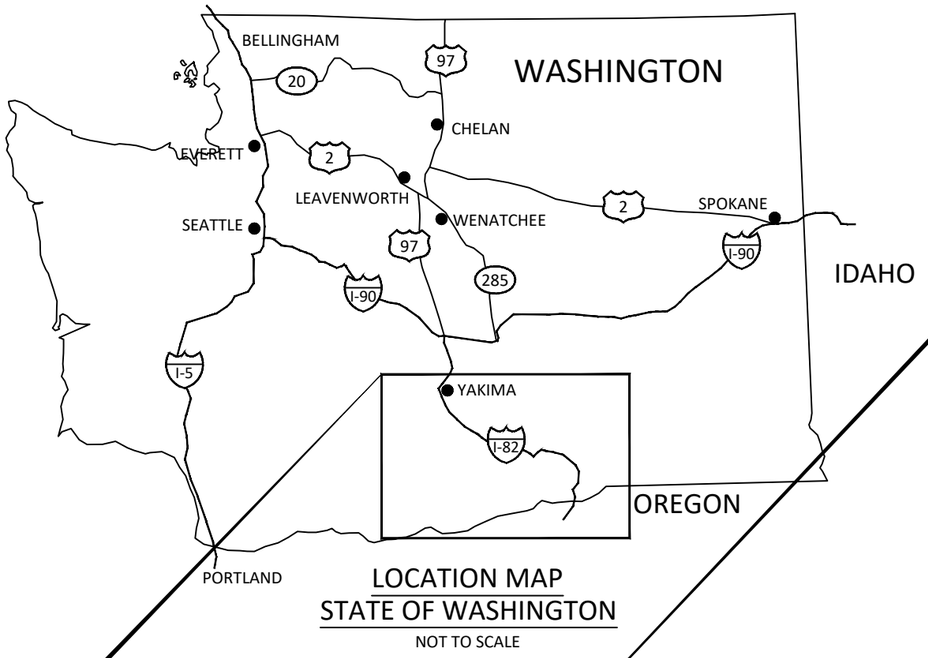
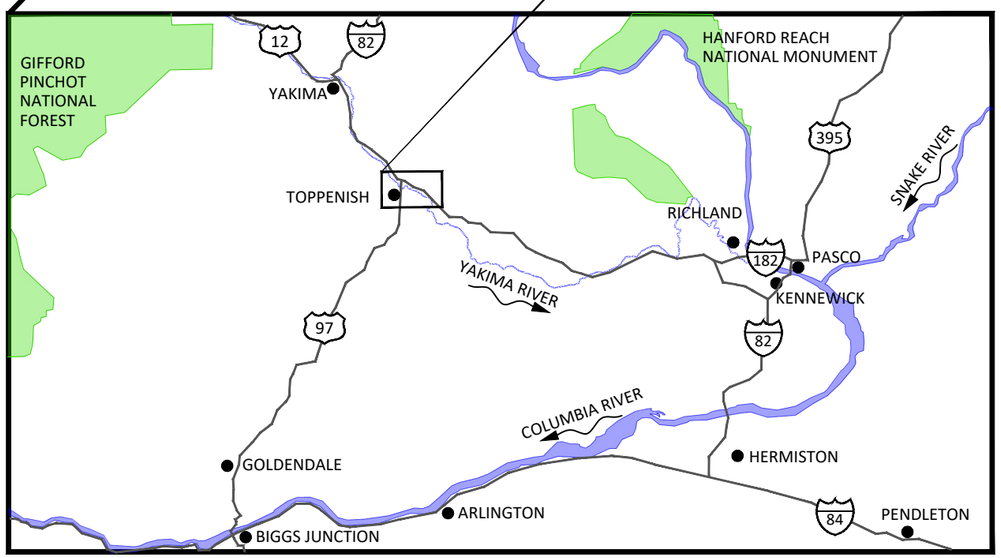
Yakima River RM 89.5 Floodplain Restoration Project
Final Construction Plan

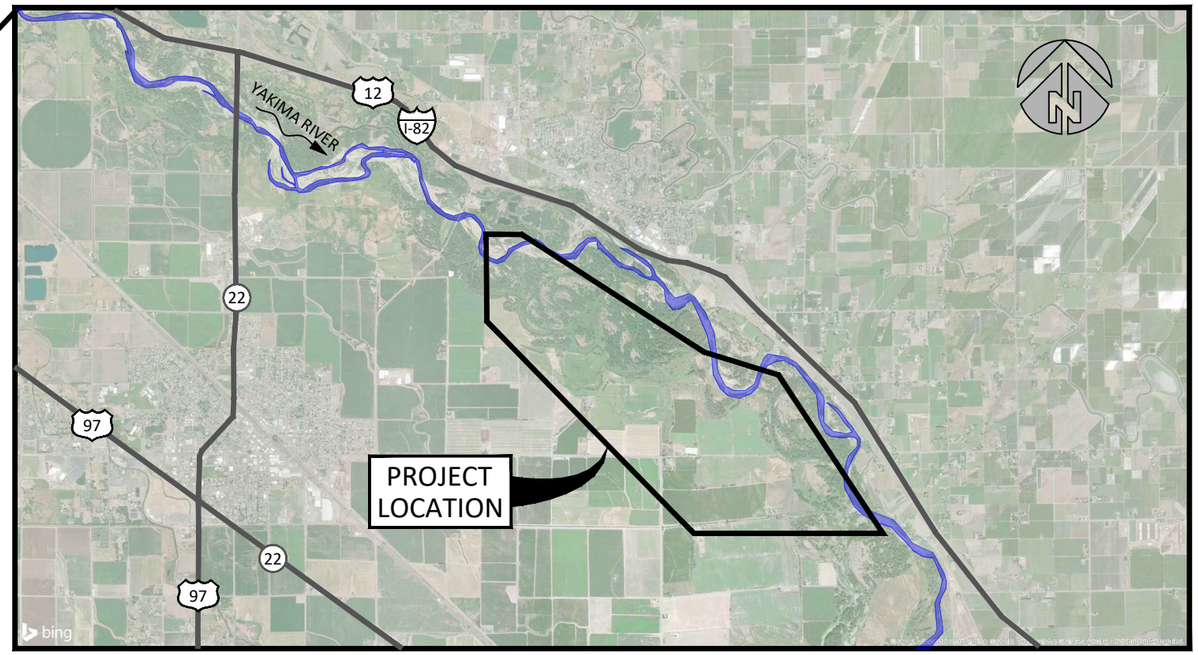
Yakima County, Washington
October, 2024



LOCATION MAP
STATE OF WASHINGTON
NOT TO SCALE



VICINITY MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE

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COORDINATES:
LATITUDE: 46°23'26.22" N
LONGITUDE: 120°15'38.58" W

WATERBODY: YAKIMA RIVER
TRIBUTARY OF: COLUMBIA RIVER

DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED PROFESSIONAL ENGINEER
Daniel S. Miller 10/23/2024
Expires: 11/23/2025

NO.	BY	DATE	REVISION DESCRIPTION

NS, AW	PL, DM	PL
DRAWN	DESIGNED	CHECKED
DM	10/23/2024	190215
APPROVED	DATE	PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

COVER, SHEET INDEX AND VICINITY MAP

SHEET 1 OF 24

Z:\ClientFiles\YL-Z\Yakima_89.5_Oversight_190215\Drawings\Drawings\FL_Yakima_895_D_2024.dwg — awells — 10/23/24

COMPONENTS OF THIS PROJECT TO BE COMPLETED BY CONTRACTOR ARE NOTED HEREIN. OWNER WILL SCHEDULE THEIR WORK TO NOT INTERFERE WITH WORK BY CONTRACTOR.

CONTRACTOR SHALL BE RESPONSIBLE FOR WORK WITHIN DESIGNATED AREAS AND ACCESS ROUTES.

THE OWNER WILL PROVIDE A PRE-BID SITE TOUR. IT IS HIGHLY RECOMMENDED THE CONTRACTOR ATTEND THIS PRE-BID TOUR FOR SITE FAMILIARIZATION AND TO POSE QUESTIONS TO THE OWNER AND OWNER'S REPRESENTATIVE.

THE SELECTED CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH OWNER AND OWNER'S REPRESENTATIVE PRIOR TO MOBILIZING TO SITE AND BEGINNING CONSTRUCTION.

ALL WORK SHALL CONFORM TO THE CURRENT EDITIONS OF STANDARD PLANS AND SPECIFICATIONS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT), AND LOCAL STANDARDS UNLESS INDICATED OTHERWISE BY THE CONTRACT DOCUMENTS. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT WILL PREVAIL.

IN-WATER WORK PERIODS

CONTRACTOR WORK SHALL OCCUR DURING THE PERMITTED IN-WATER WORK PERIOD.

EXISTING DATA

TOPOGRAPHIC DATA WAS COLLECTED BY INTER-FLUVE USING, RTK GPS AND SONAR EQUIPMENT. DATA WERE COLLECTED ON OCTOBER 3 & 4, 2017 AND NOVEMBER 9 & 10, 2017. DATA ARE REFERENCED TO NAD83 STATE PLANE WASHINGTON SOUTH, NAVD 88, US SURVEY FEET.

LIDAR DATA PROVIDED BY YAKAMA NATION, FLOWN MAY 17-18, 2015.

HYDRAULIC MODELING WAS PERFORMED BY INTER-FLUVE STAFF USING USACE HEC-RAS (5.0.3 SEPTEMBER 2016).

SOILS

FLOODPLAIN COMPOSITION IS A VARIABLE MIX OF COARSE SAND, GRAVEL, COBBLES AND SILTY LOAM.

UTILITIES

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR HAVING UTILITIES LOCATED PRIOR TO CONSTRUCTION ACTIVITIES.

THE CONTRACTOR SHALL CALL (800-424-5555) FOR UTILITY LOCATE PRIOR TO CONSTRUCTION

THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE AFFECTED UTILITY SERVICE TO REPORT ANY DAMAGED OR DESTROYED UTILITIES.

THE CONTRACTOR SHALL PROVIDE EQUIPMENT AND LABOR TO AID THE AFFECTED UTILITY SERVICE IN REPAIRING DAMAGED OR DESTROYED UTILITIES AT NO ADDITIONAL COST.

CONSTRUCTION STAKING

OWNER'S REPRESENTATIVE WILL PROVIDE STAKING OF PROJECT LIMITS, GRADE STAKES, AND ELEVATION CONTROL POINTS. SOME FIELD ADJUSTMENTS TO THE LINES AND GRADES ARE TO BE EXPECTED.

CONTRACTOR SHALL MEET WITH THE OWNER AND OWNER'S REPRESENTATIVE TO DEFINE AND MARK LIMITS OF DISTURBANCE PRIOR TO MOBILIZATION OF EQUIPMENT OR MATERIALS ONTO THE SITE.

THE CONTRACTOR SHALL REPLACE DAMAGED OR DESTROYED CONSTRUCTION STAKES AT NO ADDITIONAL COST.

CONSTRUCTION MATERIALS

OWNER-PROVIDED LOGS, LOGS WITH ROOTWADS AND VERTICAL LOGS WILL BE LOCATED IN DESIGNATED STOCKPILE/STAGING AREAS.

LOCATION, ALIGNMENT, AND ELEVATION OF PLACED LOGS AND LOGS WITH ROOT WADS ARE SUBJECT TO ADJUSTMENT BASED ON FIELD CONDITIONS AND MATERIAL SIZE.

ANY EXCESS CONSTRUCTION MATERIALS SHALL BE NEATLY STORED AT AN APPROVED STAGING LOCATION. UPON COMPLETION OF THE PROJECT ANY EXCESS MATERIALS, WITH THE EXCEPTION OF ANY LARGE WOODY MATERIAL (LWM) AND TEMPORARILY STOCKPILED EXCAVATED MATERIAL AS DESIGNATED BY OWNER, WILL BECOME THE PROPERTY OF THE CONTRACTOR AND HAULED OFFSITE IN A TIMELY MANNER AND LEGALLY DISPOSED OF.

CONSTRUCTION ACCESS/TRAFFIC CONTROL

CONTRACTOR SHALL SUBMIT AN ACCESS, STAGING, AND STOCKPILE PLAN TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO MOBILIZATION.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING ANY REQUIRED TRAFFIC CONTROL OR ACCESS PERMITS.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING ANY REQUIRED TRAFFIC CONTROL INCLUDING, BUT NOT LIMITED TO, SIGNAGE AND FLAGGERS.

ALL SAPLINGS AND TREES TO BE TRANSPLANTED OR REMOVED SHALL BE CLEARLY MARKED AND APPROVED BY THE OWNER AND OWNER'S REPRESENTATIVE.

ALL EQUIPMENT, MATERIALS AND PERSONNEL SHALL REMAIN WITHIN THE LIMITS OF DISTURBANCE.

THE CONTRACTOR SHALL KEEP THE WORK AREAS IN A NEAT AND SIGHTLY CONDITION FREE OF DEBRIS AND LITTER FOR THE DURATION OF THE PROJECT.

CONTRACTOR SHALL IMPLEMENT MEASURES TO CONTROL AND MINIMIZE WIND BLOWN DUST FROM THE SITE AND ACCESS ROUTES.

AT PROJECT COMPLETION, ROADS AND ACCESS ROUTES SHALL BE CLEANED AND RESURFACED TO PRE-PROJECT CONDITION PER WASHINGTON DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION. CLEANING SHALL BE INCIDENTAL TO MOBILIZATION/DEMOBILIZATION.

ALL DISTURBED AREAS INCLUDING, BUT NOT LIMITED TO: ROADS, DRIVEWAYS, TEMPORARY ACCESS ROUTES, STAGING AREAS AND STRUCTURE LOCATIONS NEED TO BE RESTORED TO PRE-PROJECT CONDITION OR BETTER. THIS WILL INCLUDE, BUT IS NOT LIMITED TO ANY GRADING/BLADING OF DISTURBED AREAS AS WELL AS REMOVAL OF ANY TRASH AND DEBRIS. THE OWNER'S REPRESENTATIVE WILL CONDUCT A FINAL WALK THROUGH WITH THE CONTRACTOR PRIOR TO DEMOBILIZATION.

ALL DISTURBED AREAS OUTSIDE THE LIMITS OF DISTURBANCE SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AT NO ADDITIONAL COST.

CHANNEL CONSTRUCTION SHALL BE COMPLETED FROM WITHIN THE DEFINED CHANNEL ALIGNMENT WHEN CONDITIONS (WETTING) ALLOW, ACCESSED BY IDENTIFIED ROUTES.

SPILL POLLUTION AND PREVENTION PLAN (SPCC)

THE CONTRACTOR SHALL PREPARE AND IMPLEMENT A PROJECT-SPECIFIC SPILL PREVENTION, CONTROL, AND COUNTER MEASURES PLAN (SPCC PLAN) FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL SUBMIT THE PLAN TO THE OWNER'S REPRESENTATIVE NO LATER THAN THE DATE OF THE PRE-CONSTRUCTION CONFERENCE. NO ON-SITE CONSTRUCTION ACTIVITIES MAY COMMENCE UNTIL THE OWNER ACCEPTS AN SPCC PLAN FOR THE PROJECT.

EXCAVATORS SHALL BE FITTED WITH BIODEGRADABLE HYDRAULIC FLUID.

EROSION CONTROL

CONTRACTOR SHALL BE SOLELY RESPONSIBLE, AT OWN EXPENSE, FOR PROVIDING AND MAINTAINING ALL NECESSARY EROSION CONTROL FACILITIES TO COMPLY WITH APPLICABLE EROSION CONTROL REGULATIONS AND TO MAINTAIN CLEAN ACCESS ROUTES FOR DURATION OF PROJECT.

EROSION/SEDIMENTATION CONTROL PLAN

THE EROSION AND SEDIMENT CONTROL (ESC) PLAN PROVIDED IS FOR INFORMATIONAL PURPOSES ONLY, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING EROSION CONTROL MEASURES TO COMPLY WITH APPLICABLE REGULATIONS.

THE RECOMMENDATIONS FOR AN ESC PLAN INCLUDED HEREIN WILL PROVIDE A GUIDELINE FOR THE CONTRACTOR TO DEVELOP AND IMPLEMENT AN ESC PLAN.

A. THE IMPLEMENTATION OF AN ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.

B. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

C. ESC FACILITIES, AS APPROXIMATELY SHOWN ON THIS PLAN, ARE TO BE CONSTRUCTED PRIOR TO CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT ENTER SURFACE WATERS, THE DRAINAGE SYSTEM, OR VIOLATE APPLICABLE WATER STANDARDS.

D. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED AT NO ADDITIONAL COST FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.

E. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

F. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD AND AFTER EVENTS EXCEEDING 2 HOURS DURATION.

G. STABILIZED CONSTRUCTION ENTRANCES AND ADDITIONAL MEASURES MAY BE REQUIRED AND SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT TO ENSURE ALL ACCESS ROADS ARE KEPT CLEAN AT NO ADDITIONAL COST.

CONTRACTOR'S ESC RECORD

WEEKLY REPORTS SUMMARIZING THE SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN, AND ACTIONS TAKEN AS A RESULT OF THESE INSPECTIONS SHALL BE PREPARED AND RETAINED ON SITE BY THE CONTRACTOR. IN ADDITION, A RECORD OF THE FOLLOWING DATES SHALL BE INCLUDED IN THE REPORTS:

1. WHEN MAJOR GRADING ACTIVITIES OCCUR.
2. DATES OF RAINFALL EVENTS EITHER EXCEEDING 2 HOURS DURATION OR MORE THAN 0.5 INCHES/24 HOURS.
3. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON SITE, OR ON A PORTION OF THE SITE.
4. WHEN STABILIZATION MEASURES ARE INITIATED FOR PORTIONS OF THE SITE.

ESC RECORDS SHALL BE MADE AVAILABLE TO THE OWNER AND OWNER'S REPRESENTATIVE ON REQUEST AND SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO APPLICATION FOR PAYMENT.

DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED
PROFESSIONAL ENGINEER
10/23/202
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GENERAL NOTES

SHEET 2 OF 24

STABILIZE SOILS AND PROTECT SLOPES

ALL EXPOSED SOILS SHALL BE PROTECTED FROM EROSION BY APPROVED MEASURES WITH IDENTIFIED NATIVE SEED MIXES (SEE REVEGETATION SEEDING SPECIFICATIONS). SOILS SHALL BE STABILIZED BEFORE A WORK SHUTDOWN, HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES. HYDROSEED ALL DISTURBED AREAS NOT INDICATED IN THE CONTRACT DOCUMENTS FOR OTHER PERMANENT STABILIZATION MEASURES AS SOON AS PRACTICAL.

DESIGN, CONSTRUCT, AND PHASE CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION. REDUCE SLOPE VELOCITIES ON DISTURBED SLOPES BY PROVIDING TEMPORARY BARRIERS. STORMWATER FROM OFF SITE SHOULD BE HANDLED SEPARATELY FROM STORMWATER GENERATED ON SITE.

AFTER FINAL SITE STABILIZATION

ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BEST MANAGEMENT PRACTICES (BMPs) ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED FROM THE SITE OR INCORPORATED INTO FINISHED GRADING. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.

WATERS OF THE US

THE ORDINARY HIGH WATER (OHW) LINES DISPLAYED IN THIS DESIGN PACKAGE WERE DETERMINED BY INTER-FLUVE STAFF. THESE LINES ARE BASED UPON ANALYSIS, MODELING, AND BEST PROFESSIONAL JUDGMENT.

THESE DO NOT NECESSARILY REPRESENT JURISDICTIONAL BOUNDARIES. WITHIN THE STATE OF WASHINGTON, THE ARMY CORPS OF ENGINEERS AND THE DEPARTMENT OF ECOLOGY HAVE THE FINAL AUTHORITY IN DETERMINING WATERS BOUNDARIES AND REGULATIONS.

RIVER DIVERSION & DEWATERING

DIVERSION MAY BYPASS THE RIVER AROUND SMALLER WORK AREAS AT CONTRACTOR'S DISCRETION.

DEWATERING OF IN-CHANNEL WORK AREA(S) SHALL OCCUR CONCURRENT WITH FISH RESCUE. CONTRACTOR SHALL COORDINATE WITH THE YAKAMA NATION FISHERIES FOR FISH RESCUE. CONTRACTOR SHALL PROVIDE YAKAMA FISHERIES AMPLE TIME TO SCHEDULE FISH RESCUE. IF DIVERSION FAILS DUE TO CONTRACTOR NEGLIGENCE, FISH RESCUE SHALL BE REPEATED BY YAKAMA FISHERIES CREWS AT CONTRACTOR'S EXPENSE.

FISH RESCUE

ALL FISH RESCUE EFFORTS SHALL BE PERFORMED BY A YAKAMA NATION FISHERIES/AQUATIC BIOLOGIST EXPERIENCED WITH THE COLLECTION AND HANDLING OF AQUATIC SPECIES FROM CONSTRUCTION SITES.

ALL FISH TRAPPED IN RESIDUAL POOLS WITHIN THE PROJECT AREA WILL BE CAREFULLY COLLECTED BY SEINE AND/OR DIP NETS AND PLACED IN CLEAN TRANSFER CONTAINERS WITH ADEQUATE VOLUME OF FRESH RIVER WATER.

CAPTURED FISH SHALL BE IMMEDIATELY RELEASED TO ADJACENT WATERS.

OFF-SITE SPOILS DISPOSAL

CONTRACTOR SHALL FILL POND TO NO HIGHER THAN THE HIGH WATER LEVEL ELEVATION. PRIOR TO FILLING, CONTRACTOR SHALL STAKE HIGH WATER LEVEL ELEVATION FOR APPROVAL BY YAKAMA NATION REPRESENTATIVES.
POND SHALL BE FILLED BASED ON YAKAMA NATION'S INSTRUCTIONS.

COFFERDAM

THE CONTRACTOR SHALL PREPARE AND SUBMIT A DIVERSION AND DEWATERING PLAN FOR OWNER'S APPROVAL.

THE CONTRACTOR SHALL PROVIDE MATERIALS, EQUIPMENT AND PERSONNEL TO INSTALL METAL Z-PILE SHEET PILE COFFERDAMS TO ISOLATE THE WORK AREAS FROM THE STREAM.

THE CONTRACTOR SHALL PREPARE OWN DESIGNS OF COFFERDAM TO ISOLATE WORK AREA FROM STREAM FLOWS, PROTECT THE STREAM FROM THE RELEASE OF TURBIDITY AND MANAGE INFILTRATION TO ENABLE SUFFICIENT DEWATERING FOR EXCAVATION OF PROJECT ELEMENTS.

THE CONTRACTOR MAY PROPOSE POSSIBLE ALTERNATE COFFERDAM DESIGNS FOR OWNER'S REVIEW FOR APPROVAL PRIOR TO IMPLEMENTATION.

CONSTRUCTION DEWATERING

CONTRACTOR SHALL PERFORM CONSTRUCTION DEWATERING IN SUCH A MANNER AS TO AVOID THE RELEASE OF TURBID OR SEDIMENT-LADEN WATER IN ORDER TO PREVENT CONTAMINATION OR INCREASE TURBIDITY OF SURFACE WATERS. SEDIMENT LADEN WATER MAY BE PUMPED TO AN UPLAND DISCHARGE LOCATION AND ALLOWED TO SHEET FLOW THROUGH EXISTING VEGETATION BEFORE INFILTRATING INTO THE GROUND. IF THIS METHOD IS NOT SUFFICIENT TO PREVENT RETURN OF TURBID WATER TO SURFACE WATERS, A 'DIRT-BAG' OR SEDIMENT RETENTION STRUCTURE MAY BE REQUIRED AS NECESSARY TO COMPLY WITH LAWS AND PERMIT REQUIREMENTS AT NO ADDITIONAL COST.

CONTRACTOR WILL PROVIDE ANY PUMPS, HOSES AND FITTINGS NEEDED TO PERFORM THE DEWATERING. THE PUMP EQUIPMENT SELECTED BY THE CONTRACTOR SHALL BE SUFFICIENT TO DEWATER THE SITE THOROUGHLY.

OWNER'S REPRESENTATIVE SHALL APPROVE DEWATERING DISCHARGE LOCATION PRIOR TO IMPLEMENTATION.

CONTRACTOR SHALL PROVIDE VISQUEEN OR GEOTEXTILE LINER, PLYWOOD, OR METAL PLATING AS NECESSARY TO DISSIPATE PUMP DISCHARGE JET TO PREVENT EROSION.

TREE SALVAGE

ALL APPROPRIATE TREE SPECIES WITHIN CLEARING LIMITS REMOVED FOR CONSTRUCTION, AS APPROVED BY THE OWNER'S REPRESENTATIVE, SHALL TEMPORARILY BE STOCKPILED WITHIN LIMITS OF DISTURBANCE. STOCKPILED TREE/SLASH SHALL BE REINCORPORATED INTO FINISHED PROJECT.

ANY REMOVED VEGETATION GREATER THAN 6 INCHES DIAMETER AND 15 FEET LONG SHOULD BE INCORPORATED INTO LOG STRUCTURES. SMALLER CLEARING AND GRUBBING DEBRIS SHALL BE USED IN THE PROJECT AS SLASH.

UNLESS DIRECTED BY OWNER'S REPRESENTATIVE, ALL TREES REMOVED WITHIN EXCAVATION LIMITS SHALL BE REMOVED WHOLE WITH ROOTWAD AND UTILIZED IN THE PROJECT CONSTRUCTION AS DIRECTED BY OWNER'S REPRESENTATIVE.

REVEGETATION

ALL WOODY PLANT MATERIAL AND NATIVE SEED MATERIAL TO BE PROVIDED BY OWNER.

PRIOR TO CONSTRUCTION, CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING DELIVERY OF SEED AND PLANT MATERIAL AND MAINTAINING IT ON SITE IN A HEALTHY CONDITION UNTIL INSTALLATION PER WSDOT SPECIFICATIONS.

ALL SEEDING AND PLANTING SHALL BE COMPLETED BY CONTRACTOR.

SEED ALL NEWLY CONSTRUCTED AREAS WITHIN THREE (3) DAYS UPON COMPLETION OF APPROVED FINAL GRADING.

LIVE TREES

ALL TREES NOT MARKED FOR REMOVAL SHALL BE LEFT STANDING UNDISTURBED. CONSTRUCTION ACTIVITY SHALL NOT DEBARK OR DAMAGE LIVE TREES.

KEEP OUT OF DRIP LINE OF EXISTING TREES TO REMAIN.

EXCAVATED MATERIAL

EXCAVATED MATERIAL SHALL BE SELECTIVELY HANDLED AND STORED FOR DISPOSAL OFF SITE. SALVAGE AND REUSE OF EXCAVATED MATERIAL FOR LOG STRUCTURE BACKFILL. SOILS SHALL BE SEGREGATED BY SIZE: 1) CLAY; AND SILT/LOAM; 2) SAND; 3) GRAVEL AND COBBLE; 4) TOPSOIL; AND OTHER (I.E. ORGANIC MATERIAL, ETC.). GRAVEL AND COBBLE MATERIAL FOR LOG STRUCTURE BACKFILL MAY BE STOCKPILED LOCALLY. SOILS TO BE DISPOSED OF OFF SITE SHALL BE PLACED IN DESIGNATED TEMPORARY STOCKPILES IN SIZE SEGREGATED STOCKPILES FOR OFFSITE DISPOSAL BY OTHERS.

ESTIMATE OF EXCAVATION QUANTITIES

	WORK AREA	EXCAVATION VOLUME (CY)	DISTURBANCE AREA (SF)
ALIGNEMENT	1A - UPSTREAM OF CONFLUENCE	1370	35840
	1A - DOWNSTREAM OF CONFLUENCE	1020	128530
	1B	900	11770
	1C	2610	98500
	1D	200	45230
	1E	1240	44490
	1F	10130	148470
	3A	1140	96480
	3B	2310	68470
	4	5360	93000
BEAVER DAM ENHANCEMENT		40	25760

WORK AREA	FILL VOLUME (CY)	DISTURBANCE AREA (SF)
ROAD ENHANCEMENT	120	5830
DITCH IMPROVEMENT FILL	590	12220

ABBREVIATIONS

APPROX	APPROXIMATE	MFR	MANUFACTURER
BMP	BEST MANAGEMENT PRACTICE	MIN	MINIMUM
CY	CUBIC YARDS	OHW	ORDINARY HIGH WATER
°	DEGREE	OZ	OUNCE
DBH	DIAMETER AT BREAST HEIGHT	%	PERCENT
DIA	DIAMETER	LBS	POUNDS
ESC	EROSION AND SEDIMENT CONTROL	REF	REFERENCE
FES	FABRIC ENCAPSULATED SOIL	RD	ROAD
FF	FACE FOOT	STD	STANDARD
' or FT	FOOT	TBD	TO BE DETERMINED
HWY	HIGHWAY	TYP	TYPICAL
HRS	HOURS	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
ID	IDENTIFICATION		
" or IN	INCH		
LWM	LARGE WOODY MATERIAL	YD	YARD
MAX	MAXIMUM		

REVEGETATION PERFORMANCE STANDARDS

NATIVE SEEDING

AT THE END OF THE 1-YEAR WARRANTY PERIOD, HERBACEOUS PERENNIAL VEGETATION COVER SHALL BE AT LEAST 75% IN EACH OF THE PLANTING ZONES FOR EACH WORK AREA, AS DETERMINED BY VISUAL ASSESSMENT FROM THE OWNER OR THEIR REPRESENTATIVE IN AT LEAST THREE (3) REPRESENTATIVE AREAS NO LESS THAN 625 SQ FT PER PLANTING ZONE. CONTRACTOR WILL BE NOTIFIED SEVEN (7) DAYS PRIOR TO AN ASSESSMENT AND CAN BE PRESENT DURING ASSESSMENT, IF DESIRED.

BARE AREAS OR AREAS WITH POOR VEGETATION DEVELOPMENT GREATER THAN 625 SQ FT SHALL BE RE-SEEDED.

ANTICIPATED ACTIONS TO ACHIEVE THE PERFORMANCE STANDARD MAY INCLUDE, BUT ARE NOT LIMITED TO, RE-SEEDING, IRRIGATION, MOWING, TRIMMING, HAND-PULLING OF NUISANCE VEGETATION, AND HERBICIDE APPLICATIONS. ANY ACTIVITIES REQUIRED TO ACHIEVE THE PERFORMANCE STANDARD SHALL BE CONSIDERED INCIDENTAL TO THE COST OF SEEDING INSTALLATION AND SHALL COMPLY WITH APPLICABLE WSDOT STANDARDS.

TREE AND SHRUB PLANTING

AT THE END OF THE 1-YEAR WARRANTY PERIOD, EACH PLANTING ZONE BY WORK AREA SHALL HAVE AT LEAST 15 LIVE STEMS/625 SQ FT (75% SURVIVAL) AS DETERMINED BY VISUAL ASSESSMENT FROM THE OWNER OR THEIR REPRESENTATIVE IN AT LEAST THREE (3) REPRESENTATIVE AREAS PER PLANTING ZONE. CONTRACTOR WILL BE NOTIFIED SEVEN (7) DAYS PRIOR TO AN ASSESSMENT AND CAN BE PRESENT DURING ASSESSMENT, IF DESIRED.

ANTICIPATED ACTIONS TO ACHIEVE THE PERFORMANCE STANDARD MAY INCLUDE, BUT ARE NOT LIMITED TO, RE-SEEDING, IRRIGATION, MOWING, TRIMMING, HAND-PULLING OF NUISANCE VEGETATION, AND HERBICIDE APPLICATIONS. ANY ACTIVITIES REQUIRED TO ACHIEVE THE PERFORMANCE STANDARD SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE PLANT INSTALLATION AND SHALL COMPLY WITH APPLICABLE WSDOT STANDARDS.

THE CONTRACTOR SHALL CONTINUE MANAGEMENT ACTIONS UNTIL PERFORMANCE STANDARDS ARE MET, AS DETERMINED BY THE OWNER OR THEIR REPRESENTATIVE.

NOTES:
ESTIMATED MATERIAL VOLUMES ARE APPROXIMATE IN-PLACE QUANTITIES AND NOT FACTORED FOR EXPANSION OF EXCAVATED MATERIAL OR COMPACTION OF PLACED MATERIAL. MEASUREMENT AND PAYMENT SHALL NOT BE BASED ON WEIGHT TICKETS OR TRUCK MEASURE WITHOUT PRIOR WRITTEN APPROVAL.

DANIEL S. MILLER
STATE OF WASHINGTON
10/23/2024
34208
REGISTERED PROFESSIONAL ENGINEER
Expires: 11/23/2025

NO.	BY	DATE	REVISION DESCRIPTION
1	PL	5/31/18	EDIT QUANTITIES TABLE

NS, AW — DRAWN | PL, DM — DESIGNED | PL — CHECKED
DM — APPROVED | 10/23/2024 — DATE | 190215 — PROJECT

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YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

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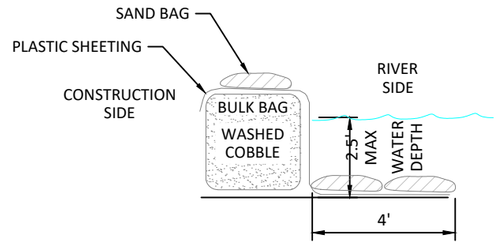
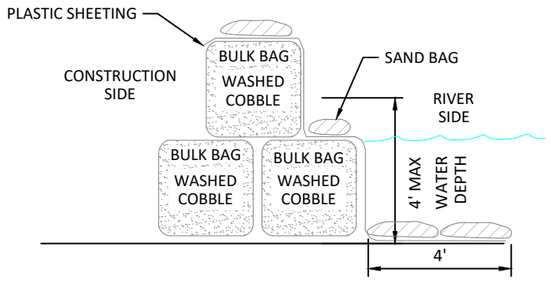
GENERAL NOTES, QUANTITIES AND ABBREVIATIONS

SHEET 3 OF 24



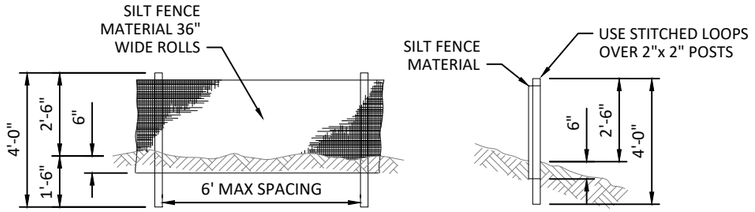
SECTION - WATER DEPTHS LESS THAN 2.5'



SECTION - WATER DEPTHS 2.5' TO 4.5'

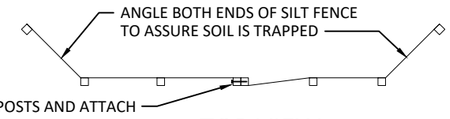
1/4 TYPICAL DETAIL - TEMPORARY COFFERDAM

NOT TO SCALE



FRONT VIEW

SIDE VIEW



TOP VIEW

2/4 TYPICAL DETAIL - SILT FENCE

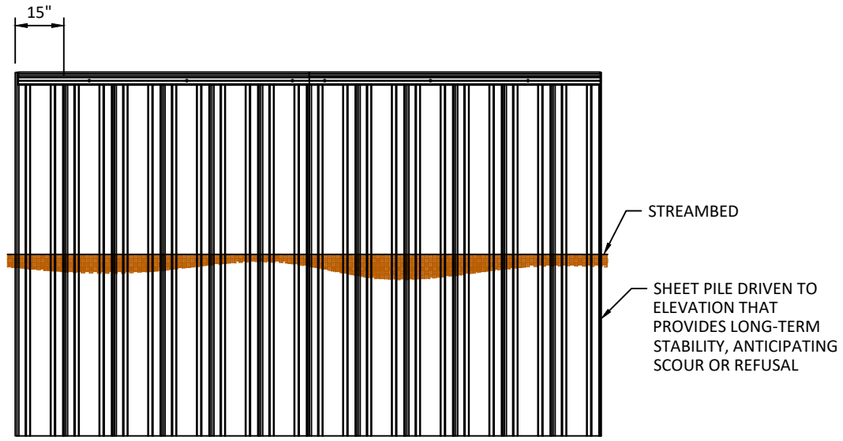
NOT TO SCALE

NOTES:

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 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 REQUIRED TO MEET APPLICABLE REGULATIONS.
2. THE SILT FENCE IS TO BE INSTALLED AT LOCATIONS SHOWN ON THE PLAN ALONG THE DOWNHILL PERIMETER OF CONSTRUCTION AREAS. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
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 AND MET APPLICABLE PERMIT CONDITIONS, AT NO ADDITIONAL COST TO OWNER, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.

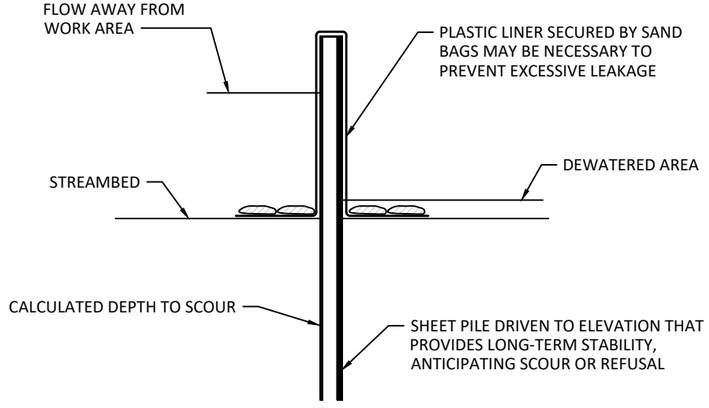
BULK BAG NOTES:

1. BULK BAG COFFERDAM SHALL BE CONSTRUCTED OF SEVERAL UNITS OF BULK BAGS FILLED WITH WASHED COBBLE, 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. 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.
3. THE PLASTIC SHEETING SHALL BE DRAPED ALONG THE CHANNEL BOTTOM ON THE RIVER 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. ALL SANDBAGS SHALL BE FILLED WITH WASHED PEA GRAVEL.
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 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 BE LONG ENOUGH TO ENSURE THAT ENTIRE LENGTH OF COFFERDAM WILL BE COVERED WITHOUT A SEAM. MINIMUM 12-FT WIDE ROLL SHALL BE USED FOR SINGLE LAYER BULK BAG COFFERDAM. MINIMUM 16-FT WIDE 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. BULK BAG FILL (WASHED COBBLE) AND SANDBAG FILL (WASHED PEA GRAVEL) SHALL BE DISPOSED OF ON SITE. BAGS SHALL BE REMOVED FROM THE SITE ONCE CONSTRUCTION IS COMPLETED.
8. MEASUREMENT AND PAYMENT FOR BULK BAG COFFERDAM, SAND BAGS, PLASTIC SHEETING, WASHED COBBLE PLACEMENT, AND MAINTENANCE AND REMOVAL OF ALL MATERIALS, SHALL BE INCIDENTAL TO THE LUMP SUM ALL INCLUSIVE COST FOR DIVERSION AND DEWATERING.
9. ALTERNATE COFFERDAM MATERIALS AND CONFIGURATIONS MAY BE ALLOWED BUT SHALL NOT BE IMPLEMENTED WITHOUT REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND/OR VENDOR CUT SHEETS FOR SUBSTITUTIONS.
10. IF NECESSARY, GAPS BETWEEN BULK BAGS SHALL BE FILLED WITH WASHED STREAM GRAVEL TO IMPROVE COFFERDAM SEAL.



NOTE:
INDIVIDUAL SHEET WEIGHT 45 LBS PER LINEAR FOOT

ELEVATION



SECTION

3/4 TYPICAL DETAIL - SHEET PILE

NOT TO SCALE

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STATE OF WASHINGTON
34208
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10/23/2024
Expires: 11/23/2025

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NS, AW	PL, DM	PL
DRAWN	DESIGNED	CHECKED
DM	10/23/2024	190215
APPROVED	DATE	PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
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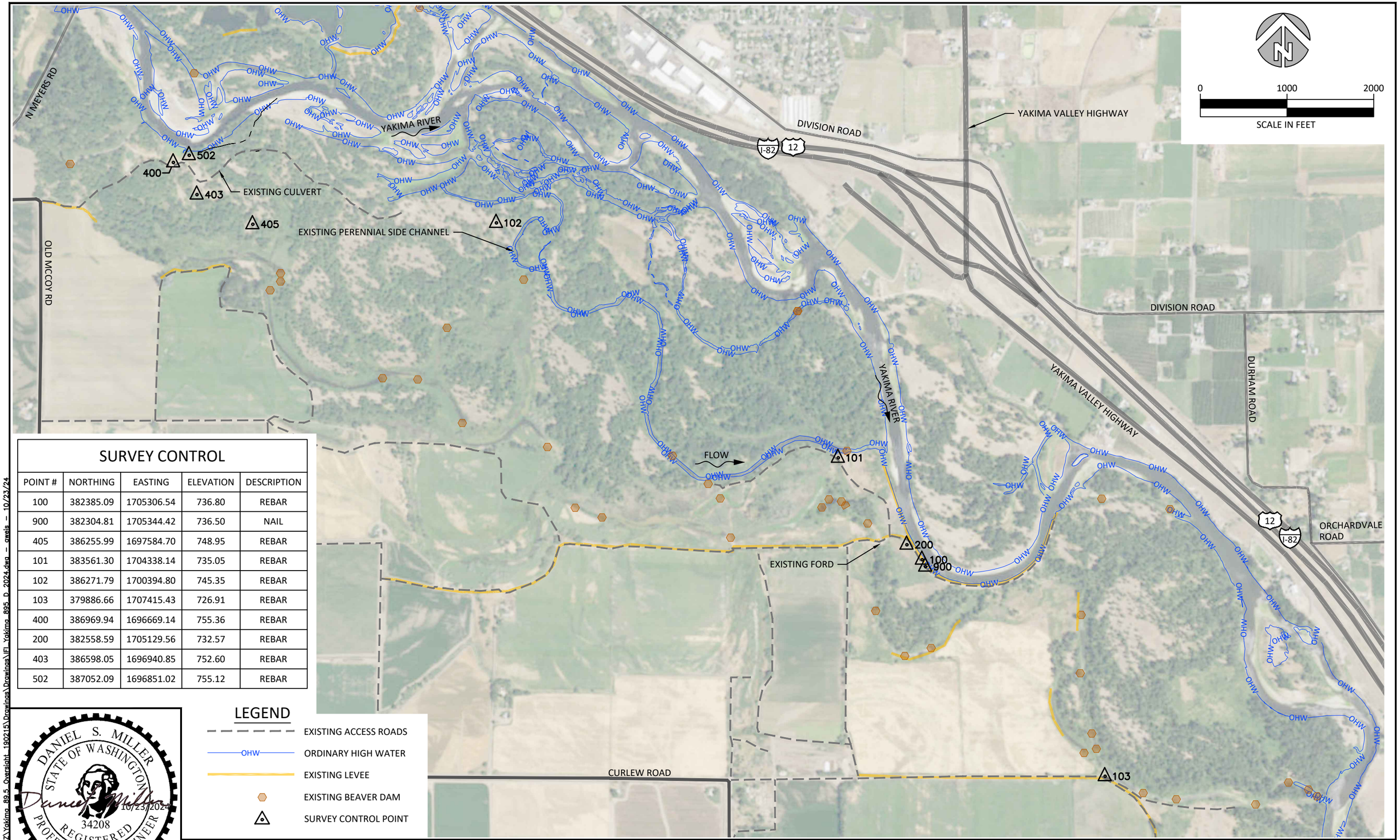
EROSION CONTROL & COFFERDAM DETAILS

SHEET 4 OF 24



SURVEY CONTROL

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	382385.09	1705306.54	736.80	REBAR
900	382304.81	1705344.42	736.50	NAIL
405	386255.99	1697584.70	748.95	REBAR
101	383561.30	1704338.14	735.05	REBAR
102	386271.79	1700394.80	745.35	REBAR
103	379886.66	1707415.43	726.91	REBAR
400	386969.94	1696669.14	755.36	REBAR
200	382558.59	1705129.56	732.57	REBAR
403	386598.05	1696940.85	752.60	REBAR
502	387052.09	1696851.02	755.12	REBAR

LEGEND

- EXISTING ACCESS ROADS
- OHW — ORDINARY HIGH WATER
- EXISTING LEVEE
- EXISTING BEAVER DAM
- SURVEY CONTROL POINT

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EXISTING CONDITIONS - MAIN PROJECT AREA

SHEET 5 OF 24

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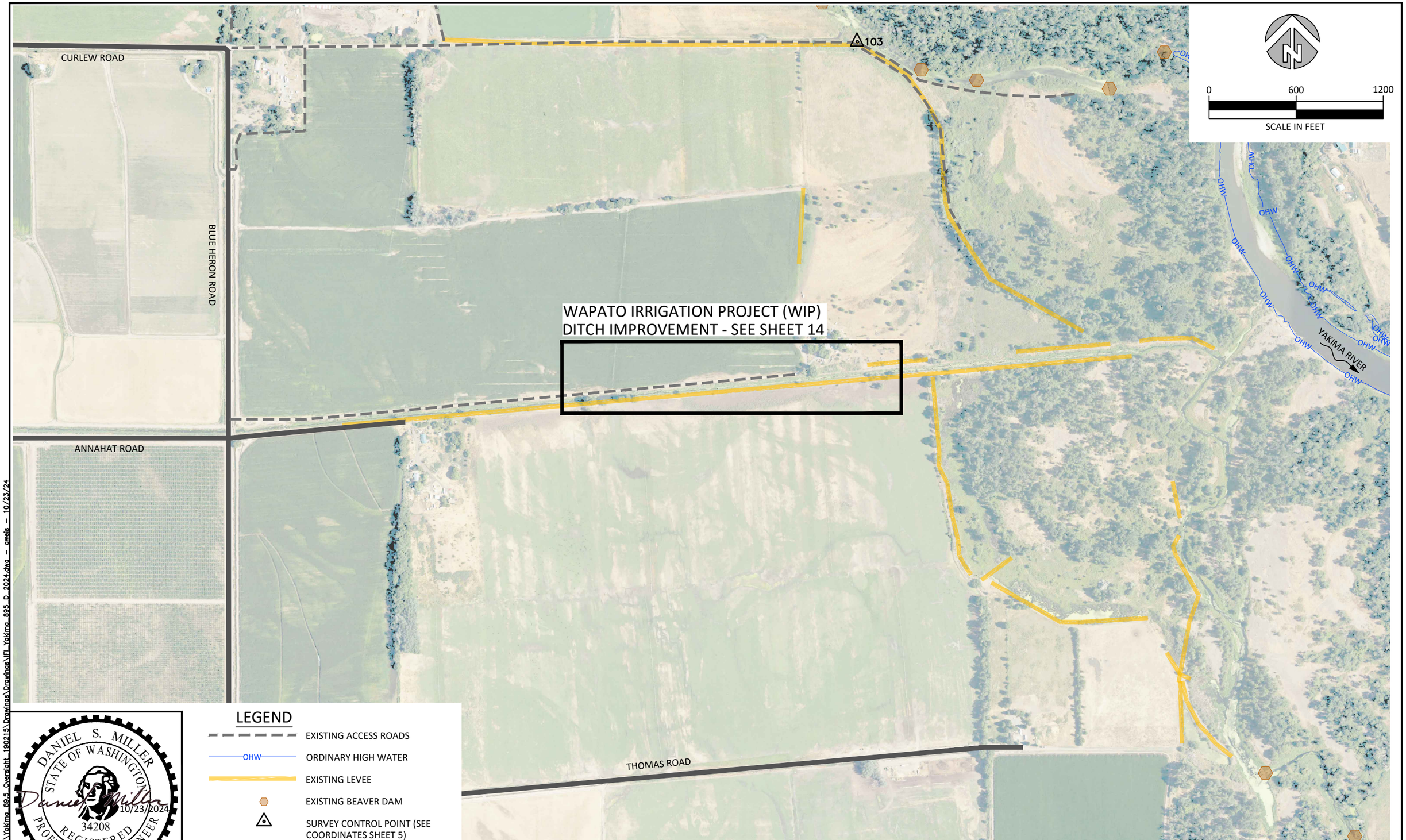

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LEGEND

- EXISTING ACCESS ROADS
- OHW — ORDINARY HIGH WATER
- EXISTING LEVEE
- EXISTING BEAVER DAM
- SURVEY CONTROL POINT (SEE COORDINATES SHEET 5)

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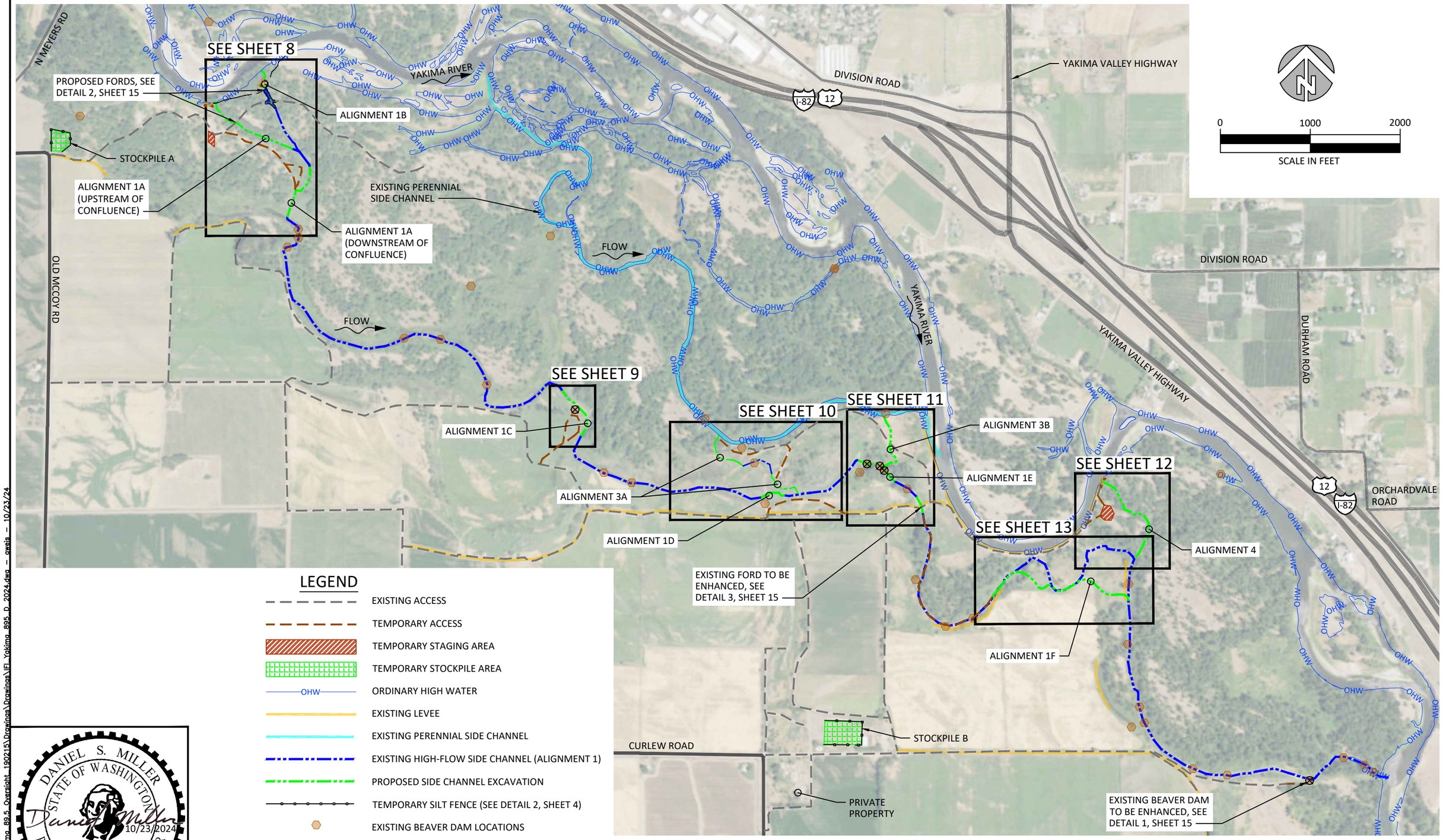
EXISTING CONDITIONS -
DITCH IMPROVEMENT

SHEET
6 OF 24



LEGEND

- EXISTING ACCESS
- TEMPORARY ACCESS
- TEMPORARY STAGING AREA
- TEMPORARY STOCKPILE AREA
- ORDINARY HIGH WATER
- EXISTING LEVEE
- EXISTING PERENNIAL SIDE CHANNEL
- EXISTING HIGH-FLOW SIDE CHANNEL (ALIGNMENT 1)
- PROPOSED SIDE CHANNEL EXCAVATION
- TEMPORARY SILT FENCE (SEE DETAIL 2, SHEET 4)
- EXISTING BEAVER DAM LOCATIONS
- BEAVER DAM TO BE REMOVED/ ENHANCED

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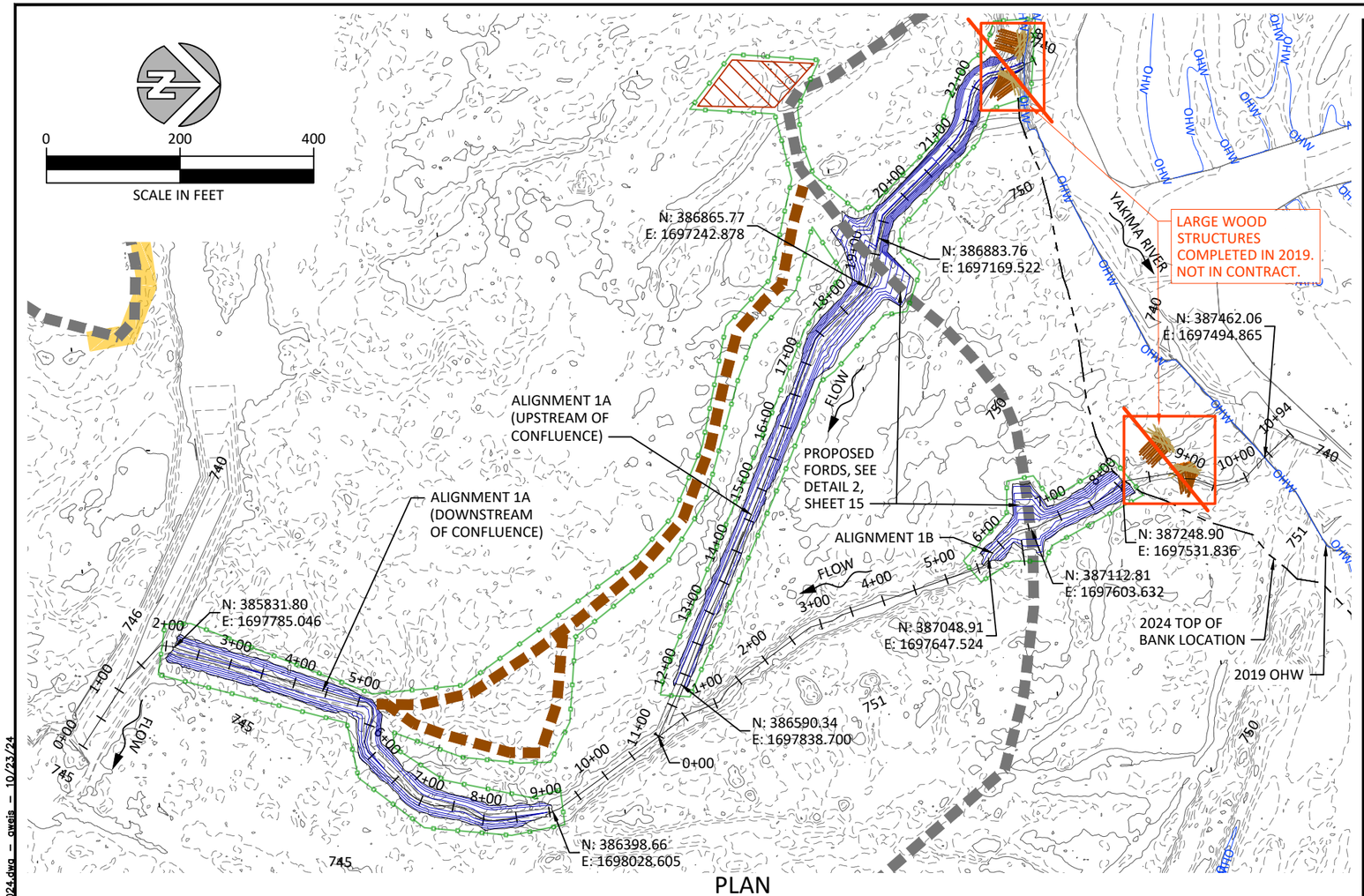
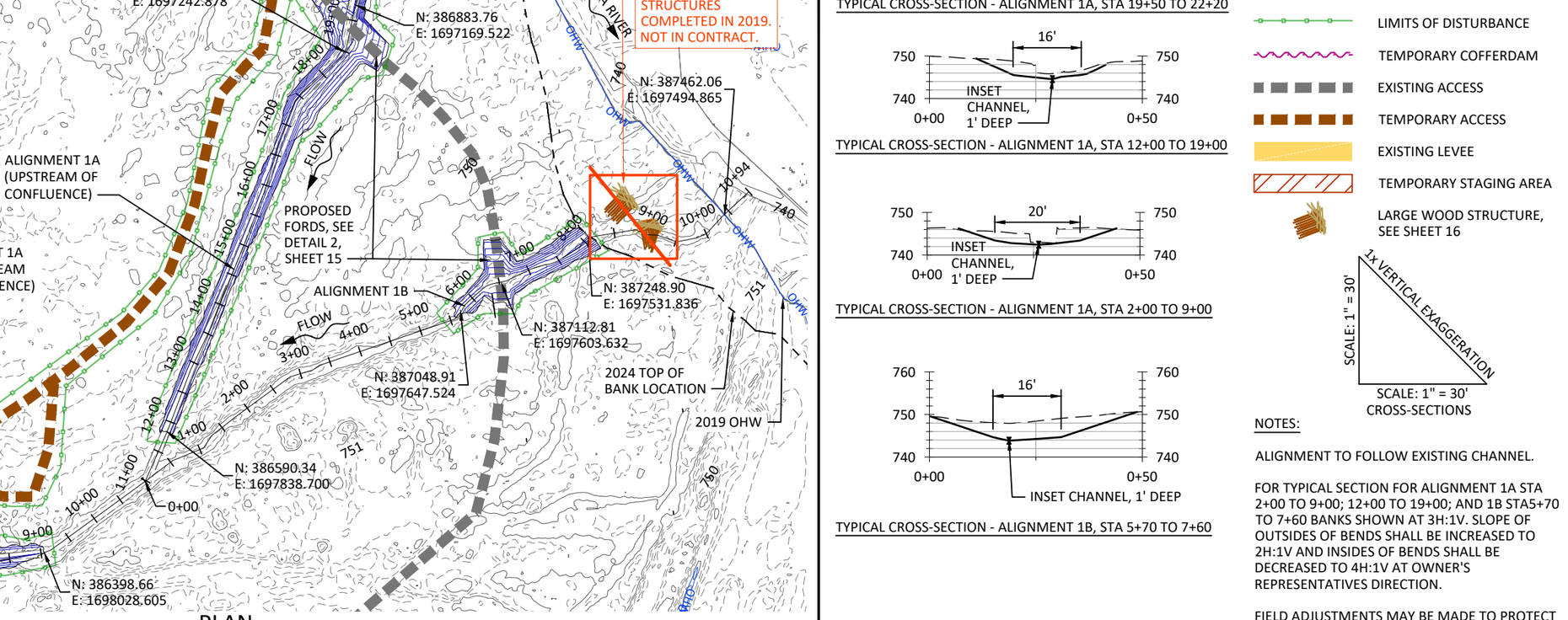
PROPOSED CONDITIONS AND SHEET INDEX

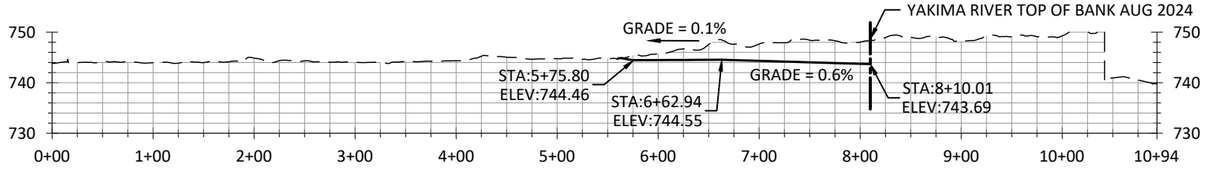
SHEET 7 OF 24



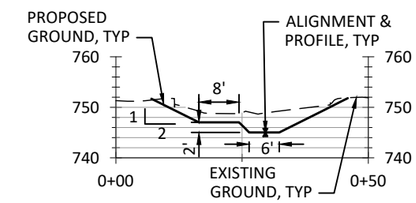
PLAN



PROFILE - ALIGNMENT 1A



PROFILE - ALIGNMENT 1B



TYPICAL CROSS-SECTION - ALIGNMENT 1A, STA 19+50 TO 22+20

TYPICAL CROSS-SECTION - ALIGNMENT 1A, STA 12+00 TO 19+00

TYPICAL CROSS-SECTION - ALIGNMENT 1A, STA 2+00 TO 9+00

TYPICAL CROSS-SECTION - ALIGNMENT 1B, STA 5+70 TO 7+60

LEGEND

- TOP OF BANK, AUGUST 2024
- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1FT)
- OHW — ORDINARY HIGH WATER
- 2+00 — SIDE CHANNEL ALIGNMENT AND STATIONING
- LIMITS OF DISTURBANCE
- TEMPORARY COFFERDAM
- EXISTING ACCESS
- TEMPORARY ACCESS
- EXISTING LEVEE
- TEMPORARY STAGING AREA
- LARGE WOOD STRUCTURE, SEE SHEET 16

SCALE: 1" = 30'
1x VERTICAL EXAGGERATION
SCALE: 1" = 30'
CROSS-SECTIONS

SCALE: 1" = 150'
5x VERTICAL EXAGGERATION
PROFILES

NOTES:

ALIGNMENT TO FOLLOW EXISTING CHANNEL.

FOR TYPICAL SECTION FOR ALIGNMENT 1A STA 2+00 TO 9+00; 12+00 TO 19+00; AND 1B STA5+70 TO 7+60 BANKS SHOWN AT 3H:1V. SLOPE OF OUTSIDES OF BENDS SHALL BE INCREASED TO 2H:1V AND INSIDES OF BENDS SHALL BE DECREASED TO 4H:1V AT OWNER'S REPRESENTATIVES DIRECTION.

FIELD ADJUSTMENTS MAY BE MADE TO PROTECT EXISTING TREES.

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10/23/2024
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DM (APPROVED)	10/23/2024 (DATE)	190215 (PROJECT)

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ALIGNMENT 1 A & B - PLAN, PROFILES, TYPICAL CROSS-SECTIONS

SHEET 8 OF 24

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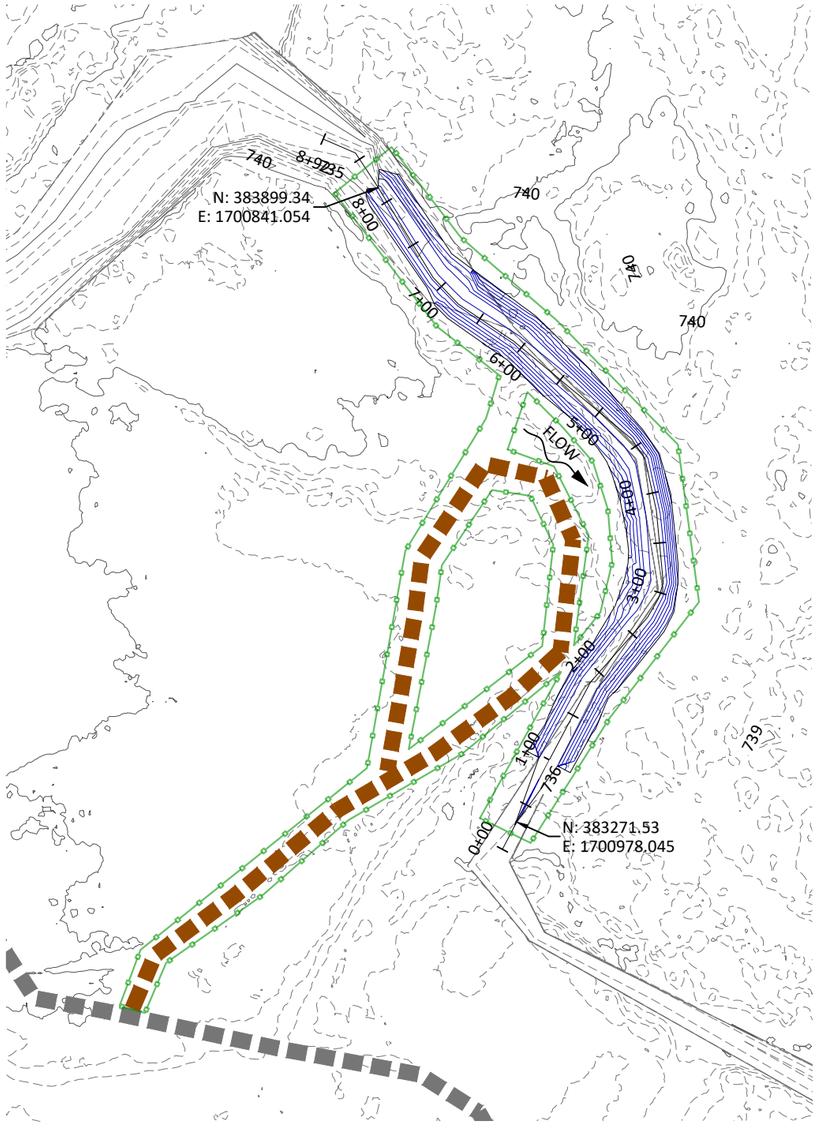


PLAN

0 150 300

SCALE IN FEET

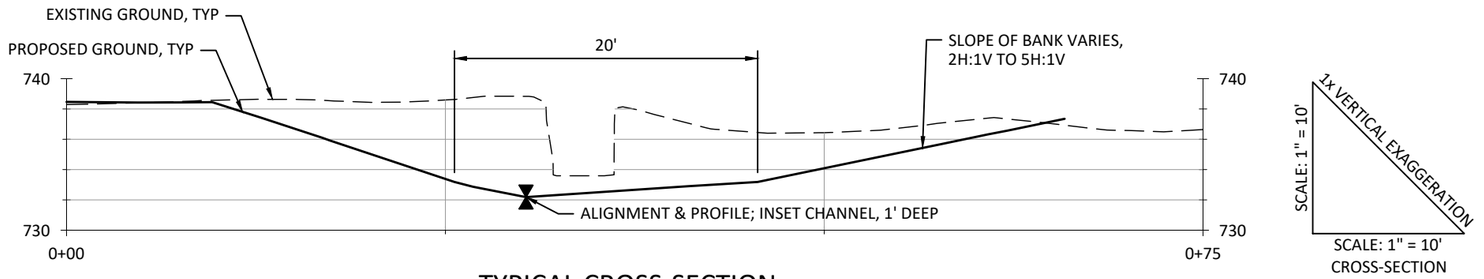
NOTES:

ALIGNMENT TO FOLLOW EXISTING CHANNEL.

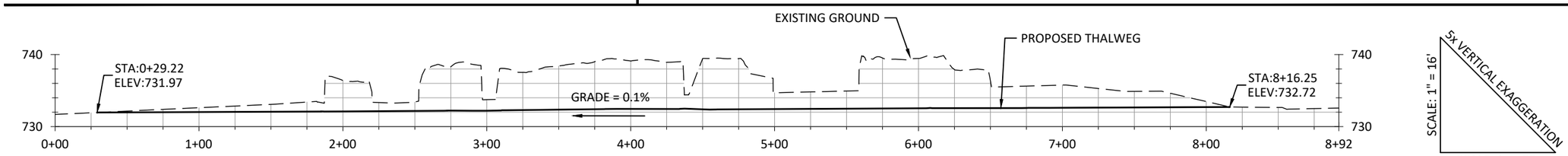
BANKS SHOWN AT 3H:1V. SLOPE OF OUTSIDES OF BENDS SHALL BE INCREASED TO 2H:1V AND INSIDES OF BENDS SHALL BE DECREASED TO 4H:1V AT OWNER'S REPRESENTATIVES DIRECTION.

LEGEND

- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1FT)
- 2+00 — SIDE CHANNEL ALIGNMENT AND STATIONING
- LIMITS OF DISTURBANCE
- EXISTING ACCESS



TYPICAL CROSS-SECTION



PROFILE

DANIEL S. MILLER
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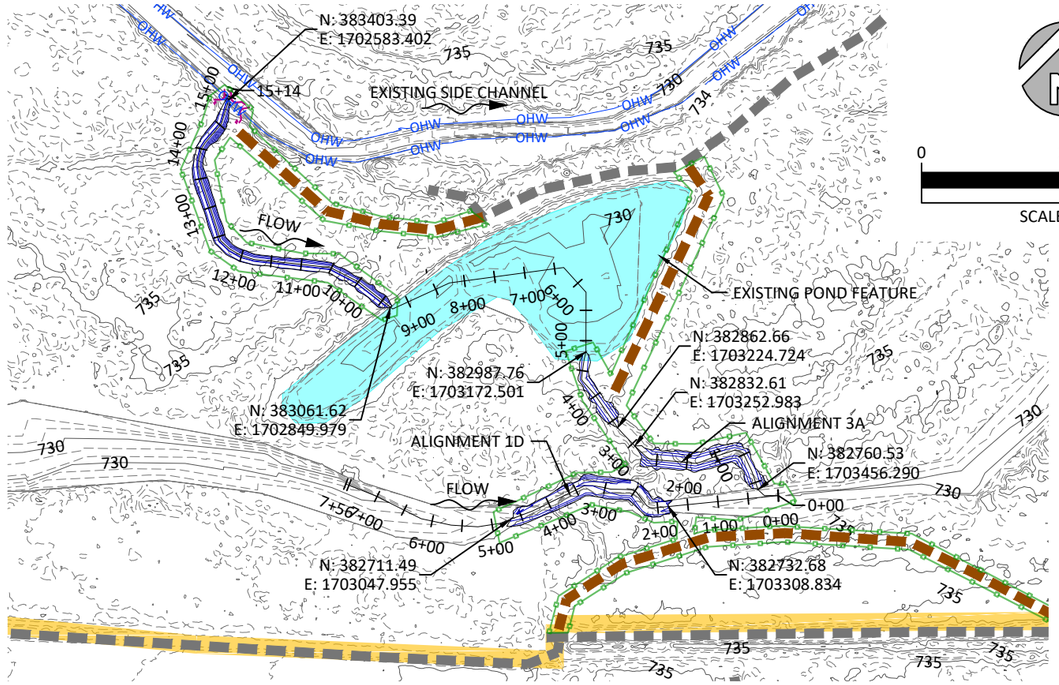
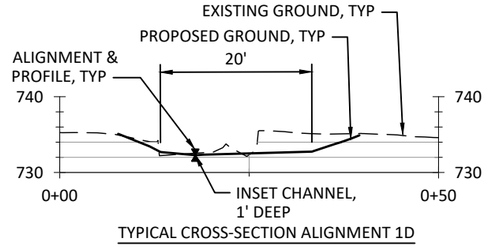
ALIGNMENT 1C - PLAN, PROFILE, TYPICAL CROSS-SECTION

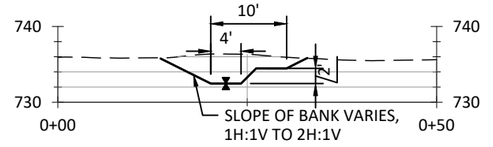
SHEET 9 OF 24



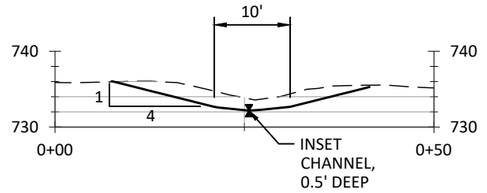
PLAN



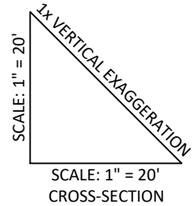
TYPICAL CROSS-SECTION ALIGNMENT 1D



TYPICAL CROSS-SECTION ALIGNMENT 3A STA 9+30 TO 15+00



TYPICAL CROSS-SECTION ALIGNMENT 3A STA 0+40 TO 4+80



LEGEND

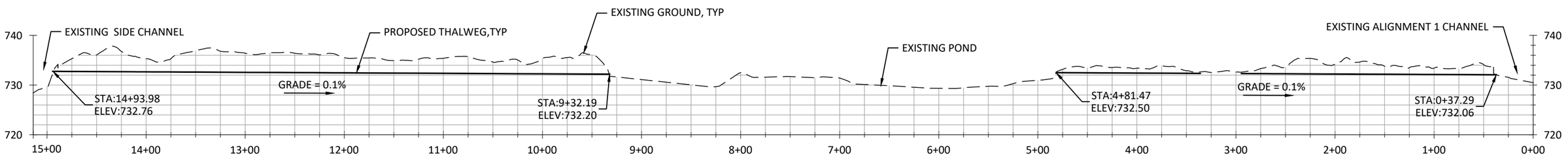
- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1FT)
- OHW — ORDINARY HIGH WATER
- 2+00 — SIDE CHANNEL ALIGNMENT AND STATIONING
- LIMITS OF DISTURBANCE
- TEMPORARY COFFERDAM
- EXISTING ACCESS
- TEMPORARY ACCESS
- EXISTING LEVEE

NOTES:

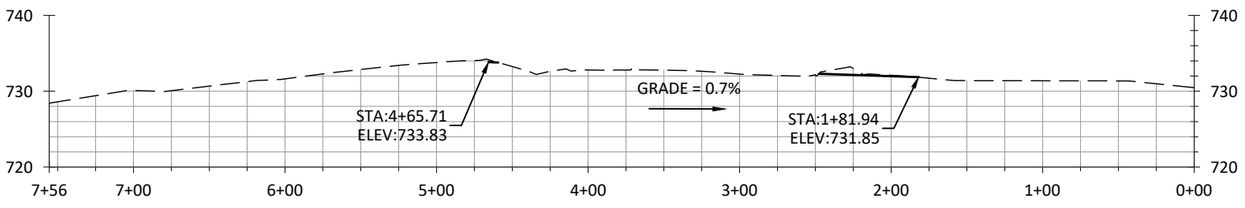
ALIGNMENT TO FOLLOW EXISTING CHANNEL.

TYPICAL SECTION FOR ALIGNMENT 1A & 3A STA 0+40 TO 4+80, BANKS SHOWN AT 3H:1V. SLOPE OF OUTSIDES OF BENDS SHALL BE INCREASED TO 2H:1V AND INSIDES OF BENDS SHALL BE DECREASED TO 4H:1V AT OWNER'S REPRESENTATIVES DIRECTION.

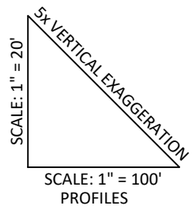
FIELD ADJUSTMENTS MAY BE MADE TO PROTECT EXISTING TREES.



PROFILE - ALIGNMENT 3A



PROFILE - ALIGNMENT 1D



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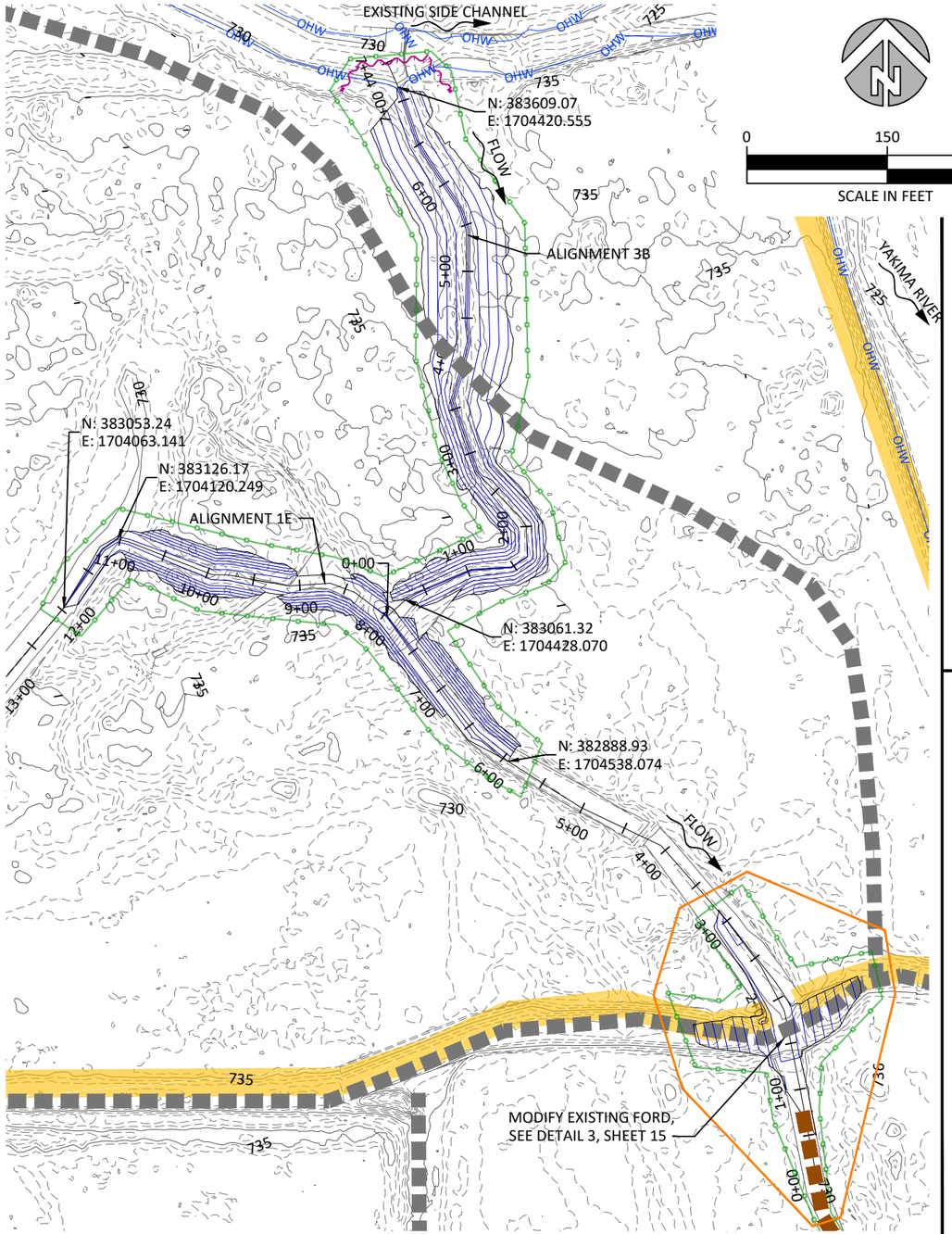
ALIGNMENT 3A & 1D - PLAN, PROFILES, TYPICAL CROSS-SECTIONS

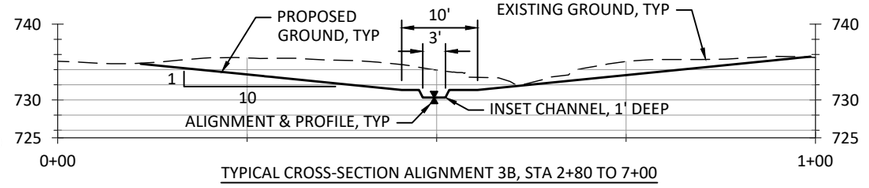
SHEET
10 OF 24



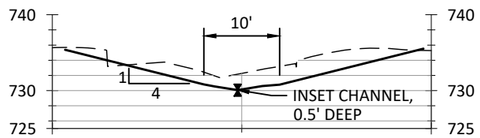
0 150 300

SCALE IN FEET

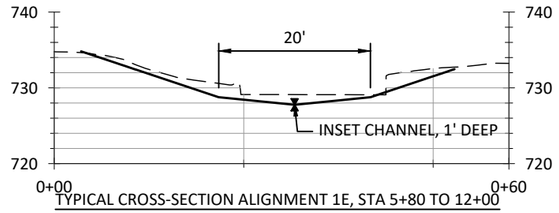
PLAN



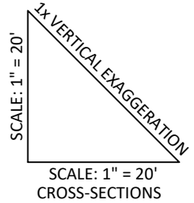
TYPICAL CROSS-SECTION ALIGNMENT 3B, STA 2+80 TO 7+00



TYPICAL CROSS-SECTION ALIGNMENT 3B, STA 0+20 TO 2+80



TYPICAL CROSS-SECTION ALIGNMENT 1E, STA 5+80 TO 12+00



SCALE: 1" = 20'
CROSS-SECTIONS

LEGEND

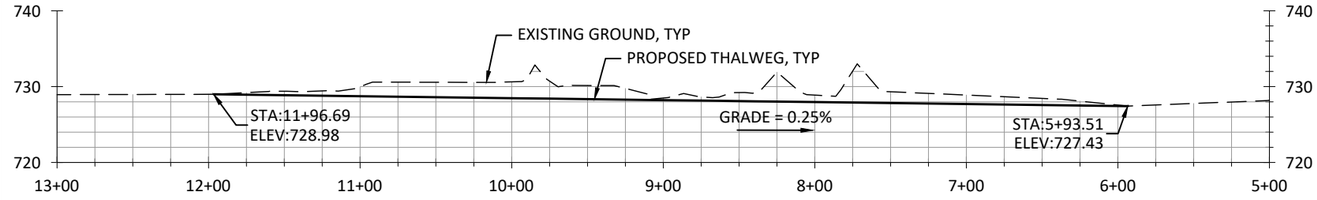
- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1FT)
- OHW — ORDINARY HIGH WATER
- 2+00 — SIDE CHANNEL ALIGNMENT AND STATIONING
- LIMITS OF DISTURBANCE
- CONTRACTOR WORK AREA
- TEMPORARY COFFERDAM
- EXISTING ACCESS
- EXISTING LEVEE

NOTES:

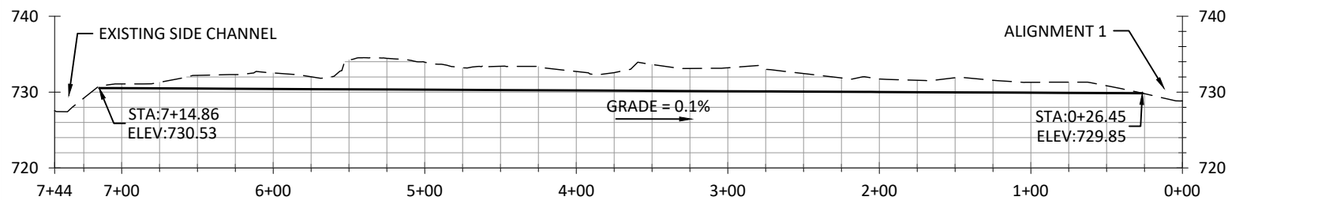
ALIGNMENT TO FOLLOW EXISTING CHANNEL.

ALIGNMENT 1E BANKS SHOWN AT 3H:1V. SLOPE OF OUTSIDES OF BENDS SHALL BE INCREASED TO 2H:1V AND INSIDES OF BENDS SHALL BE DECREASED TO 4H:1V AT OWNER'S REPRESENTATIVES DIRECTION.

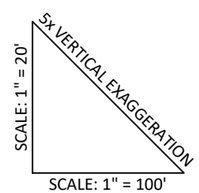
FIELD ADJUSTMENTS MAY BE MADE TO PROTECT EXISTING TREES.



PROFILE - ALIGNMENT 1E



PROFILE - ALIGNMENT 3B



SCALE: 1" = 100'
PROFILES

DANIEL S. MILLER
STATE OF WASHINGTON
10/23/2024
34208
REGISTERED
PROFESSIONAL ENGINEER

Expires: 11/23/2025

NO.	BY	DATE	REVISION DESCRIPTION

NS, AW	PL, DM	PL
DRAWN	DESIGNED	CHECKED
DM	10/23/2024	190215
APPROVED	DATE	PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

inter-fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

ALIGNMENTS 3B & 1E - PLAN, PROFILES, TYPICAL CROSS-SECTIONS

SHEET 11 OF 24

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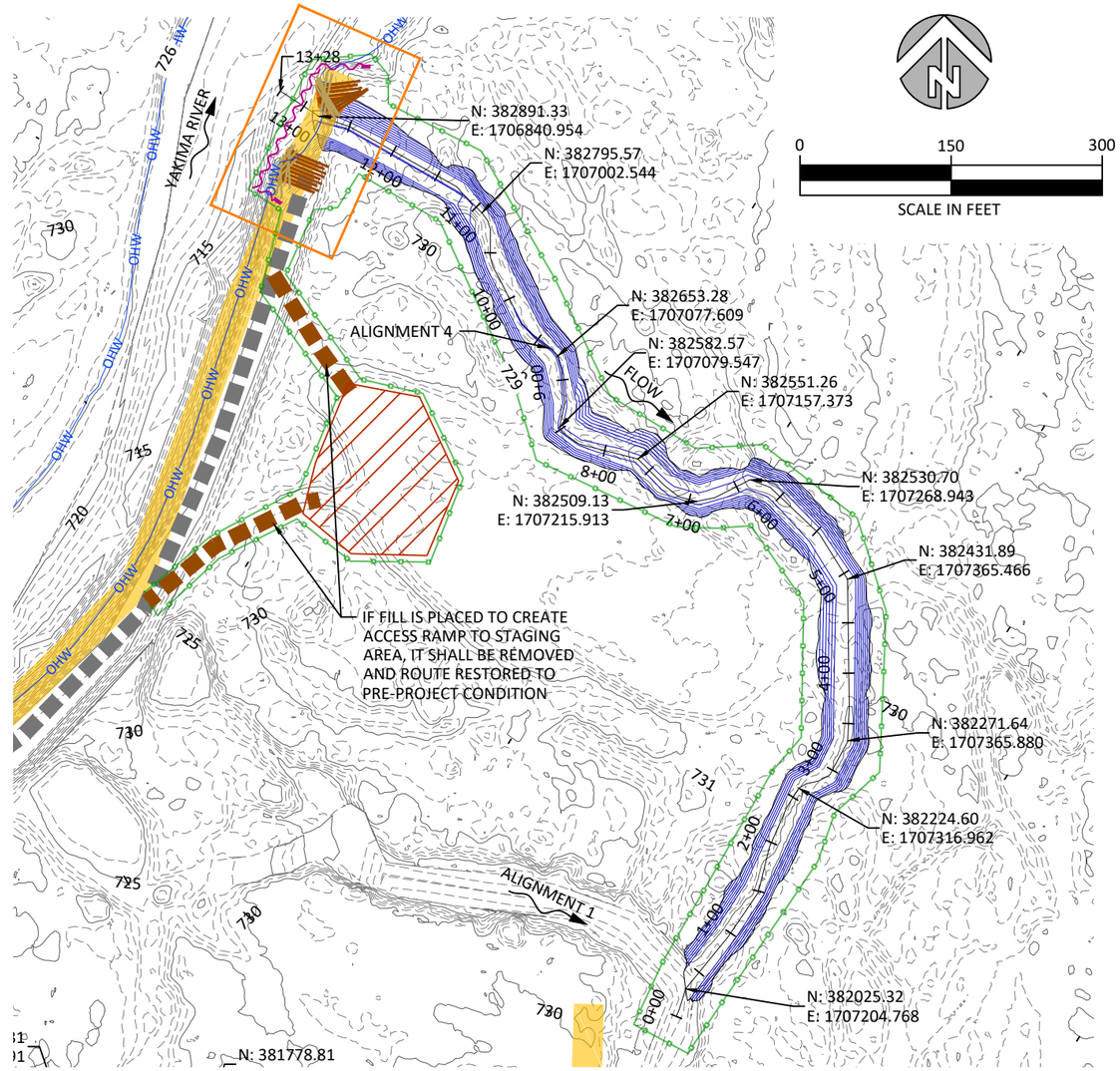
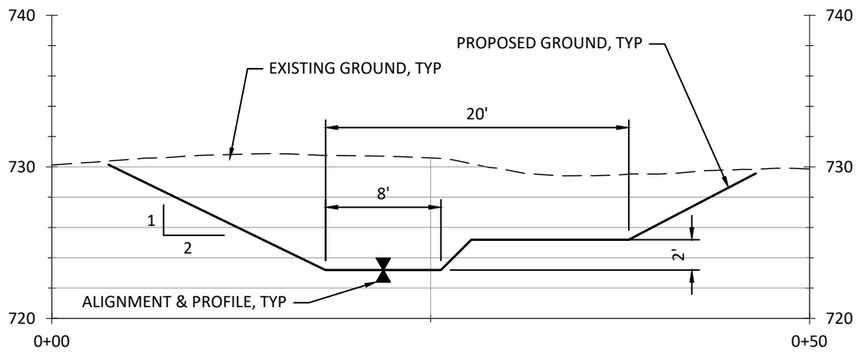
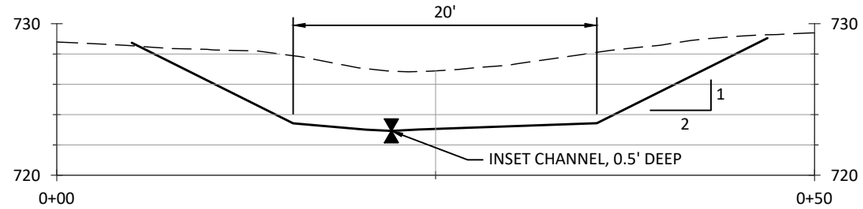


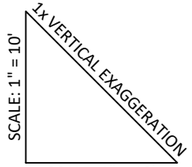
PLAN



TYPICAL CROSS-SECTION ALIGNMENT 4, STA 11+80 TO 13+50



TYPICAL CROSS-SECTION ALIGNMENT 4, STA 0+50 TO 11+80

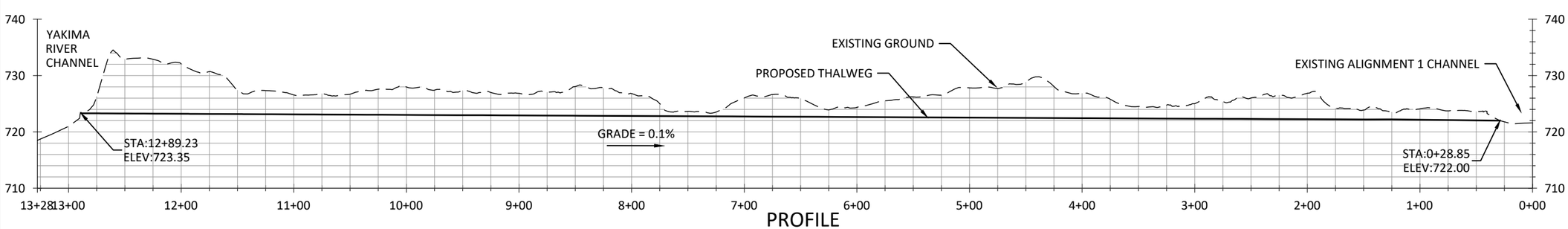


LEGEND

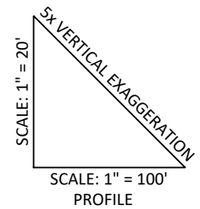
- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1FT)
- OHW — ORDINARY HIGH WATER
- 2+00 — SIDE CHANNEL ALIGNMENT AND STATIONING
- LIMITS OF DISTURBANCE
- CONTRACTOR WORK AREA
- TEMPORARY COFFERDAM
- EXISTING ACCESS
- EXISTING LEVEE
- TEMPORARY STAGING AREA
- LARGE WOOD STRUCTURE, SEE SHEET 16

NOTE:

FIELD ADJUSTMENTS MAY BE MADE TO PROTECT EXISTING TREES.



PROFILE



DANIEL S. MILLER
STATE OF WASHINGTON
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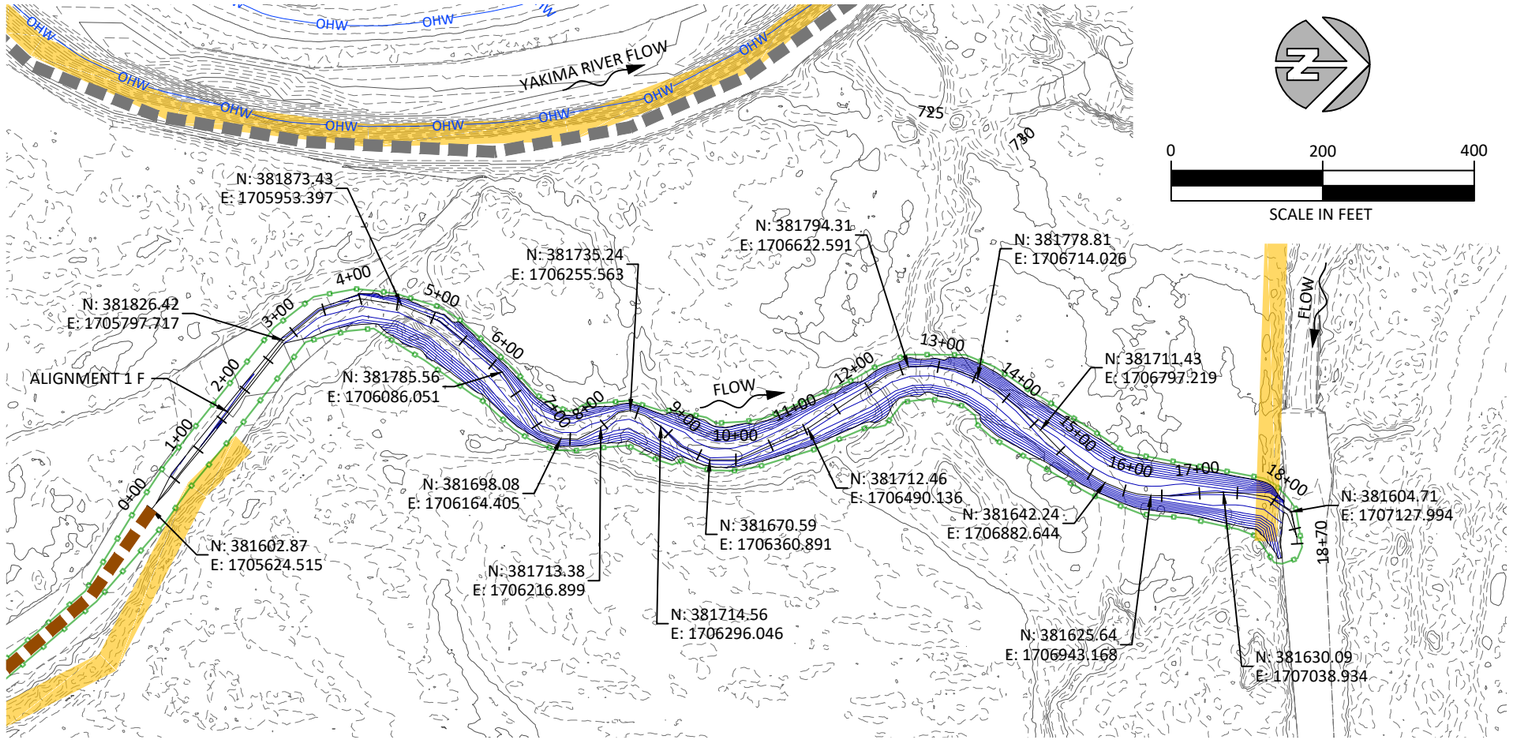
DM	10/23/2024	190215
APPROVED	DATE	PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

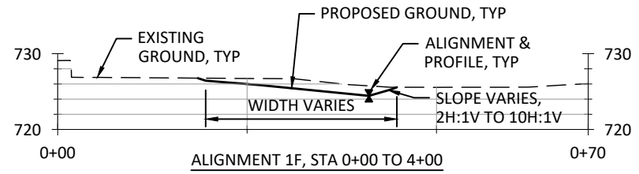
inter-fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

ALIGNMENT 4 - PLAN, PROFILE, TYPICAL CROSS-SECTION

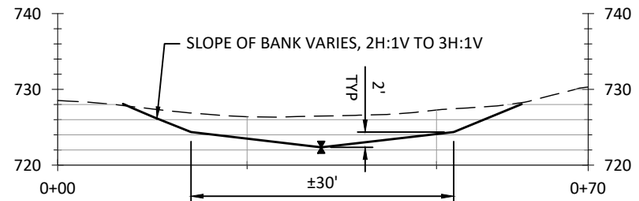
SHEET 12 OF 24



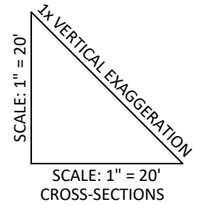
PLAN



ALIGNMENT 1F, STA 0+00 TO 4+00



ALIGNMENT 1F, STA 4+00 TO 18+15



LEGEND

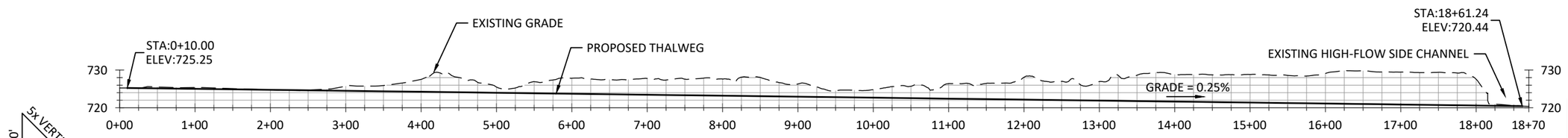
- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1FT)
- OHW — ORDINARY HIGH WATER
- 2+00 — SIDE CHANNEL ALIGNMENT AND STATIONING
- LIMITS OF DISTURBANCE
- TEMPORARY COFFERDAM
- EXISTING ACCESS
- TEMPORARY ACCESS
- EXISTING LEVEE
- LARGE WOOD STRUCTURE, SEE SHEET 16

NOTES:

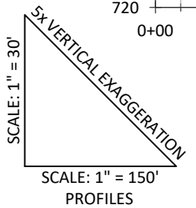
ALIGNMENT TO FOLLOW EXISTING FLOW PATHS.

FOR TYPICAL SECTION FOR ALIGNMENT 1A STA 2+00 TO 9+00; 12+00 TO 19+00; AND 1B STA5+70 TO 7+60 BANKS SHOWN AT 3H:1V. SLOPE OF OUTSIDES OF BENDS SHALL BE INCREASED TO 2H:1V AND INSIDES OF BENDS SHALL BE DECREASED TO 4H:1V AT OWNER'S REPRESENTATIVES DIRECTION.

FIELD ADJUSTMENTS MAY BE MADE TO PROTECT EXISTING TREES.



PROFILE - ALIGNMENT 1F



NO.	BY	DATE	REVISION DESCRIPTION

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DRAWN	DESIGNED	CHECKED
DM	10/23/2024	190215
APPROVED	DATE	PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

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501 Portway Avenue, Suite 101
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541.386.9003
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ALIGNMENT 1F - PLAN, PROFILE, TYPICAL CROSS SECTIONS

SHEET 13 OF 24

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STATE OF WASHINGTON
10/23/2024
34208
REGISTERED PROFESSIONAL ENGINEER
Expires: 11/23/2025

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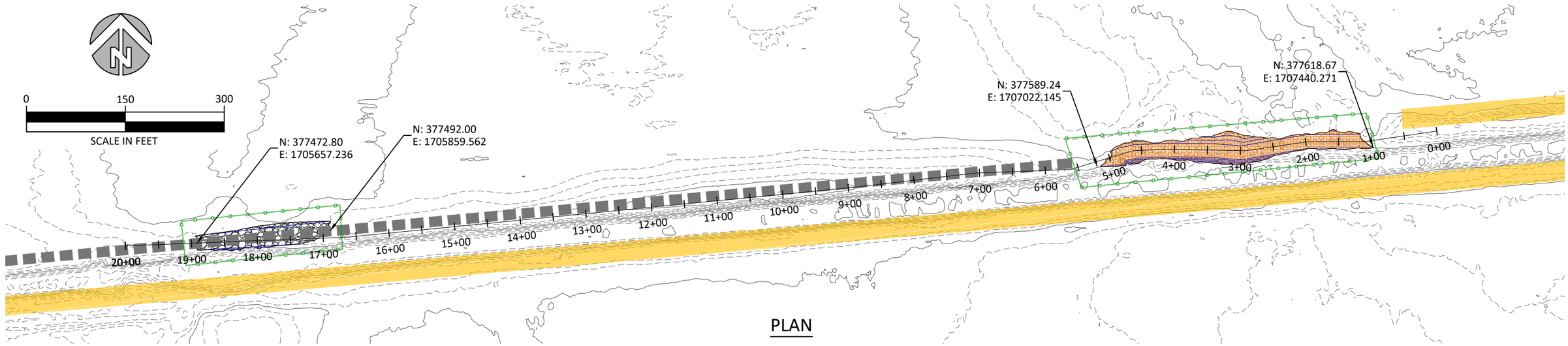


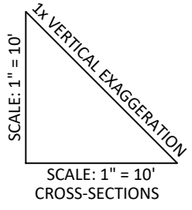
PLAN

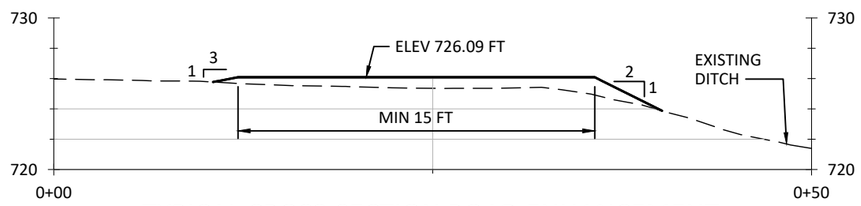
NOTES:

1. FILL AREAS SHALL BE CLEARED AND GRUBBED.
2. ON EXISTING EMBANKMENT SLOPES, BENCH FILL SLOPES FOR MINIMUM 5 FEET HORIZONTAL WIDTH OF FILL.
3. FILL MATERIAL SHALL BE SANDY LOAM.
4. FILL SHALL BE PLACED IN LEVEL LIFTS NOT EXCEEDING 8 INCH LOOSE THICKNESS.
5. COMPACT TO MINIMUM 90% STANDARD PROCTOR AT +/- 3% OPTIMUM MOISTURE CONTENT.

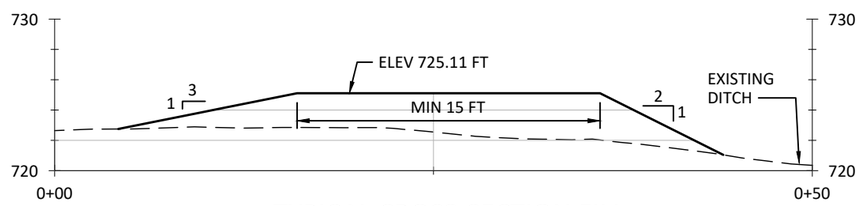
LEGEND

- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1FT)
- OHW — ORDINARY HIGH WATER
- 2+00 — ALIGNMENT AND STATIONING
- LIMITS OF DISTURBANCE
- EXISTING ACCESS
- EXISTING LEVEE
- PROPOSED ROAD ENHANCEMENT
- PROPOSED FILL

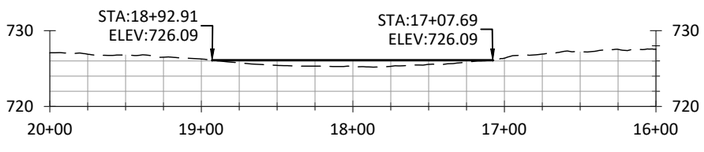




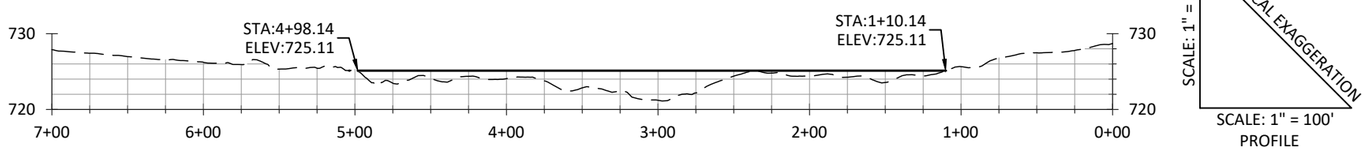
TYPICAL CROSS-SECTION ROAD ENHANCEMENT



TYPICAL CROSS-SECTION FILL



PROFILE - ROAD ENHANCEMENT



PROFILE - FILL

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STATE OF WASHINGTON
10/23/2024
34208
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Expires: 11/23/2025

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DM	10/23/2024	190215
APPROVED	DATE	PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

inter-fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

DITCH IMPROVEMENT - PLAN, PROFILE AND TYPICAL SECTIONS

SHEET
14 OF 24

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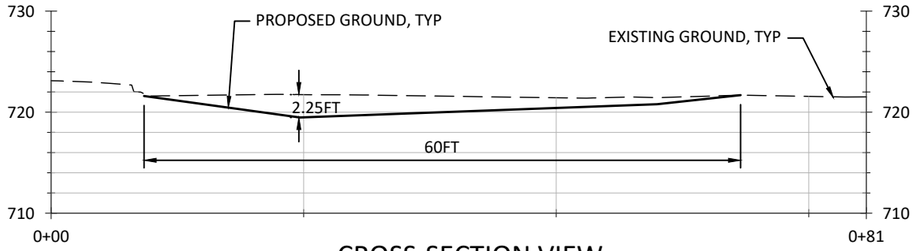
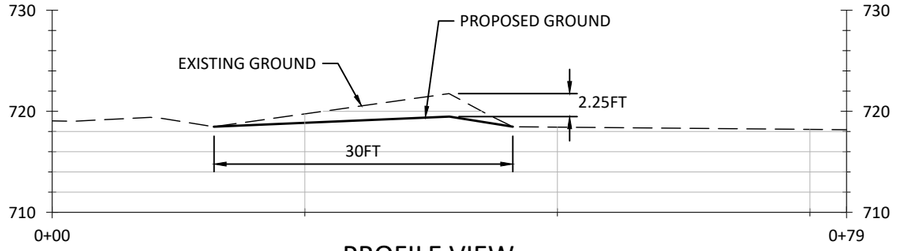
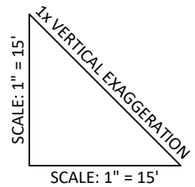


CROSS-SECTION VIEW

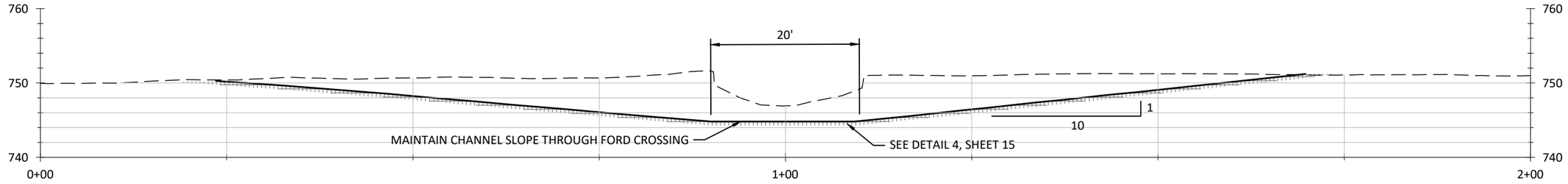


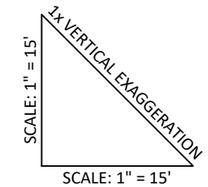
PROFILE VIEW



1/15 TYPICAL DETAIL - BEAVER DAM ENHANCEMENT

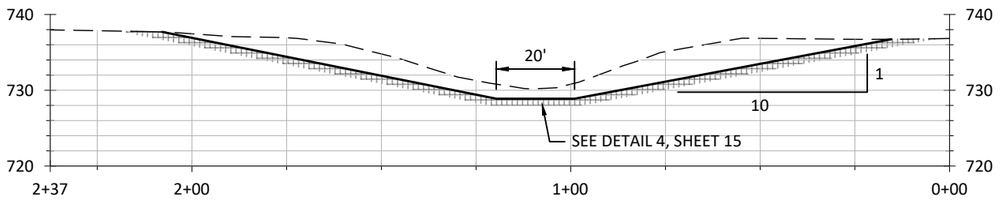
1" = 15'



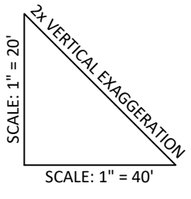


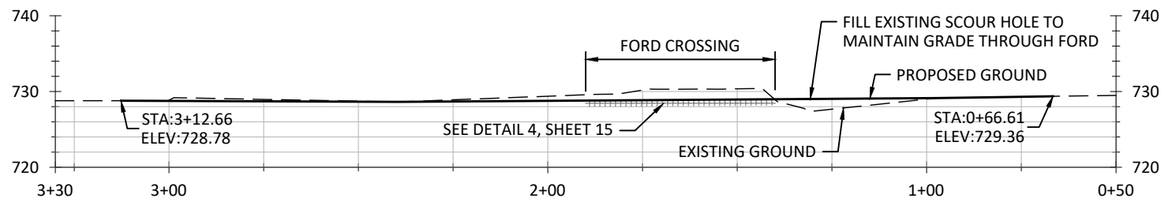
2/15 TYPICAL CROSS-SECTION - PROPOSED FORD CROSSING (ALIGNMENT 1A & 1B)

1" = 15'



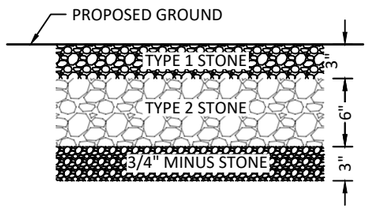
CROSS-SECTION VIEW - STREAM





PROFILE VIEW - STREAM

3/15 TYPICAL DETAIL -EXISTING FORD CROSSING ENHANCMENT (ALIGNMENT 1D)



NOTE:

3" THICK LAYER OF 3/4" MINUS CRUSHED STONE GRAVEL FILTER TO BE PLACED IF SOILS ARE SAND OR FINER.

4/15 TYPICAL DETAIL - ROAD FILL

NOT TO SCALE

NOTE:

WORK TO BE COMPLETED BY CONTRACTOR.

TYPE 1 STONE

% PASSING	DIA MAX (IN)
100	1
84	0.75
50	0.5
16	0.25
5	0.1

TYPE 2 STONE

% PASSING	DIA MAX (IN)
100	4
84	2
50	0.75
16	#8
5	#16

DANIEL S. MILLER
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DM APPROVED | 10/23/2024 DATE | 190215 PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

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Hood River, OR 97031
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FORD CROSSING AND BEAVER DAM ENHANCEMENT DETAILS

SHEET 15 OF 24

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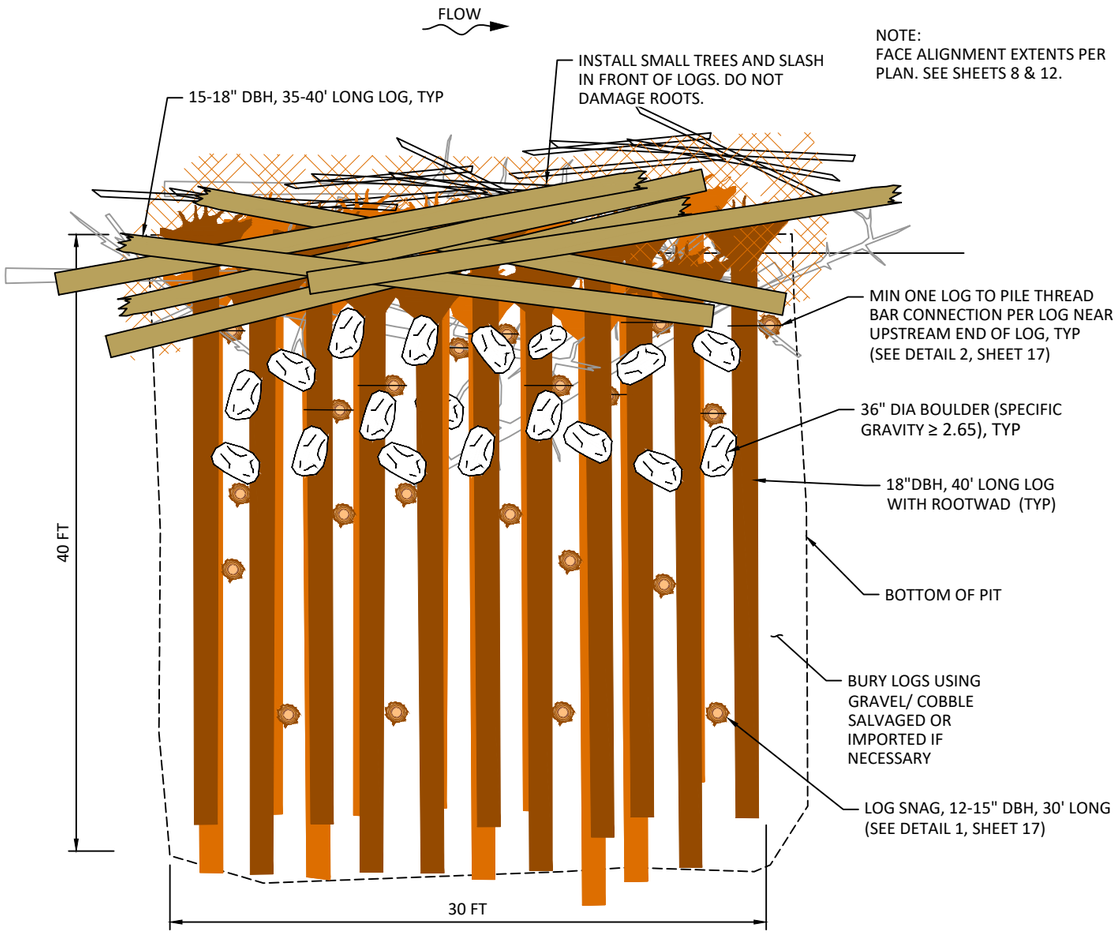
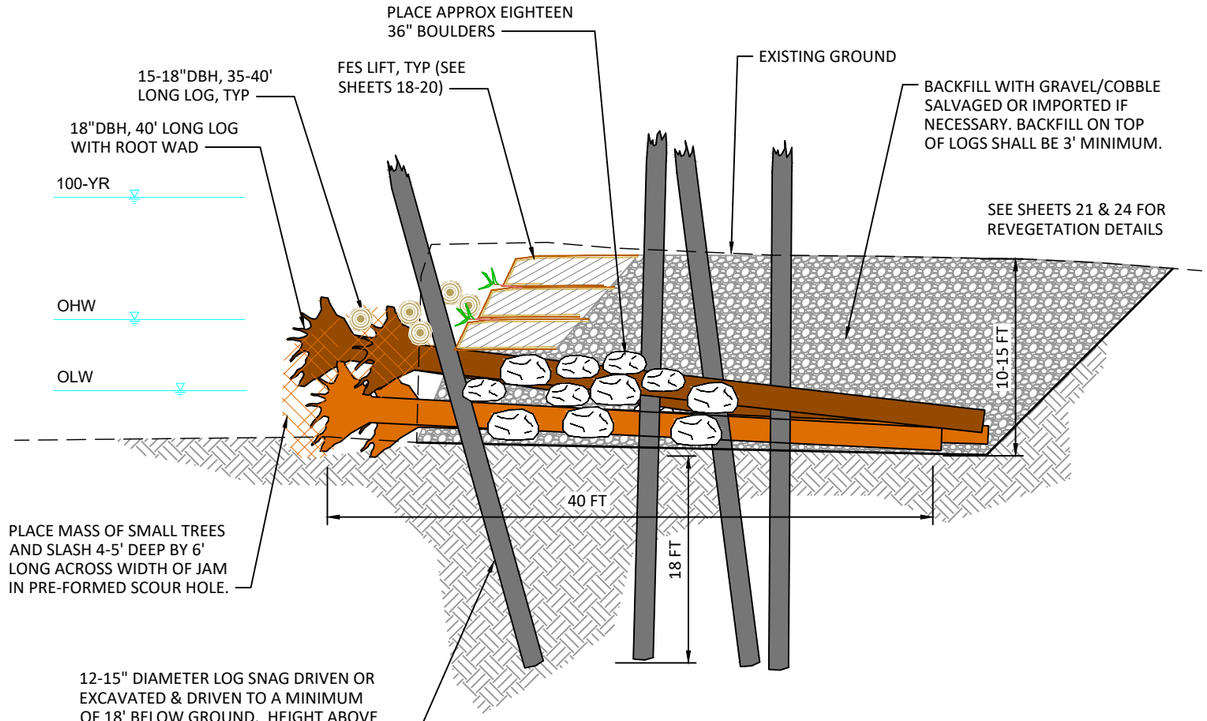


PLAN



SECTION

SEQUENCE:

1. INSTALL SHEETPILE COFFERDAM.
2. EXCAVATE TO SUBGRADE.
3. INSTALL VERTICAL LOGS AND FIRST TIER OF HORIZONTAL LOGS.
4. BACKFILL OVER FIRST TIER OF HORIZONTAL LOGS.
5. INSTALL ADDITIONAL LAYERS OF LOGS AND BACKFILL EACH LAYER.
6. BACKFILL TO EXISTING GRADE CONTOUR.
7. INSTALL FES LIFTS (SEE SHEETS 18-20)
8. INSTALL SMALL TREES AND SLASH IN ROOTWAD MATRIX. DO NOT DAMAGE ROOTWADS.
9. REMOVE COFFERDAM.

NOTES:

1. SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SITE CONDITIONS & SIZE/SHAPE OF MATERIAL DELIVERED OR SALVAGED AT SITE.
2. LOGS SHALL BE BALLASTED TO RESIST BUOYANCY BY BURIAL AND BRACING TO LOG SNAGS.
3. BOLT HORIZONTAL LOGS TO VERTICAL SNAGS PER DETAIL 2, SHEET 17.

1/16 TYPICAL DETAIL - BURIED LOG STRUCTURE
NOT TO SCALE

QUANTITIES ESTIMATE (PER STRUCTURE):

1.	18" DBH X 40' LONG CONIFER LOG WITH ROOTWAD	21 EACH
2.	15-18" DBH X 35-40' LONG LOG	6 EACH
3.	12-15" DIAMETER X 30' LONG CONIFER SNAG	21 EACH
4.	EXCAVATION	APPROX 600 CY
5.	FILL (GRAVEL/COBBLE MATERIAL)	APPROX 500 CY
6.	SMALL WOODY DEBRIS/SLASH	APPROX 75 CY
7.	36" DIAMETER BOULDERS	18 EACH
8.	FABRIC ENCAPSULATED SOIL LIFTS	90 FACE FEET

VIBRATORY PILE DRIVING:

DESCRIPTION
THIS WORK CONSISTS OF INSTALLING LOG SNAGS UPRIGHT WHERE SHOWN ON THE PLANS.

MATERIALS
LOG SNAGS SHALL BE LOGS WITH 15" DIAMETER AT BUTT END AND MINIMUM 12" DIAMETER AT SCALED END. EACH LOG SNAG SHALL BE MINIMUM 30' LONG.

CONSTRUCTION
FINAL POSITIONING OF LOG SNAGS SHALL BE IN THE APPROXIMATE LOCATIONS SHOWN ON THE PLANS. EACH LOG SNAG SHALL BE INSTALLED TO A DEPTH EXCEEDING 18' BELOW BOTTOM OF PIT.

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Expires: 11/23/2025

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NS, AW (DRAWN)	PL, DM (DESIGNED)	PL (CHECKED)
DM (APPROVED)	10/23/2024 (DATE)	190215 (PROJECT)

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

TYPICAL WOOD DETAILS

SHEET 16 OF 24

LOG SNAGS

ALL LOG SNAGS SHALL BE INSTALLED USING VIBRATORY PILE DRIVING EQUIPMENT. INSTALLATION BY EXCAVATION OR HAMMERING SHALL NOT BE ALLOWED.

ACCEPTABLE MINIMUM VIBRATORY PILE DRIVING EQUIPMENT SHALL INCLUDE: HMC MOVAX SONIC SIDE GRIP VIBRATORY PILE DRIVER - MODEL SP80; GRIZZLY MG90 MULTIGRIP; OR EQUIVALENT. SIDE GRIP SHALL BE ABLE TO GRIP A TIMBER PILE.

LOG SNAGS SHALL BE MINIMUM 12" DIAMETER AT SCALED END. DIAMETER OF LOG AT GRIP POINT SHALL BE 15" +/- 2".

RIGGING

RIGGING FOR LOG SNAG TESTING SHALL CONFORM TO THE TENSION SCALE MANUFACTURER'S RECOMMENDATIONS.

CHOKERS, CABLES AND AND SHACKLES SHALL HAVE MINIMUM WORKING LOAD RATING OF 12 TONS. FITTINGS SHALL BE SIZED ACCORDINGLY.

CONTRACTOR SHALL PROVIDE EXCAVATOR, OPERATOR, LABOR, AND ALL TESTING EQUIPMENT.

TESTING

TESTING OF LOG SNAGS SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER. UP TO FOUR LOAD TESTS SHALL BE APPLIED TO EACH TESTED LOG SNAG. EACH OF THE THREE LOAD TESTS SHALL BE APPLIED TO THE LOG SNAG WITH A DIFFERENT INSTALLED DEPTH.

EACH LOG SNAG TEST SHALL HAVE UPWARD LOAD GRADUALLY INCREASED AND AS CLOSELY ALIGNED TO AXIS OF LOG SNAG AS POSSIBLE. RECORD THE LOG SNAG DIAMETER, EMBEDMENT DEPTH AND MAXIMUM FORCE REQUIRED TO MOVE THE LOG SNAG VERTICALLY APPROXIMATELY 1 INCH. THEN DRIVE THE LOG SNAG TO A NEW DEPTH TO BE DETERMINED BY THE ENGINEER. APPLY NEW LOAD AND RECORD MAX FORCE THAT CAUSES THE LOG SNAG TO MOVE VERTICALLY 1 INCH. REPEAT FOR THIRD AND FOURTH TEST.

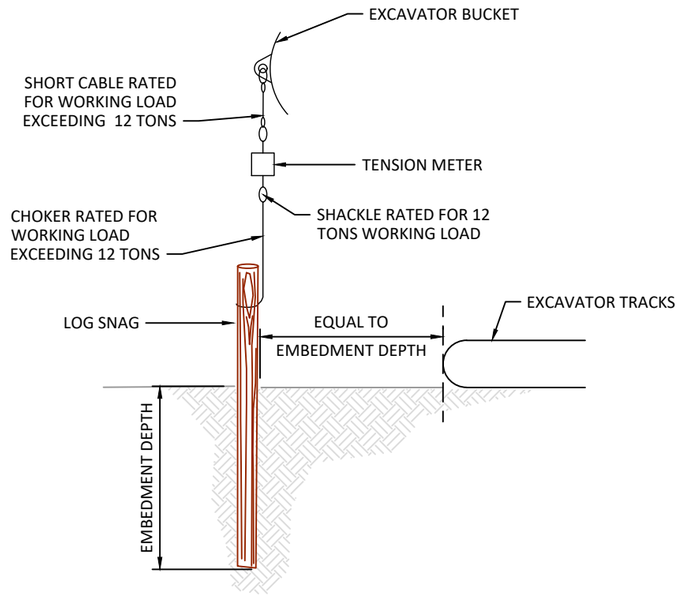
PROOF TESTS SHALL BE MADE AT UP TO FOUR EMBEDMENT DEPTHS FOR EACH LOG SNAG. DEPTHS SHALL BE DETERMINED IN THE FIELD. AS A GUIDELINE TEST EMBEDMENT DEPTHS MAY INCLUDE 6', 8', 10', AND 12'.

EXCAVATOR CONDUCTING PULL OUT LOADING SHALL BE POSITIONED NO CLOSER THAN EMBEDMENT DEPTH OF LOG SNAG IF POSSIBLE. IF A CLOSER POSITIONING IS REQUIRED, EXCAVATOR SHALL BE NO CLOSER THAN THAT REQUIRED TO GENERATE DESIRED LOADING WITH DISTANCE FROM LOG SNAG NOTED IN THE TEST RECORD. LIMIT COMPRESSIVE LOADING OF THE TRACKS ON THE GROUND BY DRIVING THE EXCAVATOR ONTO LOGS LAID ON THE GROUND TO DISTRIBUTE THE WEIGHT OVER A LARGER AREA.

PULL OUT RESISTANCE READING SHALL BE COMPARED AGAINST EXCAVATOR MAX LIFT OFFSET TABLE.

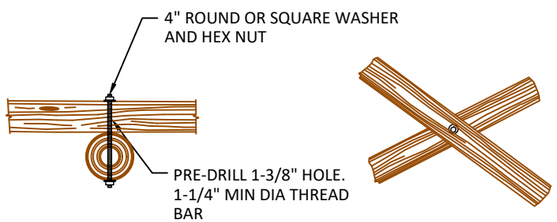
10% OF PRODUCTION LOG SNAGS SHALL BE PROOF TESTED AT EACH LOG STRUCTURE. IF RESULTS VARY MORE THAN 50% THEN IT SHOULD BE ANTICIPATED THAT UP TO 25% OF THE PRODUCTION LOG SNAGS SHALL BE PROOF TESTED.

CONSTRUCTED DRIVEN LOG SNAG EMBEDMENT DEPTH SPECIFIED IN THE PLANS MAY BE REDUCED OR INCREASED, PENDING PULL OUT TEST RESULTS, AT NO ADDITIONAL COST.



1/17 TYPICAL DETAIL - LOG SNAG PULL OUT TESTING

NOT TO SCALE



NOTES:

1. BOLTS SHALL BE MINIMUM 1-1/4" DIAMETER THREAD BAR. ACCEPTABLE MATERIAL SHALL INCLUDE: DYWIDAG (DSI UNDERGROUND) #10 (1-1/4") THREAD BAR ASTM A615 GRADE 75 STEEL OR APPROVED EQUAL. WASHERS SHALL BE 1/4" THICK STEEL, 4"X4" (MIN.) SQUARE, OR 4" (MIN.) DIAMETER ROUND. NUTS SHALL BE CAST HEX. ALL HARDWARE SHALL BE BLACK STEEL.
2. DRILL 1-3/8" HOLE THROUGH LOGS.
3. INSERT 1-1/4" DIA ALL-THREAD REBAR.
4. INSTALL STEEL WASHERS AND HEX NUTS. SECURE NUTS BY CHISELING THREADS.
5. FILE OR GRIND OFF SHARP EDGES.

2/17 TYPICAL DETAIL - THREAD BAR CONNECTION

NOT TO SCALE

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TYPICAL WOOD BALLASTING DETAILS

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10/23/2024
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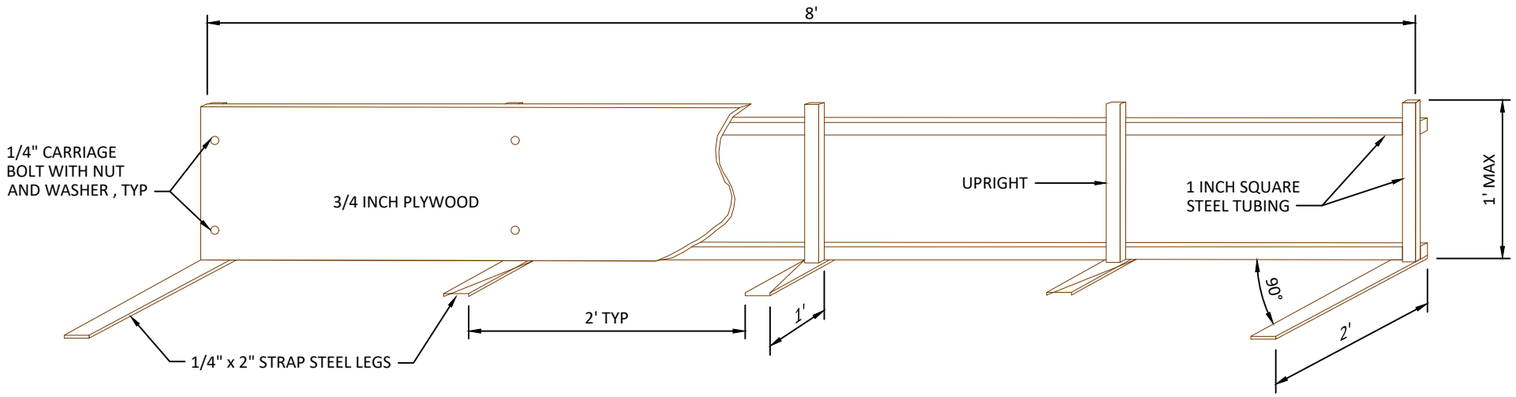
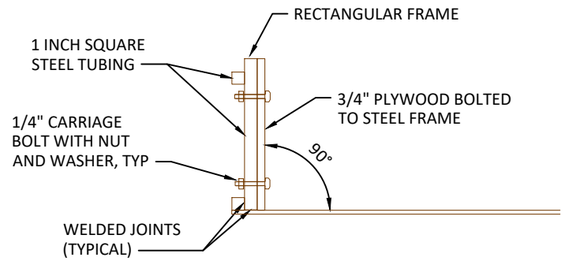
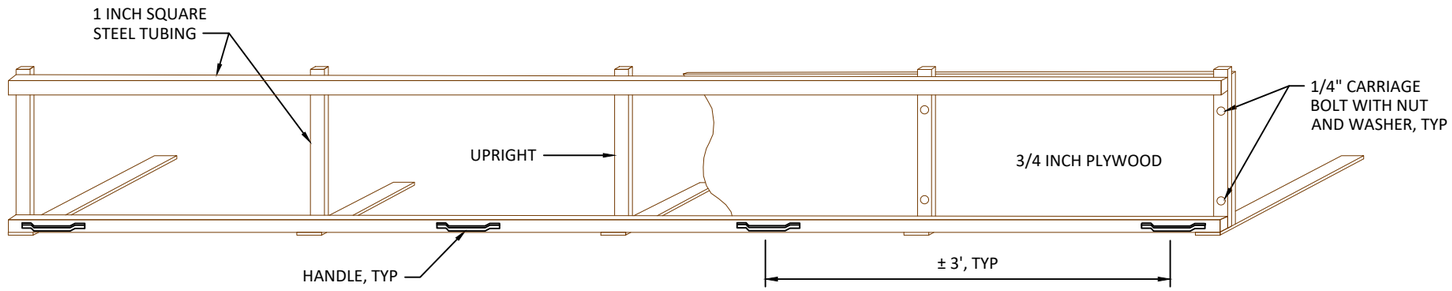


ISOMETRIC VIEW FROM REAR



END VIEW



ISOMETRIC VIEW FROM FRONT

NOTES:

1. FABRICATE FORMS BY WELDING 1 INCH TUBULAR STEEL TOGETHER TO CREATE A 1x8 FOOT RECTANGULAR FRAMEWORK.
2. WELD LENGTHS OF 1/4x2 INCH STEEL STRAP AT 90 DEGREES TO THE FRAME EVERY 2 FEET.
3. ATTACH A PIECE OF 3/4 INCH PLYWOOD TO THE FRAME USING 1/4 INCH DIAMETER CARRIAGE BOLTS OR EQUIVALENT.
4. REMOVAL AND TRANSPORT OF THE FORMS IS FACILITATED IF HEAVY DUTY HANDLES ARE ATTACHED TO THE FRAME AS SHOWN.

1/18 FABRIC ENCAPSULATED SOIL LIFT CONSTRUCTION FORM

NOT TO SCALE

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FABRIC-ENCAPSULATED SOIL LIFT DETAILS

SHEET 18 OF 24

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10/23/2024
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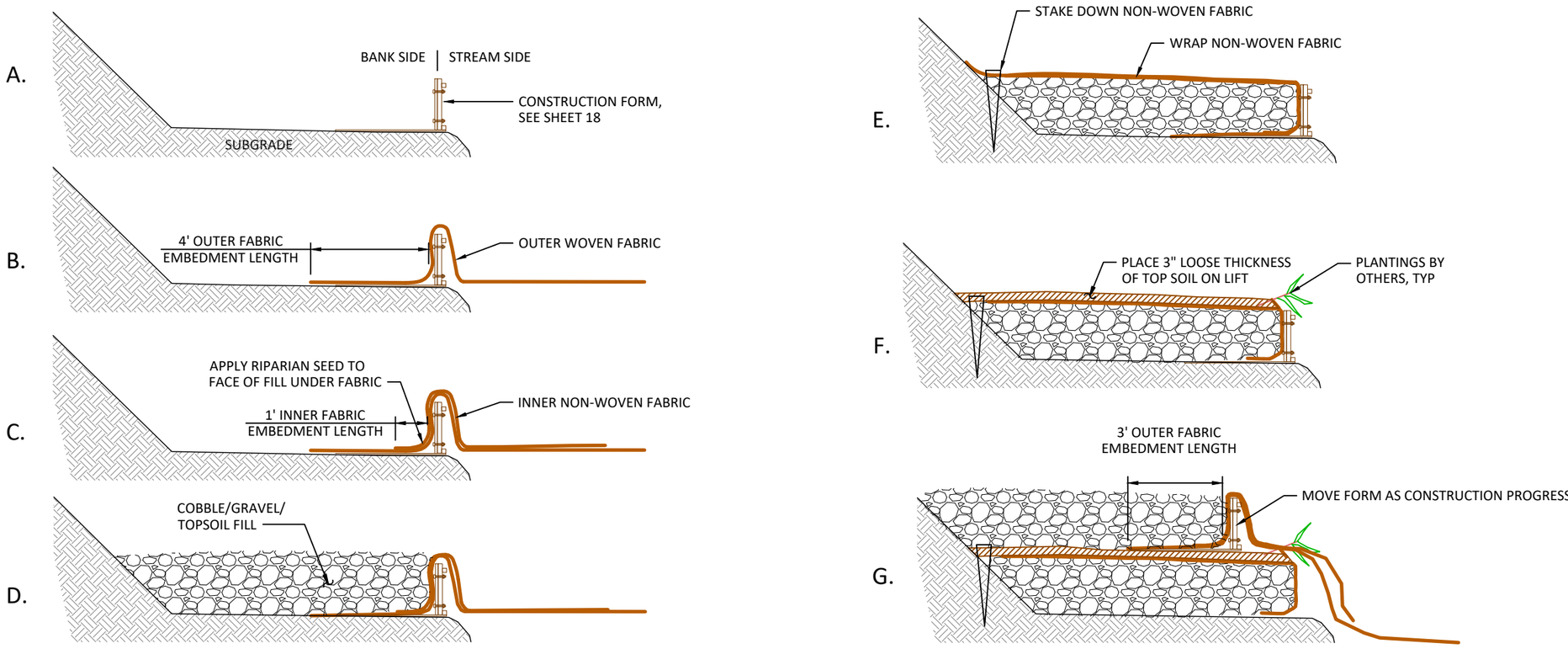

NOTE:

ORDINARY HIGH WATER (OHW) ELEVATION IS BELOW FES LIFTS.

1/19 SUGGESTED CONSTRUCTION SEQUENCE FOR FABRIC ENCAPSULATED SOIL LIFTS

NOT TO SCALE

NOTES:

1. LIFTS WILL BE CONSTRUCTED TO ENCAPSULATE BACKFILL AND ARE ANTICIPATED TO BE ALONG THE FULL LENGTH OF THE BACKFILL EXPOSED TO FLOW.
2. UNROLL THE OUTER FABRIC (WOVEN COIR) PARALLEL TO THE LONG AXIS OF THE CHANNEL AND POSITION IT SO THAT 4 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).
3. UNROLL THE INNER FABRIC (NON-WOVEN COIR) OVER THE TOP OF THE OUTER FABRIC 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 INNER AND OUTER FABRICS. STRETCH AND PULL THE FABRIC LAYERS TO REMOVE WRINKLES.
4. PLACE COBBLE / GRAVEL / TOPSOIL FILL OVER THE FABRIC ON THE BANK SIDE OF THE FORMS TO A COMPACTED DEPTH OF 12 INCHES.
5. RIPARIAN SEED SHALL BE PLACED ON SOIL AND BENEATH FABRIC ON ALL EXPOSED SURFACES.
6. FOLD THE LOOSE ENDS OF THE TWO FABRIC LAYERS BACK OVER THE COMPACTED FILL MATERIAL AND STRETCH TIGHTLY TO REMOVE WRINKLES (FIG E). SECURE WITH WOODEN STAKES.
7. PLACE 3" OF TOPSOIL ON LIFT. MOVE CONSTRUCTION FORM. REPEAT STEPS 2-6 TO FULL BANK HEIGHT USING 3FT EMBEDMENT LENGTH OF OUTER FABRIC ALONG BOTTOM OF LIFT.
8. ON THE TOP LIFT, EXCAVATE A KEY TRENCH 1.5 FEET WIDE AND 0.5 FEET DEEP ALONG THE EDGE OF THE OUTER FABRIC LAYER, PARALLEL TO THE FORMS. SECURE FABRIC IN THE KEY TRENCH WITH WOODEN STAKES.
9. BACKFILL & COMPACT THE KEY TRENCH WITH TOPSOIL AND CONTINUE TO APPLY TOPSOIL TO SMOOTHLY MERGE WITH EXISTING CONTOURS.

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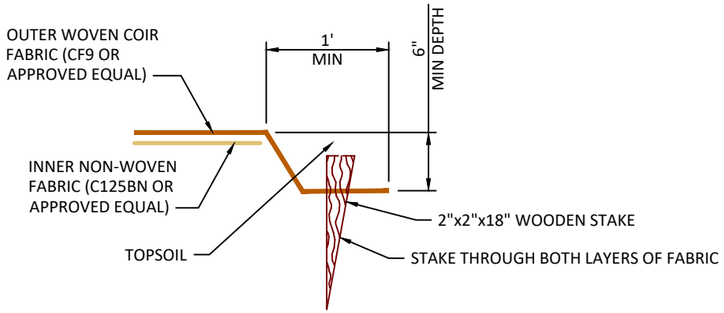
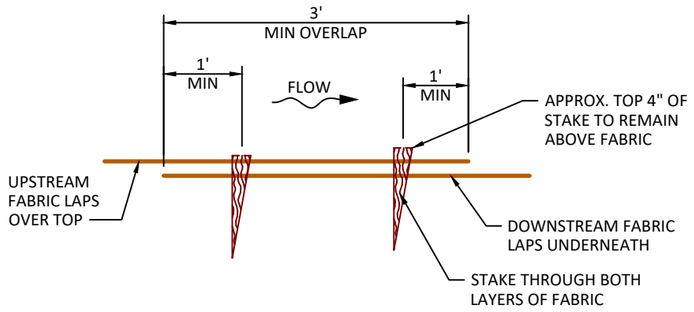
FABRIC-ENCAPSULATED SOIL LIFT DETAILS

SHEET
19 OF 24



A/20 FABRIC EDGE
NOT TO SCALE



B/20 FABRIC OVERLAP
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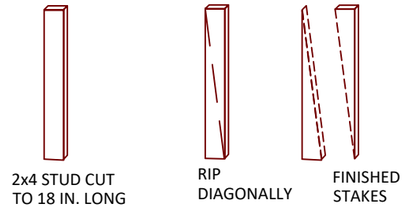
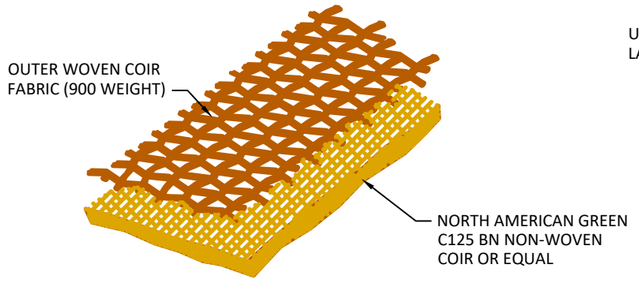
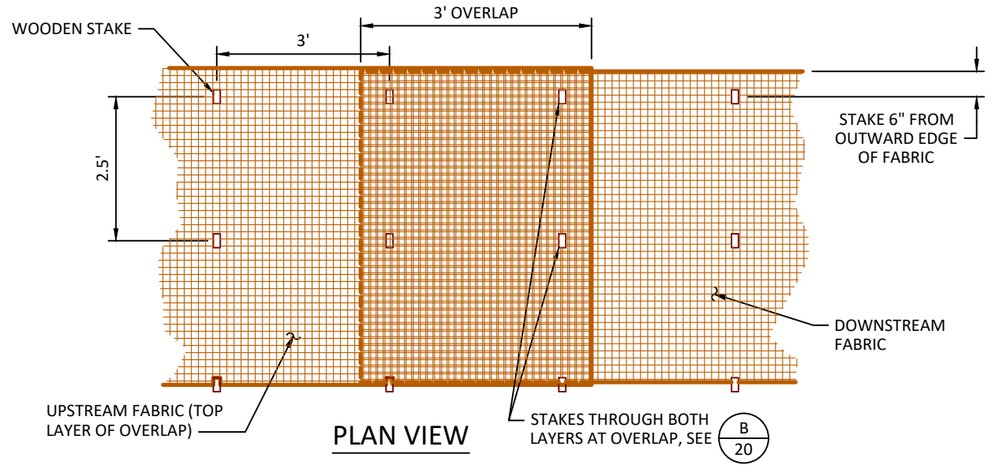


D/20 WOODEN STAKE CONSTRUCTION
NOT TO SCALE

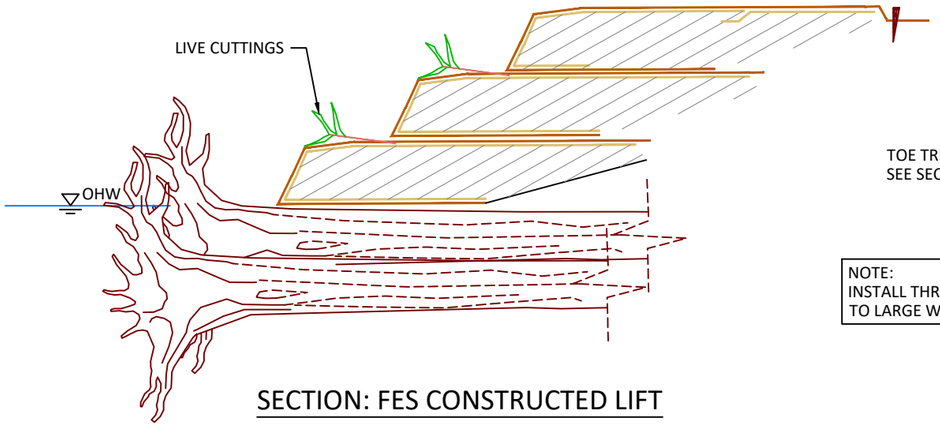


C/20 FABRIC LAYERING
NOT TO SCALE

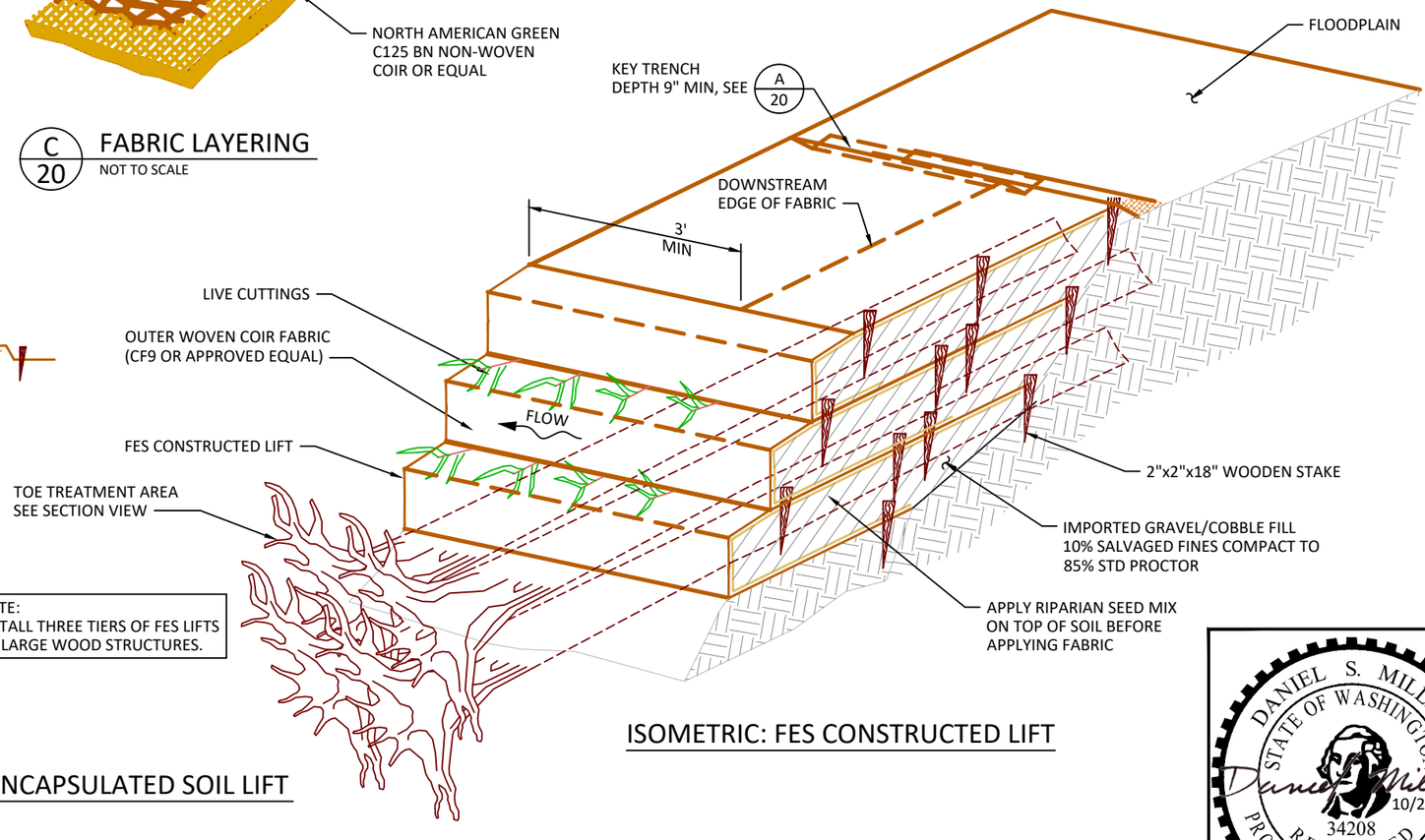


PLAN VIEW

E/20 STREAMBANK CONSTRUCTION FABRIC
NOT TO SCALE



SECTION: FES CONSTRUCTED LIFT



NOTE:
INSTALL THREE TIERS OF FES LIFTS TO LARGE WOOD STRUCTURES.

ISOMETRIC: FES CONSTRUCTED LIFT

1/20 FABRIC ENCAPSULATED SOIL LIFT
NOT TO SCALE

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FABRIC-ENCAPSULATED SOIL LIFT DETAILS

SHEET
20 OF 24

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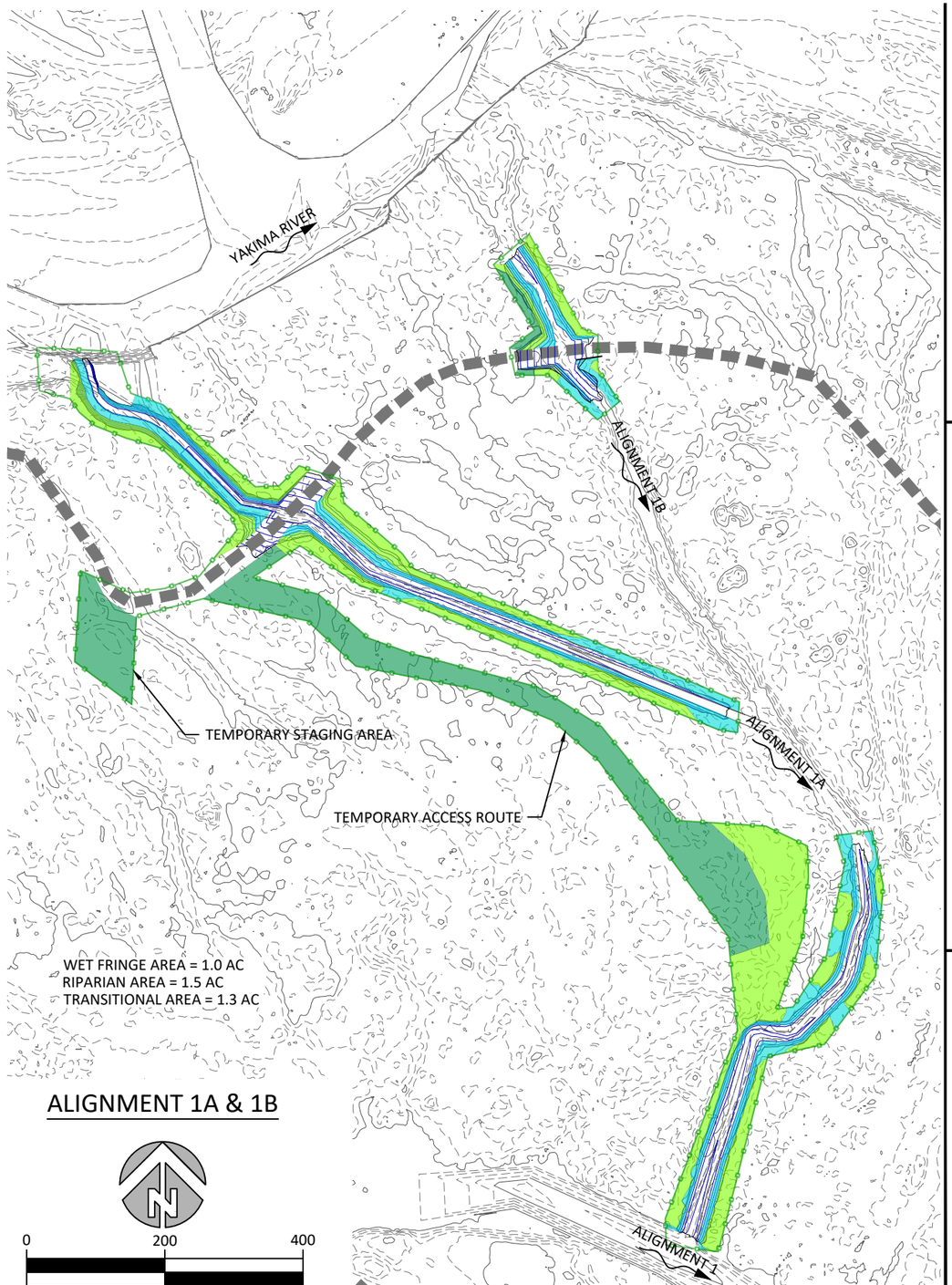

ALIGNMENT 1A & 1B

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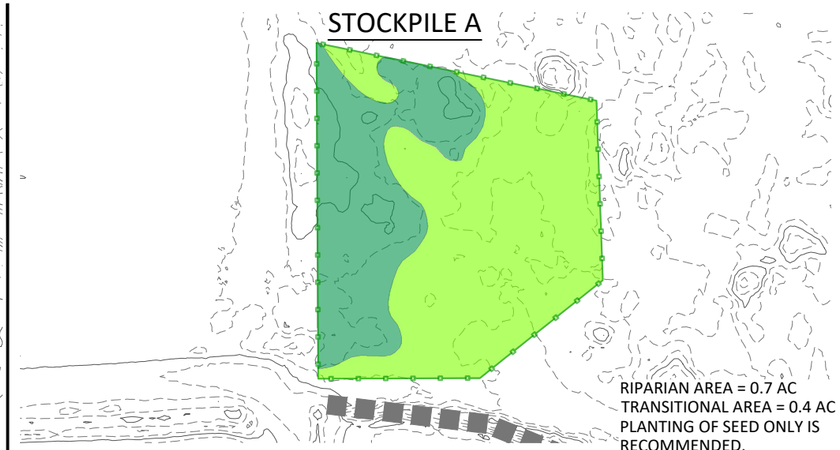
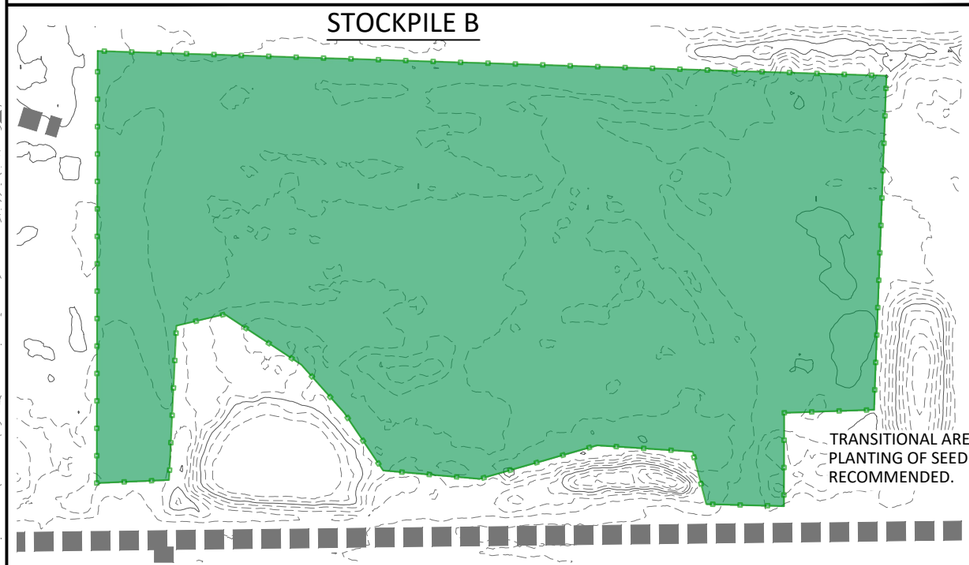
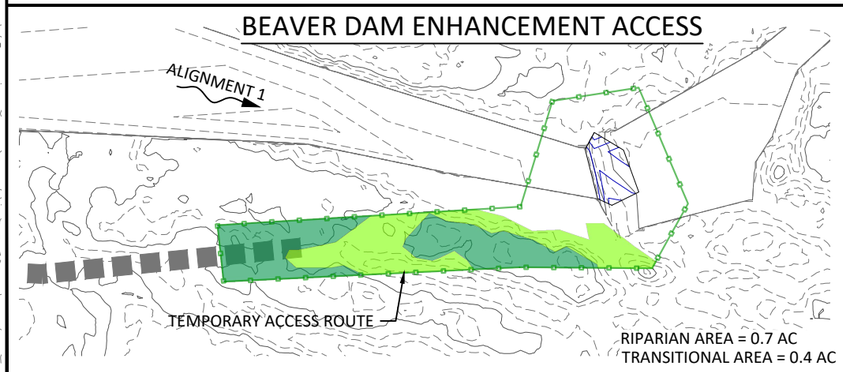
SCALE IN FEET







LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- LIMITS OF DISTURBANCE
- EXISTING ACCESS
- WET FRINGE REVEGETATION ZONE
- RIPARIAN REVEGETATION ZONE
- TRANSITIONAL REVEGETATION ZONE

NOTES:

AS SOON AS POSSIBLE AFTER CONSTRUCTION IS COMPLETED, SEED ALL DISTURBED AREAS WITH QUICK GUARD STERILE TRITICALE AT A RATE OF 15 LBS/ACRE.

IF POST PROJECT ELEVATIONS AREA DIFFERENT THAN ILLUSTRATED, ADJUST PLANTING ZONES ACCORDINGLY.

SEE REVEGETATION DETAILS AND PLANT LISTS, SHEET 24.

0 120 240

SCALE IN FEET

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REVEGETATION PLAN

SHEET 21 OF 24

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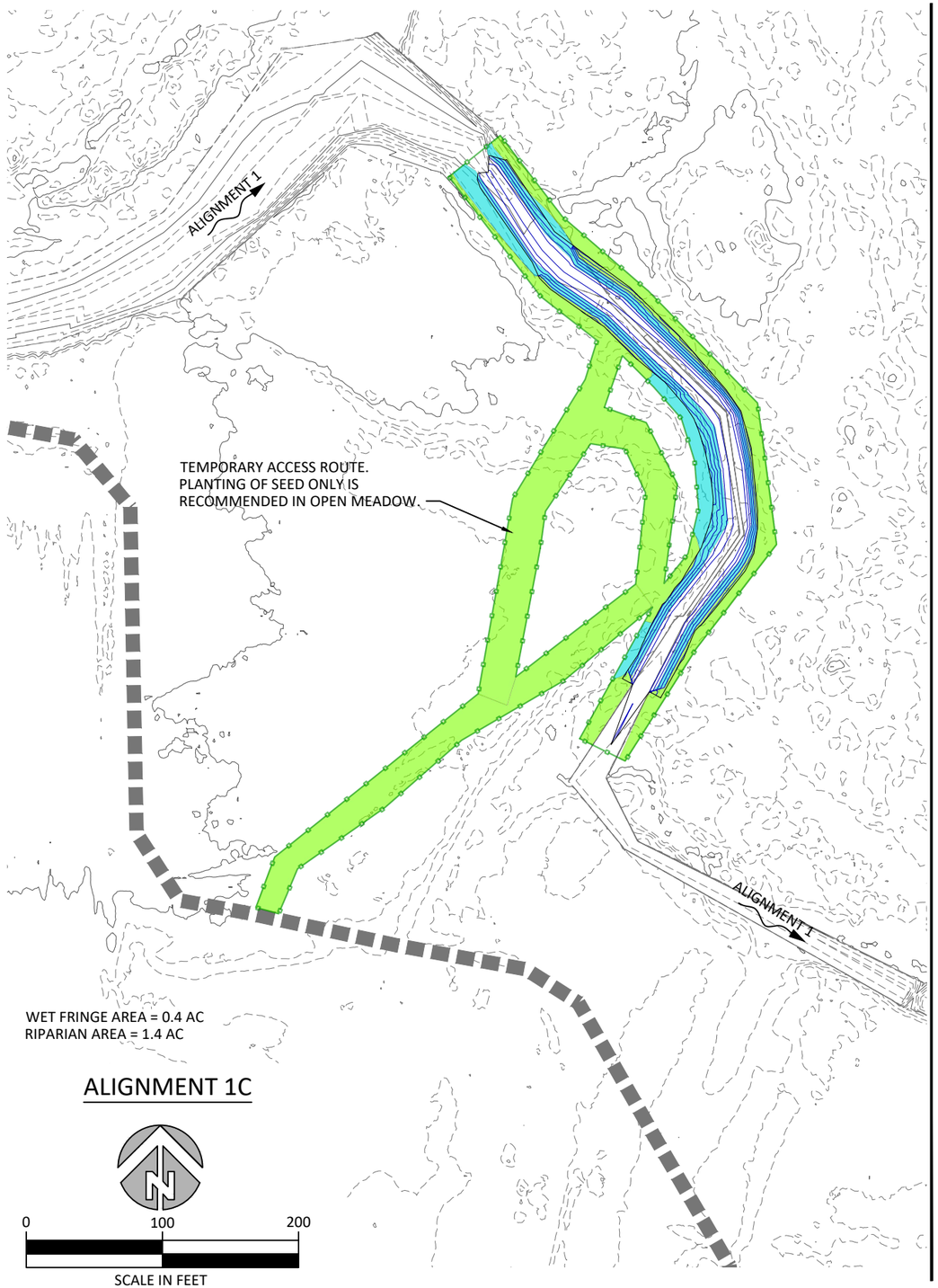
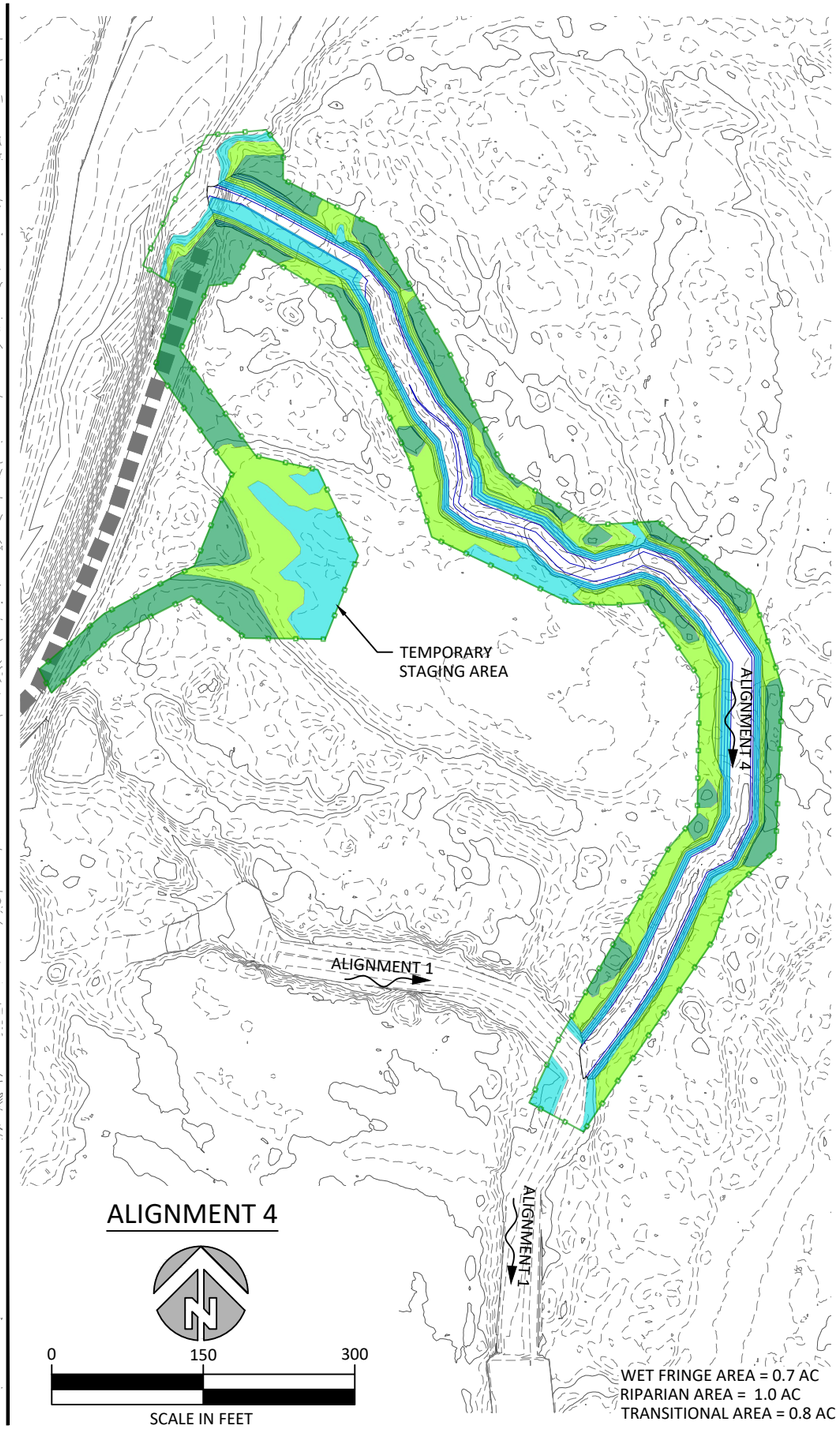


ALIGNMENT 1C



ALIGNMENT 4

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- LIMITS OF DISTURBANCE
- EXISTING ACCESS
- WET FRINGE REVEGETATION ZONE
- RIPARIAN REVEGETATION ZONE
- TRANSITIONAL REVEGETATION ZONE

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REVEGETATION PLAN

SHEET 22 OF 24

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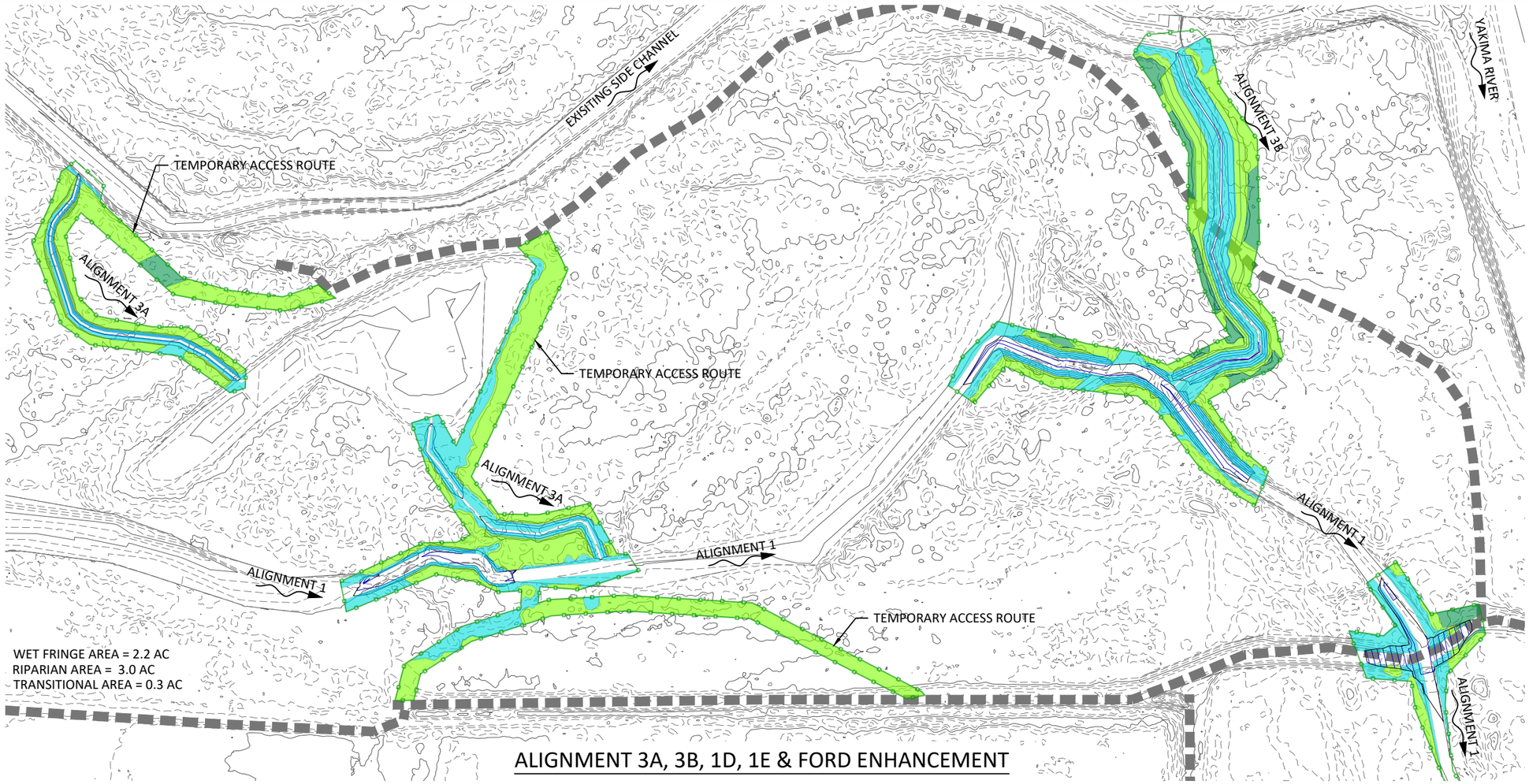
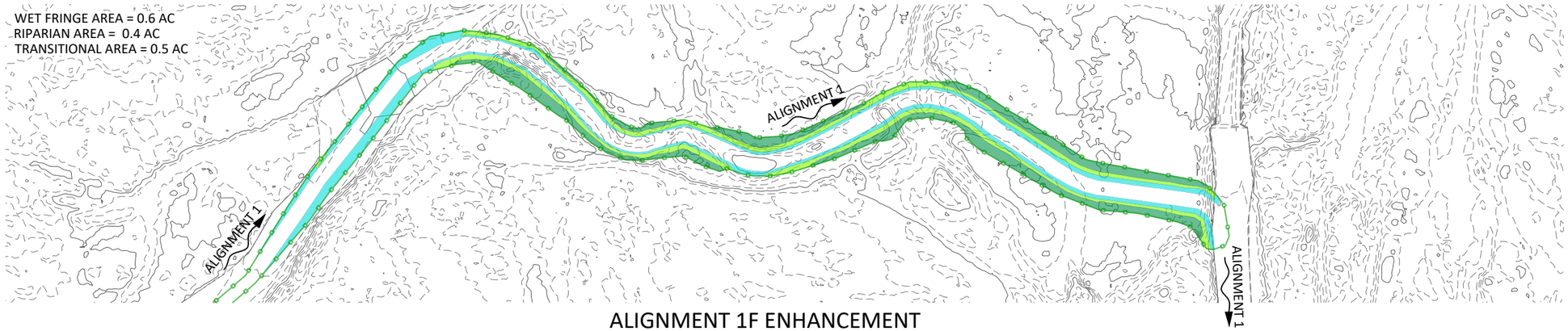


ALIGNMENT 3A, 3B, 1D, 1E & FORD ENHANCEMENT



ALIGNMENT 1F ENHANCEMENT

0 200 400

SCALE IN FEET

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- LIMITS OF DISTURBANCE
- EXISTING ACCESS
- WET FRINGE REVEGETATION ZONE
- RIPARIAN REVEGETATION ZONE
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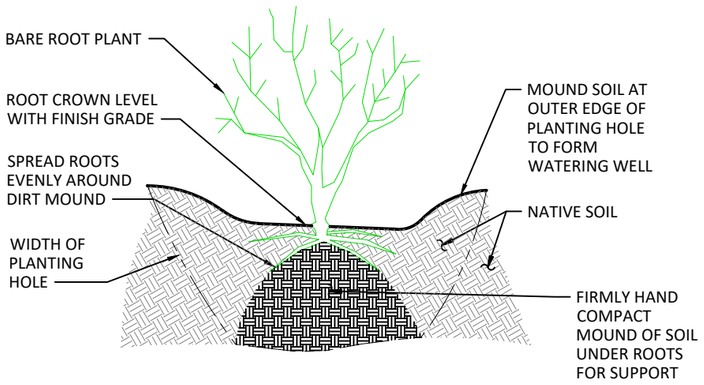
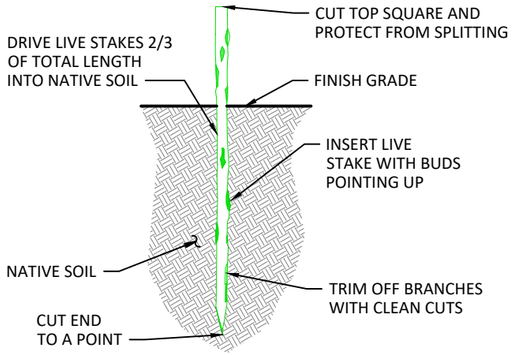
REVEGETATION PLAN

SHEET 23 OF 24



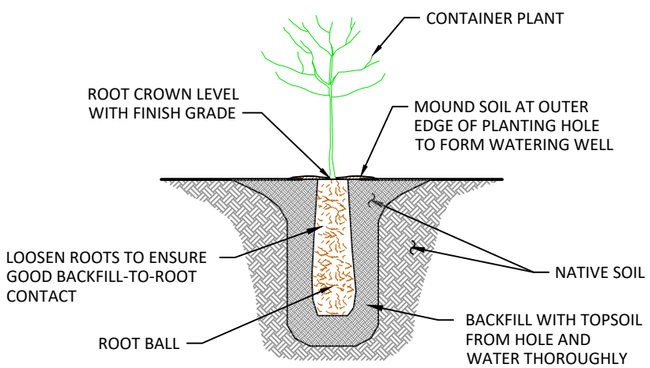
1/24 TYPICAL DETAIL - BARE ROOT PLANT

NOT TO SCALE



2/24 TYPICAL DETAIL - LIVE CUTTING

NOT TO SCALE



3/24 TYPICAL DETAIL - CONTAINER PLANT

NOT TO SCALE

PLANTING PLAN

	SEED MIX			WOODY PLANTS				
WET FRINGE (4.9 ACRES)	Botanical Name	Common name	Percent composition	**Botanical Name**	**Common Name**	**Stock Type**	**Stock size**	**Spacing (on center)**
	Sterile Triticum x Secale	Quick Guard Sterile Triticale	100%	Cornus sericea	red osier dogwood	bare root	24"+	6'

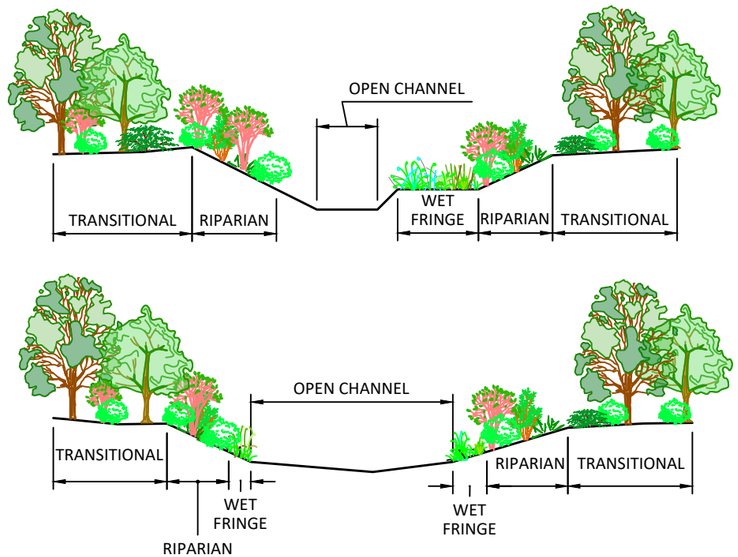
Rate: 8-15 lbs/acre

RIPARIAN (8.8 ACRES)	Botanical Name	Common name	Percent composition	**Botanical Name**	**Common Name**	**Stock Type**	**Stock size**	**Spacing (on center)**
	Hordeum brachyantherum	meadow barley	59.50%	Cornus sericea	red osier dogwood	bare root	24"+	6'
	Carex obnupta	slough sedge	20%	Salix exigua	coyote willow	live cutting	5', 1" dia	6'
	Juncus balticus	baltic rush	0.5%	Populus balsamifera	cottonwood	live cutting	5', 1" dia	6'
	Eleocharis palustris	spike rush	10%	Crataegus douglasii	black hawthorne	bare root	24"+	6'
	Carex stipata	awl sedge	10%	Alnus rubra	red alder	bare root	24"+	6'

Rate: 20 lbs/acre

TRANSITIONAL (8.1 ACRES)	Botanical Name	Common name	Percent composition	**Botanical Name**	**Common Name**	**Stock Type**	**Stock size**	**Spacing (on center)**
	Hordeum brachyantherum	meadow barley	20	Rosa woodsii	wild rose	bare root	24"+	6'
	Elmus glaucus	blue wildrye	25	Prunus virginiana	choke cherry	bare root	24"+	6'
	Achillea millefolium	common yarrow	1	Ribes aureum	golden currant	bare root	24"+	6'
	Asclepias speciosa	showy milkweed	2	Cornus sericea	red osier dogwood	bare root	24"+	6'
	Balsamorhiza sagittata	Arrowleaf balsamroot	5	Salix exigua	coyote willow	live cutting	5', 1" dia	6'
	Lupinus rivularis	River lupine	26	Populus balsamifera	cottonwood	live cutting	5', 1" dia	6'
	Pseudoroegneria spicata var anatone	Anatone bluebunch wheatgrass	20	Crataegus douglasii	black hawthorne	bare root	24"+	6'
	Clarkia unguiculata	Elegant clarkia	0.5	Alnus rubra	red alder	bare root	24"+	6'
	Glycyrrhiza lepidota	wild licorice	0.5					

Rate: 40 lbs/acre



4/24 TYPICAL SECTIONS - PLANTING ZONES

1" = 15'

NOTES:

AS SOON AS POSSIBLE AFTER CONSTRUCTION IS COMPLETED, SEED ALL DISTURBED AREAS WITH QUICK GUARD STERILE TRITICALE AT A RATE OF 15 LBS/ACRE.

CONTAINER PLANTS MAY BE SUBSTITUTED FOR BARE ROOT STOCK IF APPROVED IN WRITING BY THE OWNER.

TOPSOIL SHALL BE WSDOT TOPSOIL TYPE B (TAKEN FROM PROJECT LIMITS AT DESIGNATED LOCATIONS AS APPROVED BY OWNER OR OWNER'S REPRESENTATIVE).

NO SEEDING OR PLANTING SHALL OCCUR AFTER DECEMBER 1 WITHOUT THE WRITTEN APPROVAL OF THE OWNER AND OWNER'S REPRESENTATIVE.

NO.	BY	DATE	REVISION DESCRIPTION

NS, AW	PL, DM	PL
DRAWN	DESIGNED	CHECKED
DM	10/23/2024	190215
APPROVED	DATE	PROJECT

YAKAMA NATION
YAKIMA RIVER 89.5 FLOODPLAIN RESTORATION
FINAL CONSTRUCTION PLAN

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541.386.9003
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REVEGETATION DETAILS

SHEET 24 OF 24