERS FOR BALLASTING. BOULDER BALLAST TO BE PLACED AS APPROVED BY OWNER.
3. ANCHOR LAYER FOUR HEADERS TO BOULDER BALLAST AND LOGS WHERE CONNECTIONS S ARE AVAILABLE. MINIMUM TWO CONNECTIONS PER STRINGER OR HEADER LOGS.
4. PACK SLASH INTO VOIDS
5. BACKFILL AND COMPACT WITH SALVAGED FILL MATERIAL TO TOP OF LAYER FOUR.



SECTION VIEW
NOT TO SCALE

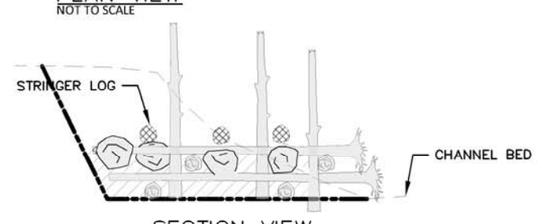
5.



PLAN VIEW
NOT TO SCALE

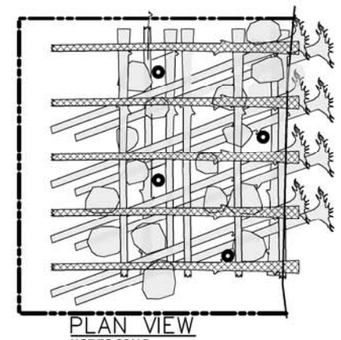
TYPICAL LAYER FIVE SEQUENCING

1. INSTALL LAYER FIVE STRINGER LOGS.
2. ANCHOR LAYER FIVE STRING LOGS TO LOGS AND BOULDERS WHERE CONNECTIONS ARE AVAILABLE. MINIMUM TWO CONNECTIONS PER STRINGER AND HEADER LOGS.



SECTION VIEW
NOT TO SCALE

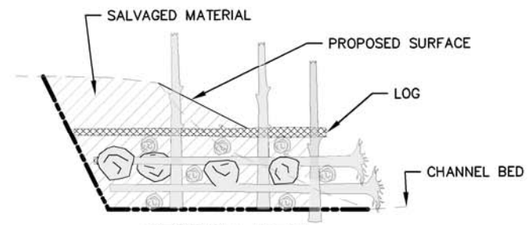
6.



PLAN VIEW
NOT TO SCALE

TYPICAL LAYER SIX SEQUENCING

1. INSTALL LAYER SIX HEADERS (LOGS MAY HAVE ROOTWADS SEE PLANS).
2. ANCHOR LAYER SIX HEADERS TO BOULDER BALLAST AND LOGS WHERE CONNECTIONS S ARE AVAILABLE. MINIMUM TWO CONNECTIONS PER STRINGER OR HEADER LOGS.
3. BACKFILL AND COMPACT WITH SALVAGED FILL MATERIAL TOO FINISHED GRADE.



SECTION VIEW
NOT TO SCALE

NOT TO SCALE

(1) TYPICAL DETAIL
LOG JAM CONSTRUCTION SEQUENCE
NO SCALE

Preliminary Not For Construction

inter-fluve
1020 Wasco Street, Suite I
Hood River, OR 97031
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www.inter-fluve.com

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/7/11
DRAWN : JT
CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

LOG JAM DETAILS
TYPICAL SEQUENCE

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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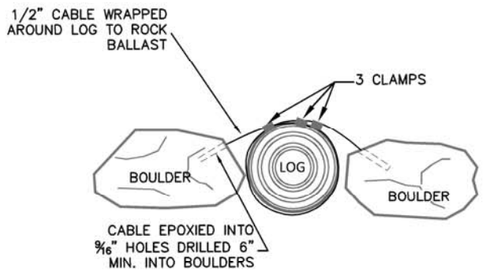
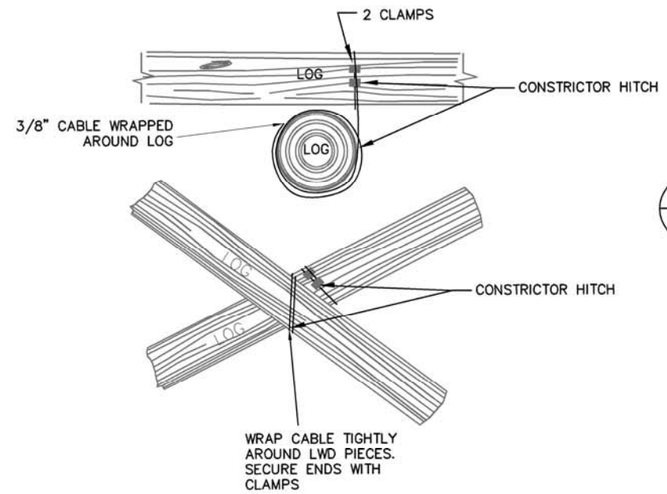
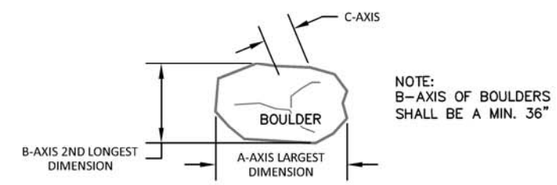


1 TYPICAL DETAIL
LOG CABLED TO BOULDERS
NTS



2 TYPICAL DETAIL
LOG CABLED TO LOG
NTS

4 TYPICAL DETAIL
CABLE SPLICE
NTS



3 TYPICAL DETAIL
BALLAST BOULDER
NTS

GENERAL NOTES

CONSTRUCTION

1. FINAL POSITIONING OF THE ANCHORED LOG STRUCTURES SHALL BE IN THE APPROXIMATE LOCATION AS SHOWN ON THE PLANS AND AS APPROVED BY THE BY THE OWNER. CABLING SITES AS APPROVED BY OWNER.

2. ANCHORED LOG STRUCTURES SHALL BE SECURED AS SHOWN.

3. DRILL HOLES IN SOLID ROCK AND AVOID ANY CRACKS OR FRACTURES. HOLES SHALL BE 9/16 INCH IN DIAMETER. HOLES MUST BE DRILLED 6 INCHES, MINIMUM, INTO ROCK. HOLES MUST BE CLEANED OF LOOSE ROCK FRAGMENTS AND POWDER WITH A BRUSH AND WATER AND ALLOWED TO DRY. HOLES MUST BE CLEAN OF ALL DUST, DEBRIS, OIL, AND SOAP RESIDUES. THE HOLES MUST FLUSHED CLEAR TO ENSURE NO MATERIAL EXISTS BETWEEN THE CABLE, EPOXY, AND ROCK SURFACE. INSTALL EPOXY PER MANUFACTURER'S RECOMMENDATIONS.

4. CABLE SHALL BE WRAPPED ONCE AROUND LOG BEFORE ENDS ARE INSERTED INTO THE DRILLED HOLES FILLED WITH EPOXY. SEE DETAIL. WIPE CABLE WITH CLEAN RAG SOAKED IN ACETONE SOAKED RAG TO REMOVE OILS AND GREASES PRIOR TO INSERTION INTO EPOXY FILLED HOLE. FILL DRILL HOLES ENOUGH TO ENSURE COMPLETE COVERAGE WITH EPOXY. INSERT CABLE INTO HOLE SO THAT END OF CABLE HITS THE BOTTOM OF THE HOLE. EXCESS EPOXY SHOULD COME OUT OF THE TOP OF THE HOLE AS CABLE IS SEATED IN DRILL HOLE. TEST STRENGTH OF BOND BY PICKING UP LOG AFTER MINIMUM CURE TIME RECOMMENDED BY THE EPOXY MANUFACTURER. IF BOND FAILS, REPLACE WITH A NEW HOLE AND CUT THE CONTAMINATED END OFF OF THE CABLE.

5. MINIMUM 2 CLAMPS PER CONNECTION. CLAMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION, SPACING AND DIAMETER FOR THE SIZE AND LOAD RATING OF THE CABLE BEING USED.

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DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT

LWD DETAILS
CABLING AND BALLASTING

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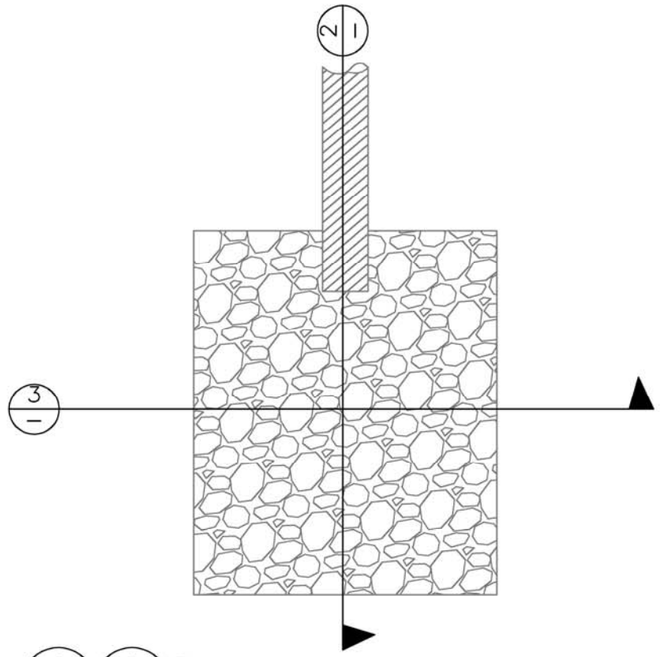
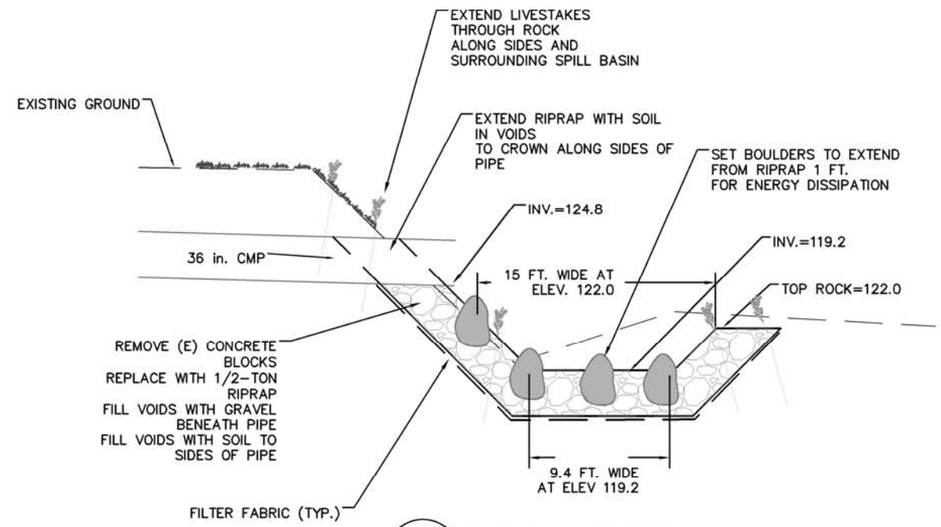
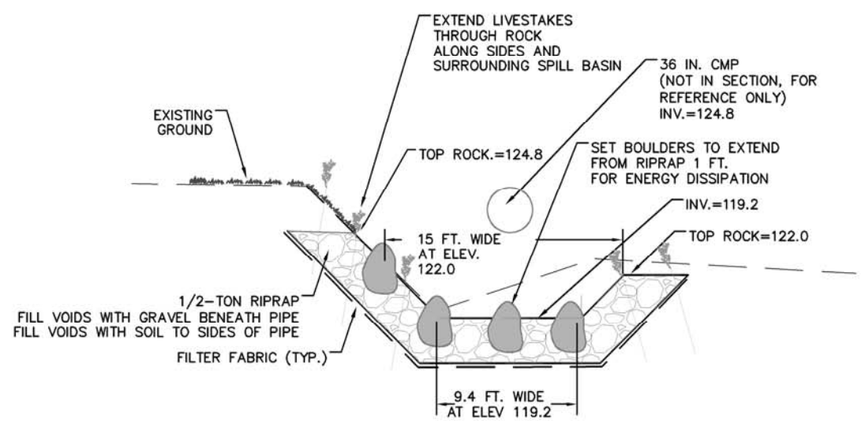


1 / 9 — 1 / 14 PLAN VIEW
SDO SCOUR PROTECTION
NTS



2 / – TYPICAL SECTION
PIPE OUTFALL
NTS



3 / – TYPICAL SECTION
PIPE OUTFALL
NTS

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DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
TYPICAL DETAILS –
STORM DRAIN OUTFALL

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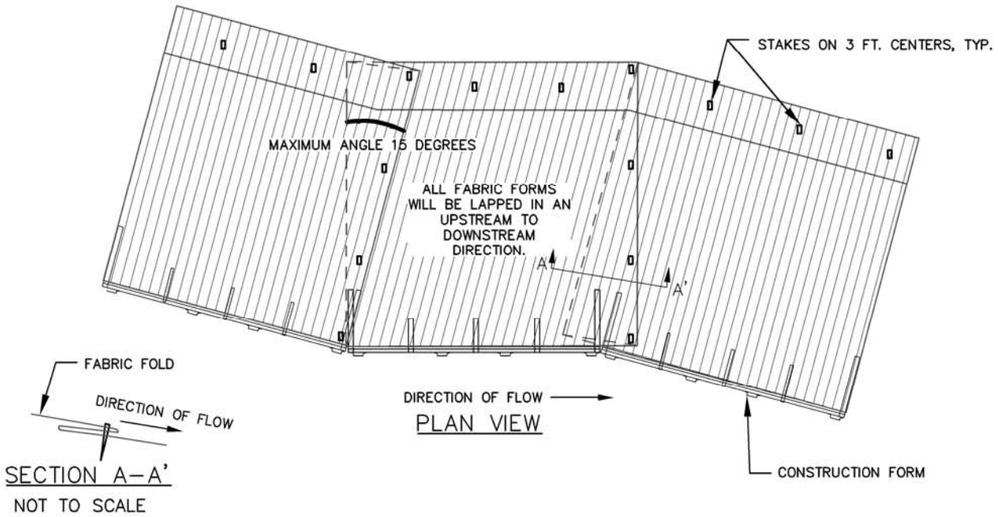
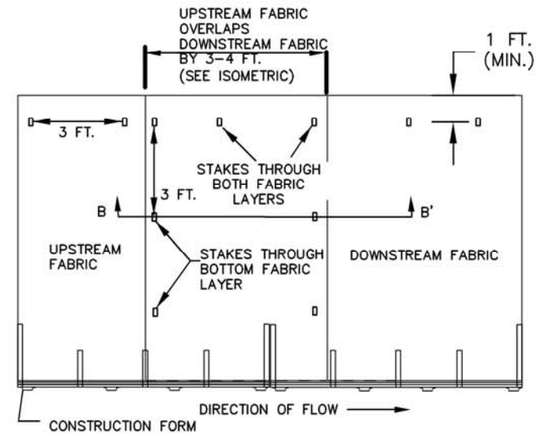
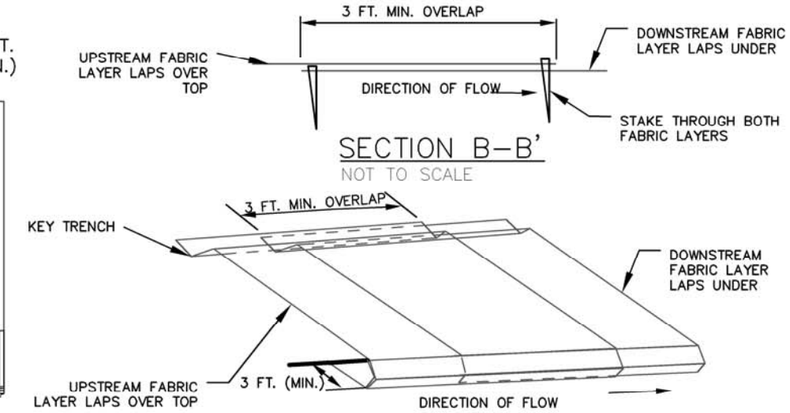


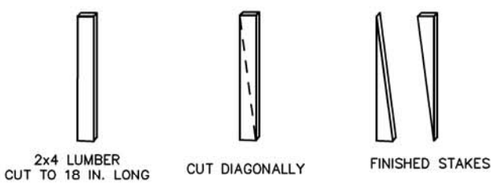
1 – TYPICAL PLAN DETAIL
FOLDING OF CONTINUOUS COIR FABRIC AT BENDS
NTS



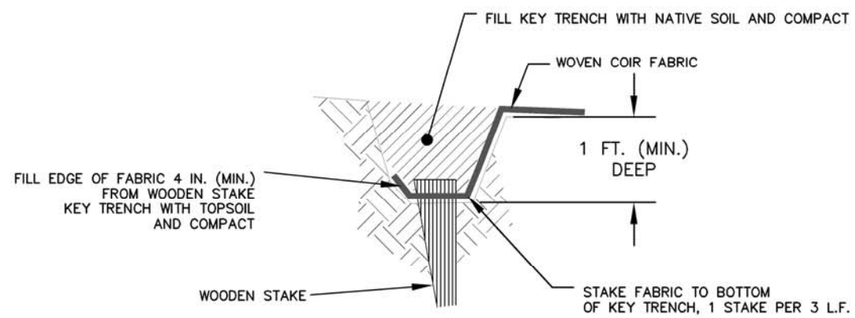
2 – TYPICAL PLAN DETAIL
FABRIC JOINING DETAILS
NTS



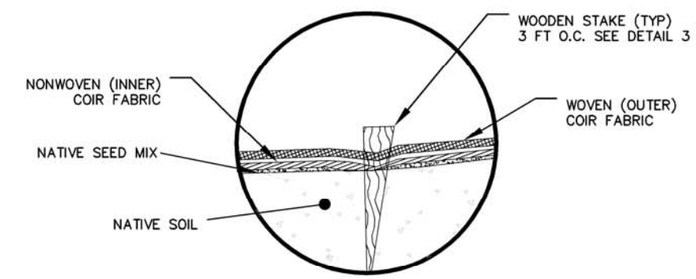
3 – TYPICAL ISOMETRIC DETAIL
FABRIC JOINING DETAIL
NTS



4 – WOODEN STAKE FABRICATING DETAILS
NTS



5 – KEY TRENCH DETAIL
TRENCH INTO SOIL
NTS



6 – TYPICAL DETAIL
BIODEGRADABLE FABRICS AND STAKES
NTS

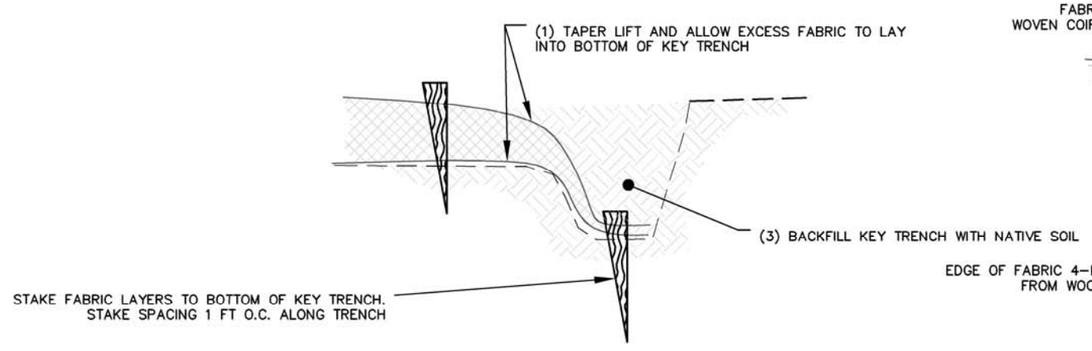
GENERAL NOTES ON SECURING COIR FABRIC

1. SECURE THE BANK SIDE EDGE AND FIELD AREAS OF THE OUTER FABRIC (WOVEN), WITH A WOODEN STAKE THROUGH THE FABRIC ON 3 FOOT CENTERS (SEE DETAIL VIEWS 1&2).
NOTE: THE HOLES FOR STAKES SHALL NOT BE PRECUT. ALLOW THE STAKE TO BREAK THE MINIMUM NUMBER OF STRANDS AS IT IS BEING DRIVEN. DRIVE STAKES SO THAT 2" TO 3" OF THE TOP OF STAKE IS LEFT EXPOSED.

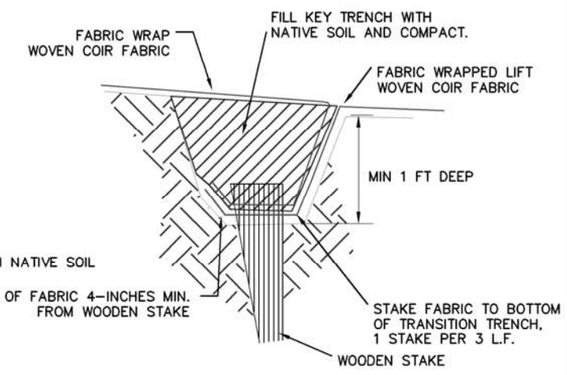
2. FABRICATE THE WOODEN STAKES BY CUTTING 2x4 STUDS INTO 2 FOOT LENGTHS AND THEN RIPPING THE LENGTHS DIAGONALLY TO CREATE A TAPERED END. SEE STAKE FABRICATION DETAIL ON THIS SHEET.

3. FORMS MAY BE ANGLED TO CREATE BENDS IN THE LIFTS AS NEEDED. FABRIC SHALL BE FOLDED AT EACH BEND AS SHOWN IN DETAIL 1. NO BEND SHALL EXCEED A 15 DEGREE ANGLE. FOLDS SHALL BE MADE IN AN UPSTREAM TO DOWNSTREAM DIRECTION. STAKE THE FOLDS AS SHOWN IN SECTION A–A'.

4. OUTER FABRIC ENDS SHALL BE JOINED BY LAPPING THE UPSTREAM PIECE OF FABRIC OVER THE DOWNSTREAM PIECE AS SHOWN IN DETAIL 2. OVERLAPS SHALL BE A MINIMUM OF 3 FEET. INNER FABRIC ENDS SHALL BE BUTTED TOGETHER, NOT OVERLAPPED. OVERLAPS SHALL BE STAGGERED FROM LIFT TO LIFT BY A MINIMUM AS APPROVED BY OWNER.



7 – FES TERMINATION DETAIL
AT UPSTREAM END OF BANK STABILIZATION
NTS



8 – JOINT TRENCH DETAIL
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FABRIC DETAILS

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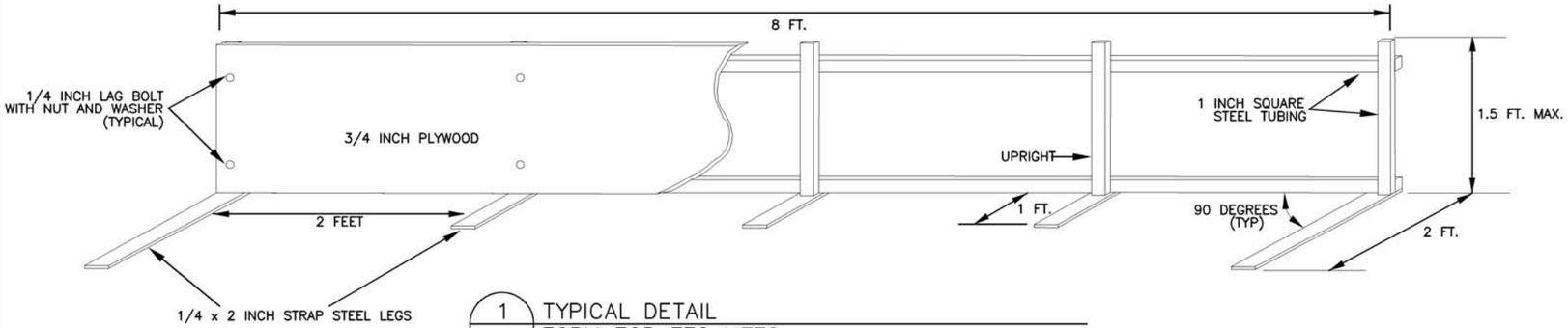
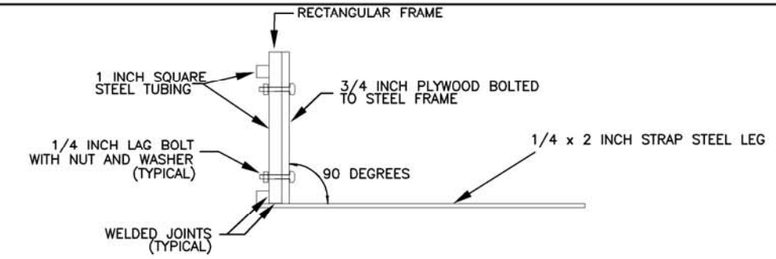
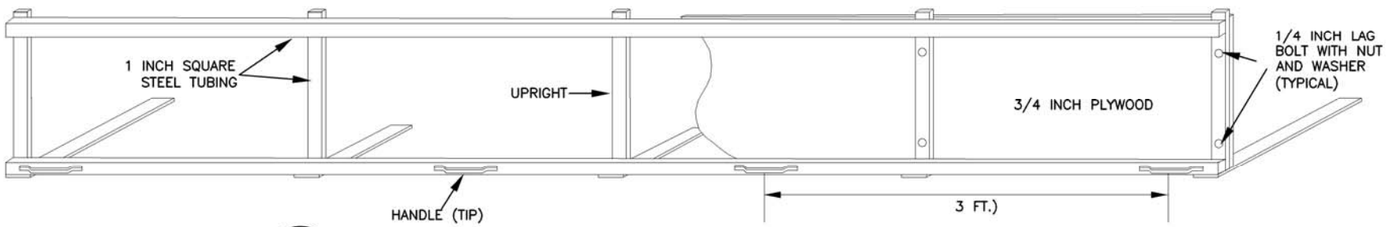


1 TYPICAL DETAIL
FORM FOR FES LIFTS
NTS

ISOMETRIC VIEW FROM REAR

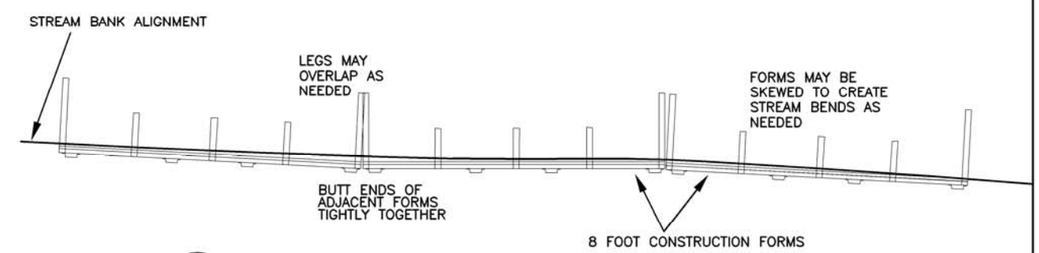


3 TYPICAL SECTION
FORM FOR FES LIFTS
NTS

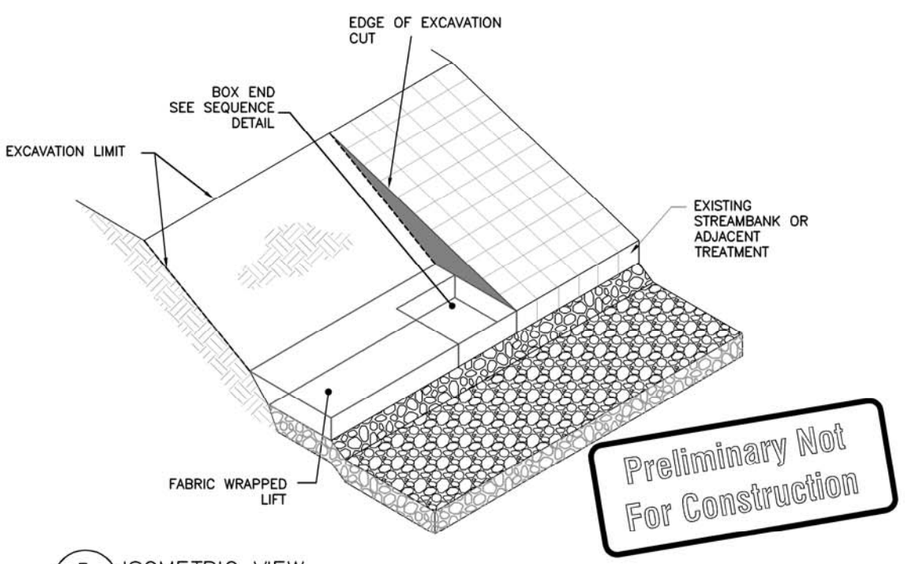


2 TYPICAL SOMETRIC DETAIL
FORM FOR FES LIFTS
NTS

ISOMETRIC VIEW FROM FRONT



4 TYPICAL PLAN DETAIL
PLACEMENT OF FORMS FOR FES LIFTS
NTS



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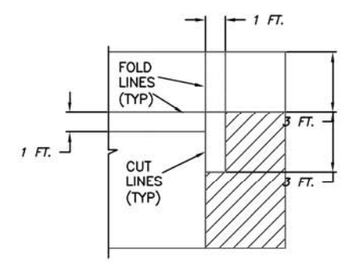
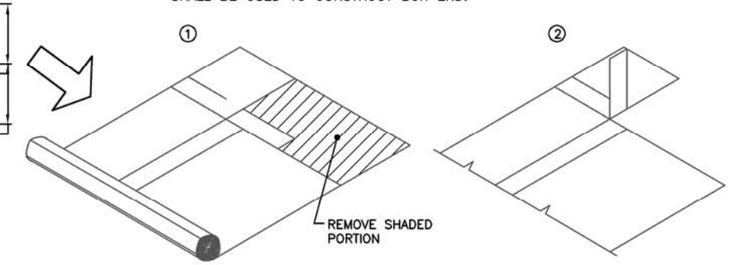
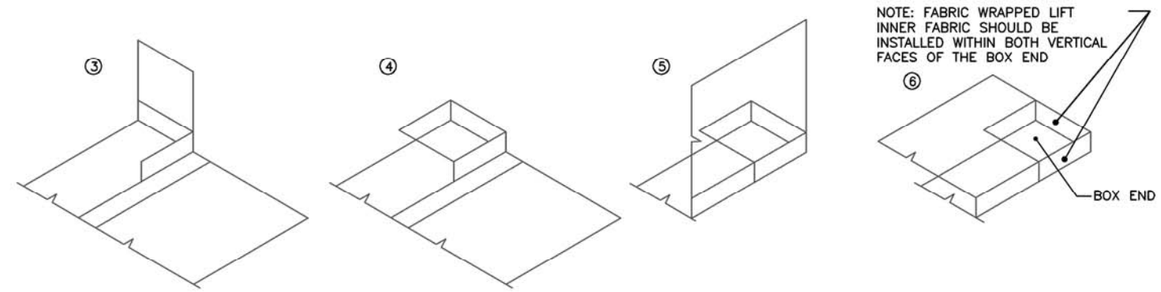
5 ISOMETRIC VIEW
BOX END AT FES LIFTS TERMINATION
NTS



PLAN VIEW
NOT TO SCALE

BOTH WOVEN AND NONWOVEN FABRICS SHALL BE USED TO CONSTRUCT BOX END.





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DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
FES LIFT CONSTRUCTION DETAILS

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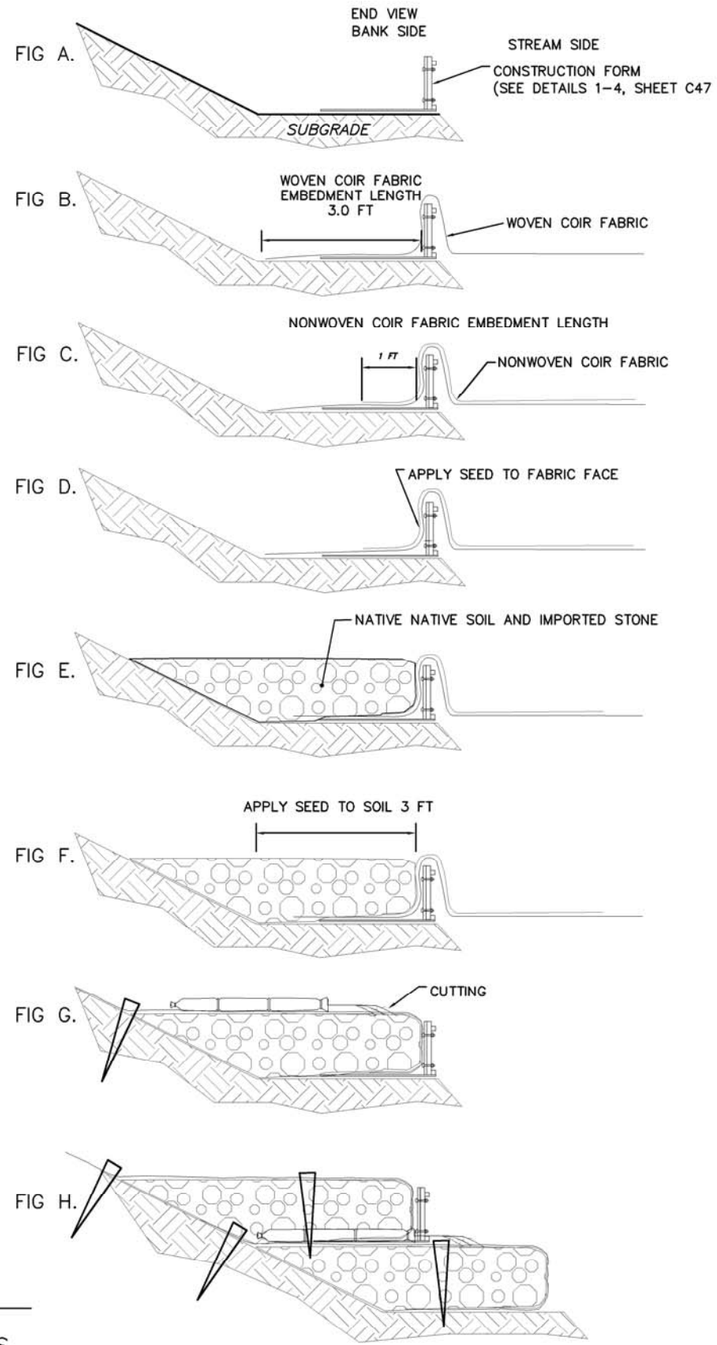

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1 TYPICAL SECTION
– TYPICAL CONSTRUCTION SEQUENCE FOR FES LIFTS

FIG 1. PLACE A ROW OF CONSTRUCTION FORMS ALONG DESIRED CHANNEL ALIGNMENT FOR FIRST LIFT.

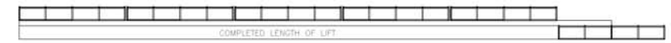

FIG 2. CONSTRUCT FABRIC WRAP LIFTS ALONG LENGTH OF FIRST SET OF FORMS AND THEN BEGIN PLACEMENT OF FORMS AND CONSTRUCTION OF SECOND LIFT.

FIG 3. STAGGER FABRIC OVERLAPS A MINIMUM OF 15' BETWEEN LIFTS.

2 TYPICAL ELEVATION VIEW
– TYPICAL CONSTRUCTION SEQUENCE FOR FES LIFTS

1. BANKS MAY BE CONSTRUCTED IN EITHER AN UPSTREAM OR DOWNSTREAM DIRECTION, AS LONG AS THE FABRIC IS OVERLAPPED IN THE PROPER DIRECTION.

2. CHECK PLANS AND SPECIFICATIONS: EACH LIFT MAY HAVE A UNIQUE FILL COMPOSITION AND VARYING PLACEMENT OF CUTTINGS.

3. PLACE A SERIES OF THREE OR MORE FORMS ON THE GROUND SO THAT THE FORMS FOLLOW THE PROPOSED STREAM BANK ALIGNMENT. BUTT THE ENDS OF THE FORMS TIGHTLY TOGETHER.

4. UNROLL THE WOVEN COIR FABRIC PARALLEL TO THE LONG AXIS OF THE CHANNEL AND POSITION IT SO THAT 3.0 FEET EXTENDS FOR EMBEDMENT ON THE BANK SIDE OF THE FORMS (FIG B), AND A MINIMUM 3 FEET EXTENDS LENGTHWISE BEYOND THE LAST FORM FOR OVERLAP. DRAPE THE REMAINDER OF THE FABRIC OVER THE TOP OF THE FORMS ON THE STREAM SIDE (FIG B).

5. UNROLL THE NONWOVEN COIR FABRIC OVER THE TOP OF THE WOVEN COIR FABRIC (FIG B) AND POSITION IT SO THAT AT LEAST 1 FOOT OF THE INNER FABRIC EXTENDS AS AN EMBEDMENT LENGTH ON THE BANK SIDE OF THE FORMS (FIG C). DRAPE THE REMAINDER OF THE FABRIC OVER THE TOP OF THE FORMS ON THE STREAM SIDE AND ALIGN THE LONG EDGES OF THE COIR FABRICS. STRETCH AND PULL THE FABRIC LAYERS TO REMOVE WRINKLES.

6. APPLY NATIVE SEED MIX TO NONWOVEN COIR FABRIC ALONG VERTICAL EDGE OF LIFT (FIG D). PLACE SPECIFIED FILL OVER THE FABRIC ON THE BANK SIDE OF THE FORMS. LEVEL THE FILL AND COMPACT TO 85–90 PERCENT STANDARD PROCTOR DENSITY (FIG E).

7. APPLY NATIVE SEED MIX TO TOP OF FILL FROM THE FRONT OF THE LIFT TO 3 FT BACK FROM FRONT OF THE LIFT (FIG F).

8. FOLD THE LOOSE ENDS OF THE TWO COIR FABRIC LAYERS BACK OVER THE COMPACTED FILL MATERIAL AND STRETCH TIGHTLY TO REMOVE WRINKLES (FIG G). SECURE WITH WOODEN STAKES 1 PER 3 L.F. ALONG THE BACK EDGE AND INTO UNDISTURBED SOIL.

9. REMOVE THE FORMS FROM THE FRONT OF THE COMPLETED LIFTS (FIG 2). LEAVE THE LAST FORM IN PLACE AT THE END OF THE NEWLY CONSTRUCTED LIFT (FIG 2). PLACE CUTTINGS ON TOP OF THE FINISHED LAYER FOR THE NEXT LIFT (FIG G). PLACE A SMALL AMOUNT OF NATIVE SOIL AROUND THE CUTTING. CAREFULLY RESET THE FORMS ON TOP OF THE FINISHED LAYER FOR THE NEXT LIFT (FIG H) TO AVOID DAMAGING THE CUTTING.

10. PROCEED WITH A NEW SERIES OF LIFTS BY EXTENDING A NEW ROW OF FORMS. BEGINNING AT THE END FORM THAT WAS LEFT IN PLACE, LAY OUT TWO NEW LAYERS OF FABRIC AS PREVIOUSLY DESCRIBED, MAKING SURE TO OVERLAP THE NEW FABRIC LAYERS WITH THE PREVIOUS LAYERS. STAGGER OVERLAPS, BETWEEN ADJACENT LIFTS BY A MINIMUM OF 15 FEET (FIG 2).

11. ON THE TOP LIFT, EXCAVATE A KEY TRENCH 1.5 FEET WIDE AND 1 FOOT DEEP ALONG THE EDGE OF THE WOVEN COIR FABRIC LAYER, PARALLEL TO THE FORMS. SECURE FABRIC IN THE KEY TRENCH WITH WOODEN STAKES, 3 FT O.C..

12. BACKFILL THE KEY TRENCH WITH NATIVE SOIL AND CONTINUE TO APPLY NATIVE SOIL TO SMOOTHLY MERGE WITH EXISTING CONTOURS. APPLY NATIVE SEED MIX TO KEY TRENCH AREA.

3 TYPICAL SEQUENCE
– CONSTRUCTION OF FES LIFTS

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DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
FES LIFT CONSTRUCTION DETAILS

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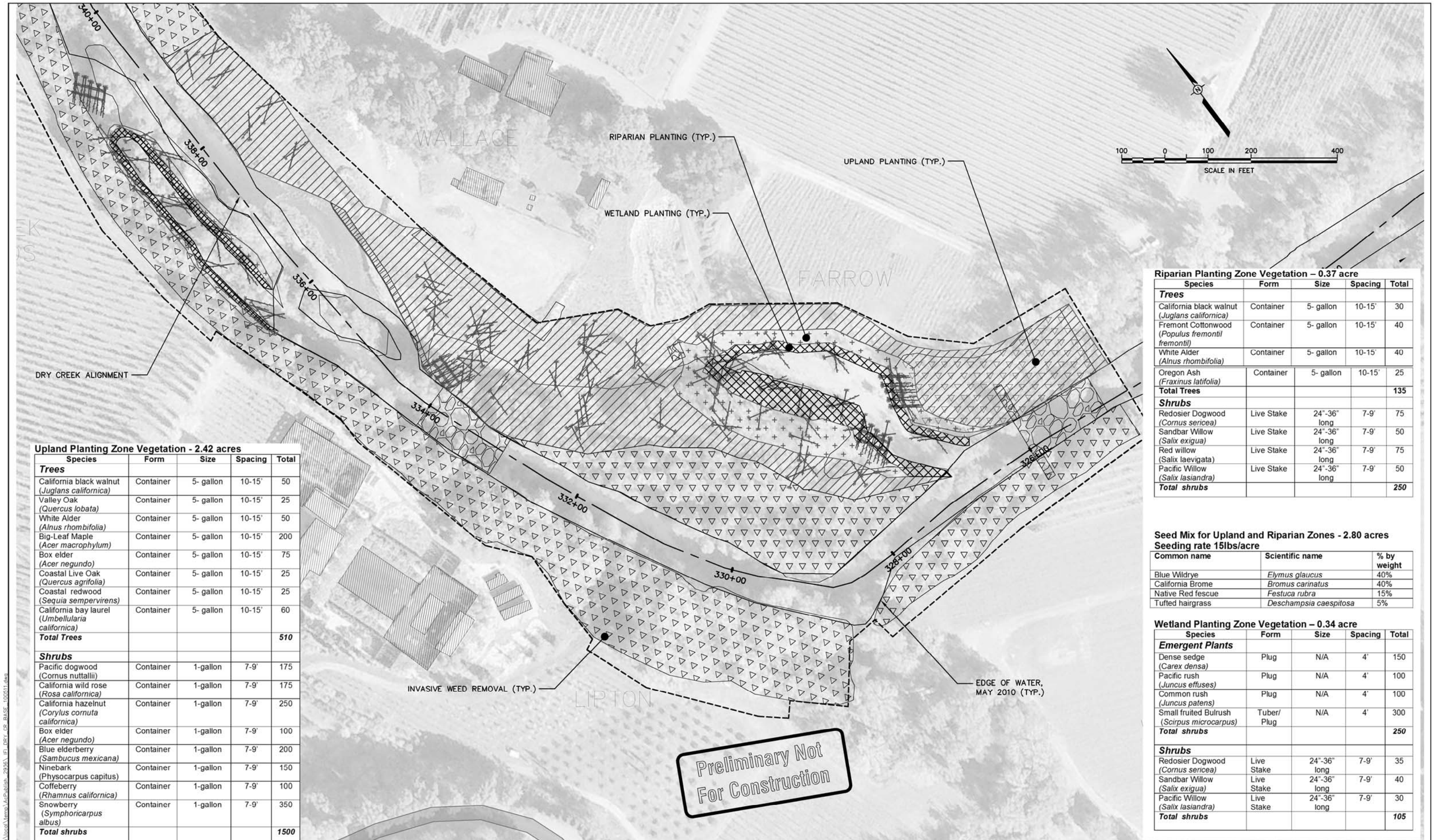

Upland Planting Zone Vegetation - 2.42 acres

Species	Form	Size	Spacing	Total
Trees				
California black walnut (*Juglans californica*)	Container	5- gallon	10-15'	50
Valley Oak (*Quercus lobata*)	Container	5- gallon	10-15'	25
White Alder (*Alnus rhombifolia*)	Container	5- gallon	10-15'	50
Big-Leaf Maple (*Acer macrophylum*)	Container	5- gallon	10-15'	200
Box elder (*Acer negundo*)	Container	5- gallon	10-15'	75
Coastal Live Oak (*Quercus agrifolia*)	Container	5- gallon	10-15'	25
Coastal redwood (*Sequia sempervirens*)	Container	5- gallon	10-15'	25
California bay laurel (*Umbellularia californica*)	Container	5- gallon	10-15'	60
Total Trees				***510***
Shrubs				
Pacific dogwood (Cornus nuttallii)	Container	1-gallon	7-9'	175
California wild rose (*Rosa californica*)	Container	1-gallon	7-9'	175
California hazelnut (*Corylus cornuta californica*)	Container	1-gallon	7-9'	250
Box elder (*Acer negundo*)	Container	1-gallon	7-9'	100
Blue elderberry (*Sambucus mexicana*)	Container	1-gallon	7-9'	200
Ninebark (Physocarpus capitus)	Container	1-gallon	7-9'	150
Coffeberry (*Rhamnus californica*)	Container	1-gallon	7-9'	100
Snowberry (*Symphoricarpus albus*)	Container	1-gallon	7-9'	350
Total shrubs				***1500***

Riparian Planting Zone Vegetation – 0.37 acre

Species	Form	Size	Spacing	Total
Trees				
California black walnut (*Juglans californica*)	Container	5- gallon	10-15'	30
Fremont Cottonwood (*Populus fremontil fremontil*)	Container	5- gallon	10-15'	40
White Alder (*Alnus rhombifolia*)	Container	5- gallon	10-15'	40
Oregon Ash (*Fraxinus latifolia*)	Container	5- gallon	10-15'	25
Total Trees				**135**
Shrubs				
Redosier Dogwood (*Cornus sericea*)	Live Stake	24"-36" long	7-9'	75
Sandbar Willow (*Salix exigua*)	Live Stake	24"-36" long	7-9'	50
Red willow (Salix laevigata)	Live Stake	24"-36" long	7-9'	75
Pacific Willow (*Salix lasiandra*)	Live Stake	24"-36" long	7-9'	50
Total shrubs				***250***

Seed Mix for Upland and Riparian Zones - 2.80 acres
Seeding rate 15lbs/acre

Common name	Scientific name	% by weight
Blue Wildrye	*Elymus glaucus*	40%
California Brome	*Bromus carinatus*	40%
Native Red fescue	*Festuca rubra*	15%
Tufted hairgrass	*Deschampsia caespitosa*	5%

Wetland Planting Zone Vegetation – 0.34 acre

Species	Form	Size	Spacing	Total
Emergent Plants				
Dense sedge (*Carex densa*)	Plug	N/A	4'	150
Pacific rush (*Juncus effuses*)	Plug	N/A	4'	100
Common rush (*Juncus patens*)	Plug	N/A	4'	100
Small fruited Bulrush (*Scirpus microcarpus*)	Tuber/ Plug	N/A	4'	300
Total shrubs				***250***
Shrubs				
Redosier Dogwood (*Cornus sericea*)	Live Stake	24"-36" long	7-9'	35
Sandbar Willow (*Salix exigua*)	Live Stake	24"-36" long	7-9'	40
Pacific Willow (*Salix lasiandra*)	Live Stake	24"-36" long	7-9'	30
Total shrubs				***105***

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 10/7/11
DRAWN : JT
CHECKED : MB

APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
REVEGETATION PLAN
STA: 322+00 TO 340+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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Upland Zone Planting Zone Vegetation 0.21 acre

Species	Form	Size	Spacing	Total
Trees				
White Alder (*Alnus rhombifolia*)	Container	5- gallon	10-15'	30
Big-Leaf Maple (*Acer macrophylum*)	Container	5- gallon	10-15'	30
California bay laurel (*Umbellularia californica*)	Container	5- gallon	10-15'	10
Box elder (*Acer negundo*)	Container	5- gallon	10-15'	20
Total Trees				***90***
Shrubs				
Redosier Dogwood (*Cornus sericea*)	Live Stake	24"-36" long	7-9'	20
Pacific Willow (*Salix lasiandra*)	Live Stake	24"-36" long	7-9'	20
California wild rose (*Rosa californica*)	Container	1-gallon	7-9'	40
California hazelnut (*Corylus cornuta californica*)	Container	1-gallon	7-9'	30
Blue elderberry (*Sambucus mexicana*)	Container	1-gallon	7-9'	30
Coffeberry (*Rhamnus californica*)	Container	1-gallon	7-9'	20
Snowberry (*Symphoricarpus albus*)	Container	1-gallon	7-9'	40
Total Shrubs				***200***

Seed Mix for Upland and Riparian Zones 0.21 acres
Seeding rate 15lbs/acre

Common name	Scientific name	% by weight
Blue Wildrye	*Elymus glaucus*	40%
California Brome	*Bromus carinatus*	40%
Native Red fescue	*Festuca rubra*	15%
Tufted hairgrass	*Deschampsia caespitosa*	5%

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE: 1" = 50'
DATE: 10/7/11
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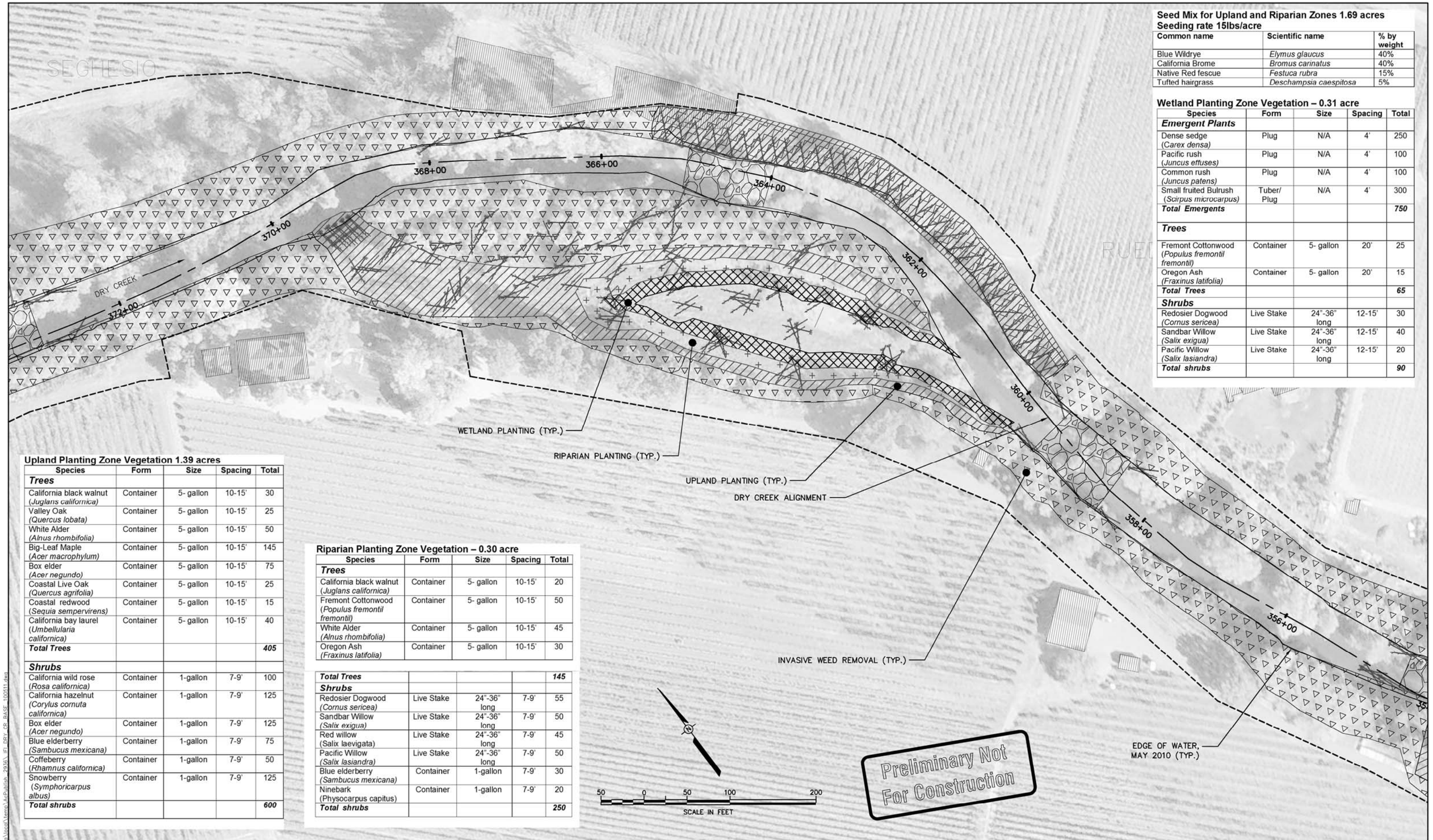
APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
REVEGETATION PLAN
STA: 340+00 TO 357+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:



Seed Mix for Upland and Riparian Zones 1.69 acres
Seeding rate 15lbs/acre

Common name	Scientific name	% by weight
Blue Wildrye	*Elymus glaucus*	40%
California Brome	*Bromus carinatus*	40%
Native Red fescue	*Festuca rubra*	15%
Tufted hairgrass	*Deschampsia caespitosa*	5%

Wetland Planting Zone Vegetation – 0.31 acre

Species	Form	Size	Spacing	Total
Emergent Plants				
Dense sedge (*Carex densa*)	Plug	N/A	4'	250
Pacific rush (*Juncus effuses*)	Plug	N/A	4'	100
Common rush (*Juncus patens*)	Plug	N/A	4'	100
Small fruited Bulrush (*Scirpus microcarpus*)	Tuber/ Plug	N/A	4'	300
Total Emergents				***750***
Trees				
Fremont Cottonwood (*Populus fremontil fremontil*)	Container	5- gallon	20'	25
Oregon Ash (*Fraxinus latifolia*)	Container	5- gallon	20'	15
Total Trees				***65***
Shrubs				
Redosier Dogwood (*Cornus sericea*)	Live Stake	24"-36" long	12-15'	30
Sandbar Willow (*Salix exigua*)	Live Stake	24"-36" long	12-15'	40
Pacific Willow (*Salix lasiandra*)	Live Stake	24"-36" long	12-15'	20
Total shrubs				***90***

Upland Planting Zone Vegetation 1.39 acres

Species	Form	Size	Spacing	Total
Trees				
California black walnut (*Juglans californica*)	Container	5- gallon	10-15'	30
Valley Oak (*Quercus lobata*)	Container	5- gallon	10-15'	25
White Alder (*Alnus rhombifolia*)	Container	5- gallon	10-15'	50
Big-Leaf Maple (*Acer macrophylum*)	Container	5- gallon	10-15'	145
Box elder (*Acer negundo*)	Container	5- gallon	10-15'	75
Coastal Live Oak (*Quercus agrifolia*)	Container	5- gallon	10-15'	25
Coastal redwood (*Sequia sempervirens*)	Container	5- gallon	10-15'	15
California bay laurel (*Umbellularia californica*)	Container	5- gallon	10-15'	40
Total Trees				***405***
Shrubs				
California wild rose (*Rosa californica*)	Container	1-gallon	7-9'	100
California hazelnut (*Corylus cornuta californica*)	Container	1-gallon	7-9'	125
Box elder (*Acer negundo*)	Container	1-gallon	7-9'	125
Blue elderberry (*Sambucus mexicana*)	Container	1-gallon	7-9'	75
Coffeberry (*Rhamnus californica*)	Container	1-gallon	7-9'	50
Snowberry (*Symphoricarpus albus*)	Container	1-gallon	7-9'	125
Total shrubs				***600***

Riparian Planting Zone Vegetation – 0.30 acre

Species	Form	Size	Spacing	Total
Trees				
California black walnut (*Juglans californica*)	Container	5- gallon	10-15'	20
Fremont Cottonwood (*Populus fremontil fremontil*)	Container	5- gallon	10-15'	50
White Alder (*Alnus rhombifolia*)	Container	5- gallon	10-15'	45
Oregon Ash (*Fraxinus latifolia*)	Container	5- gallon	10-15'	30
Total Trees				***145***
Shrubs				
Redosier Dogwood (*Cornus sericea*)	Live Stake	24"-36" long	7-9'	55
Sandbar Willow (*Salix exigua*)	Live Stake	24"-36" long	7-9'	50
Red willow (Salix laevigata)	Live Stake	24"-36" long	7-9'	45
Pacific Willow (*Salix lasiandra*)	Live Stake	24"-36" long	7-9'	50
Blue elderberry (*Sambucus mexicana*)	Container	1-gallon	7-9'	30
Ninebark (Physocarpus capitus)	Container	1-gallon	7-9'	20
Total shrubs				***250***

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SCALE: 1" = 50'
DATE: 10/7/11
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APPROVED DEPUTY CHIEF ENGINEER RCE C54302
SUBMITTED RCE C62986
DESIGNED RCE C62986

DRY CREEK HABITAT ENHANCEMENT DEMONSTRATION PROJECT
REVEGETATION PLANS
STA: 357+00 TO 370+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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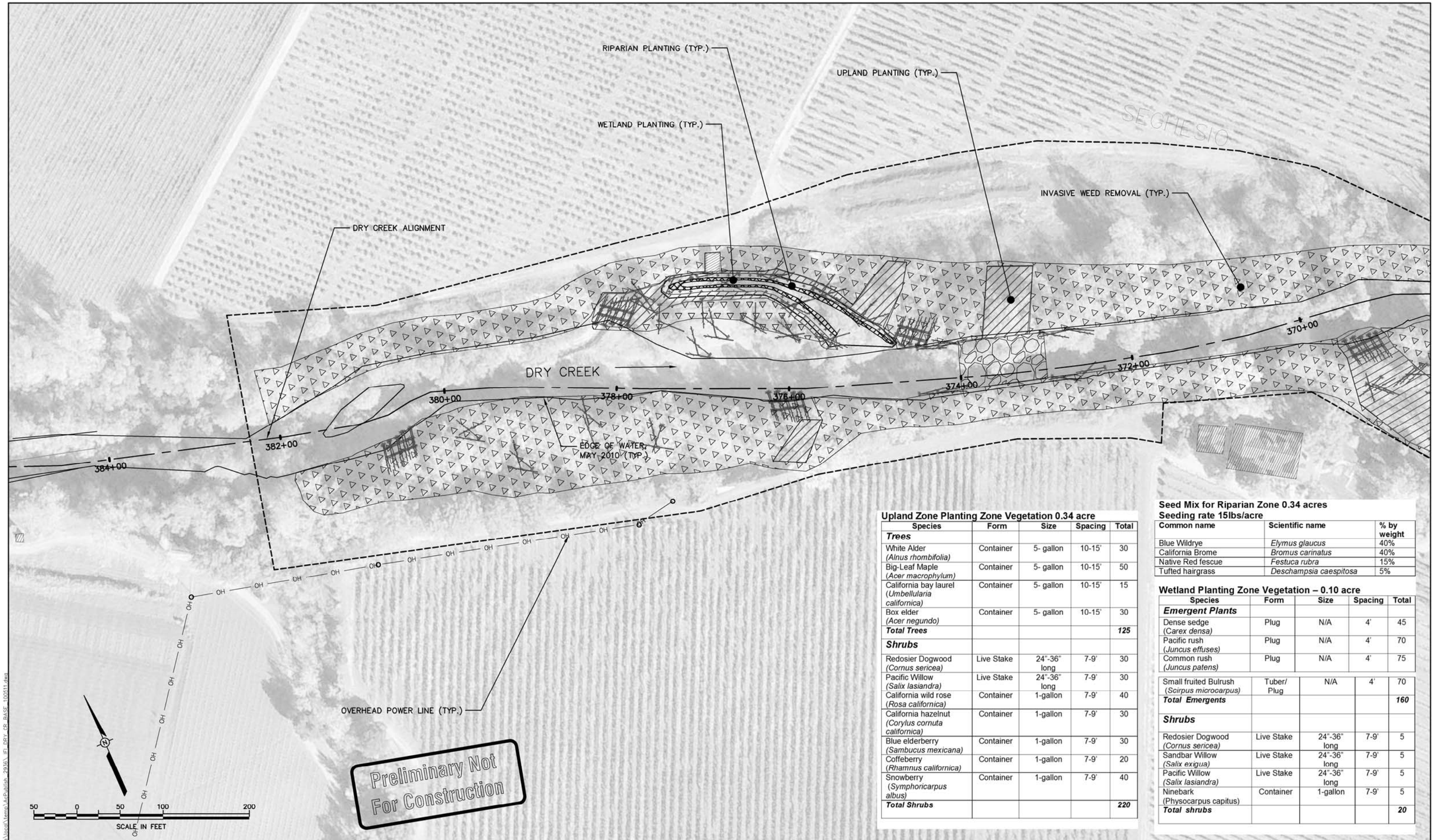

Upland Zone Planting Zone Vegetation 0.34 acre

Species	Form	Size	Spacing	Total
Trees				
White Alder *(Alnus rhombifolia)*	Container	5- gallon	10-15'	30
Big-Leaf Maple *(Acer macrophylum)*	Container	5- gallon	10-15'	50
California bay laurel *(Umbellularia californica)*	Container	5- gallon	10-15'	15
Box elder *(Acer negundo)*	Container	5- gallon	10-15'	30
Total Trees				***125***
Shrubs				
Redosier Dogwood *(Cornus sericea)*	Live Stake	24"-36" long	7-9'	30
Pacific Willow *(Salix lasiandra)*	Live Stake	24"-36" long	7-9'	30
California wild rose *(Rosa californica)*	Container	1-gallon	7-9'	40
California hazelnut *(Corylus cornuta californica)*	Container	1-gallon	7-9'	30
Blue elderberry *(Sambucus mexicana)*	Container	1-gallon	7-9'	30
Coffeberry *(Rhamnus californica)*	Container	1-gallon	7-9'	20
Snowberry *(Symphoricarpus albus)*	Container	1-gallon	7-9'	40
Total Shrubs				***220***

Seed Mix for Riparian Zone 0.34 acres
Seeding rate 15lbs/acre

Common name	Scientific name	% by weight
Blue Wildrye	*Elymus glaucus*	40%
California Brome	*Bromus carinatus*	40%
Native Red fescue	*Festuca rubra*	15%
Tufted hairgrass	*Deschampsia caespitosa*	5%

Wetland Planting Zone Vegetation – 0.10 acre

Species	Form	Size	Spacing	Total
Emergent Plants				
Dense sedge *(Carex densa)*	Plug	N/A	4'	45
Pacific rush *(Juncus effuses)*	Plug	N/A	4'	70
Common rush *(Juncus patens)*	Plug	N/A	4'	75
Small fruited Bulrush *(Scirpus microcarpus)*	Tuber/ Plug	N/A	4'	70
Total Emergents				***160***
Shrubs				
Redosier Dogwood *(Cornus sericea)*	Live Stake	24"-36" long	7-9'	5
Sandbar Willow *(Salix exigua)*	Live Stake	24"-36" long	7-9'	5
Pacific Willow *(Salix lasiandra)*	Live Stake	24"-36" long	7-9'	5
Ninebark (Physocarpus capitus)	Container	1-gallon	7-9'	5
Total shrubs				***20***

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REVEGETATION PLANS
STA: 370+50 TO 383+00

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:

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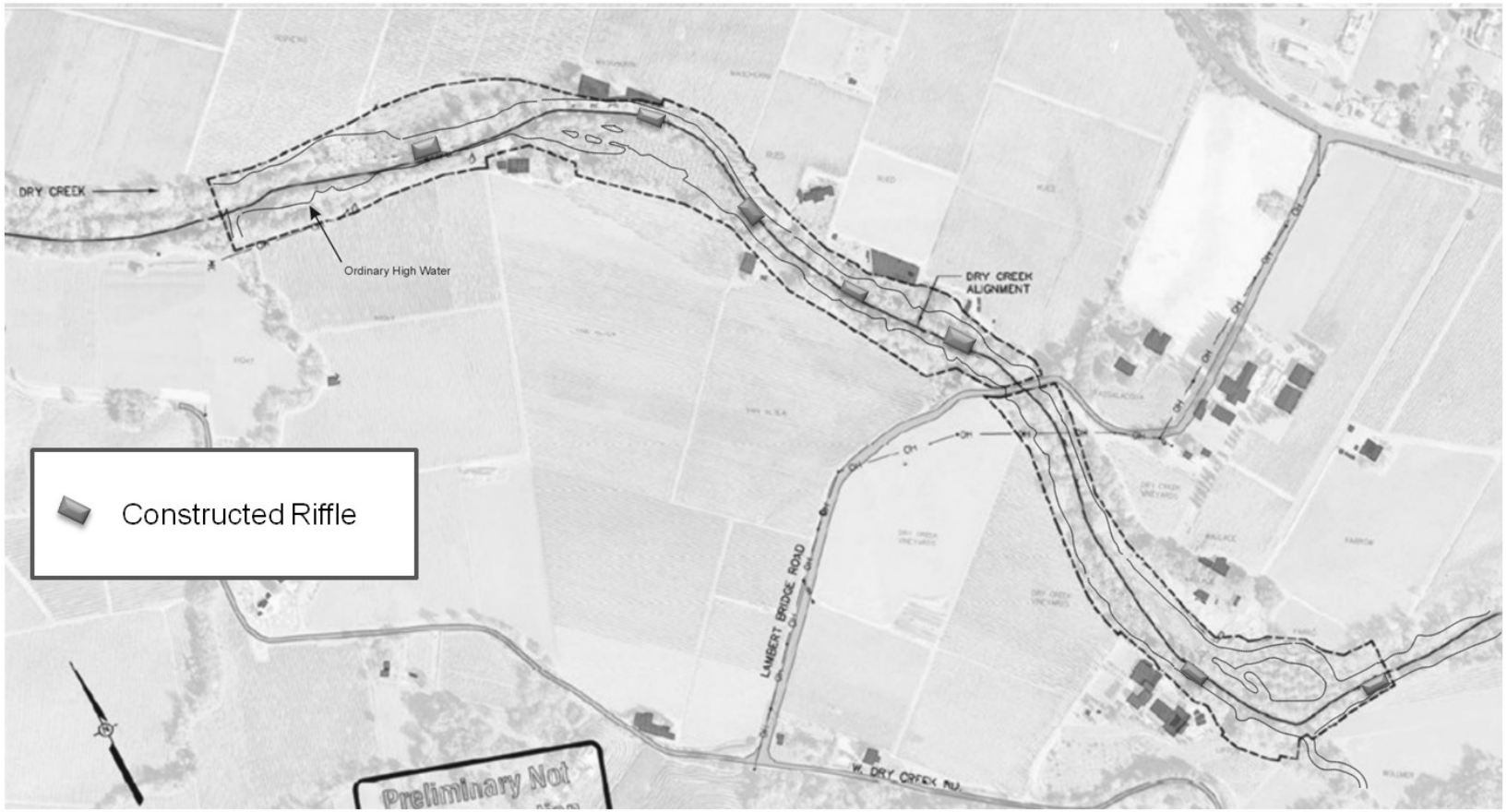
Demonstration Project Design Details

SONOMA COUNTY WATER AGENCY

Demonstration Project Design Details

Demonstration Project Design Details



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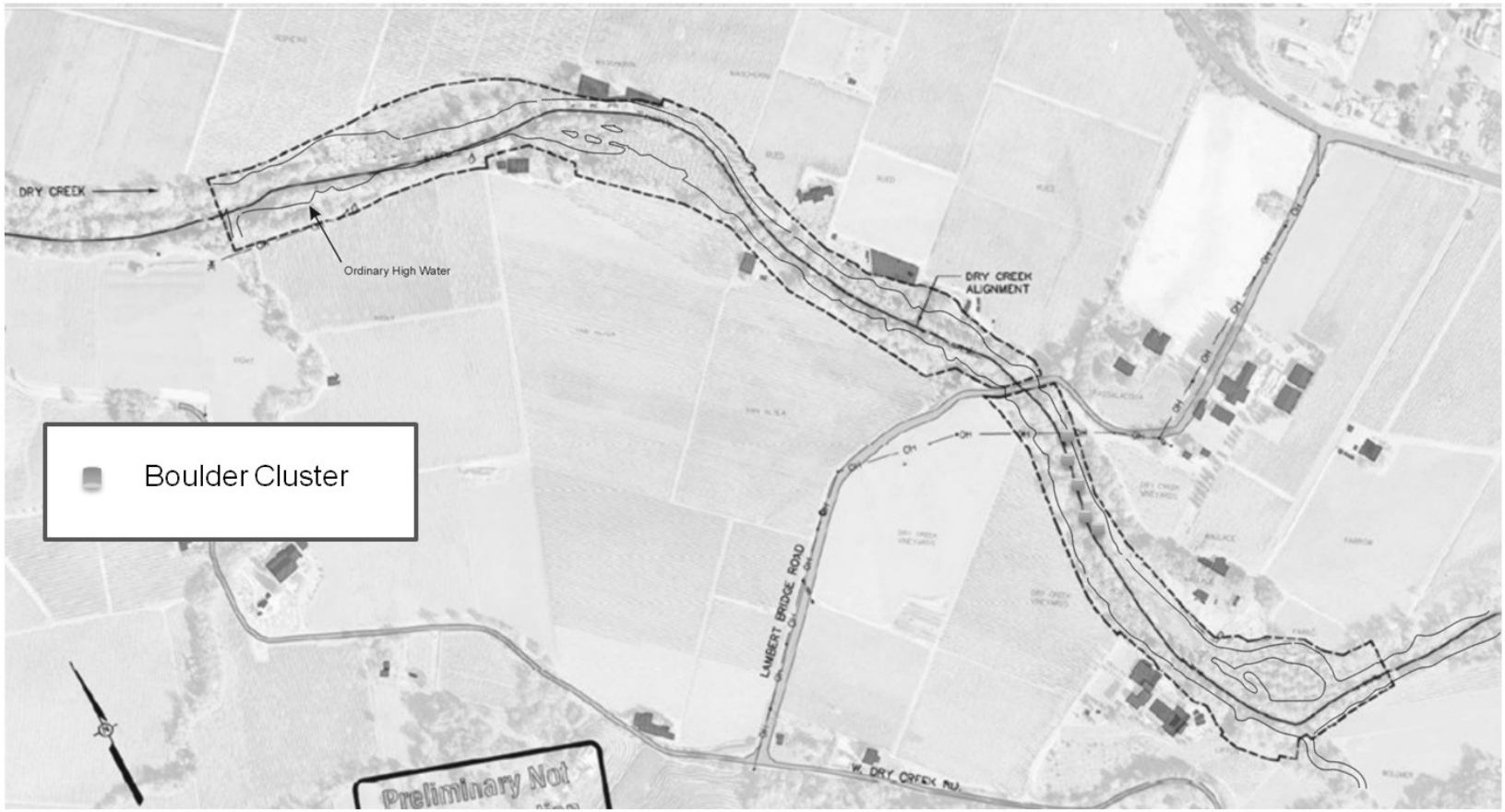
Demonstration Project Design Details



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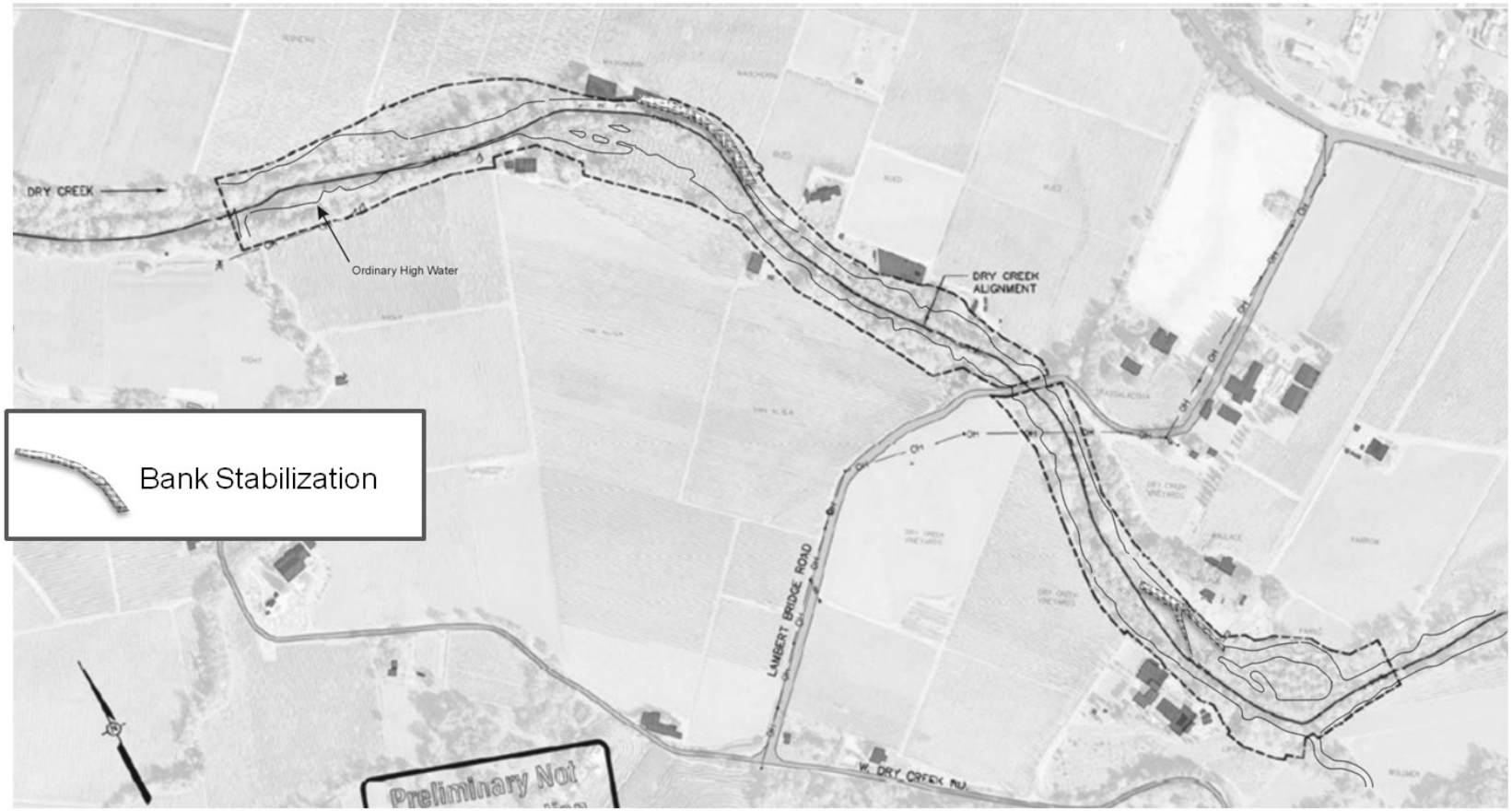
Demonstration Project Design Details



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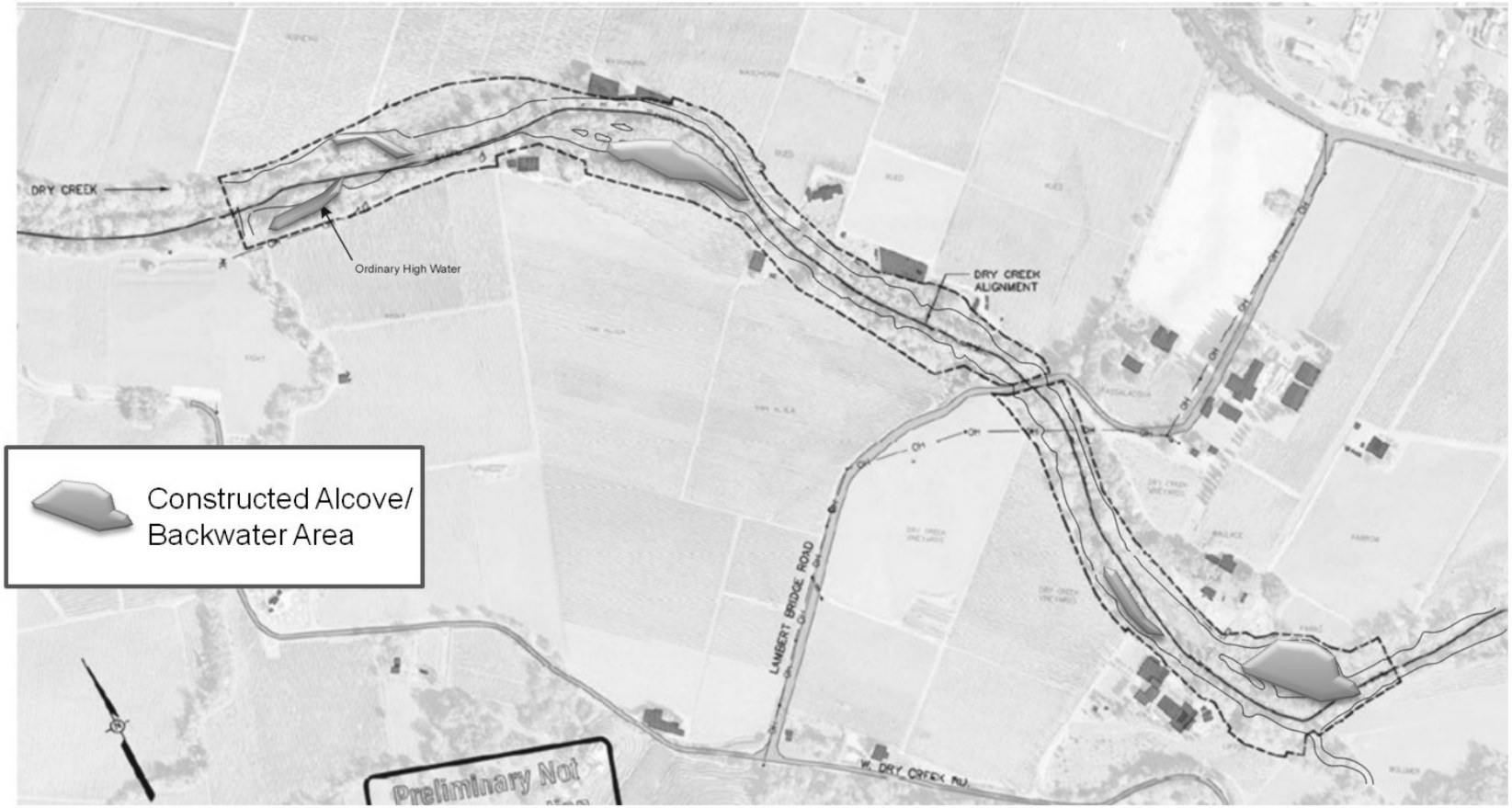
Demonstration Project Design Details



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