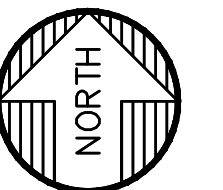


SWALE CREEK TRIBUTARIES

KLICKITAT, WA



VICINITY MAP
SCALE: NTS



DRAWING INDEX

DRAWING NUMBER	DESCRIPTION
D-3120-G-1	EXISTING CONDITIONS PLAN, DRAWING INDEX, PROJECT TEAM, & VICINITY MAP
D-3120-C-1	PREFERRED ALTERNATE - TWO SINGLE SPAN BRIDGES
D-3120-C-2	BRIDGE SECTION & PROFILES
D-3120-C-3	CREEK SECTIONS
D-3120-D-1	DETAILS

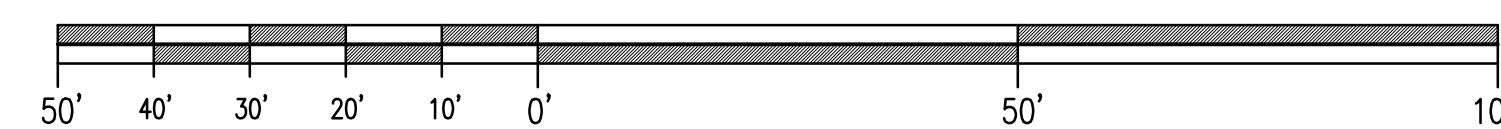
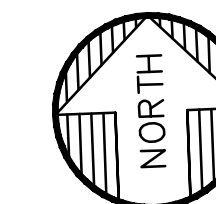
PROJECT TEAM

CIVIL ENGINEER
 LOWER COLUMBIA ENGINEERING, LLC (LCE)
 58640 McNULTY WAY, ST. HELENS, OR 97051
 PHONE: (503) 366-0399
 CONTACTS:
 PROJECT MANAGER & PRIMARY CONTACT: GEOFF MCMULLEN
 geoff@lowercolumbiaengr.com
 PROJECT ENGINEER: ANDREW NIEMI, P.E.
 andrew@lowercolumbiaengr.com

CLIENT
 YAKIMA NATION/KLICKITAT FISHERIES PROJECT
 P.O. BOX 215, KLICKITAT, WA 98628
 PHONE: (509) 830-0034
 CONTACT: DAVID LINDLEY
 dindley@yfkfp.org

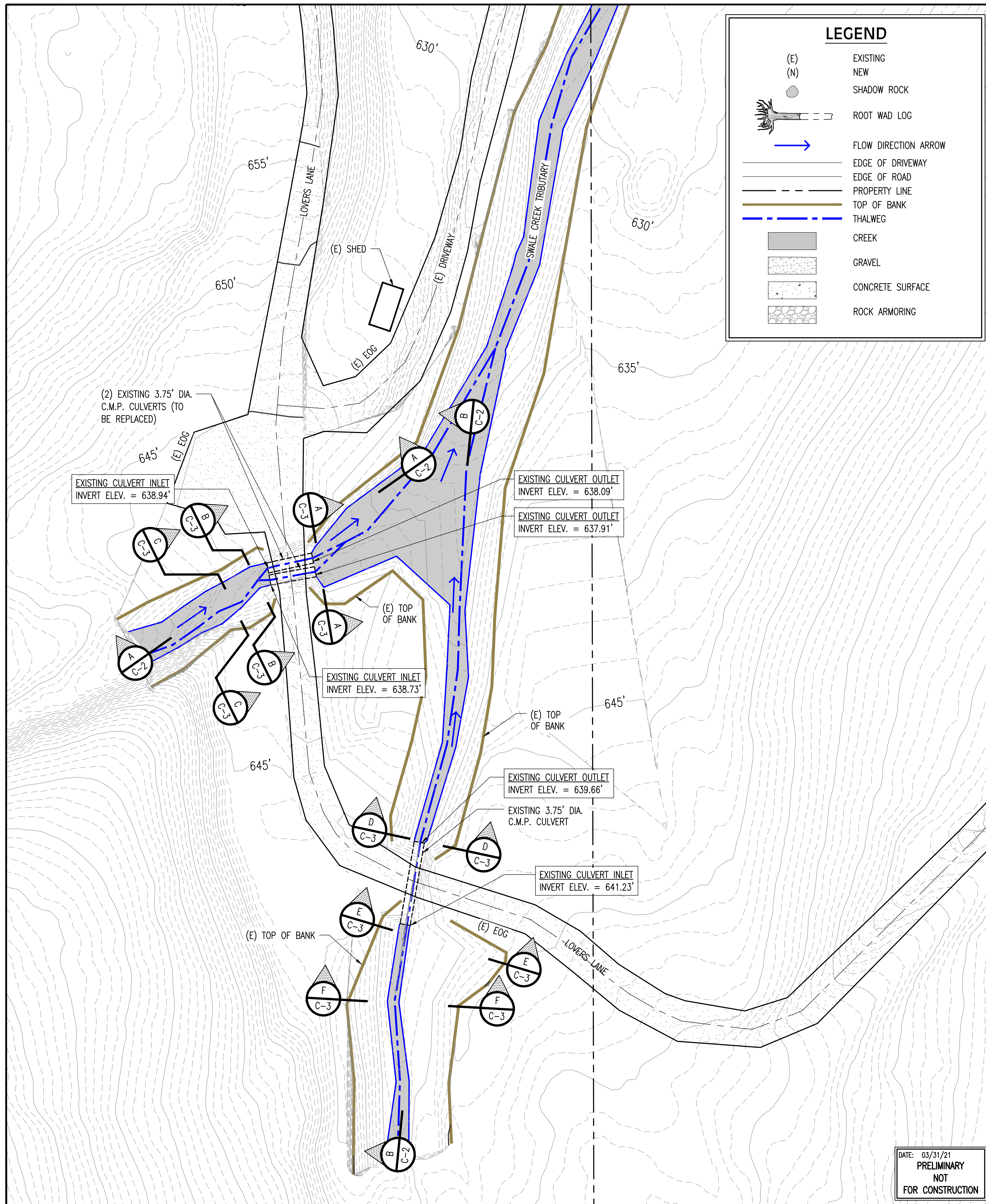
EXISTING CONDITIONS PLAN

SCALE: 1"=20'



LEGEND

- (E) EXISTING
- (N) NEW
- SHADOW ROCK
- ⊕ ROOT WAD LOG
- FLOW DIRECTION ARROW
- EDGE OF DRIVEWAY
- EDGE OF ROAD
- - - PROPERTY LINE
- TOP OF BANK
- - - THALWEG
- █ CREEK
- ▨ GRAVEL
- ▨ CONCRETE SURFACE
- ▨ ROCK ARMORING



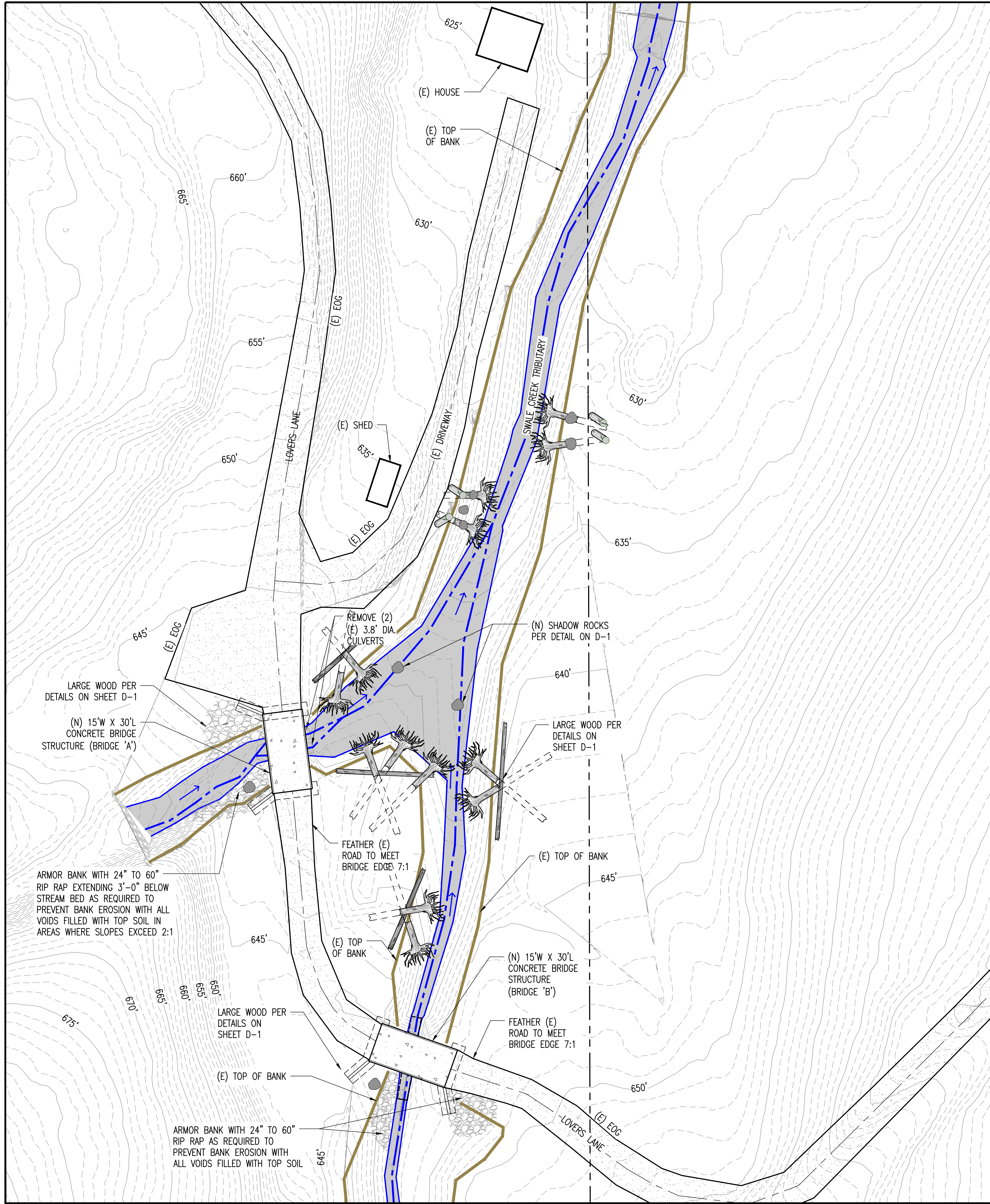
DATE: 03/31/21
 PRELIMINARY
 NOT
 FOR CONSTRUCTION

REV.	REVISION RECORD	DATE
A		

Lower Columbia Engineering
 St. Helens, Oregon
 (503) 366-0399

PROJ. NO.	3120	EXISTING CONDITIONS PLAN, INDEX, & VICINITY MAP
DWG. BY	MLA	SWALE CREEK TRIBUTARIES
APPR. BY		YAKIMA NATION
FILE	D-3120-G-1	DATE 03/01/2021

SHEET
G-1

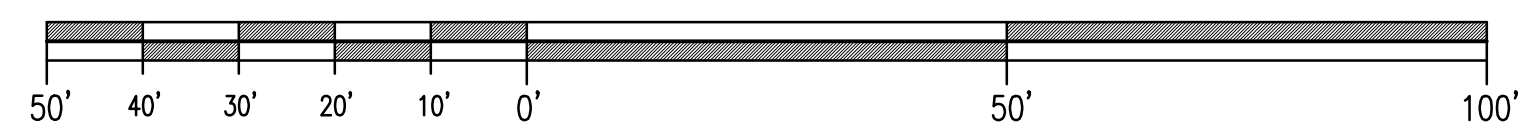
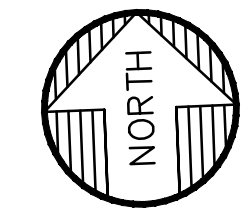


LEGEND

- (E) EXISTING
- (N) NEW
- SHADOW ROCK
- ⊥ ROOT WAD LOG
- FLOW DIRECTION ARROW
- EDGE OF DRIVEWAY
- EDGE OF ROAD
- - - PROPERTY LINE
- TOP OF BANK
- - - THALWEG
- █ CREEK
- ▨ GRAVEL
- ▨ CONCRETE SURFACE
- ▨ ROCK ARMORING

PREFERRED ALTERNATE - TWO SINGLE SPAN BRIDGES

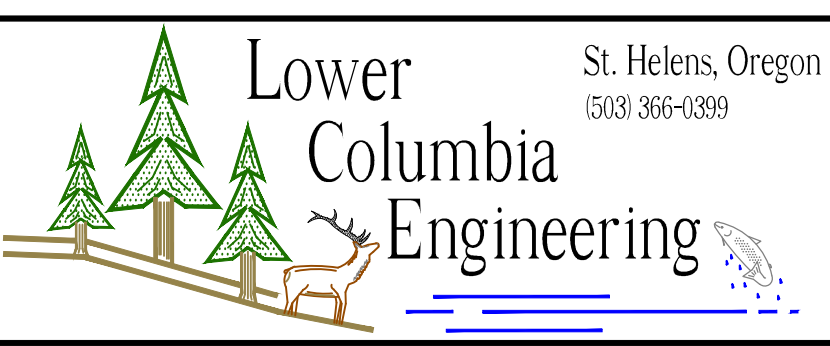
SCALE: 1"=20'



DATE: 04/16/21
REVISED PRINT
VOID ALL PREVIOUS

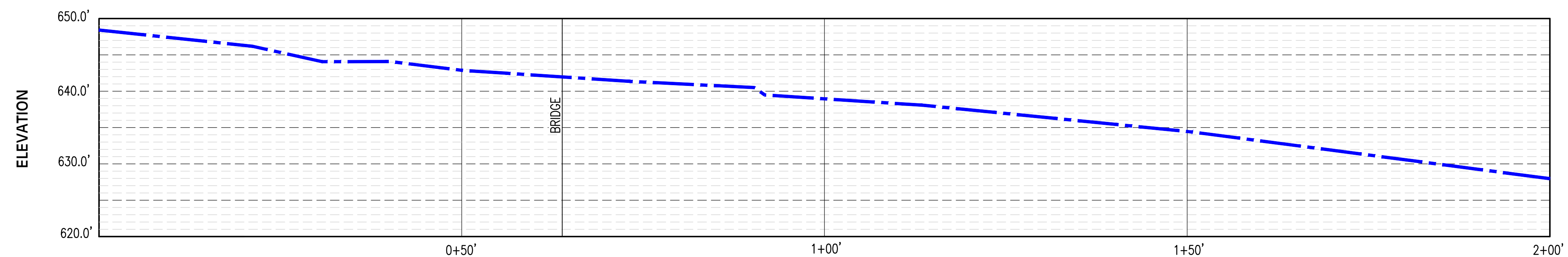
DATE: 03/31/21
PRELIMINARY
NOT
FOR CONSTRUCTION

REV.	REVISION RECORD	DATE
A	UPDATES PER OWNER	04/16/21

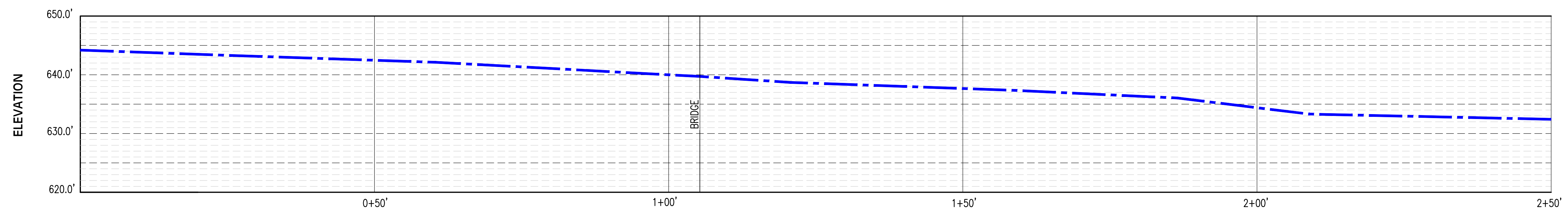


PROJ. NO.	3120	PREFERRED ALTERNATE - TWO SINGLE SPAN BRIDGES
DWG. BY	MLA	SWALE CREEK TRIBUTARIES
APPR. BY	YAKIMA NATION	SHEET
FILE	D-3120-C-1-A	DATE 03/01/2021

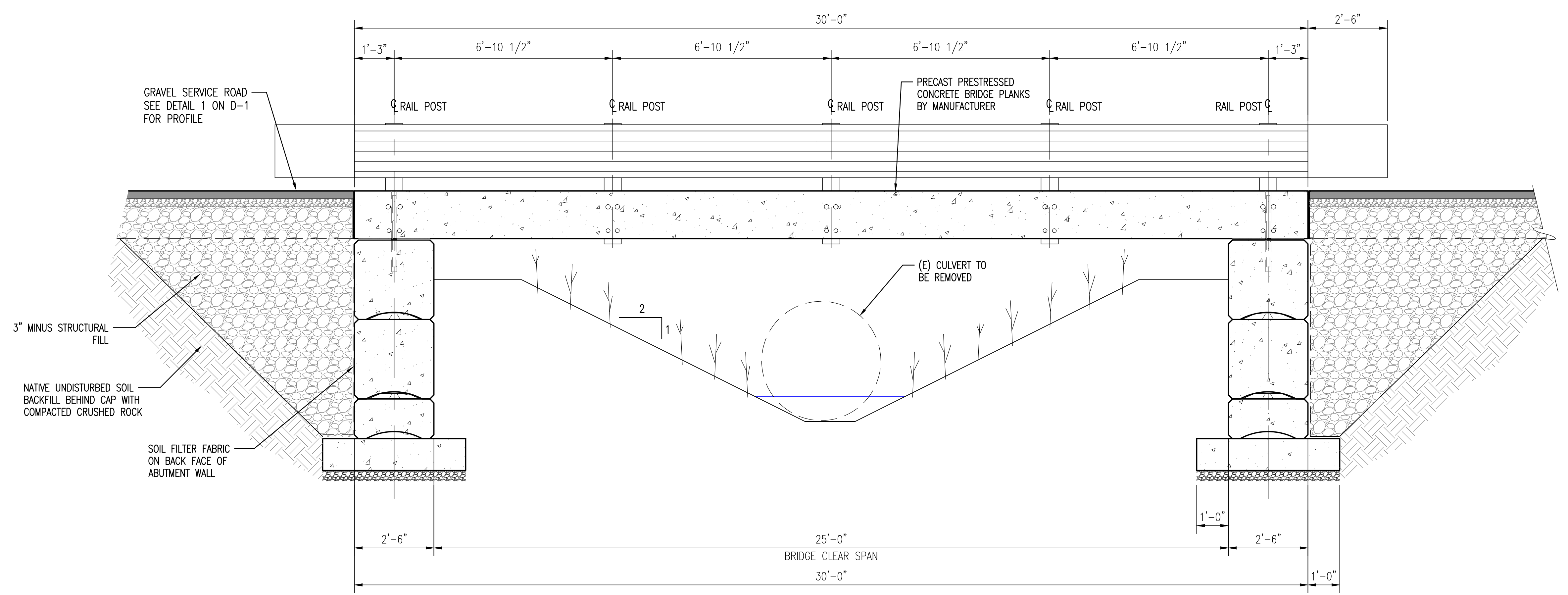
C-1



A CHANNEL THALWEG PROFILE (BRIDGE A)
 C-2 SCALE: 1" = 10'

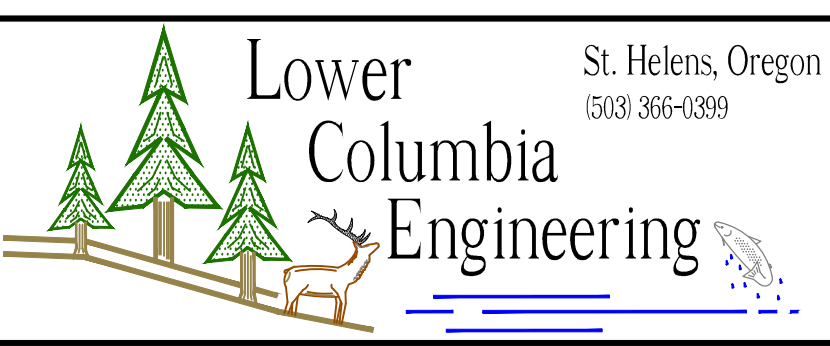


B CHANNEL THALWEG PROFILE (BRIDGE B)
 C-2 SCALE: 1" = 10'



C BRIDGE SECTION
 C-2 SCALE: 1/2" = 1'-0"

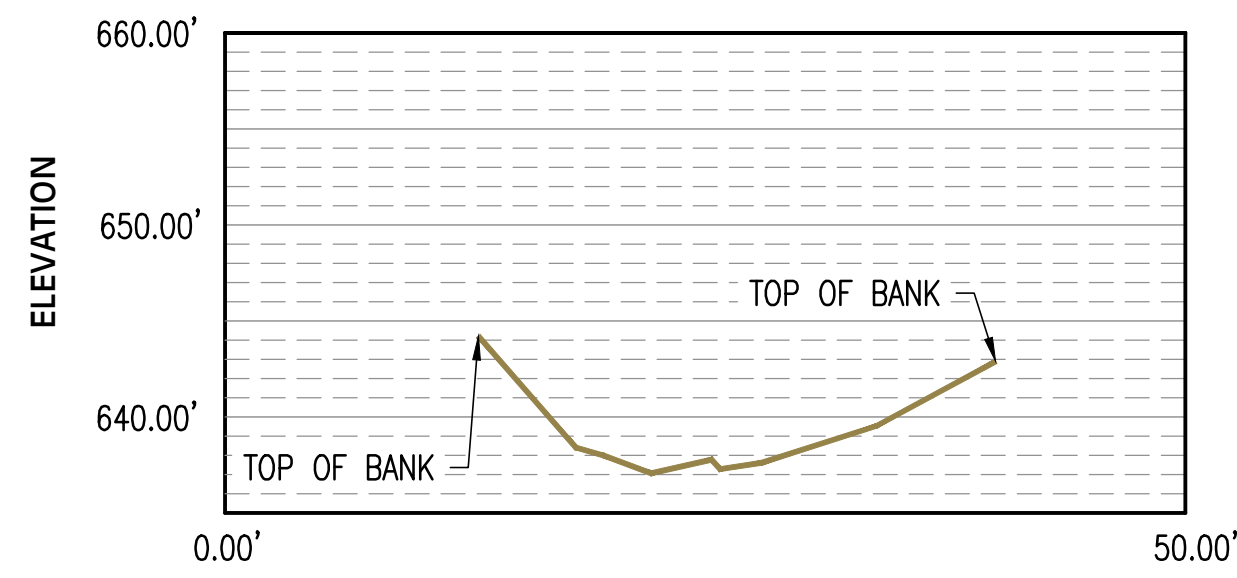
REV.	REVISION RECORD	DATE



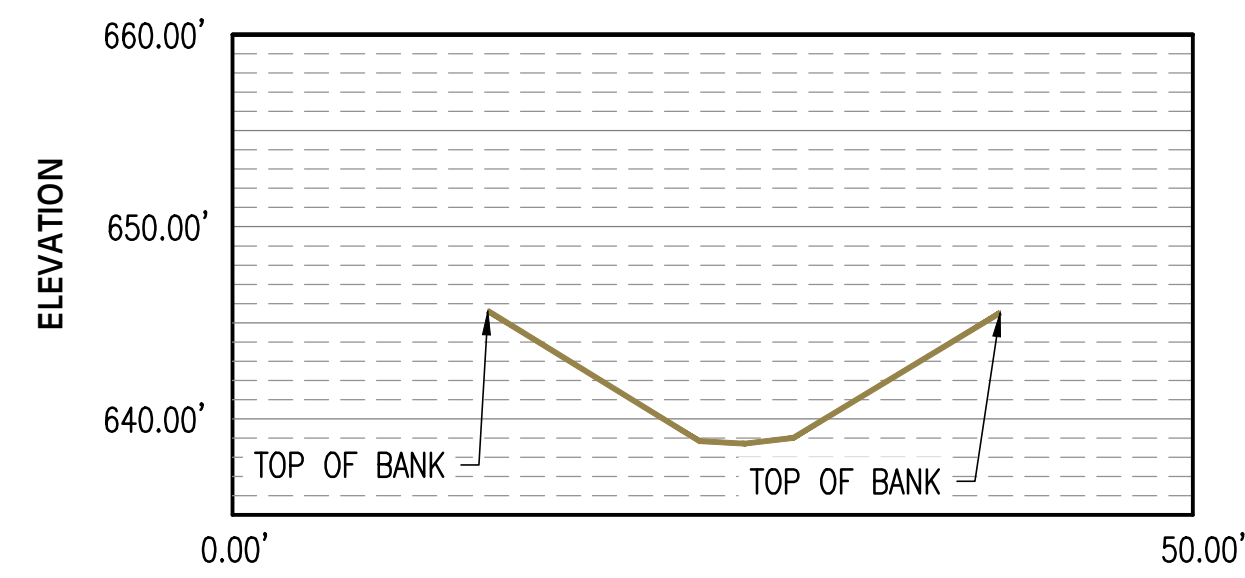
PROJ. NO.	3120	BRIDGE SECTION & PROFILES
DWG. BY	MLA	SWALE CREEK TRIBUTARIES
APPR. BY		YAKIMA NATION
FILE	D-3120-C-2	DATE 03/01/2021

DATE: 03/31/21
 PRELIMINARY
 NOT
 FOR CONSTRUCTION

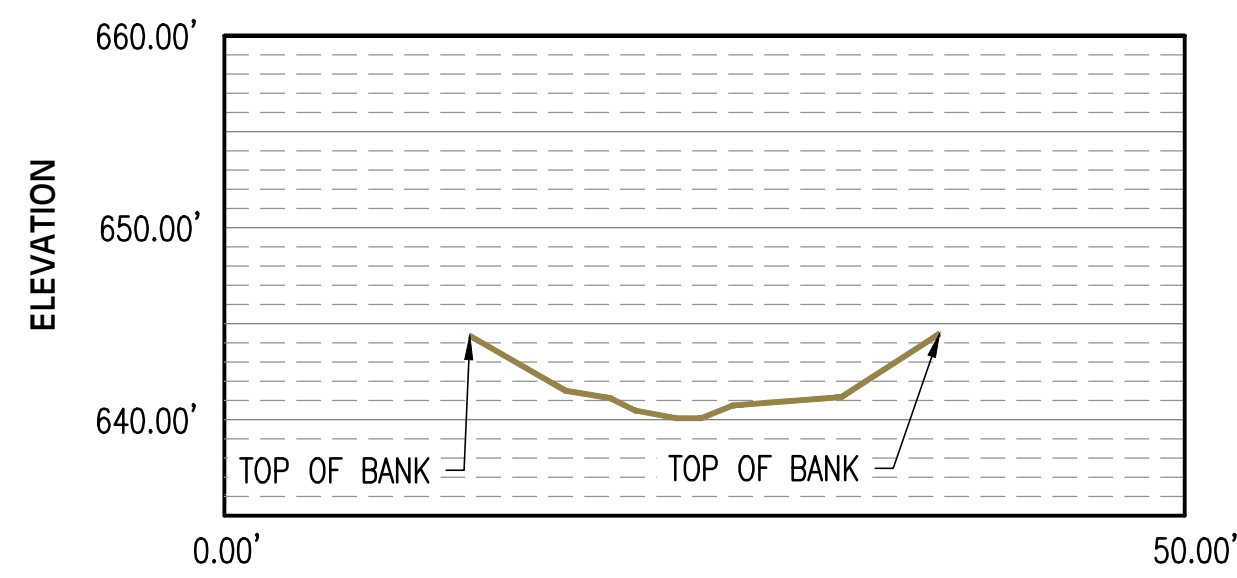
C-2



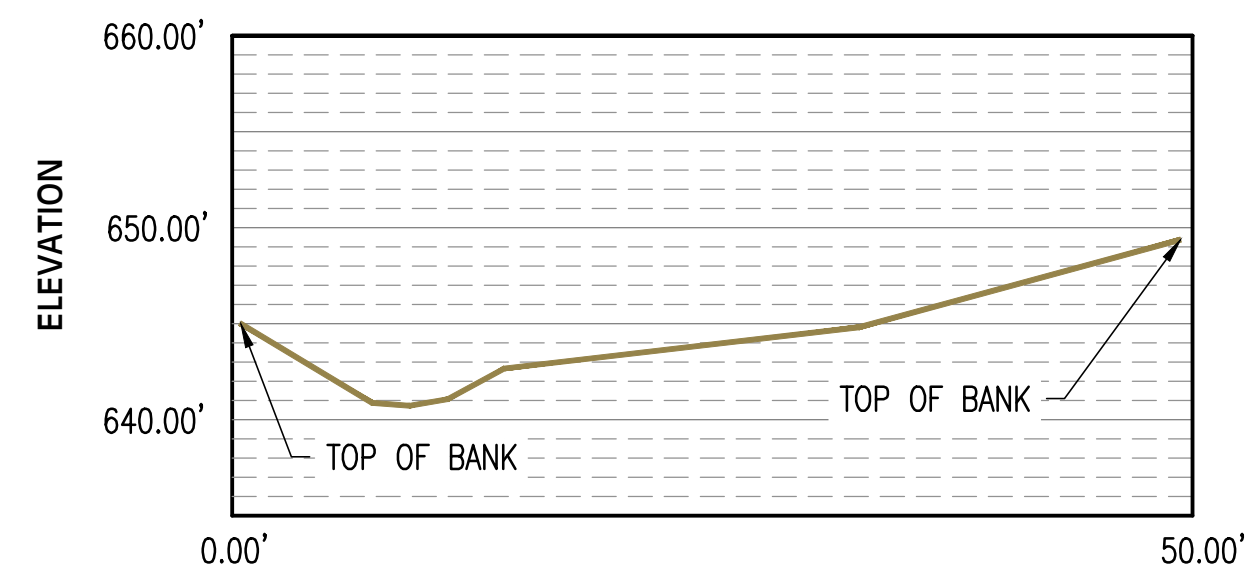
A CREEK CROSS SECTION (BRIDGE A)
C-3 SCALE: 1 = 10'



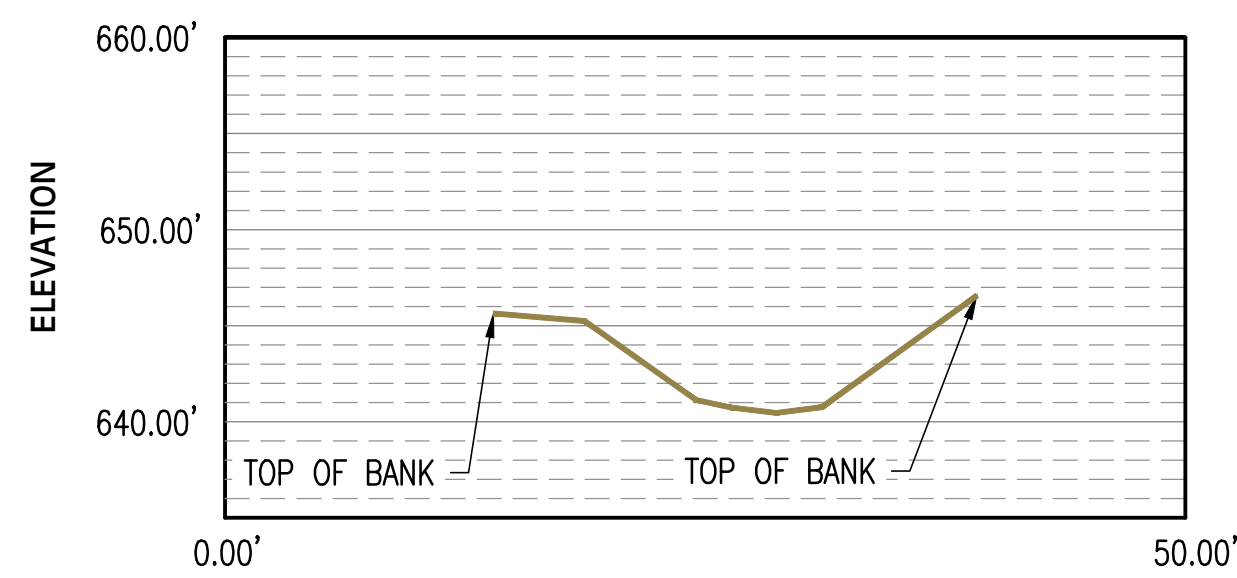
D CREEK CROSS SECTION (BRIDGE B)
C-3 SCALE: 1 = 10'



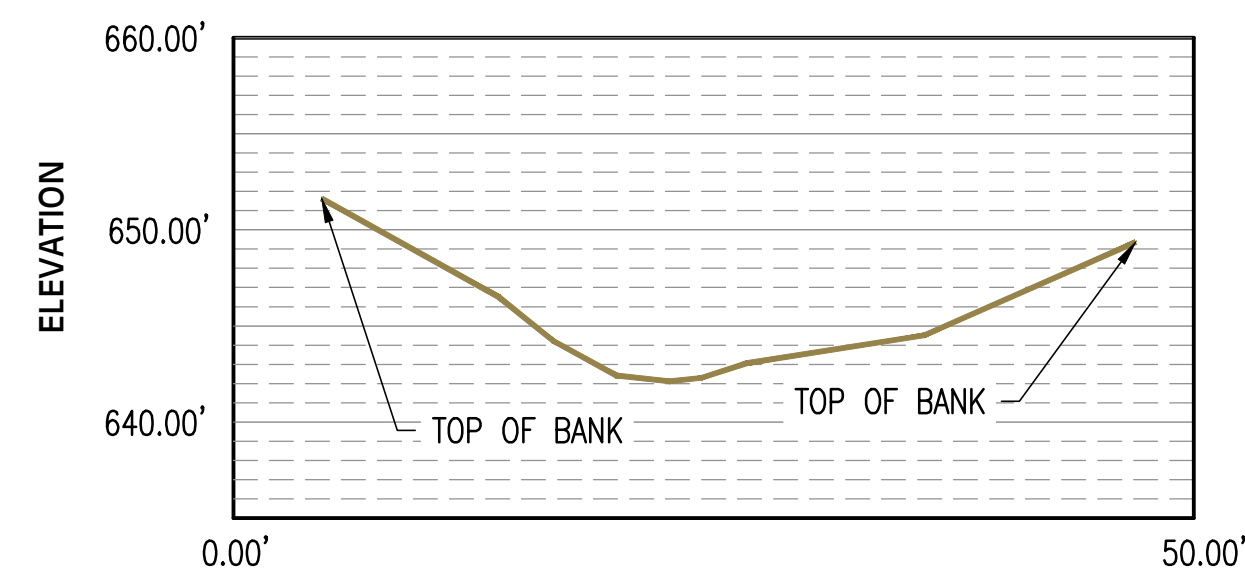
B CREEK CROSS SECTION (BRIDGE A)
C-3 SCALE: 1 = 10'



E CREEK CROSS SECTION (BRIDGE B)
C-3 SCALE: 1 = 10'



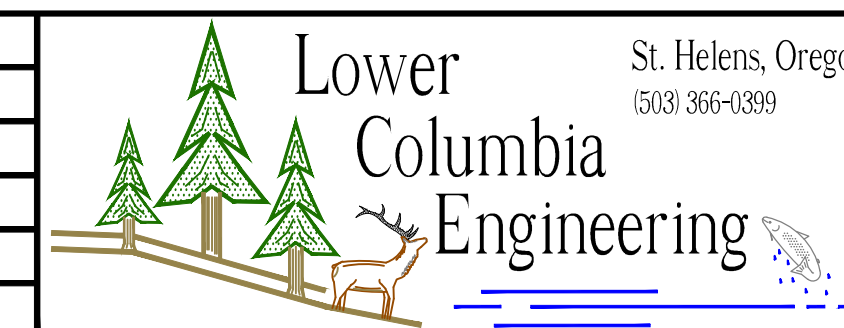
C CREEK CROSS SECTION (BRIDGE A)
C-3 SCALE: 1 = 10'



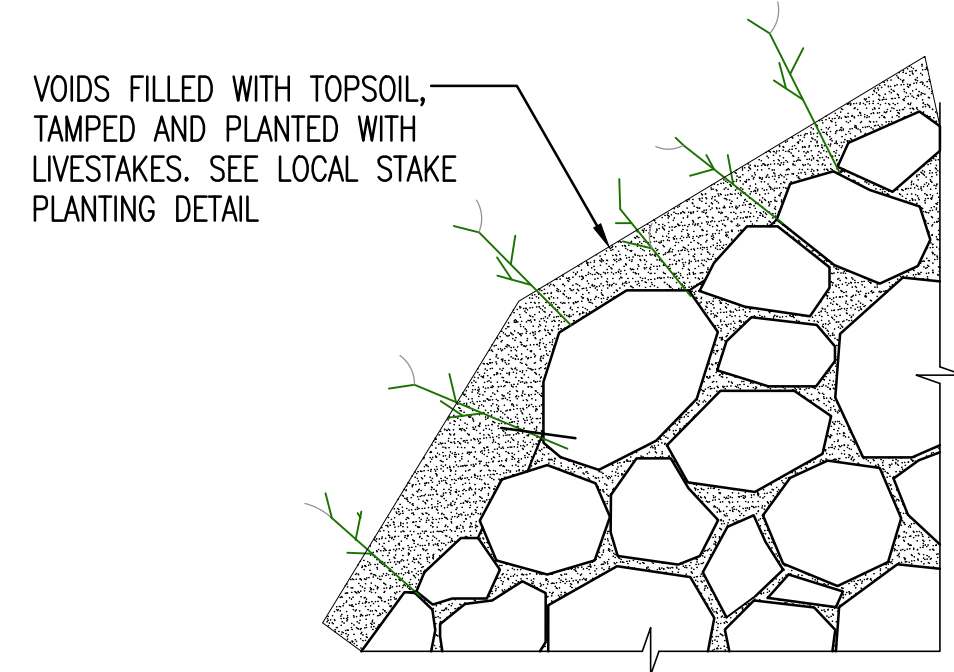
F CREEK CROSS SECTION (BRIDGE B)
C-3 SCALE: 1 = 10'

DATE: 03/31/21
PRELIMINARY
NOT
FOR CONSTRUCTION

REV.	REVISION RECORD	DATE

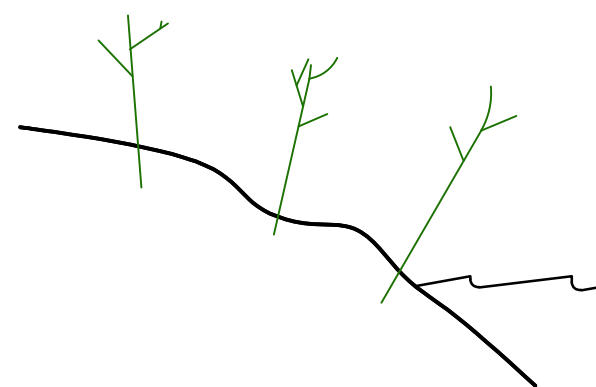


PROJ. NO.	3120	CREEK SECTIONS
DWG. BY	MLA	SWALE CREEK TRIBUTARIES
APPR. BY		YAKIMA NATION
FILE	D-3120-C-3	DATE 03/01/2021
		SHEET C-3



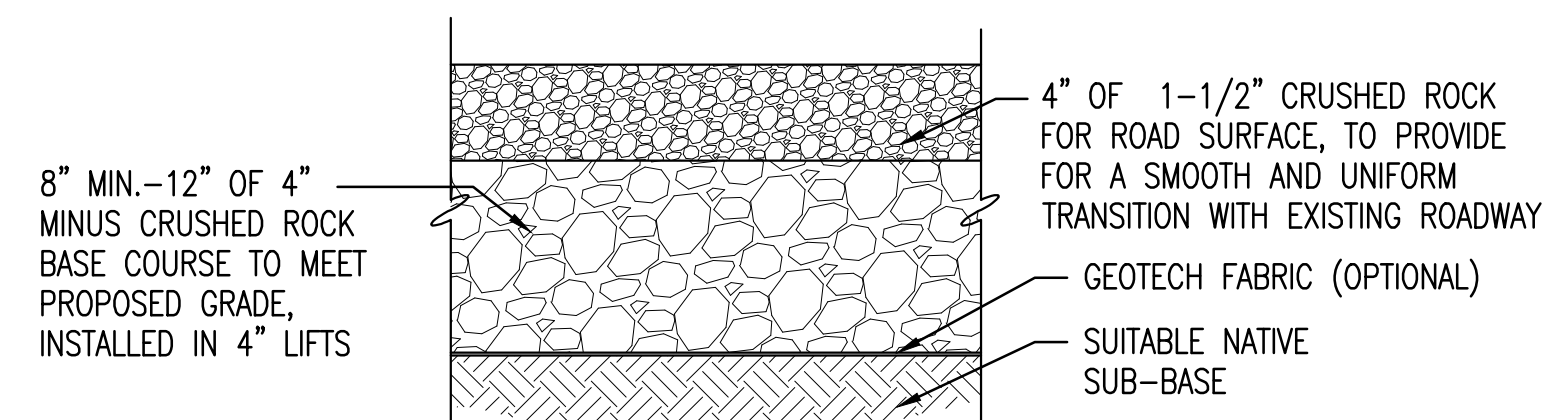
TYPICAL ROCK VOID PLANTING DETAIL

NTS



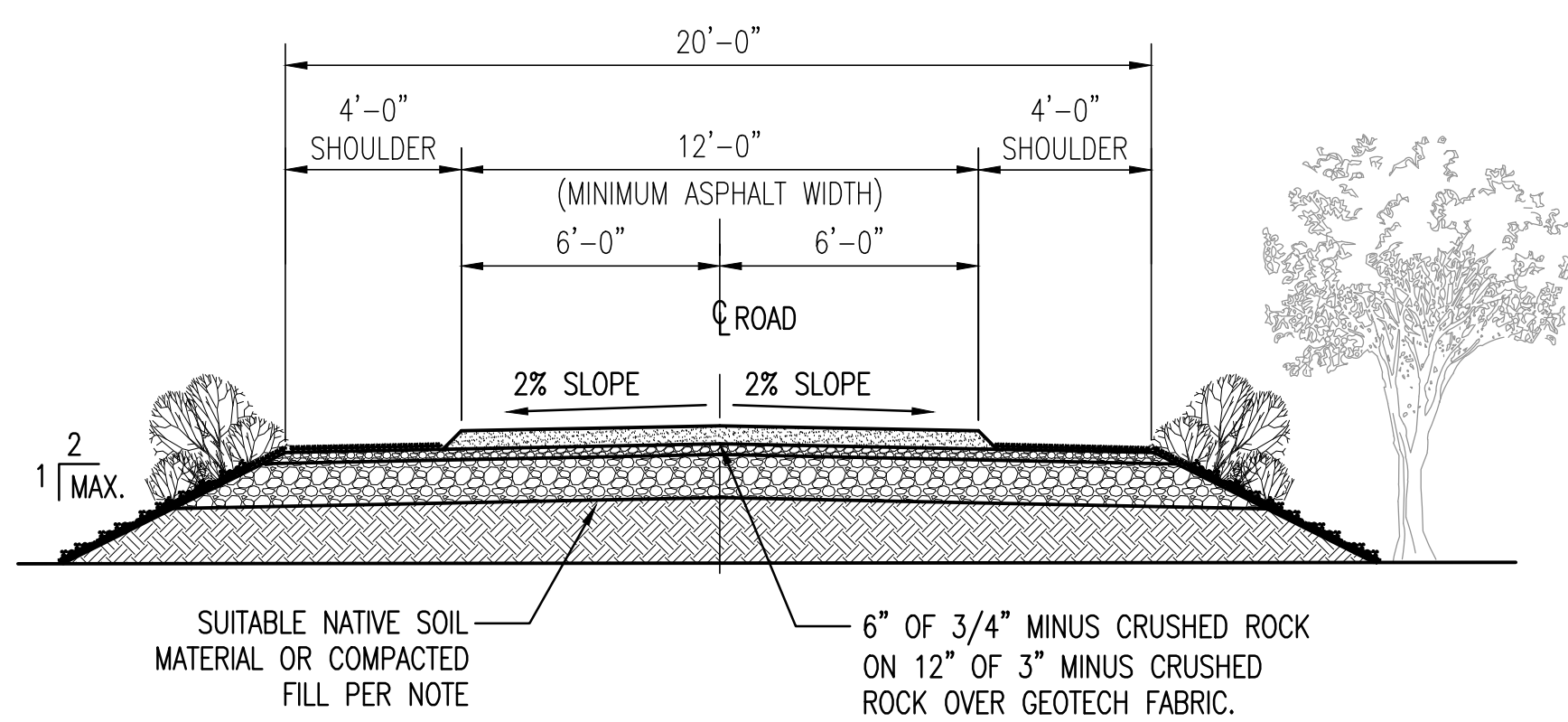
LOCAL STAKE PLANTING DETAIL

SCALE: NTS



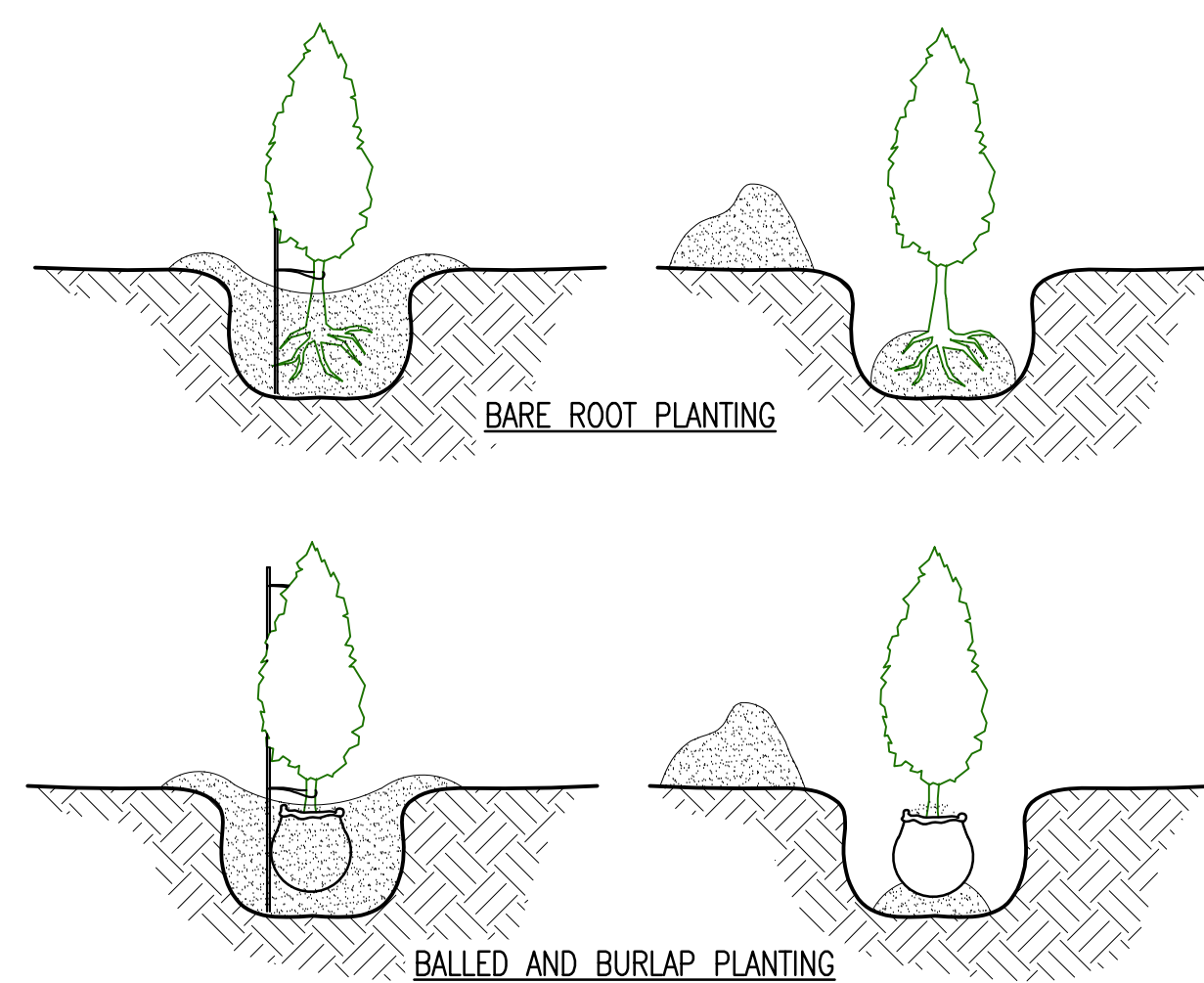
TYPICAL GRAVEL SERVICE ROAD PROFILE

NO SCALE



TYPICAL DRIVEWAY CROSS SECTION

SCALE: 1" = 10'-0"



TYPICAL TREE/ SHRUB PLANTING DETAIL

SCALE: NTS

NOTES FOR STAKE PLANTING:

1. SELECT LOCAL DOGWOOD, WILLOW, TWINBERRY, OCEANSPRAY, SNOWBERRY, CURRENT, OR OTHER LOCAL SPECIES.
2. CLEANLY CUT INTO STAKES OF VARYING SIZE FROM SMALLER THAN A PENCIL TO AS LARGE AS THE DONOR WILL ALLOW. SMALL STAKES ARE MUCH EASIER TO INSTALL. LARGE STAKES CAN STAND ABOVE COMPETING VEGETATION. STAKES SHALL BE HARVESTED FROM DONORS THAT ARE AS CLOSE TO PROJECT SITE AS POSSIBLE.
3. EACH STAKE SHOULD HAVE AT LEAST 2 NODES (BUDS).
4. BUNDLE STAKES INTO MANAGEABLE GROUPS, RIGHTSIDE UP AND STORE IN THE STREAM UNTIL USE.
5. INSTALL BY SLIDING INTO GROUND AT A RANGE OF LOCATIONS, SOME HIGH AND SOME LOW WITH RESPECT TO ORDINARY HIGH WATER.
6. NEATLY TRIM ANY ENDS THAT ARE MASHED BY POUNDING.
7. PERFORM FROM SEPTEMBER THRU MAY OR IN MOIST SOIL.
8. PLANTING DENSITY SHALL PROVIDE FOR MAXIMUM UNPLANTED AREA OF 2'-0" IN ANY DIRECTION ALONG ENTIRE BANK FROM LOW TO HIGH WATER LINE.

GENERAL NOTES FOR TREE/SHRUB PLANTING:

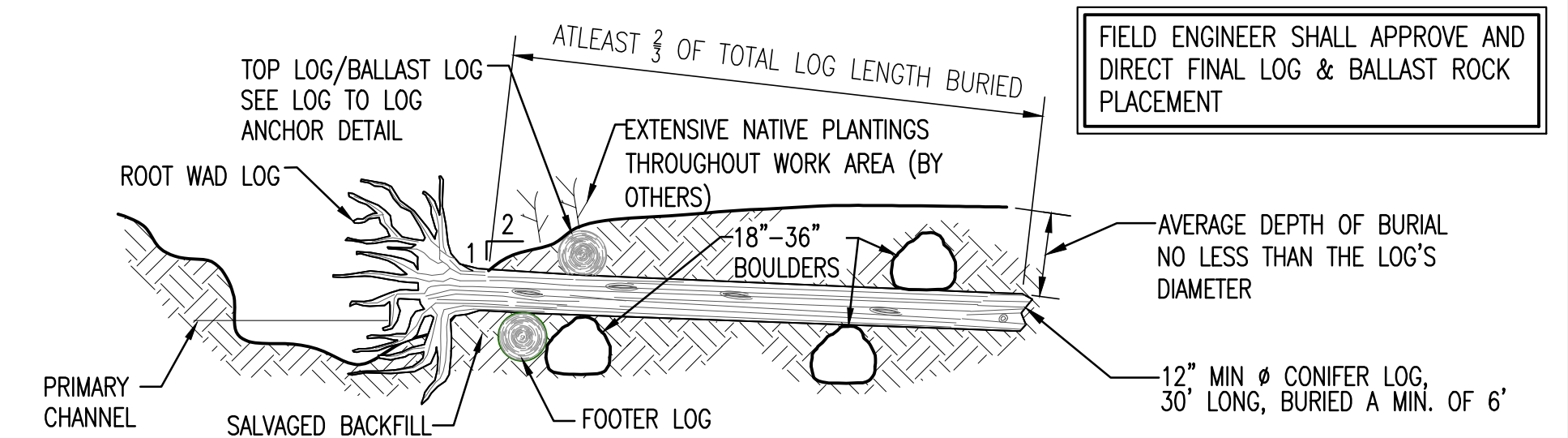
1. SELECT LOCAL RED CEDAR, DOUGLAS FIR, RED ALDER, OREGON ASH, VINE MAPLE, SWORD FERN, SALAL, OREGON GRAPE, ELDERBERRY, SALMON BERRY, AND NINEBARK OR OTHER LOCAL SPECIES.
2. PLANTING DENSITY SHOULD BE BETWEEN 10'-5' O.C.

NOTES FOR BARE ROOT PLANTING:

1. SOAK BARE ROOT PLANTS FOR 24 HRS BEFORE PLANTING.
2. DIG HOLE APPROXIMATELY 2X ROOT BALL DIAMETER.
3. BACKFILL A CONE SHAPED MOUND IN THE HOLE.
4. SPREAD ROOTS EVENLY ON MOUND.
5. FILL 3/4 FULL, COMPACT GENTLY AND ADJUST PLANT ALIGNMENT.
6. COMPLETE FILL AND CREATE RIDGE AROUND PLANT FOR A WATERING BASIN.
7. WATER THOROUGHLY.
8. STAKE AS NECESSARY.

NOTES FOR BALLED AND BURLAP PLANTING:

1. DIG HOLE TWICE AS LARGE AS ROOT BALL.
2. BACKFILL A CONE SHAPED MOUND IN THE HOLE.
3. INSTALL TREE AND OPEN BURLAP TO FULLY EXPOSE SURFACE SOIL.
4. FILL 3/4 FULL, COMPACT GENTLY AND ADJUST PLANT ALIGNMENT.
5. COMPLETE FILL AND CREATE RIDGE AROUND PLANT FOR A WATERING BASIN.
6. WATER THOROUGHLY.
7. STAKE AS NECESSARY.

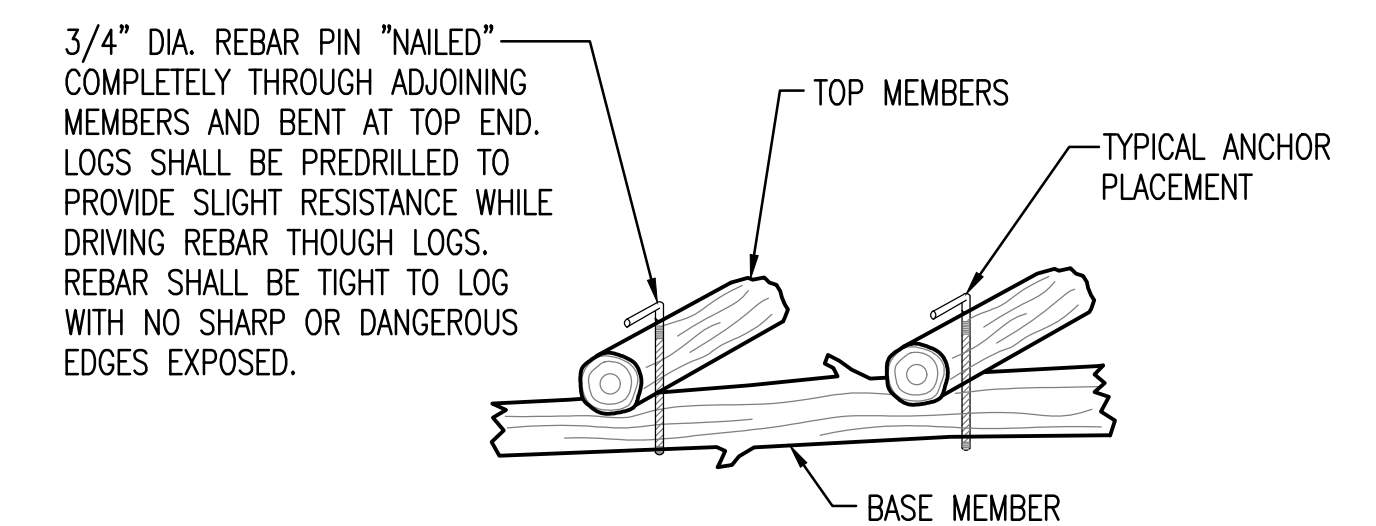


NOTES:

1. THE LOGS SHALL BE INSTALLED IN NARROW TRENCHES, EXCAVATED JUST LARGE ENOUGH TO ACCEPT THE LOG AND WITH ADJACENT VEGETATION LEFT INTACT.
2. LOGS SHALL BE SKEWED TO THE CHANNEL AND AT ELEVATIONS AS SHOWN ON PLANS. IF NO ELEVATIONS ARE CALLED OUT, THEN INSTALL DEEPLY ENOUGH SO THAT AT LEAST A PORTION OF THE LOG IS WITHIN THE LOW FLOW CHANNEL - DO NOT INSTALL LOGS LEVEL.
3. BACKFILL TRENCH WITH NATIVE SOIL IN ALL CASES THE EXTENT OF BURIAL AS SHOWN ABOVE SHALL BE COMPLETED. ADDITIONAL ANCHORING MAY BE NECESSARY AT LOCATIONS WITH ANTICIPATED SCOUR, AS DIRECTED ELSEWHERE ON THESE PLANS OR BY THE FIELD ENGINEER.
4. REVEGETATE AREA WITH WHOLE PLANTS OR SLIPS PER PLANTING PLAN.
5. TRENCHES MAY ROUTINELY BE IN EXCESS OF 4 FEET DEEP, NO PERSON SHALL BE ALLOWED NEAR OR IN ANY TRENCH AND THE TRENCH IS TO BE FILLED IMMEDIATELY AFTER EXCAVATION.
6. WATER IN THE TRENCH MAY FLOAT THE LOG. IN THESE CASES OTHER LOGS SHALL BE TEMPORARILY STACKED ON TOP OF THE LOG AND SUNK USING THE WEIGHT OF THE EXCAVATOR TO PUT THE LOG AT THE PROPER ELEVATION PRIOR TO BACKFILLING.

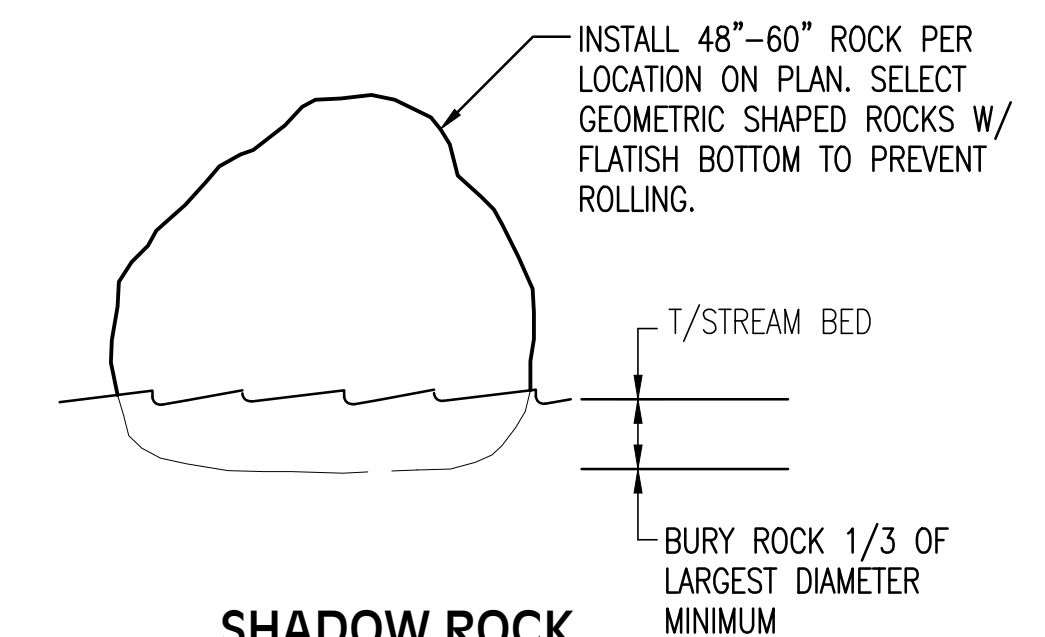
TYPICAL LOG INSTALLATION DETAIL

SCALE: NTS



LOG TO LOG ANCHOR DETAIL

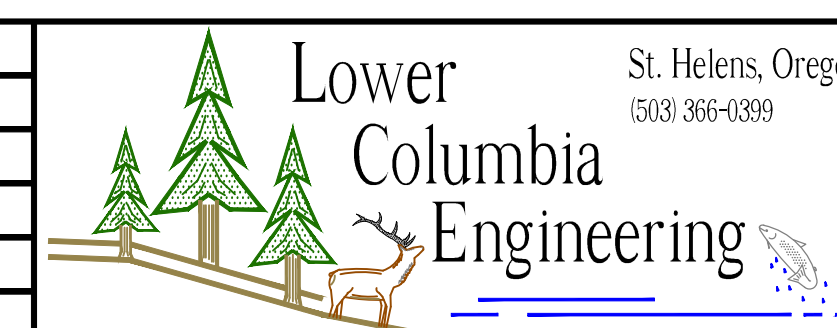
SCALE: NTS



SHADOW ROCK INSTALLATION DETAIL

DATE: 03/31/21
PRELIMINARY
NOT
FOR CONSTRUCTION

REV.	REVISION RECORD	DATE



PROJ. NO.	3120	DETAILS
DWG. BY	MLA	SWALE CREEK TRIBUTARIES
APPR. BY		YAKIMA NATION
FILE	D-3120-D-1	DATE 03/01/2021

SHEET
D-1