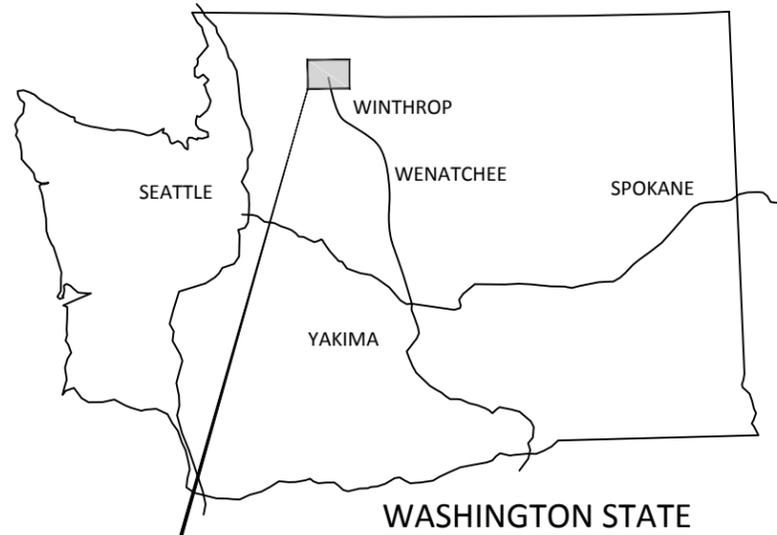


# CHEWUCH RIVER RM 17 TO 20 FISH HABITAT ENHANCEMENT CONCEPTS

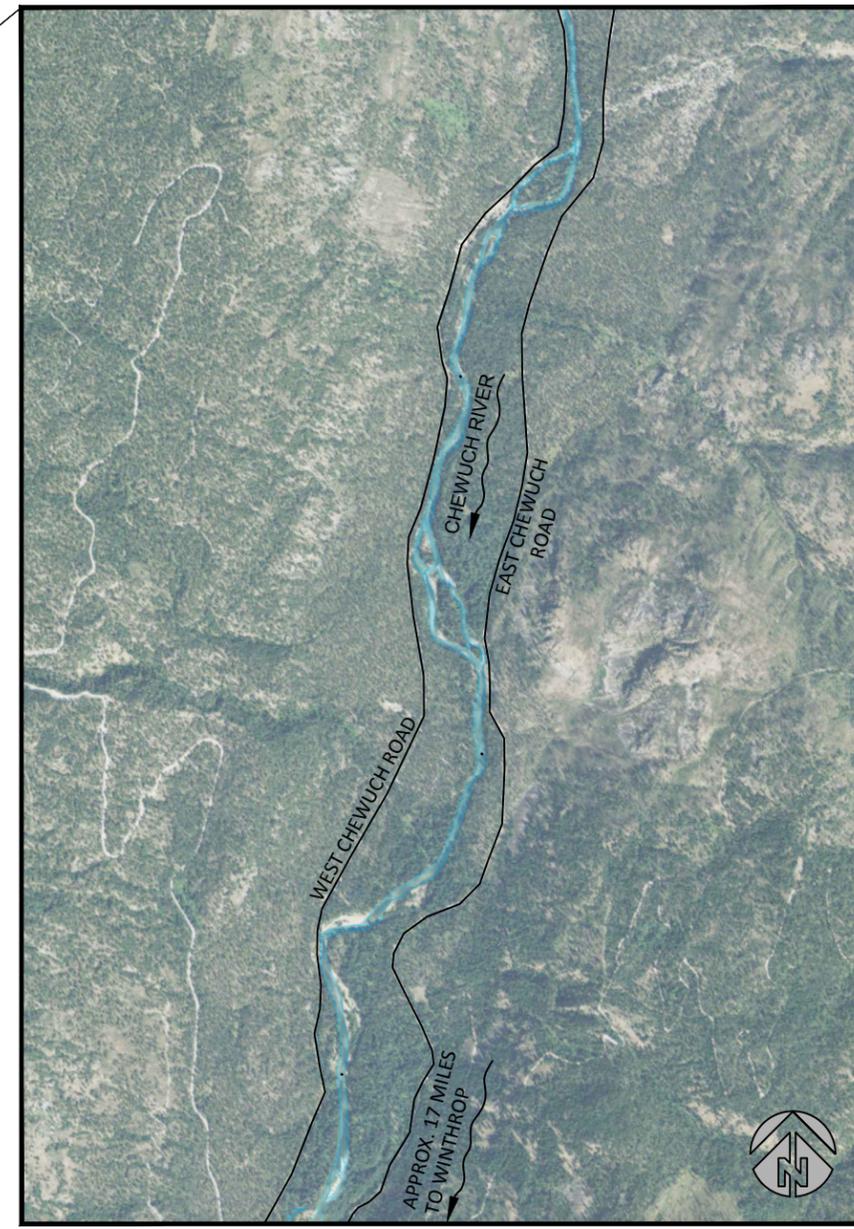


YAKAMA NATION FISHERIES  
2 JOHNSON LANE  
WINTHROP WA, 98862

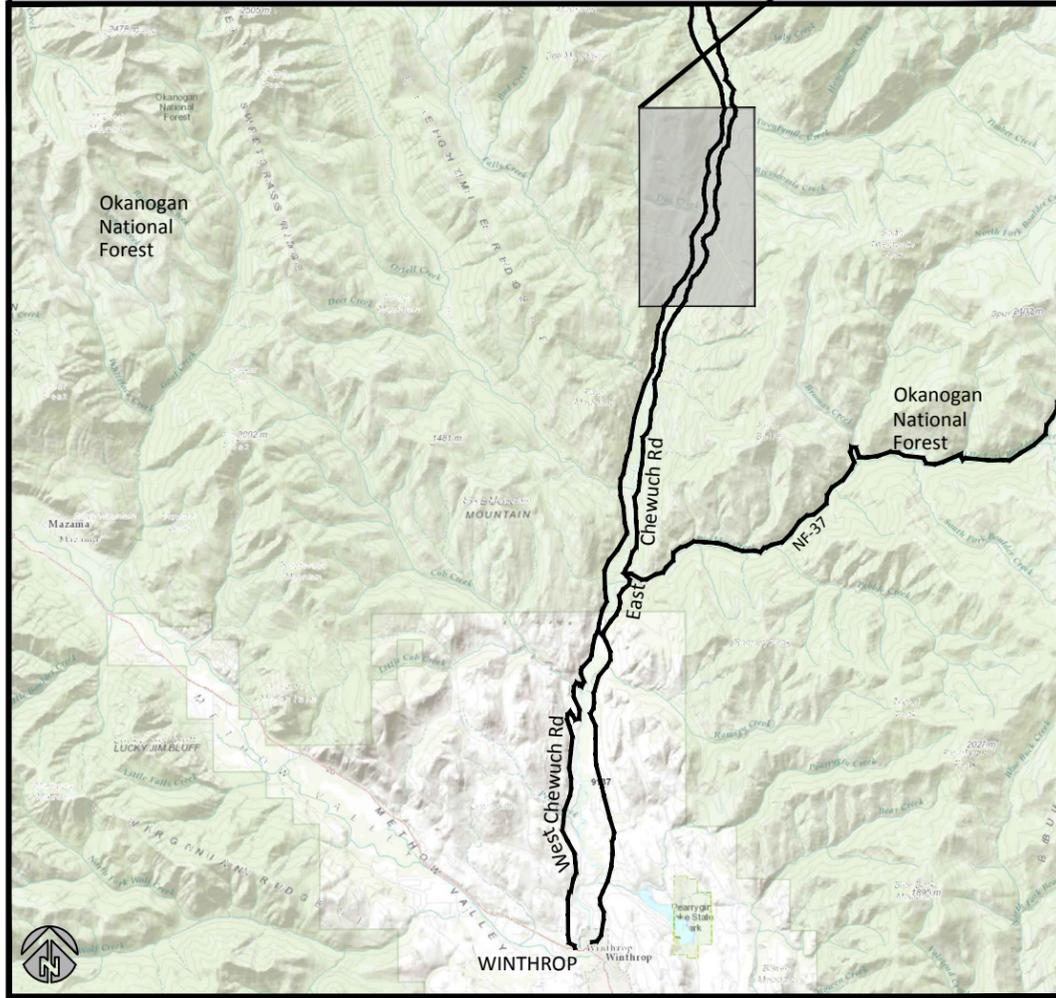
PROJECT LOCATION:  
LATITUDE 48°40'58.34" N  
LONGITUDE -120°07'50.89" W  
  
SECTION 7,16,19,30, TOWNSHIP 36N, RANGE 22E  
  
OKANOGAN COUNTY  
  
WATERBODY: CHEWUCH RIVER  
TRIBUTARY OF: METHOW RIVER

### SHEET LIST

- 1 - COVER, SHEET INDEX, AND VICINITY MAP
- 2 - SITE MAP OF EXISTING CONDITIONS
- 3 - SITE MAP OF PROPOSED CONDITIONS
- 4 - PLAN VIEW OF PROPOSED CONDITIONS - STA. 299+00 TO 350+00
- 5 - PLAN VIEW OF PROPOSED CONDITIONS - STA. 369+00 TO 401+00
- 6 - PLAN VIEW OF PROPOSED CONDITIONS - STA. 407+00 TO 454+00
- 7 - BANK LARGE WOOD PLACEMENTS TYPICAL DETAILS
- 8 - WEST SIDE CHANNEL STA. 418+00 TO 429+00 TYPICAL DETAILS
- 9 - APEX LARGE WOOD PLACEMENT TYPICAL DETAILS



LOCATION MAP



VICINITY MAP

NO.	BY	DATE	REVISION DESCRIPTION

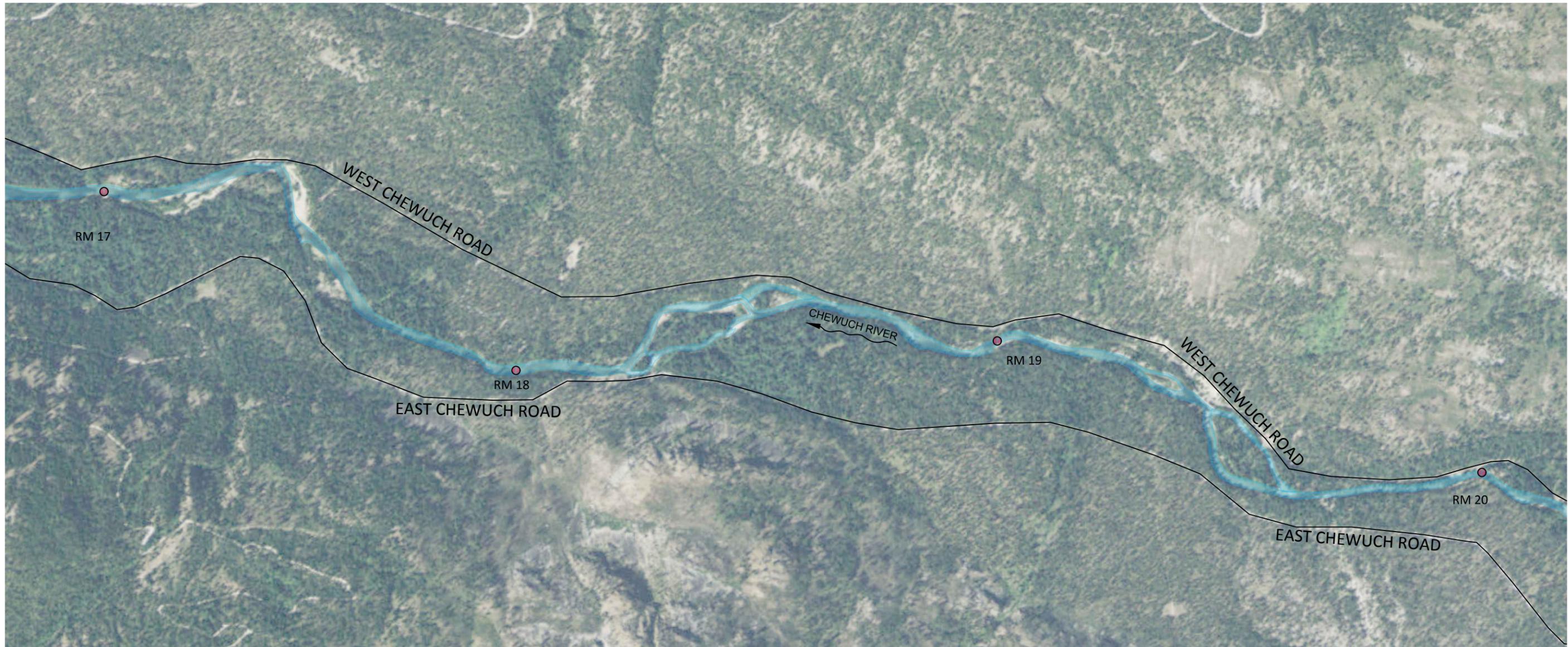
REP DRAWN	MB DESIGNED	MB CHECKED
MB APPROVED	03/18/16 DATE	 PROJECT

Confederated Tribes and Bands of the Yakama Nation  
Chewuch River RM 17 to RM 20  
Concept Design Drawings

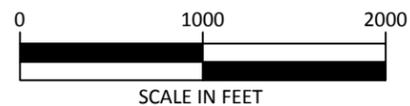


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COVER, SHEET INDEX, AND  
VICINITY MAP



PLAN VIEW



NO.	BY	DATE	REVISION DESCRIPTION

REP DRAWN	MB DESIGNED	MB CHECKED
MB APPROVED	03/18/16 DATE	PROJECT

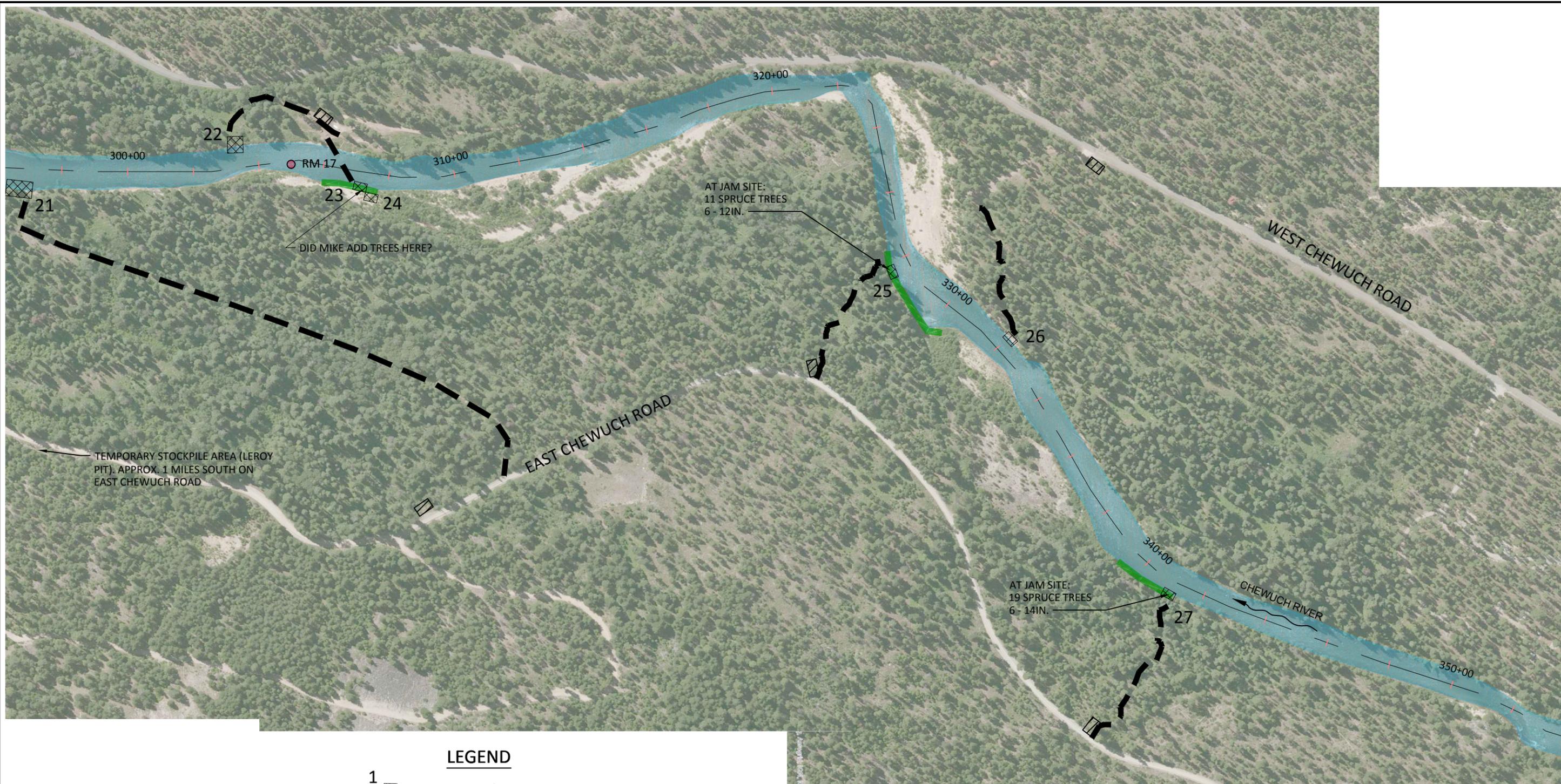
Confederated Tribes and Bands of the Yakama Nation  
Chewuch River RM 17 to RM 20  
Concept Design Drawings



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SITE MAP OF EXISTING  
CONDITIONS

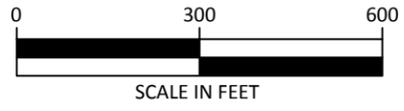
SHEET
2 OF 9



**PLAN VIEW**

**LEGEND**

- 1 LWD PLACEMENT - BANK
- WHOLE TREE PLACEMENT OPTION ZONE
- 300+00 INTER-FLUVE, INC. SURVEY STATIONING
- RM 18.0 RIVER MILES
- TEMPORARY ACCESS
- TEMPORARY STOCKPILE AREA



NO.	BY	DATE	REVISION DESCRIPTION

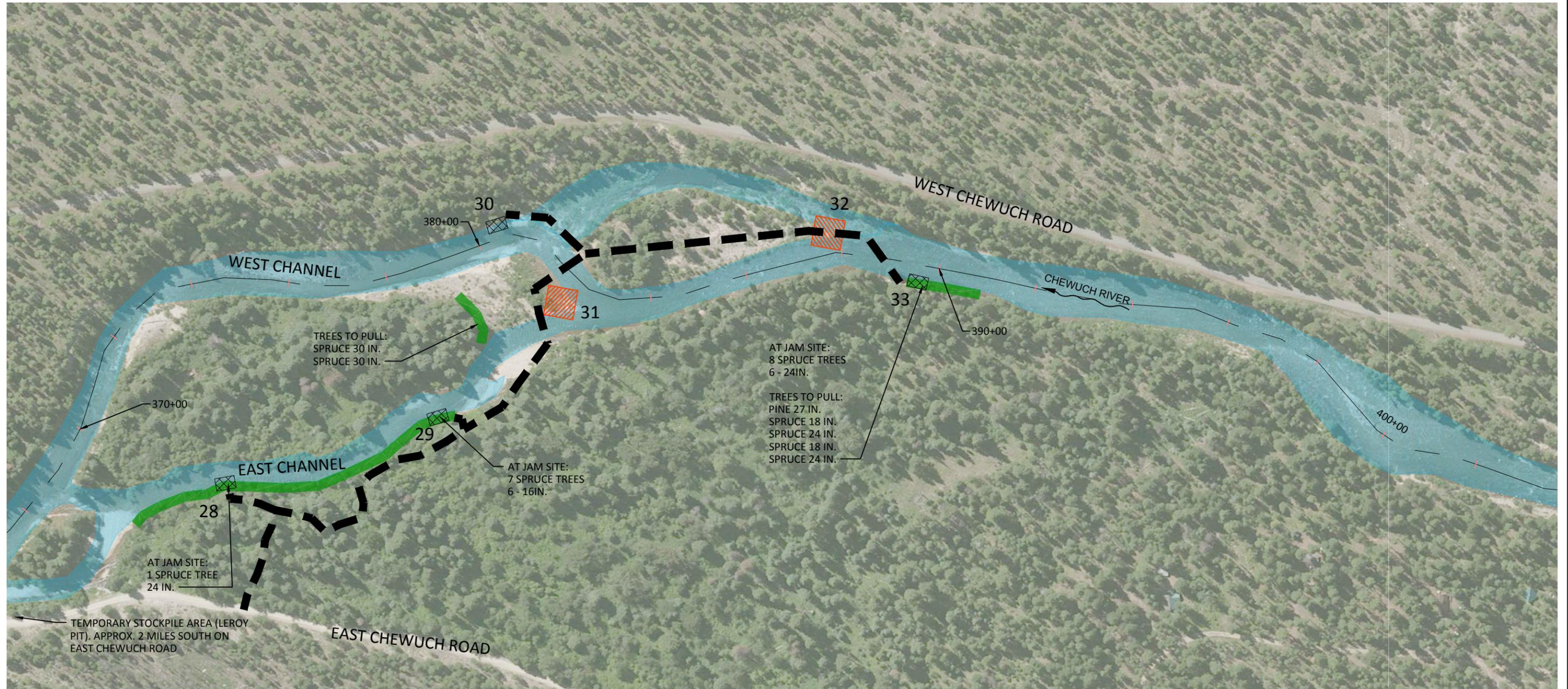
REP DRAWN	MB DESIGNED	MB CHECKED
MB APPROVED	03/18/16 DATE	

Confederated Tribes and Bands of the Yakama Nation  
Chewuch River RM 17 to RM 20  
Concept Design Drawings



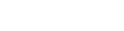
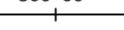
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PLAN VIEW OF PROPOSED  
CONDITIONS - STA.  
299+00 TO 350+00



**PLAN VIEW**

**LEGEND**

- 1  LWD PLACEMENT - BANK
- 1  LWD PLACEMENT - APEX JAM OR SURFACE PLACEMENT
-  LARGE WOOD LOADING WITH HELICOPTER
-  WHOLE TREE PLACEMENT OPTION ZONE
-  INTER-FLUVE, INC. SURVEY STATIONING
-  RM 18.0 RIVER MILES
-  TEMPORARY ACCESS
-  TEMPORARY STOCKPILE AREA



NO.	BY	DATE	REVISION DESCRIPTION

REP DRAWN	MB DESIGNED	MB CHECKED
MB APPROVED	03/18/16 DATE	PROJECT

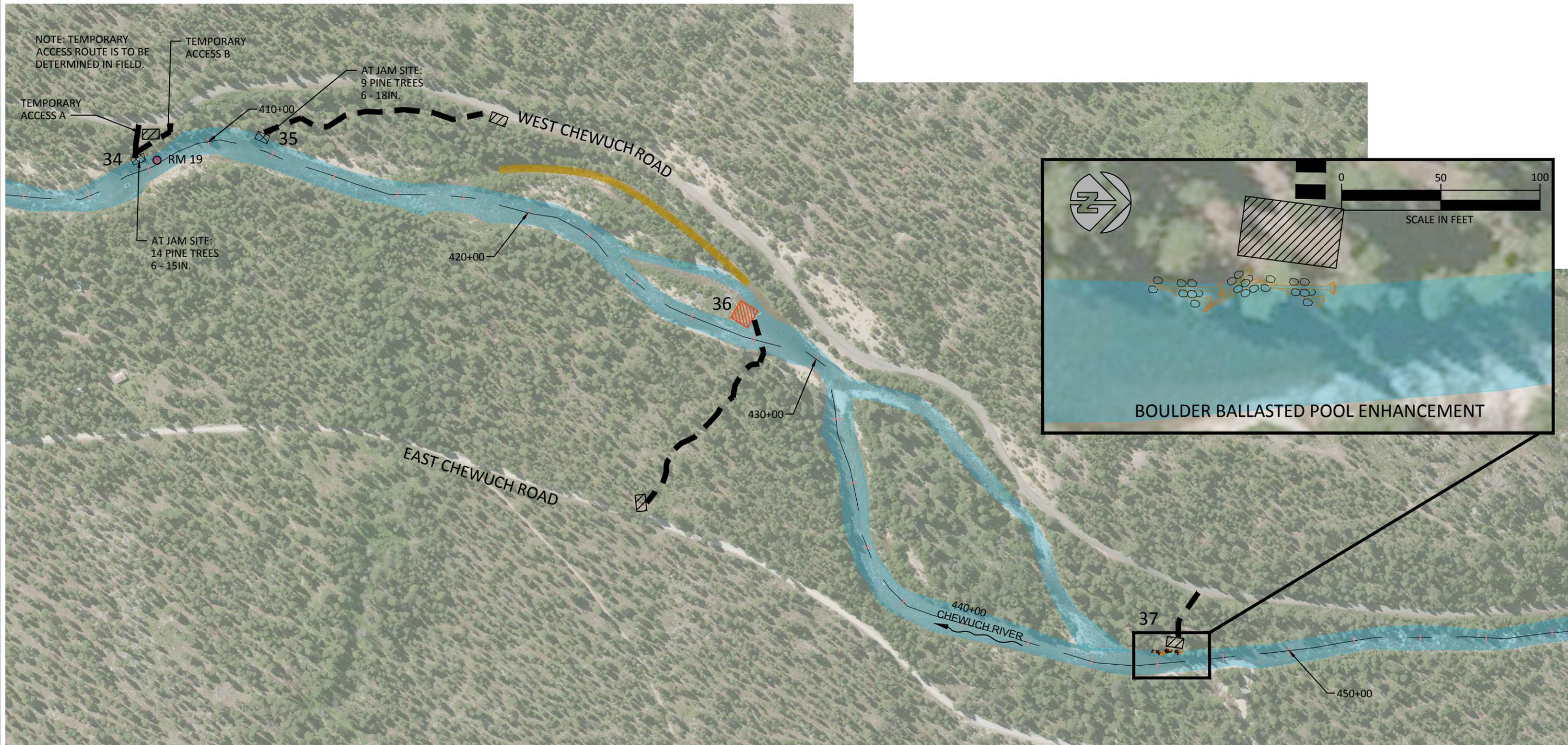
Confederated Tribes and Bands of the Yakama Nation  
Chewuch River RM 17 to RM 20  
Concept Design Drawings



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PLAN VIEW OF PROPOSED  
CONDITIONS - STA.  
369+00 TO 401+00

SHEET  
5 OF 9



NOTE: TEMPORARY ACCESS ROUTE IS TO BE DETERMINED IN FIELD.

TEMPORARY ACCESS A

TEMPORARY ACCESS B

AT JAM SITE:  
9 PINE TREES  
6 - 18IN.

AT JAM SITE:  
14 PINE TREES  
6 - 15IN.

WEST CHEWUCH ROAD

EAST CHEWUCH ROAD

CHEWUCH RIVER

BOULDER BALLASTED POOL ENHANCEMENT

SCALE IN FEET

**LEGEND**

**PLAN VIEW**

- 1 LWD PLACEMENT - BANK
- 1 LWD PLACEMENT - APEX JAM OR SURFACE PLACEMENT
- BOULDER BALLASTED POOL ENHANCEMENT
- TEMPORARY ACCESS
- TEMPORARY STOCKPILE AREA

- 300+00 INTER-FLUVE, INC. SURVEY STATIONING
- RM 18.0 RIVER MILES
- POOL ENHANCEMENT (EXCAVATION) LARGE WOOD COVER ZONE (SHEET 8 OF 9)



NO.	BY	DATE	REVISION DESCRIPTION

REP	MB	MB
DRAWN	DESIGNED	CHECKED
MB	03/18/16	
APPROVED	DATE	PROJECT

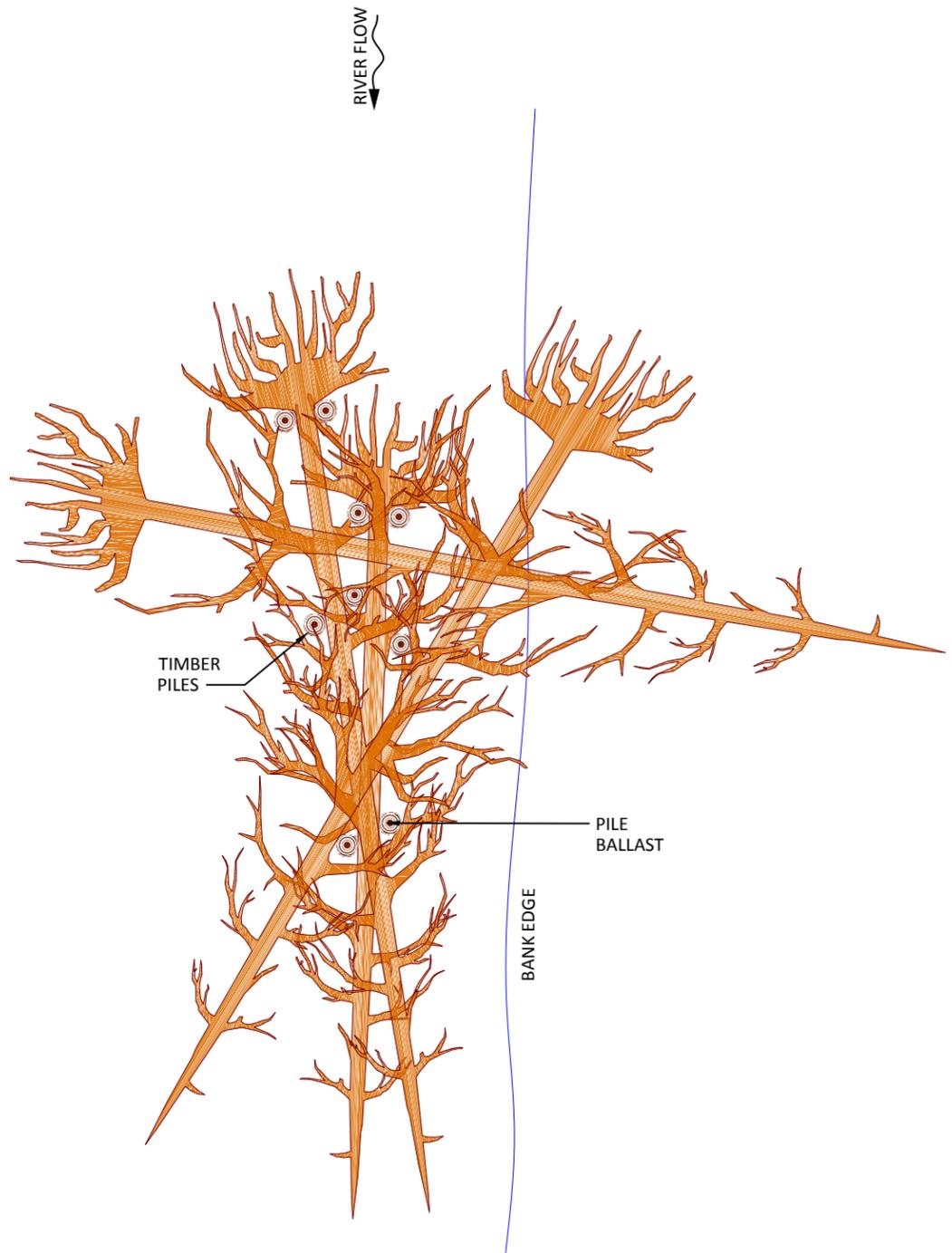
Confederated Tribes and Bands of the Yakama Nation  
Chewuch River RM 17 to RM 20  
Concept Design Drawings



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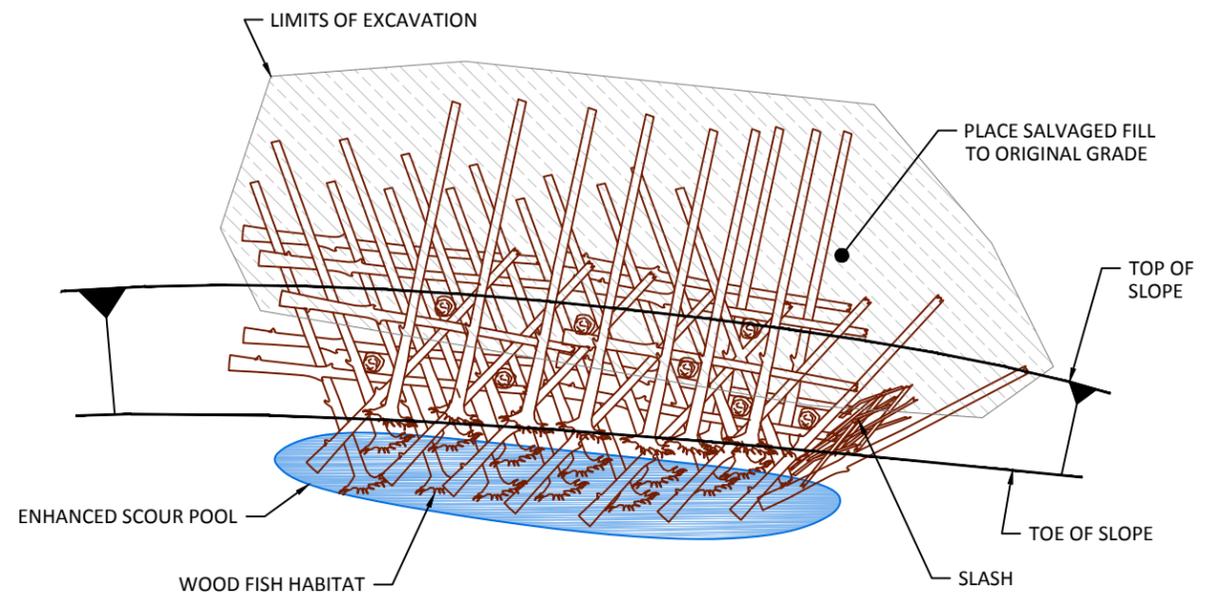
PLAN VIEW OF PROPOSED  
CONDITIONS - STA.  
407+00 TO 454+00

SHEET  
6 OF 9



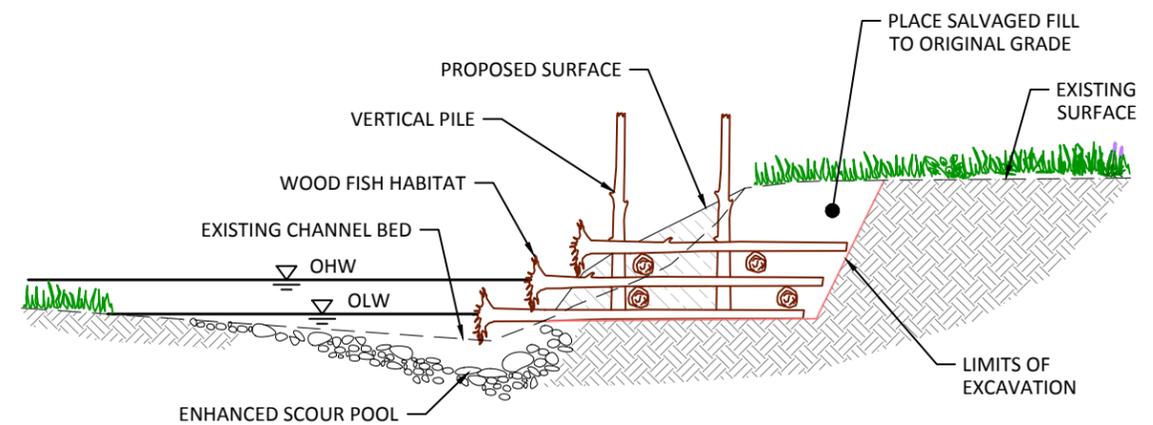
**TYPICAL SINGLE OR MULTIPLE WHOLE TREE PLACEMENT OPTION**

NOT TO SCALE



**TYPICAL PLAN VIEW  
BURIED AND PILE BALLASTED BANK JAM**

NOT TO SCALE



**TYPICAL CROSS-SECTION  
BURIED AND PILE BALLASTED BANK JAM**

NOT TO SCALE

NO.	BY	DATE	REVISION DESCRIPTION

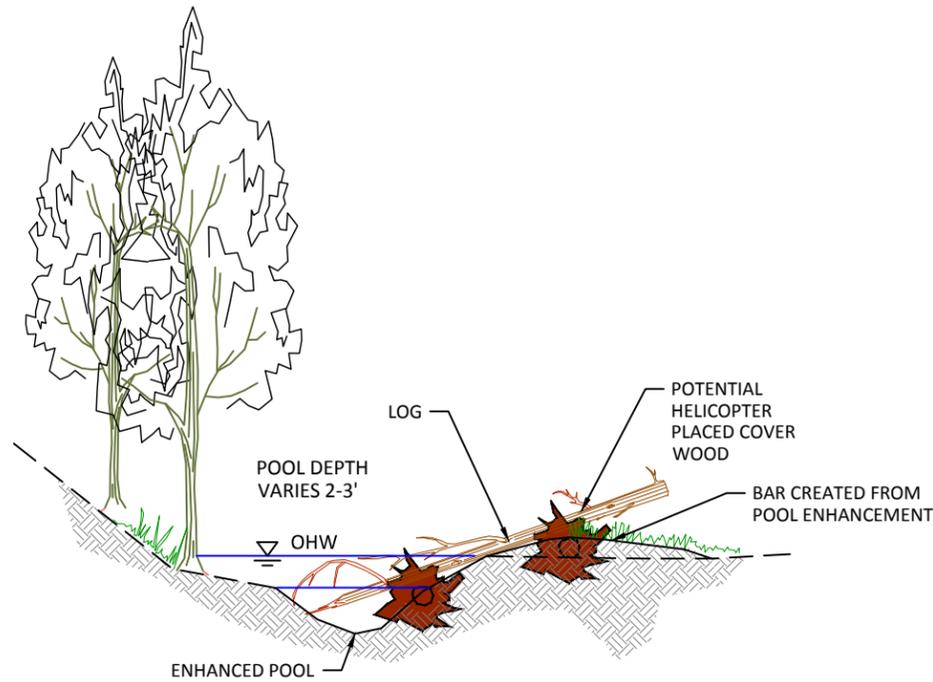
REP DRAWN	MB DESIGNED	MB CHECKED
MB APPROVED	03/18/16 DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation  
Chewuch River RM 17 to RM 20  
Concept Design Drawings

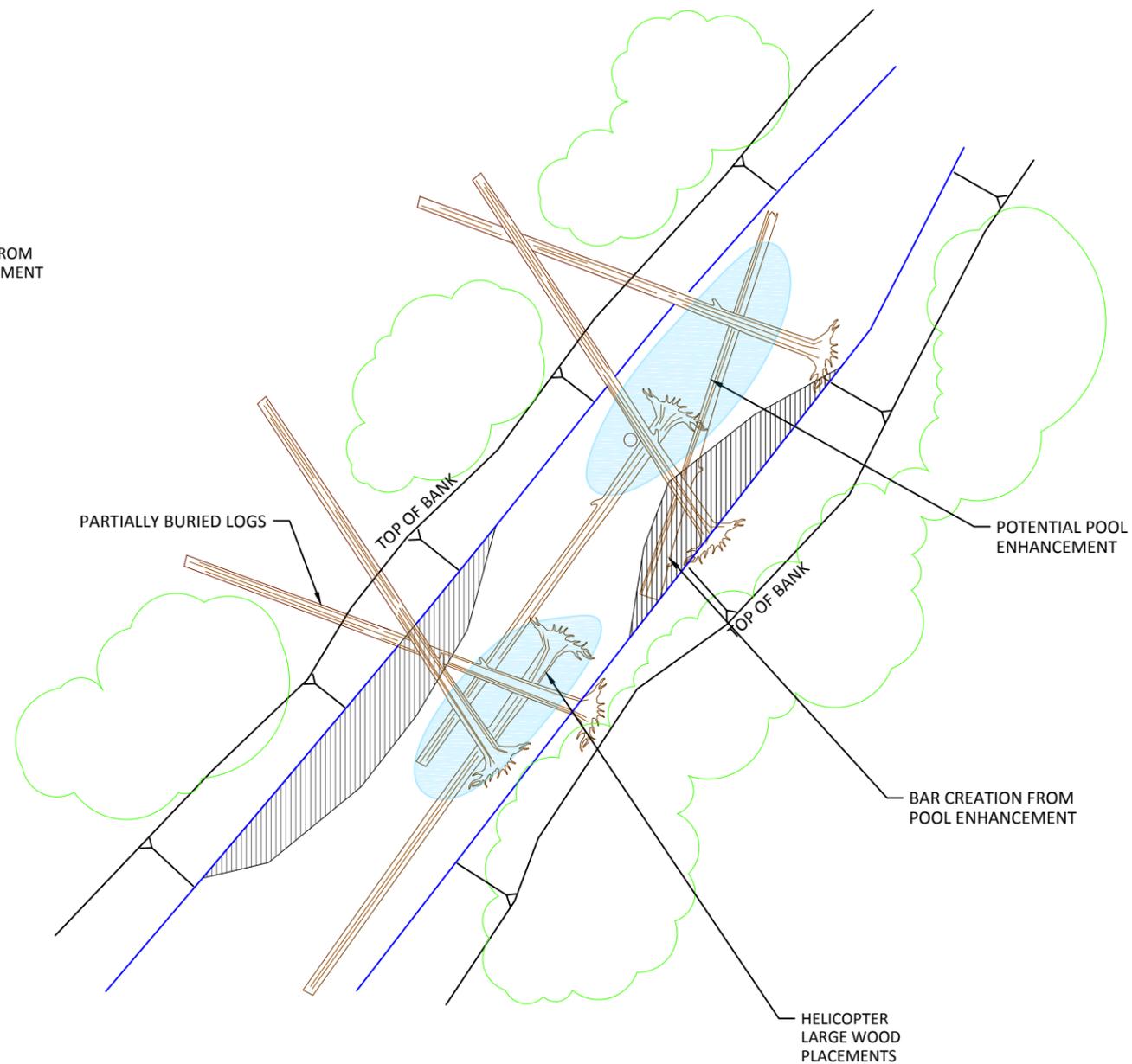


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**BANK LARGE WOOD  
PLACEMENTS TYPICAL DETAILS**



**TYPICAL CROSS-SECTION  
SIDE CHANNEL POOL AND COVER ENHANCEMENT  
USING HELICOPTER PLACED WOOD AND SPIDER  
BACKHOE POOL ENHANCEMENT**  
NOT TO SCALE



**TYPICAL PLAN VIEW  
SIDE CHANNEL POOL AND COVER ENHANCEMENT USING HELICOPTER  
PLACED WOOD AND SPIDER BACKHOE POOL ENHANCEMENT**  
NOT TO SCALE

NO.	BY	DATE	REVISION DESCRIPTION

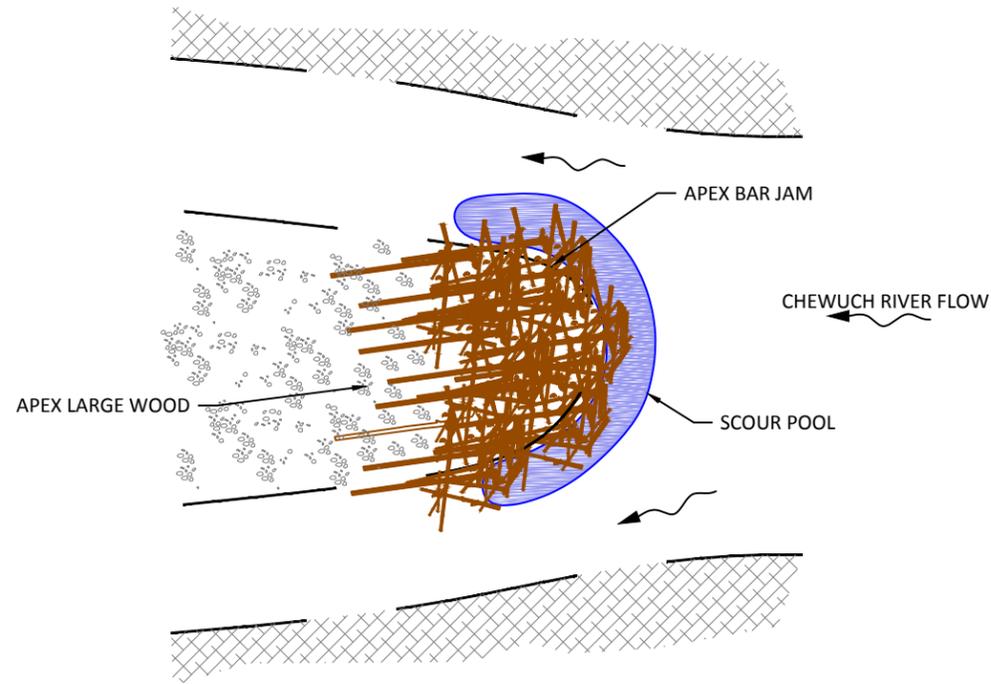
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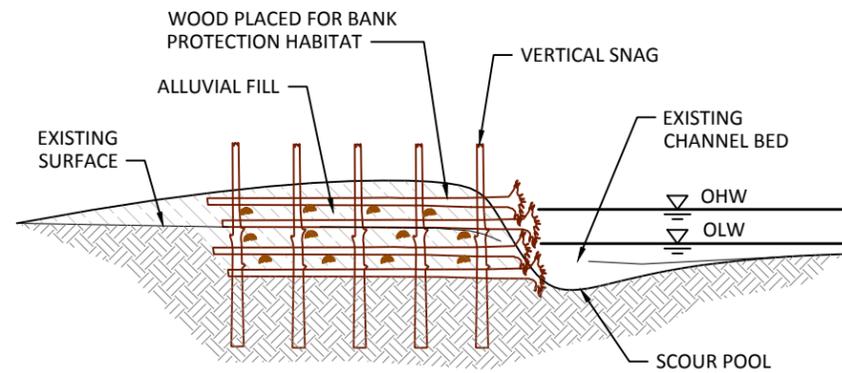
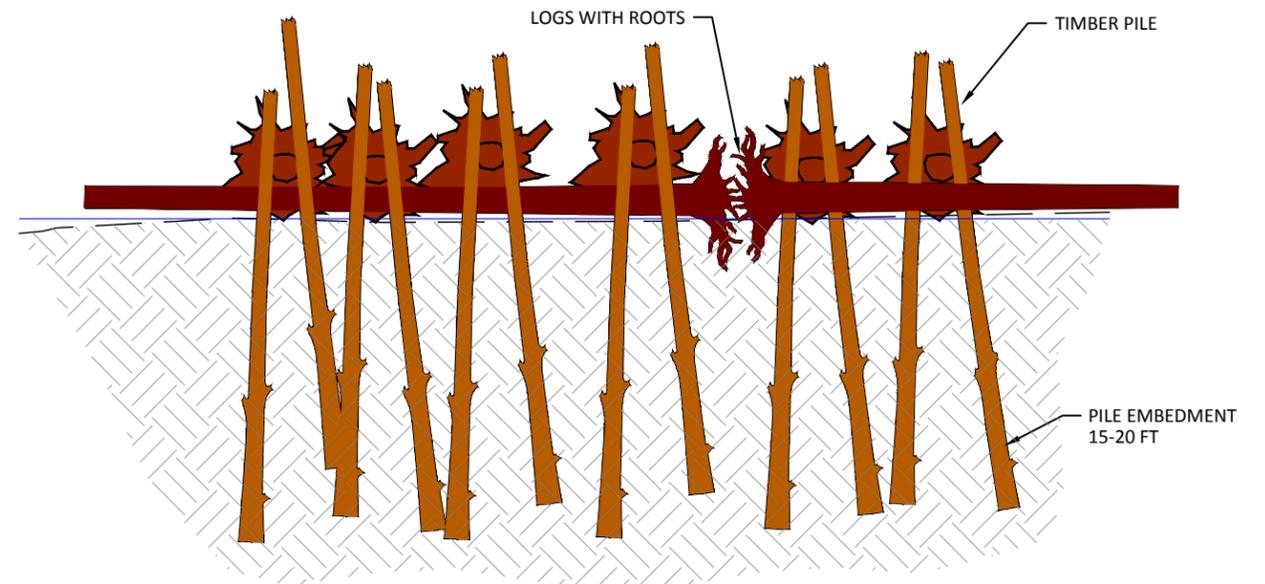


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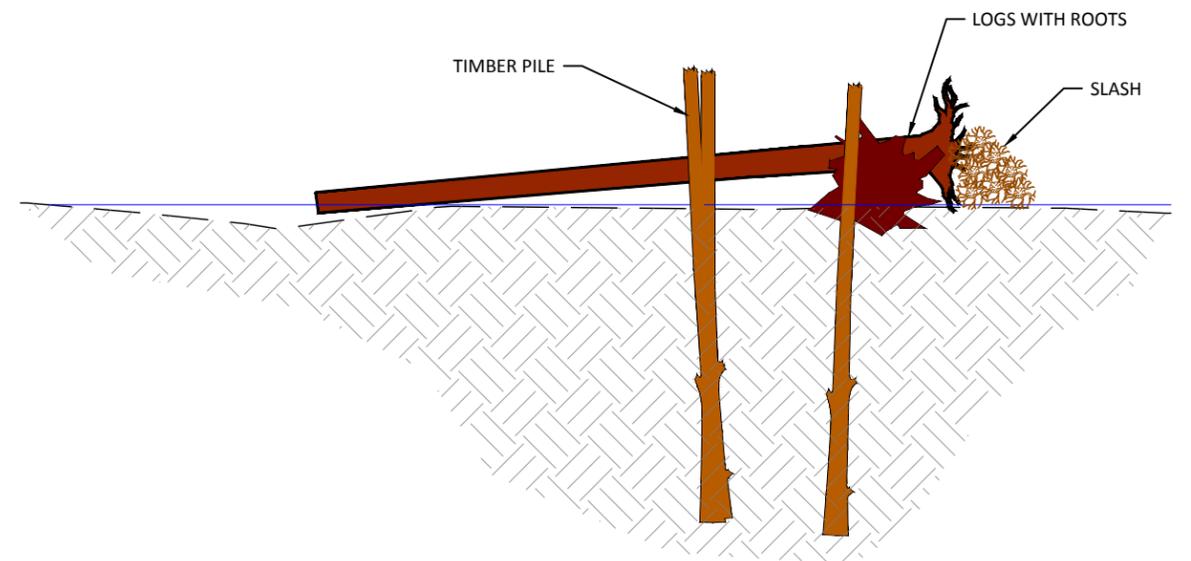
WEST SIDE CHANNEL  
STA. 418+00 TO 429+00  
TYPICAL DETAILS



**TYPICAL PLAN VIEW**  
**APEX BAR LARGE WOOD JAM OPTION**  
 NOT TO SCALE



**TYPICAL CROSS-SECTION**  
**APEX BAR LARGE WOOD JAM OPTION**  
 NOT TO SCALE



**TYPICAL SURFACE APEX LARGE WOOD CONCEPT OPTION**  
 NOT TO SCALE

NO.	BY	DATE	REVISION DESCRIPTION

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**APEX LARGE WOOD  
 PLACMENT TYPICAL  
 DETAILS**