

NOTES:

PURPOSE OF STRUCTURE
 1. PROVIDE BANK AND FLOODPLAIN COMPLEXITY.
 2. RAISE LOCAL AREA WATER SURFACE ELEVATION TO ENGAGE FLOODPLAIN MORE FREQUENTLY.

DESIGN SPECIFICS
 1. POSITION FRONT FACE OF JAM AS CLOSE TO NORMAL OF FLOW AS POSSIBLE.
 2. RACKING MATERIAL SHOULD BE COMPLEX AND DENSE. SEE PLANS.
 3. IF 10' DEPTH CAN NOT BE ACHIEVED, MAX HEIGHT OF VERTICAL POST ABOVE JAM CAN NOT EXCEED 2'

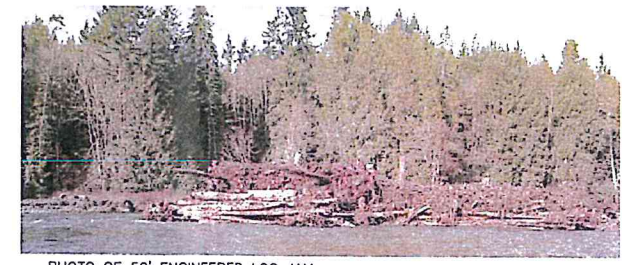


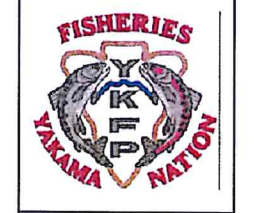
PHOTO OF 50' ENGINEERED LOG JAM

**DRAFT 60% SUBMITTAL
NOT FOR CONSTRUCTION**

DATE	REVISIONS

SEAL

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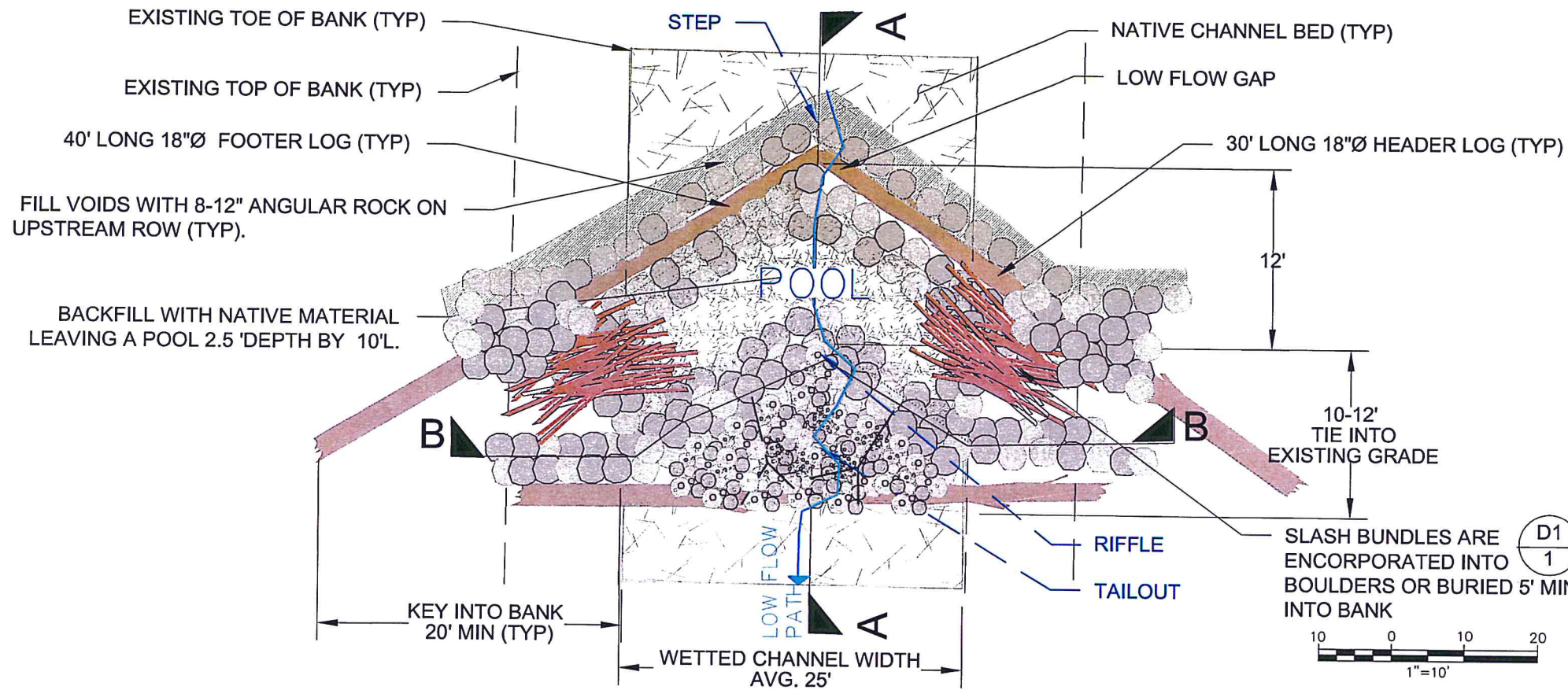


ELJ : PLAN, SECTION AND DETAILS
 SWAUK CREEK RIVER RESTORATION PROJECT
 RIVER MILE 6.5 TO 7.3
 YAKAMA NATION
 KITTITAS COUNTY, WASHINGTON

DATE:	12/2010
DESIGNED BY:	G.FOWLER
DRAWN BY:	T. NAGLE
CHECKED BY:	T. ABBE
SCALE:	AS NOTED
ENTRIX JOB NO.	42294003
FIGURE NO.	

ONE INCH
AT FULL SIZE
OTHERWISE SCALE ACCORDINGLY

PLAN
SCALE: 1"=10'



NOTES:

- PURPOSE OF STRUCTURE**
1. TO RAISE WATER SURFACE OF CREEK TO ACTIVATE FLOOD PLAIN MORE FREQUENTLY.
2. PROVIDE OPTIMAL HYDRAULIC CONDITIONS FOR SORTING OF SPAWNING GRAVELS.
- DESIGN SPECIFICS**
1. STRUCTURE SHOULD BE PLACED IN MEANDER BENDS WITH LOG WEIR SIGHTED UPSTREAM OF THE POINT OF CURVATURE.
2. SLOPE OF LOG AND BOULDER WEIR SHOULD MATCH SLOPE OF CHANNEL IN AREA.
3. ACTUAL LENGTH OF LOGS WILL VARY DEPENDING ON WETTED WIDTH AT LOCATION OF STRUCTURE.
4. NUMBER OF FOOTER LOGS MAY BE LESS THAN SHOWN. IF SHALLOW BEDROCK IS PRESENT AND A FOOTER LOG CAN NOT BE PLACED, FILL WITH 10' ANGULAR ROCK TO FORM A SETTING BED AT LEAST 3.5' WIDE.
5. MAX HEIGHT OF HEADER LOG CAN NOT EXCEED 1.5' ABOVE CHANNEL BED.
6. BOULDER AND ROCK HEIGHT CAN NOT EXCEED 1.5' ABOVE CHANNEL BED.



PHOTO OF GRADE CONTROL STRUCTURE



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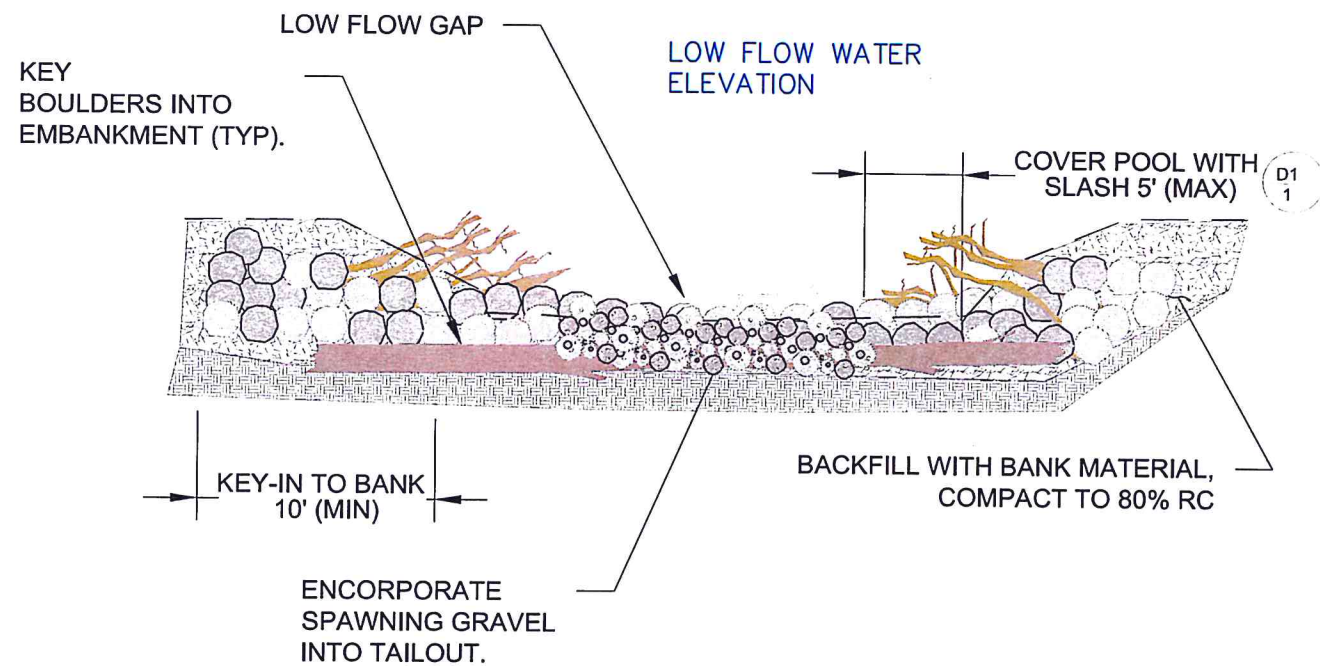


GRADE CONTROL : PLAN, SECTION AND DETAILS
SWAJK CREEK RIVER RESTORATION PROJECT
RIVER MILE 6.5 TO 7.3
YAKAMA NATION
KITITAS COUNTY, WASHINGTON

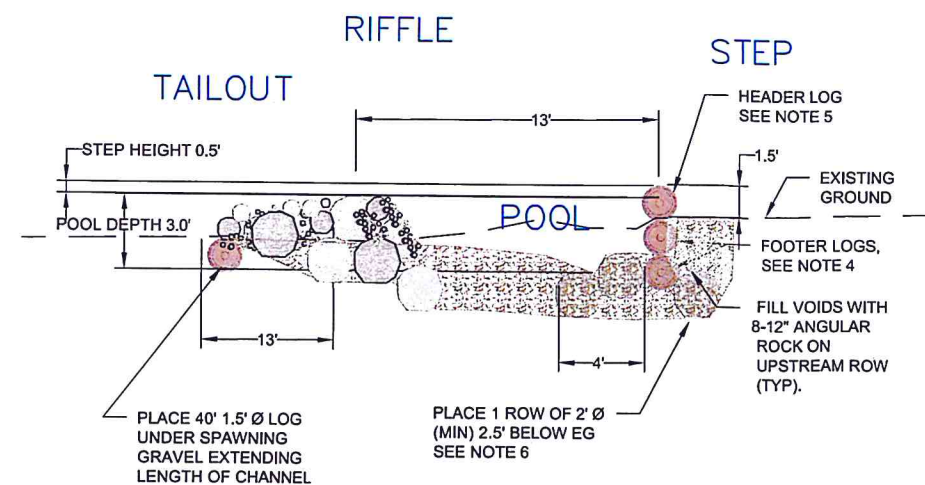
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DESIGNED BY: G.FOWLER
DRAWN BY: T. NAGLE
CHECKED BY: T. ABBE
SCALE: AS NOTED
ENTRIX JOB NO. 42294003

FIGURE NO.
D3
SHEET 8 of 15

SECTION B:B
SCALE: 1"=10'

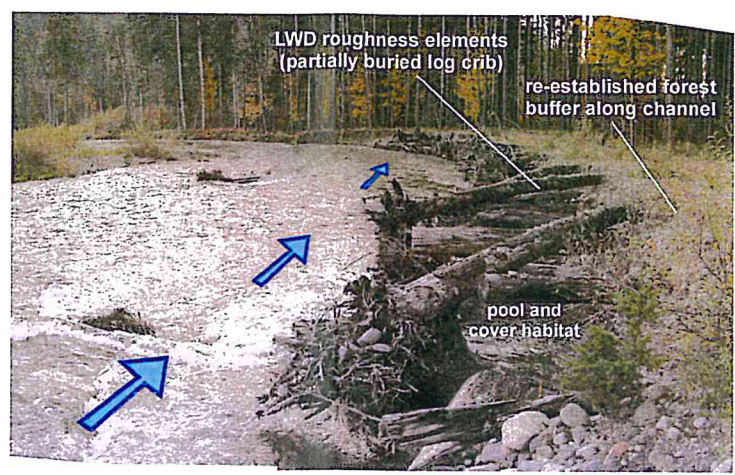
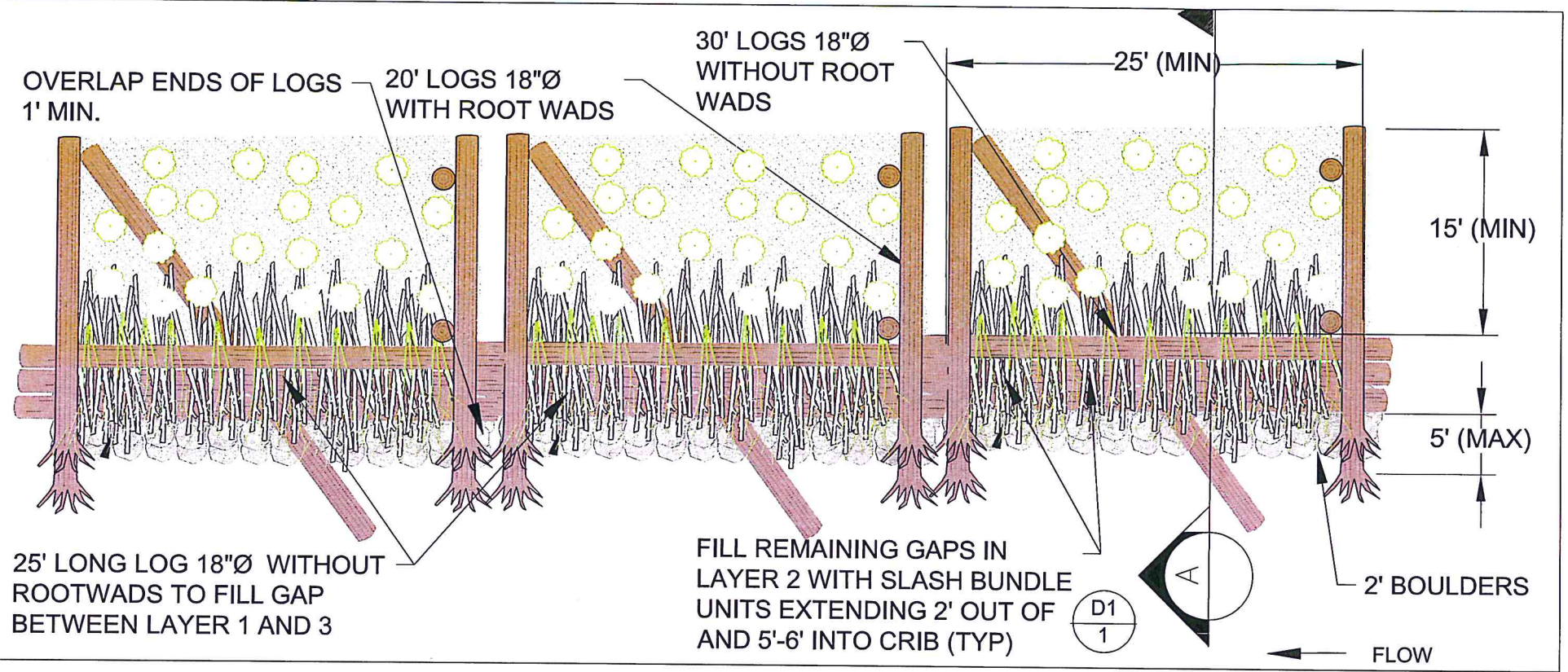


SECTION A:A
SCALE: 1"=8'



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EXAMPLE OF COMPLEX LOG CRIB WALL ON CISPUS RIVER, WA

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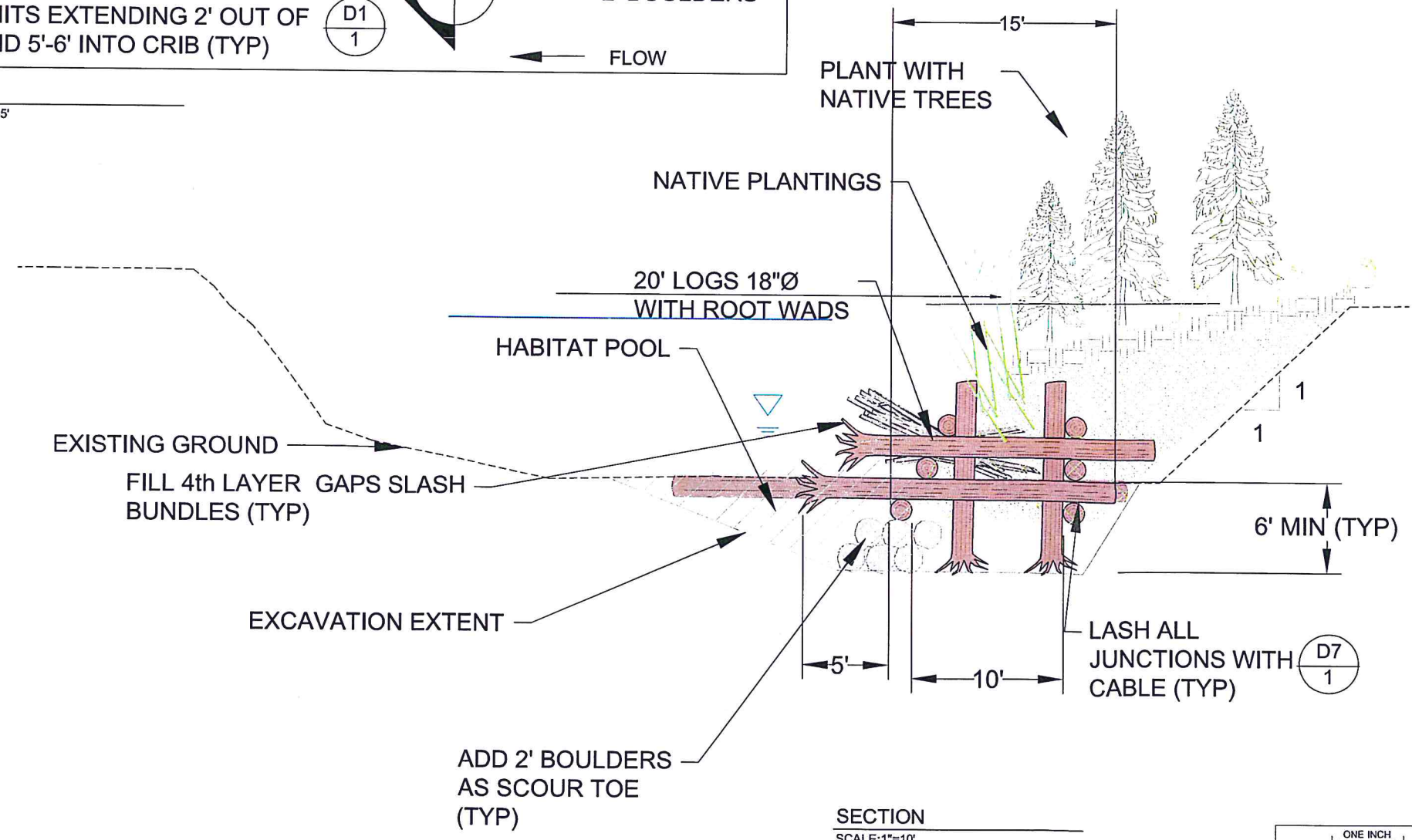
PLAN
SCALE: 1"=5'

NOTES:

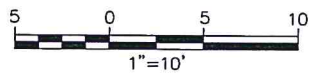
PURPOSE
TO PROVIDE STREAM BANK COMPLEXITY AND HABITAT FUNCTION ALONG ERODING BANKS.

DESIGN SPECIFICS

1. INTERIOR OF ELJ CRIB SHOULD BE LINED WITH CEDAR BRUSH AND LOCAL NATIVE CUTTINGS AS DETERMINED BY PROJECT ENGINEER.
2. BRUSH MATTING BY FILLING BOTTOM OF CRIB STRUCTURE AFTER 2 LOG LAYERS. PACK BRUSH MATTING INTO SIDES. AFTER EACH PLACEMENT OF PLANT MATERIAL, SECURE IT BY PLACING AND COMPACTING NATIVE ALLUVIUM FILL.
3. CRIB WALL MEMBERS SHOULD BE CABLED TOGETHER.
4. THE NUMBER OF CRIB WALL SECTIONS WILL VARY DEPENDING ON THE LOCATION. PLAN VIEW SHOWS THREE CRIB WALL STRUCTURES.



SECTION
SCALE: 1"=10'

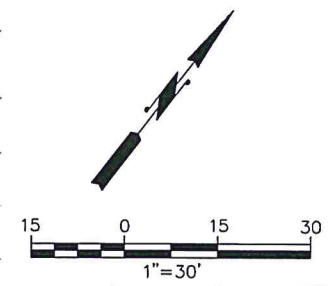
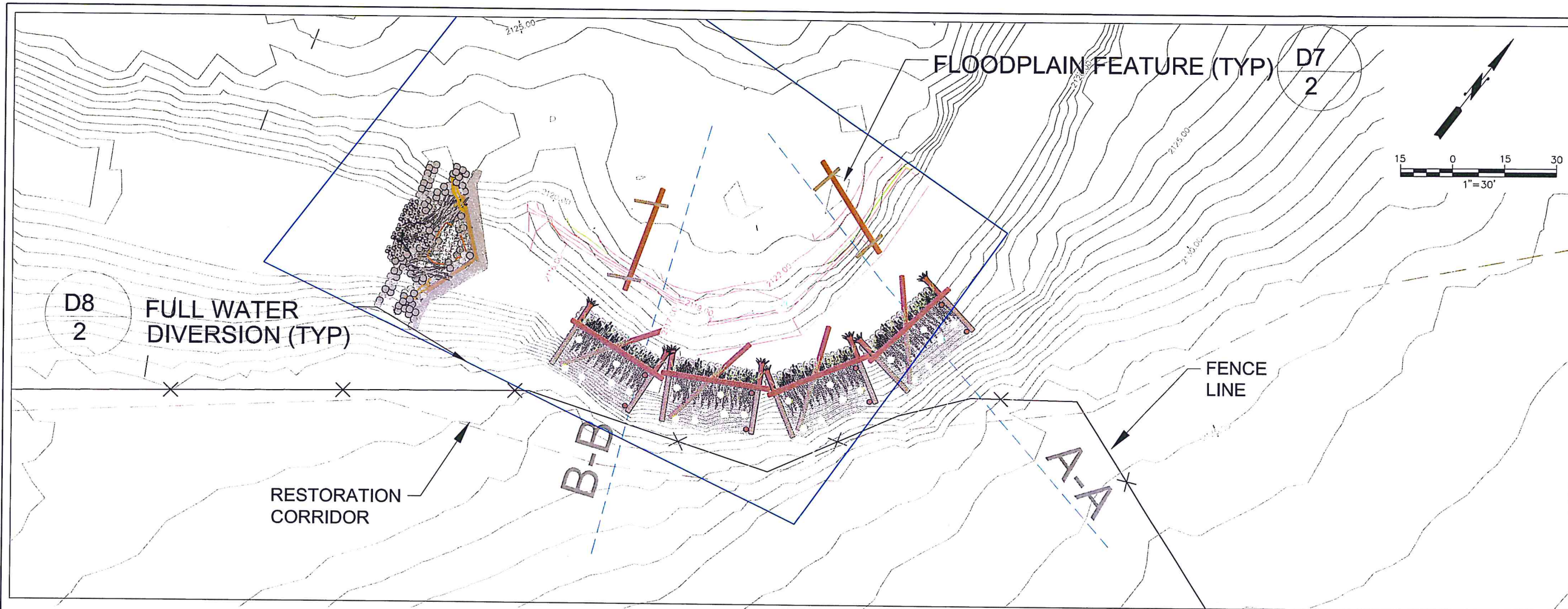


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CRIB HABITAT : PLAN, SECTION AND DETAILS	SWAUK CREEK RIVER RESTORATION PROJECT RIVER MILE 6.5 TO 7.3 YAKAMA NATION
KITTITAS COUNTY, WASHINGTON	

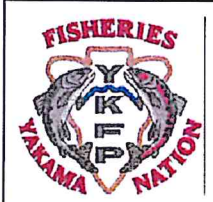
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FIGURE NO.	D4
SHEET	9 of 15



REVISIONS	DATE

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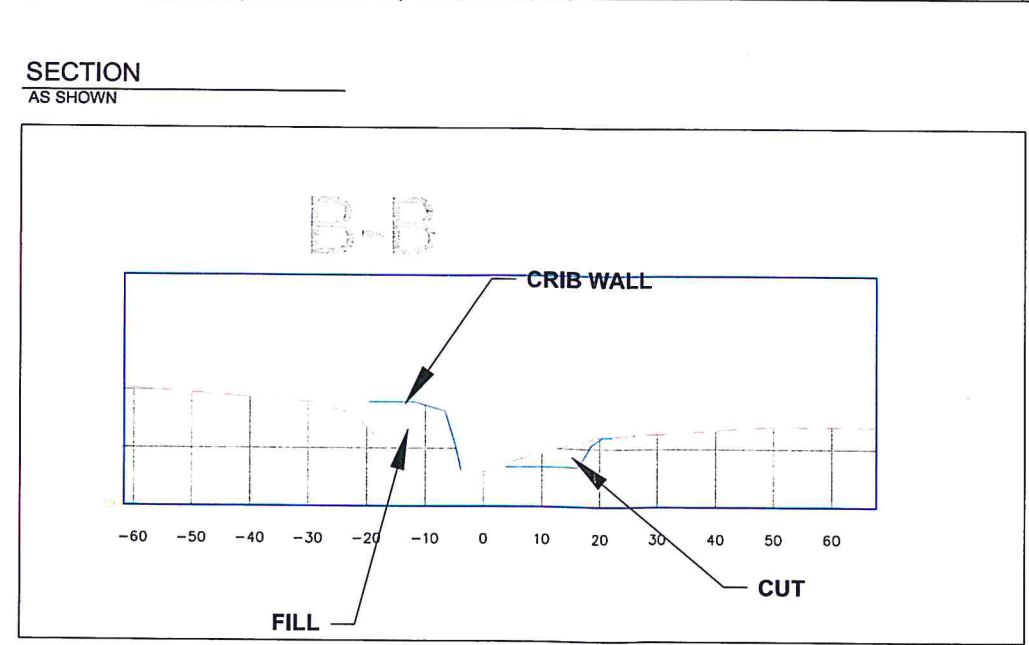
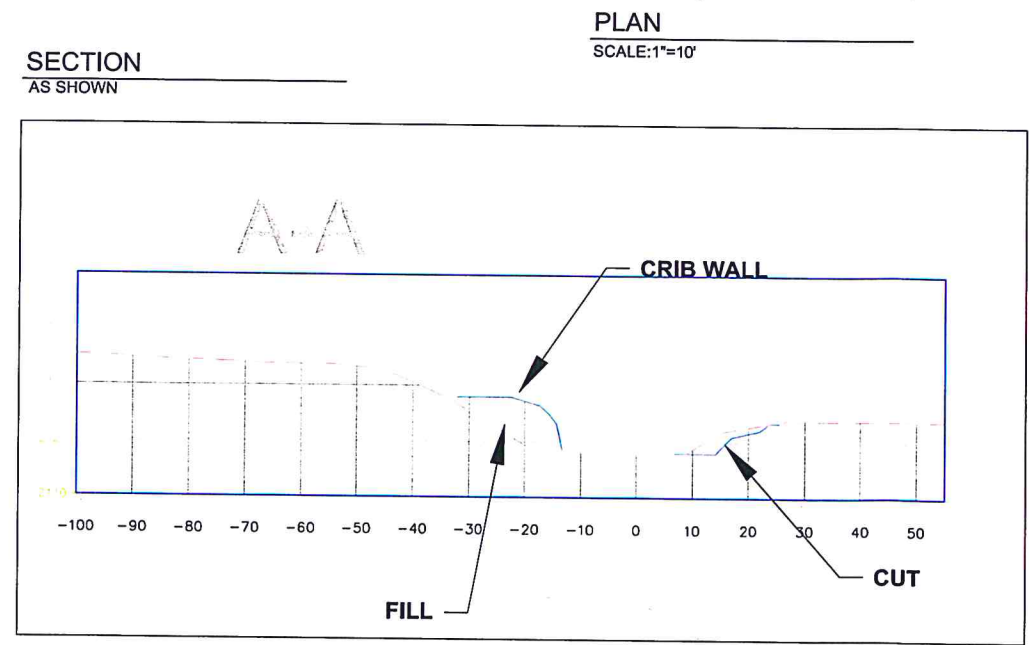
LEGEND:

- CRIB HABITAT
- EXISTING CONTOUR
- PROPOSED CONTOUR

NOTES:

PURPOSE:
 TO PROVIDE ANCHORED WOOD COMPLEXITY ALONG ERODED BANKS TO FORM REFUGE.

DESIGN SPECIFICS
 1. THE QUANTITY OF CUT SHOULD EQUAL THE QUANTITY OF FILL REQUIRED TO BUILD THE CRIB HABITAT STRUCTURES.

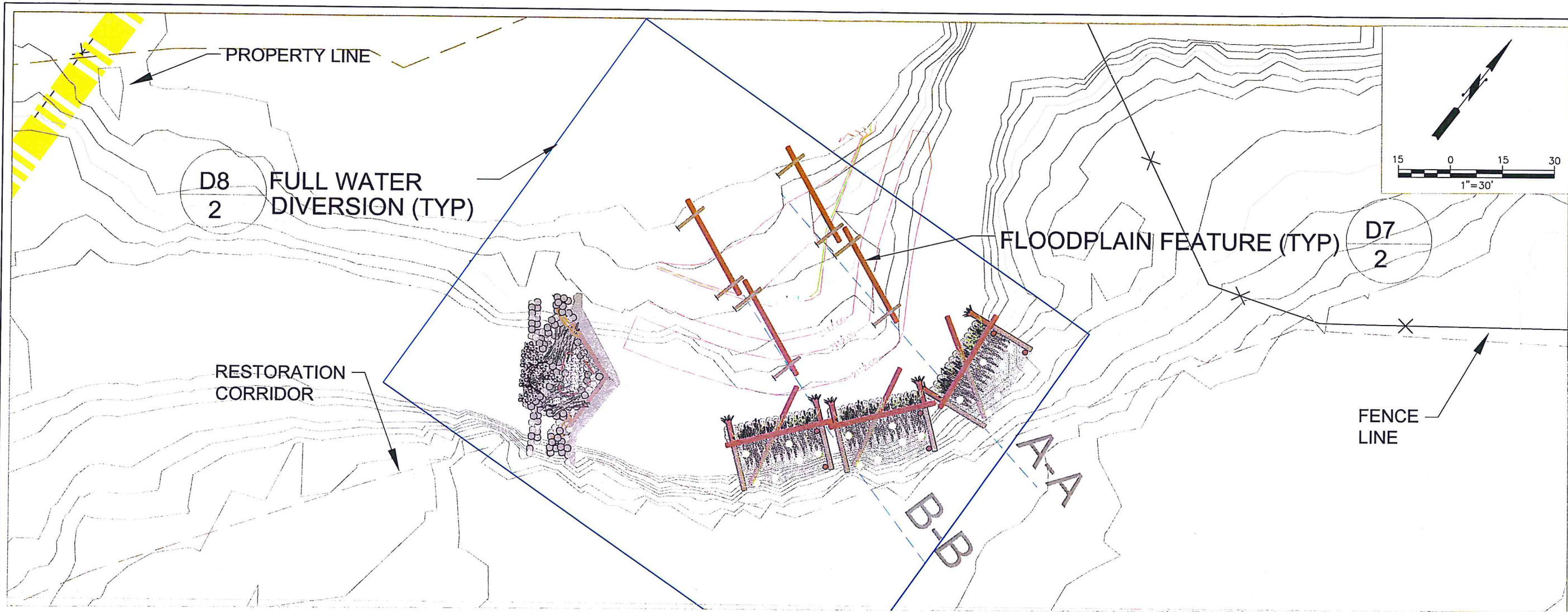


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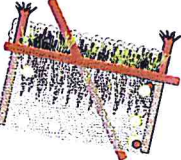


ONE INCH
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 OTHERWISE SCALE ACCORDINGLY

NORTH SIDE CHANNEL PLAN AND SECTION
 SWAUK CREEK RIVER RESTORATION PROJECT
 RIVER MILE 6.5 TO 7.3
 YAKAMA NATION
 KITTITAS COUNTY, WASHINGTON

DATE:	12/2010
DESIGNED BY:	G.FOWLER
DRAWN BY:	T. NAGLE
CHECKED BY:	T. ABBE
SCALE:	AS NOTED
ENTRIX JOB NO.	42294003
FIGURE NO.	D5
SHEET	10 of 15



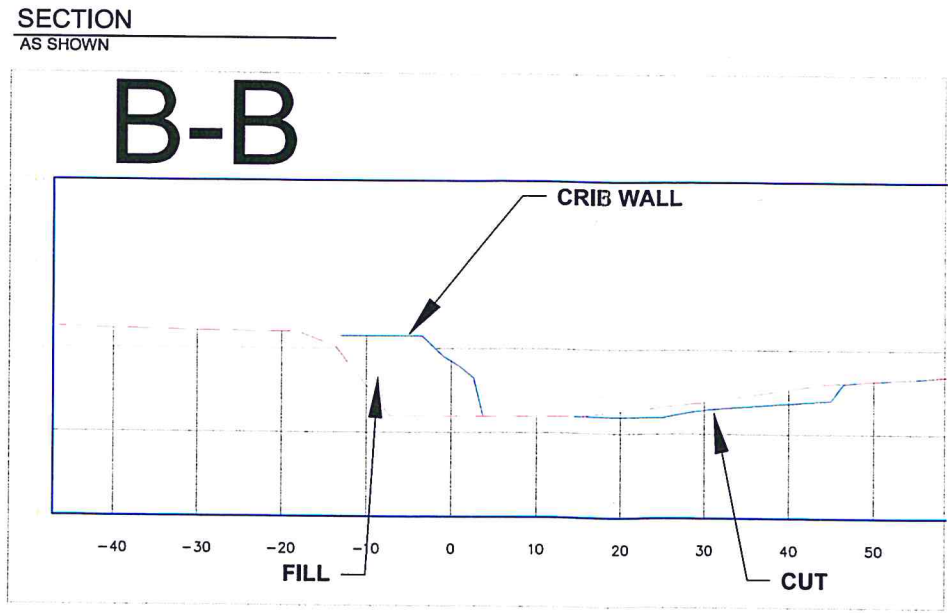
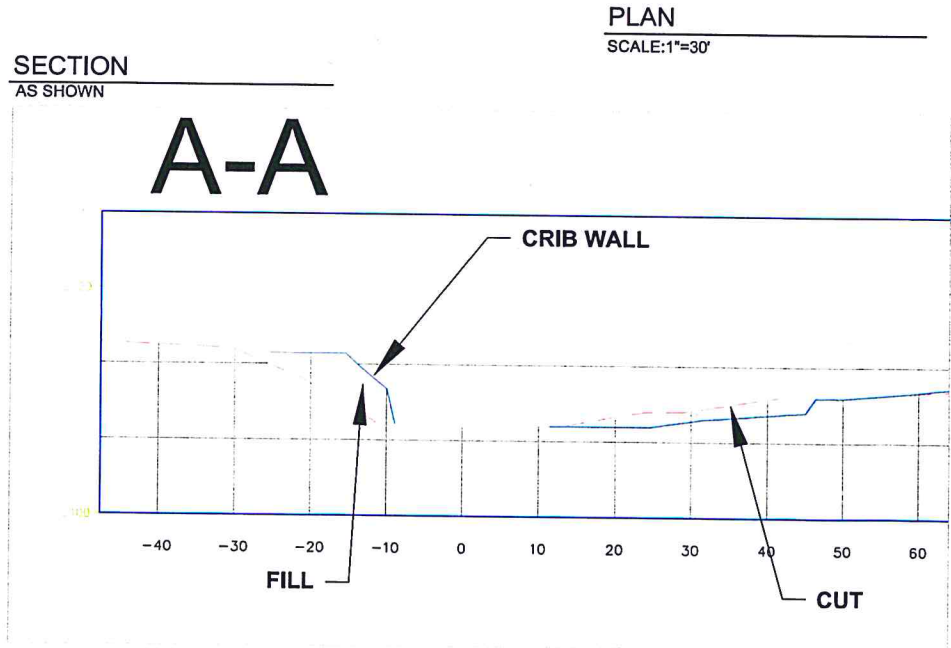
LEGEND:

-  CRIB HABITAT
-  EXISTING CONTOUR
-  PROPOSED CONTOUR

NOTES:



PURPOSE: TO PROVIDE ANCHORED WOOD COMPLEXITY ALONG ERODED BANKS TO FORM REFUGE.

DESIGN SPECIFICS
 1. THE QUANTITY OF CUT SHOULD EQUAL THE QUANTITY OF FILL REQUIRED TO BUILD THE CRIB HABITAT STRUCTURES.

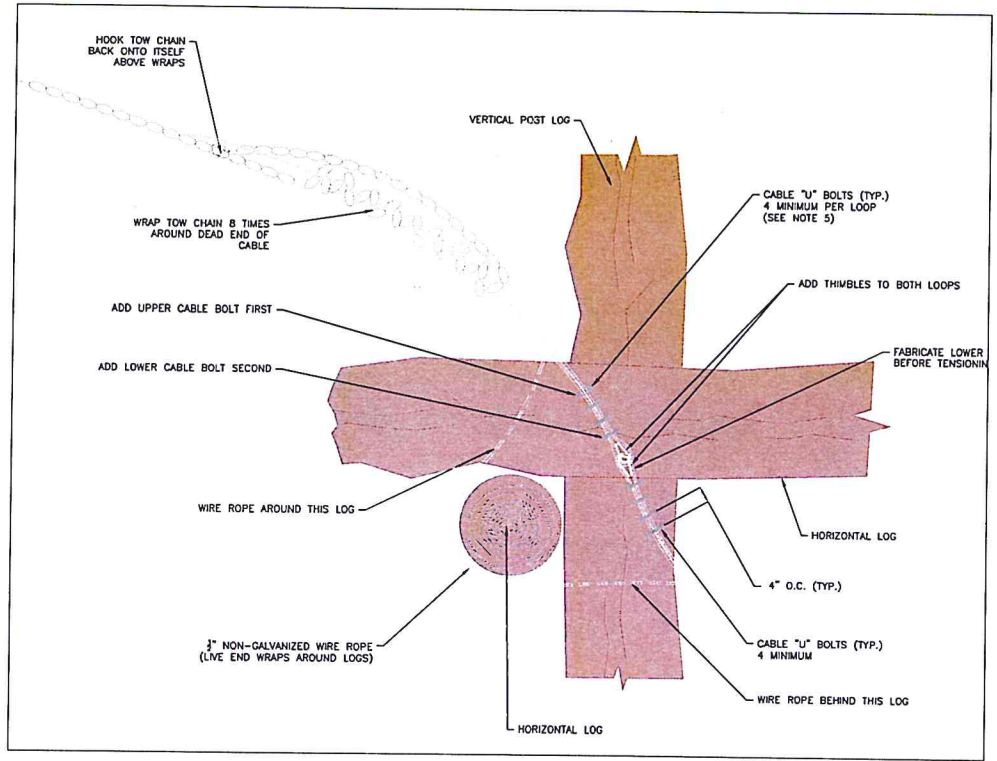


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ONE INCH
AT FULL SIZE
OTHERWISE SCALE ACCORDINGLY

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DATE															
REVISIONS															
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<p>SOUTH SIDE CHANNEL PLAN AND SECTION SWAUK CREEK RIVER RESTORATION PROJECT RIVER MILE 6.5 TO 7.3 YAKAMA NATION KITTITAS COUNTY, WASHINGTON</p>															
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ENTRIX JOB NO.	42294003														
FIGURE NO.															
<p>D6 SHEET 11 of 15</p>															

SECTION
NTS
D7
1

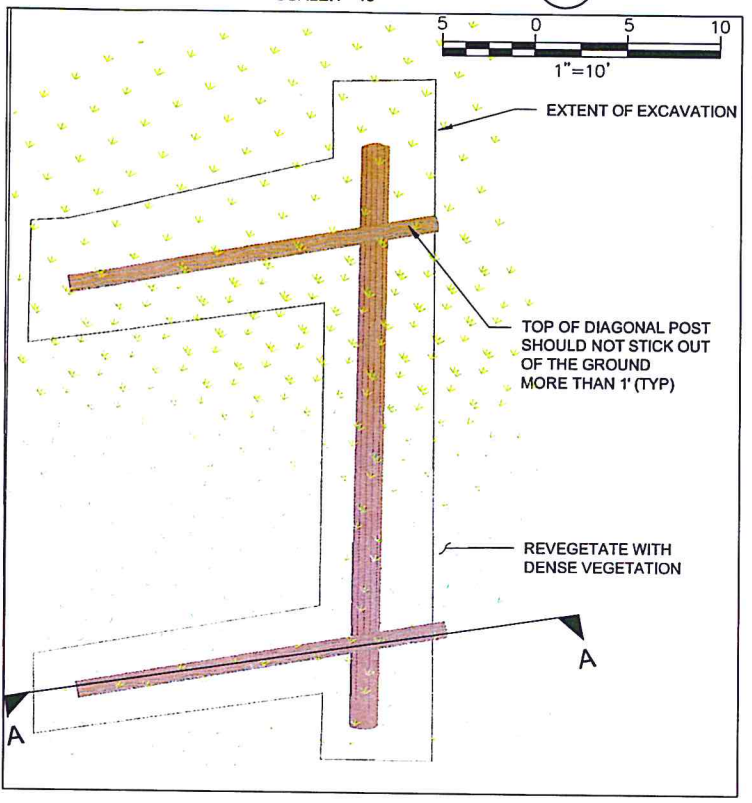


PURPOSE:
TO ENSURE INTEGRITY OF STRUCTURE IN ORDER TO RETAIN BALLAST. POTENTIAL OF SHALLOW DEPTH TO BEDROCK PREVENTS OPTIMAL EXCAVATION DEPTH TO BE ACHIEVED.

- CABLING:**
1. FORM LOOP AT END OF CABLE. SECURE LOOP WITH "U" BOLTS.
 2. TIGHTEN BOLTS TO 45 FT LBS.
 3. LOOP CABLE AROUND LOGS AS SHOWN. RUN CABLE TROUGH FIRST LOOP.
 4. HAND TENSION FREE END OF CABLE.
 5. HAND TIGHTEN "U" BOLTS.
 6. TENSION TOW CHAIN TILL CABLE BITES INTO LOGS (1000 POUNDS ON THE CABLE).
 7. TIGHTEN BOLTS TO 45 FT LBS.

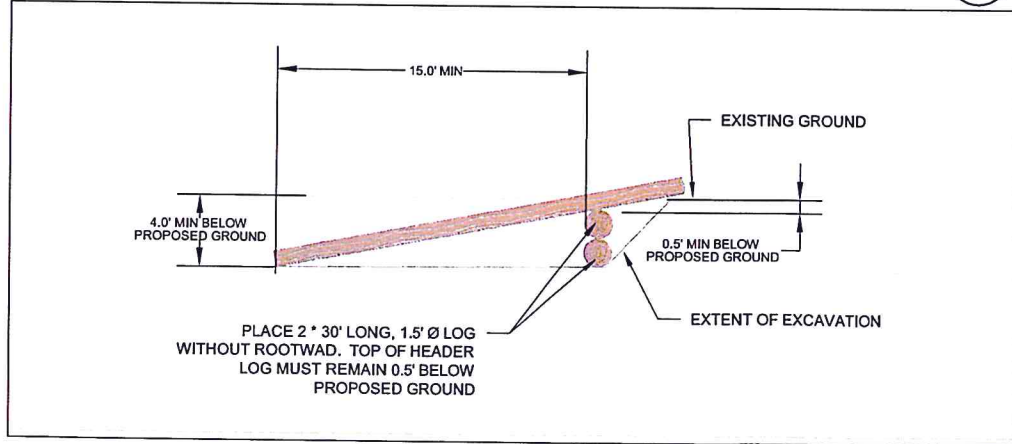
- NOTES:**
1. USE SAME DIAMETER FOR CABLE CLAMPS AS WIRE ROPE (CABLE).
 2. AFTER TENSIONING THE CABLE, CUT EXCESS CABLE, ALLOWING NO MORE THAN 1 FOOT OF EXCESS.
 3. ADD U-BOLTS OVER THE DEAD END. LIVE WIRE END RESTS IN THE SADDLE OF THE CLIP.

PLAN
SCALE:1"=10'
D7
2

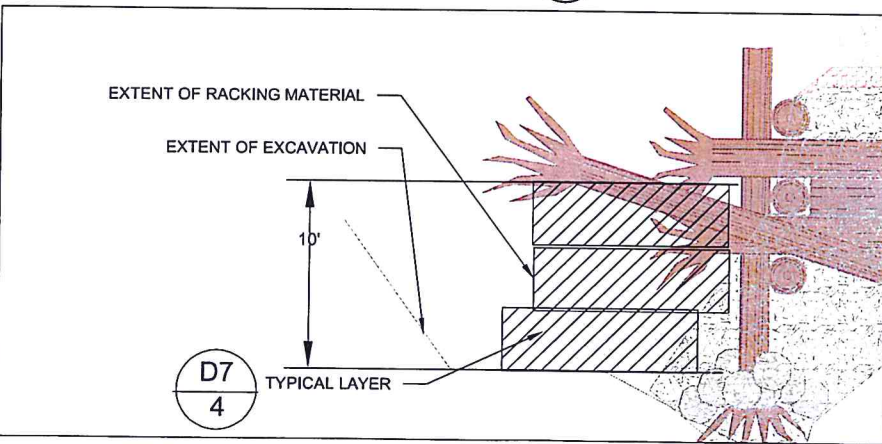


- PURPOSE:**
TO REDUCE MEANDER BYPASS AND CHANNEL STRAIGHTENING.
- DESIGN NOTES:**
1. STRUCTURE IS BURIED 6" UNDER THE PROPOSED SURFACE.
 2. 4.5' EXCAVATION DEPTH IS NEEDED. EXCAVATE A TEST PIT TO ENSURE OPTIMAL EXCAVATION DEPTH CAN BE OBTAINED. IF 4.5' CAN NOT BE REACHED, SHIFT STRUCTURE BANKWARD AS APPROVED BY FIELD ENGINEER.
 3. NO CABLING IS NEEDED.

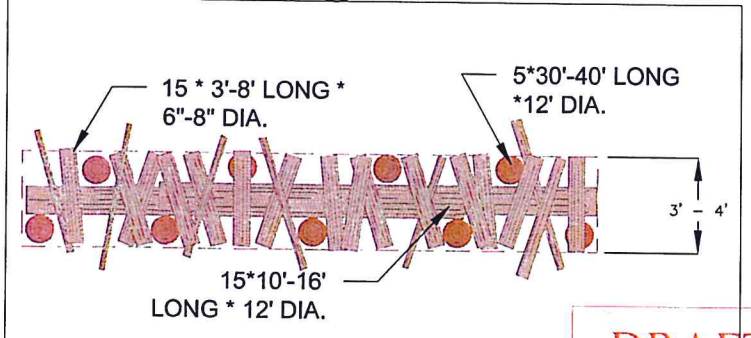
SECTION:A-A
SCALE:1"=10'
D7
2



SECTION
NTS
D7
3



ELEVATION VIEW: TYPICAL LAYER
NTS
D7
4



RACKING MATERIAL SCHEDULE

Racking Material	Length (ft)	Min Dia. (DBH) (in)	Rootwad	Total
1	Branches	2	N/A	15 YD ³
2	10	6	NO	40
3	20	9	NO	40
4	25	12	OPTIONAL	25
5	40	12	OPTIONAL	15

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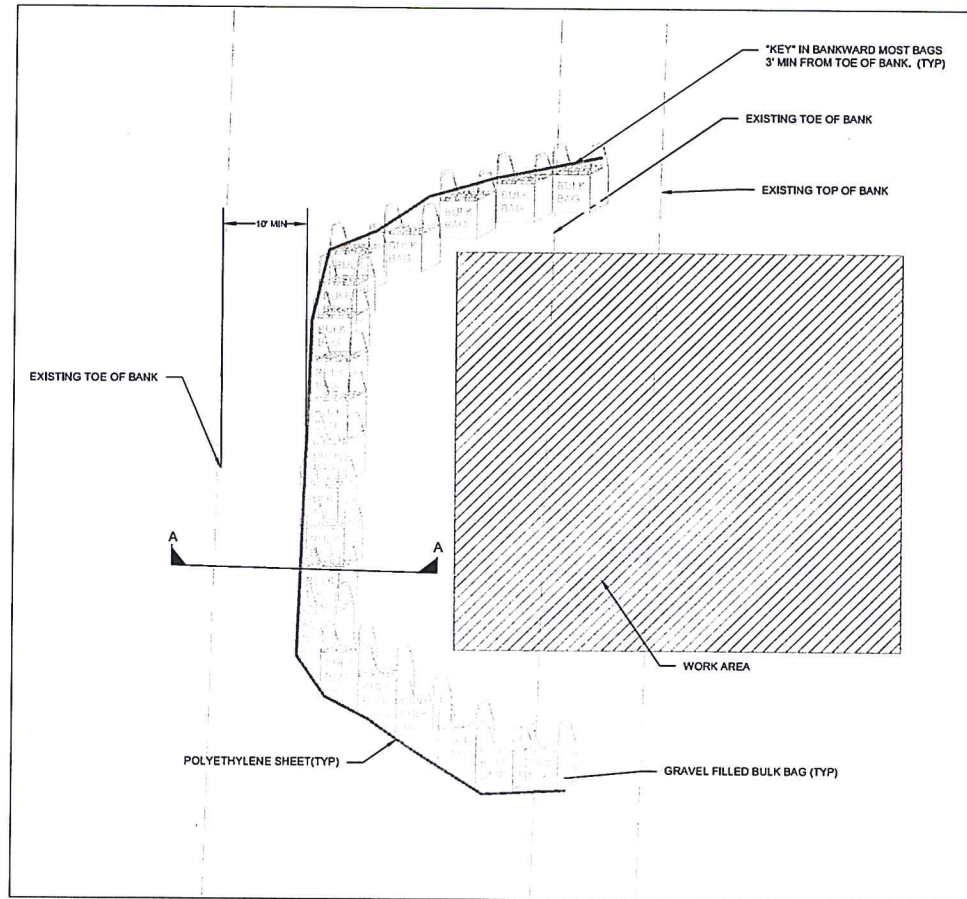
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FIGURE NO. D7
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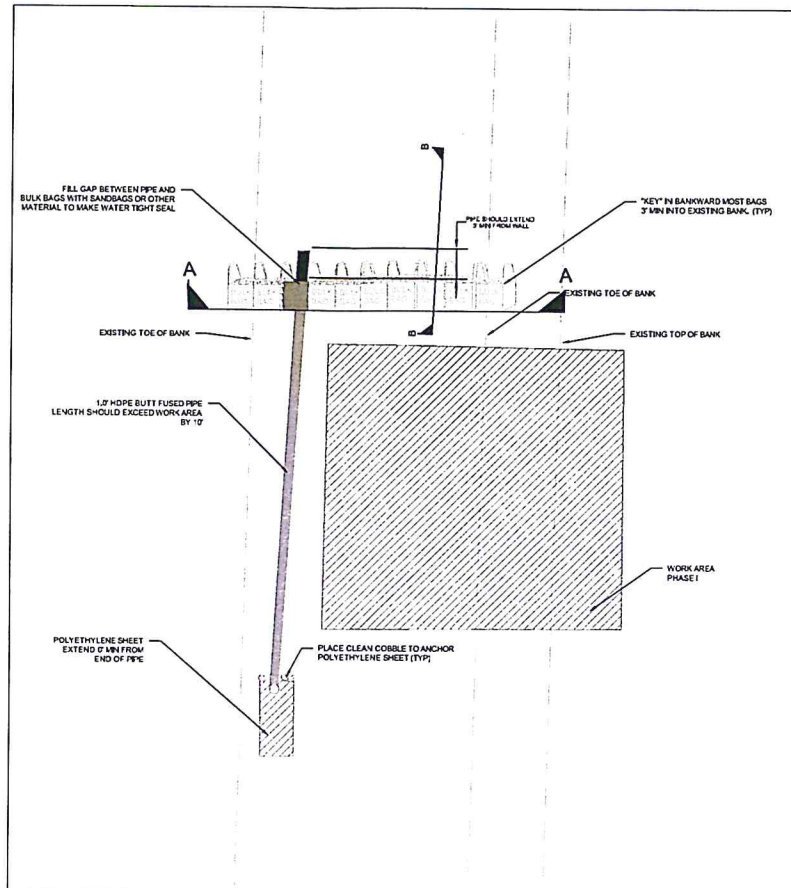
MISCELLANEOUS DETAILS
SWAUK CREEK RIVER RESTORATION PROJECT
RIVER MILE 6.5 TO 7.3
YAKAMA NATION
KITITAS COUNTY, WASHINGTON

PLAN: PARTIAL WATER DIVERSION (D8 1)
NTS



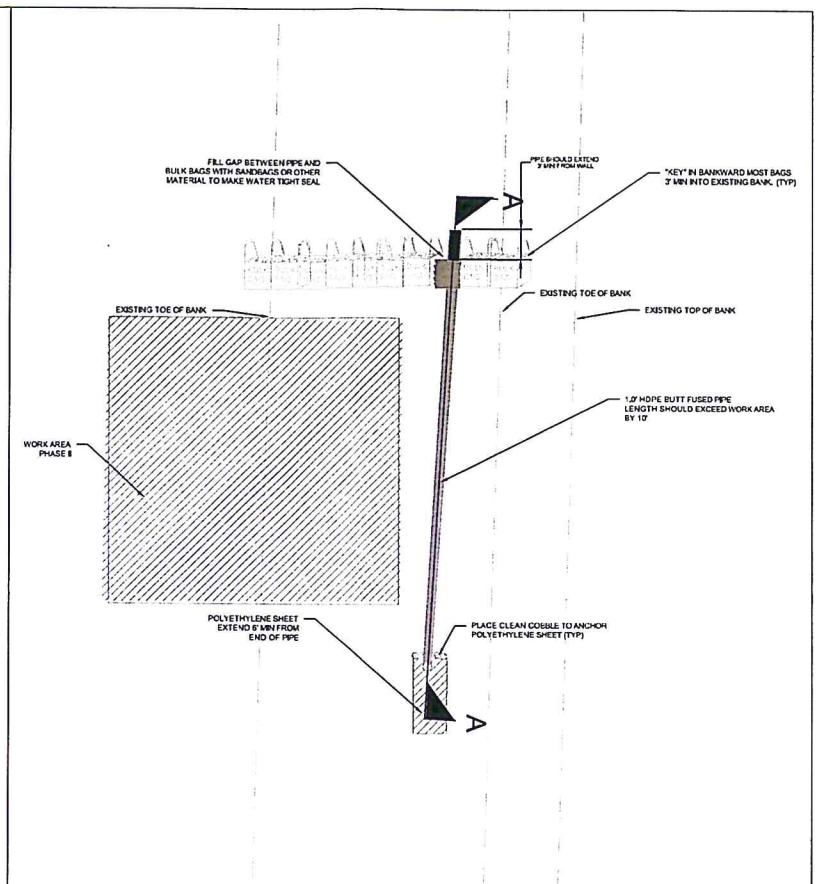
SECTION: PARTIAL WATER DIVERSION (D8 1)
NTS

PLAN FULL WATER DIVERSION-PHASE I (D8 2)
NTS

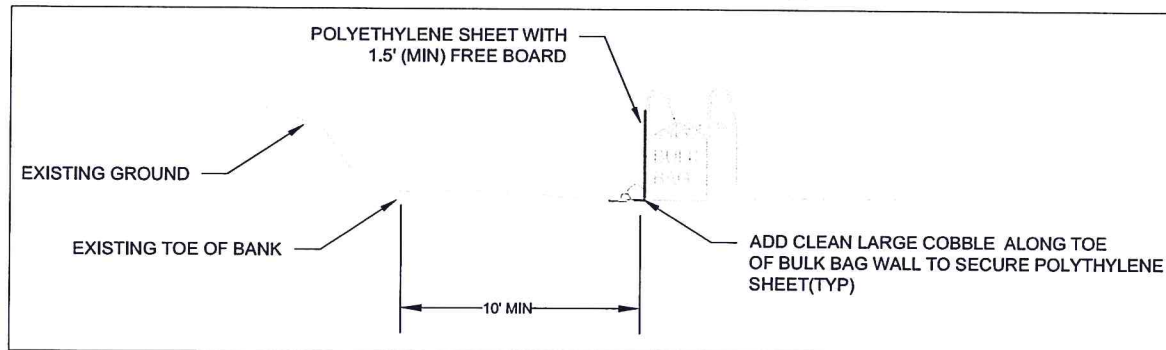


SECTION A:A FULL WATER DIVERSION-PHASE I (D8 2)
NTS

PLAN FULL WATER DIVERSION-PHASE II (D8 2)
NTS

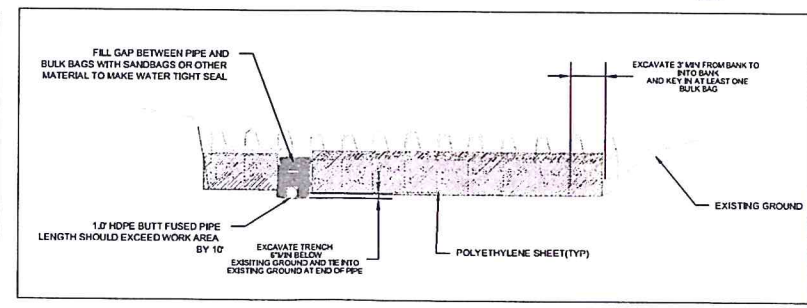


PROFILE A:A FULL WATER DIVERSION-PHASE II (D8 2)
NTS

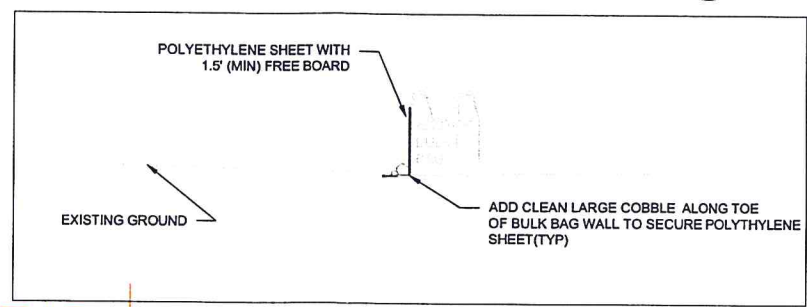


PURPOSE:
TO ISOLATE WORK ZONE FOR STRUCTURES THAT DO NOT EXPAND THE ENTIRE WETTED PERIMETER SUCH AS BANK HABITAT AND ELJ STRUCTURES.

- DESIGN NOTES:**
1. MATERIAL AND QUANTITY USED TO MAKE IMPERMEABLE WALL MAY VARY DEPENDING ON CONTRACTOR'S LEVEL OF EXPERTISE AND FAMILIARITY.
 2. LARGE RAIN EVENTS COULD OCCUR DURING CONSTRUCTION MONTHS (AUGUST/SEPTEMBER) BUT MAXIMUM RECORDED DISCHARGE DURING THIS TIME IS 5CFS.
 3. 10' BUFFER SHOULD EXIST BETWEEN EDGE OF WALL AND FAR BANK TO PREVENT BACKWATER CONDITIONS.



SECTION B:B FULL WATER DIVERSION-PHASE I (D8 2)
NTS



PURPOSE:
TO ISOLATE WORK ZONE FOR STRUCTURES THAT EXPAND THE ENTIRE WETTED PERIMETER SUCH AS GRADE CONTROL STRUCTURES AND AREAS WHERE IN CHANNEL GRADING OCCURS

- DESIGN NOTES:**
1. MATERIAL AND QUANTITY USED TO MAKE IMPERMEABLE WALL MAY VARY DEPENDING ON CONTRACTOR'S LEVEL OF EXPERTISE AND FAMILIARITY.
 2. LARGE RAIN EVENTS COULD OCCUR DURING CONSTRUCTION MONTHS (AUGUST/SEPTEMBER) BUT MAXIMUM RECORDED DISCHARGE DURING THIS TIME IS 5CFS. A STRAIGHT 1.0' HDEP BUTT FUSED PIPE (NO RAISE) WILL CREATE 2.0' HEADWATER DEPTH AT 5 CFS.

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WATER MANAGEMENT
SWAUK CREEK RIVER RESTORATION PROJECT
RIVER MILE 6.5 TO 7.3
YAKAMA NATION
KITTITAS COUNTY, WASHINGTON

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