

TRUCKEE RIVER WATERSHED COUNCIL

PO Box 8568
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www.truckeeriverwc.org

UPPER LACEY MEADOW RESTORATION
REQUEST FOR BIDS 2021
ADDENDUM 1 – DESIGN PLANS

September 21, 2021

The draft 100% Design Plans are available on the TRWC website, with the other project documents:

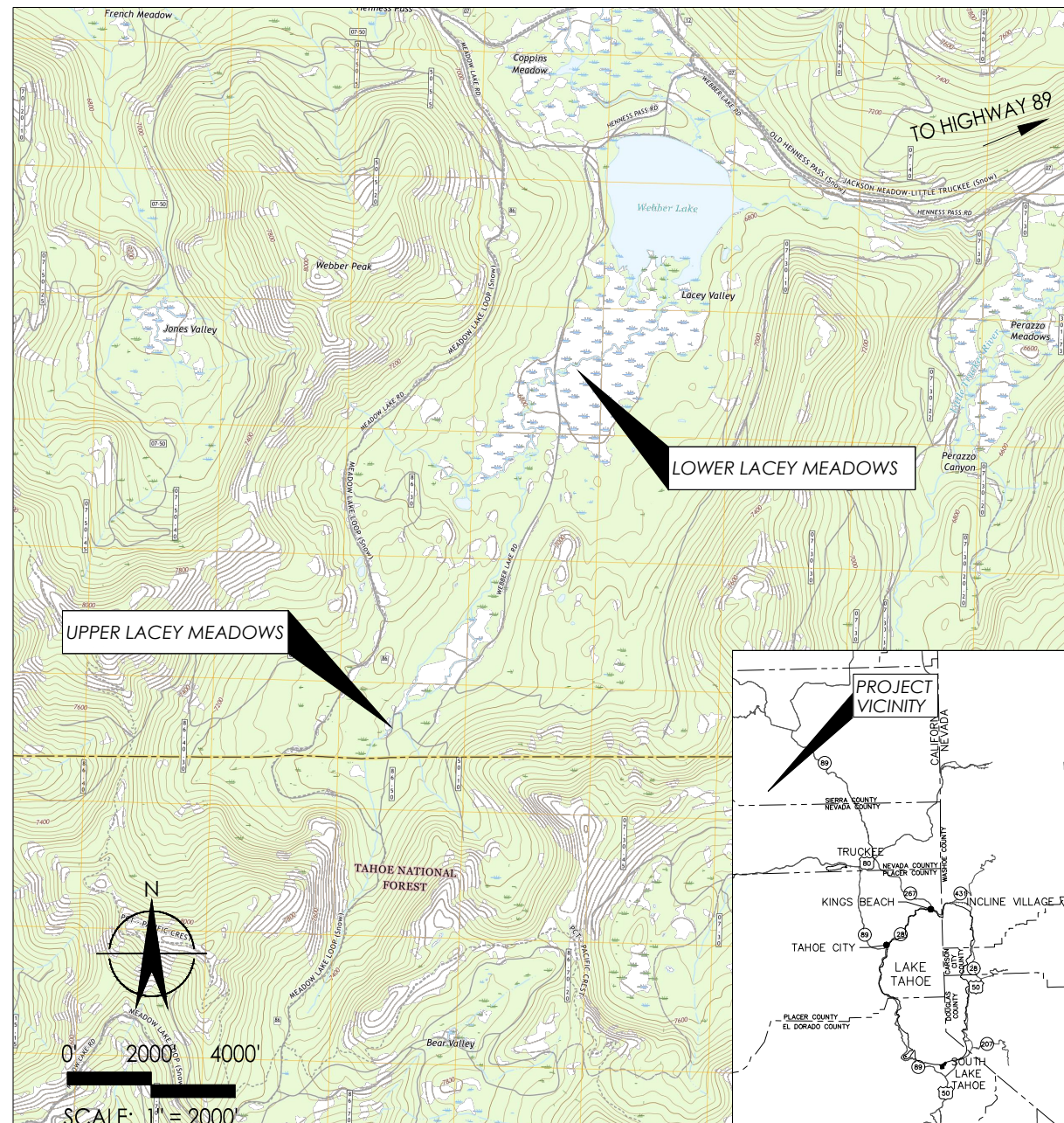
<https://www.truckeeriverwc.org/rfps-rfbs-a-more-resilient-tomorrow-it-starts-with-the-watershed-2/>

Please note, there may be some minor changes to the revegetation plan (Sheets 5.0 and 5.1), otherwise the plans can be considered final.

UPPER LACEY MEADOW RESTORATION DESIGN

SIERRA AND NEVADA COUNTIES, CALIFORNIA

LOCATION MAP



SHEET INDEX

- SHEET 1.0: COVER SHEET
- SHEET 2.0: LEGEND, GENERAL NOTES, AND DIVERSION PLAN
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- SHEET 3.1: UPPER LACEY MEADOWS REACHES I & J
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- SHEET 3.3: UPPER LACEY MEADOWS REACHES G(a) & G(b) SOUTH
- SHEET 3.4: UPPER LACEY MEADOWS REACHES G(a) & G(b) NORTH
- SHEET 3.5 THROUGH 3.9: LOWER LACEY MEADOWS (NOT INCLUDED AND NIC)
- SHEET 4.0: PILOT CHANNEL 1 DETAIL VIEWS
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- SHEET 4.4: DEBRIS JAM TYPICALS 1
- SHEET 4.5: DEBRIS JAM TYPICALS 2
- SHEET 4.6: DEBRIS RIFFLE AND LOG POST TYPICALS
- SHEET 5.0: PLANTING PALETTE & NOTES
- SHEET 5.1: PLANTING DETAILS

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DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
BKH	11/15/19	BKH	30% DESIGN
DE	7/15/20	BKH	65% DESIGN
TA	9/20/21	PK	DRAFT 100% DESIGN
IN CHARGE			
PK			
DATE	9/20/21		

NOT FOR
CONSTRUCTION

COVER SHEET
 UPPER LACEY MEADOW
 RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
SCALE (AT 22" X 34")

SHEET
1.0

LEGEND:

	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING CHANNEL
	COUNTY BOUNDARY
	PROPERTY BOUNDARY
	TEMPORARY CONSTRUCTION ACCESS ROUTE WITH EQUIPMENT LIMITATIONS
	TEMPORARY CONSTRUCTION ACCESS ROUTE WITH NO EQUIPMENT LIMITATIONS
	TEMPORARY CREEK DIVERSION PIPE
	PROPOSED GRADING LIMIT
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	TREE TO BE HARVESTED AND REUSED
	LOG WITH ROOTWAD
	LOG
	ANTICIPATED BREAKOUT FLOW DIRECTION
	PROPOSED FILL PLACEMENT
	PROPOSED EXCAVATION
	PROPOSED CONSTRUCTION STAGING AREA

ABBREVIATIONS:

'	FEET
"	INCH
APPROX	APPROXIMATE
DBH	DIAMETER AT BREAST HEIGHT
DIA, Ø	DIAMETER
E	EASTING
EG	EXISTING GRADE
ELEV	ELEVATION
EX	EXISTING
FG	FINISH GRADE
FT	FEET
H	HORIZONTAL
IN	INCH
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
PROP	PROPOSED
RC	RELATIVE COMPACTION
STA	STATION
TDLT	TRUCKEE DONNER LAND TRUST
THP	TIMBER HARVEST PLAN
TYP	TYPICAL
USFS	U.S. FOREST SERVICE
V	VERTICAL
WSE	WATER SURFACE ELEVATION

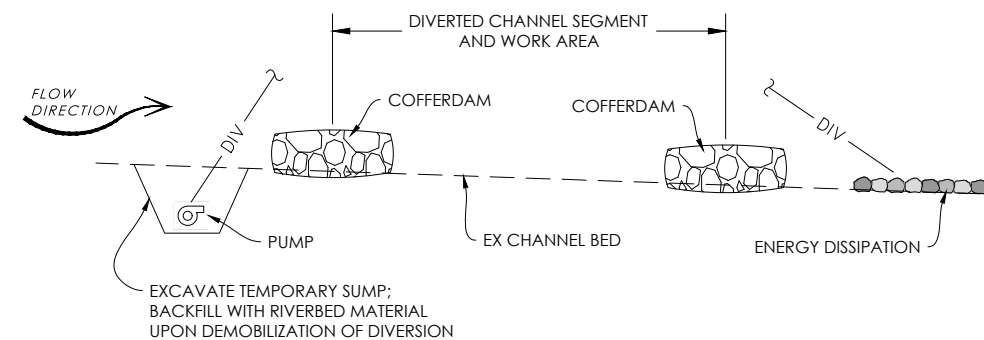
GENERAL NOTES:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE PROJECT SITE TO VERIFY SITE CONDITIONS AND FOR COMPLETELY UNDERSTANDING THE REQUIRED SCOPE OF WORK SHOWN ON THESE DRAWINGS AND CONTAINED IN THE PROJECT SPECIFICATIONS.
- ALL PARTS OF THIS PROJECT - INCLUDING SOIL PREPARATION, EARTHWORK, AND PLANTING - ARE SUBJECT TO FIELD DESIGN BY THE ENGINEER'S REPRESENTATIVE. AT ANY TIME, THE CONTRACTOR'S OPERATIONS AND CONSTRUCTION MAY BE SUBJECT TO OBSERVATION BY THE ENGINEER'S REPRESENTATIVE. WHEN REQUESTING THE PRESENCE OF THE ENGINEER'S REPRESENTATIVE AT THE PROJECT SITE FOR DESIGN CLARIFICATION, STAGE ACCEPTANCE, OR OTHER APPROVALS, THE CONTRACTOR SHALL PROVIDE 48 HOURS ADVANCE NOTICE DIRECTLY TO THE ENGINEER'S REPRESENTATIVE.
- THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL LABOR AND MATERIALS TO COMPLETE THE WORK DEPICTED HEREIN.
- NO UTILITIES ARE KNOWN TO EXIST WITHIN THE PROJECT SITE, HOWEVER, THE CONTRACTOR SHALL CONFIRM THE ABSENCE OF UNDERGROUND UTILITIES BEFORE THE START OF ANY CONSTRUCTION OPERATIONS, INCLUDING AND NOT LIMITED TO EXCAVATION OR TRENCHING. THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA) AT 811/1-800-227-2600. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS ADVANCE NOTICE FOR LOCATING UTILITIES.
- THE GRADING LIMITS SHALL BE APPROVED BY THE ENGINEER'S REPRESENTATIVE PRIOR TO ANY GROUND DISTURBANCE.
- THE CONTRACTOR SHALL CONTACT THE ENGINEER'S REPRESENTATIVE IMMEDIATELY UPON FINDING ANY FIELD CONDITIONS THAT WOULD CONFLICT WITH THE INFORMATION INDICATED ON THESE DRAWINGS OR THE PROJECT SPECIFICATIONS. ALL FIELD ADJUSTMENTS MUST BE APPROVED BY THE ENGINEER'S REPRESENTATIVE BEFORE CONSTRUCTION OF SAID ADJUSTMENTS; FAILURE TO DO SO SHALL RESULT IN THE CONTRACTOR ASSUMING FULL RESPONSIBILITY FOR ANY REQUIRED REVISIONS OR FIELD MODIFICATIONS, AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE, AT NO ADDITIONAL COST.
- CONFORM TO EXISTING GRADES AND CONDITIONS WHENEVER POSSIBLE. ANY ADJACENT OR OFFSET AREAS DISTURBED BY THE CONTRACTOR'S OPERATION MUST BE RESTORED BY THE CONTRACTOR TO THE PRE-DISTURBANCE CONDITIONS TO THE SATISFACTION OF THE ENGINEER'S REPRESENTATIVE.
- ALL LUBRICATION, REFUELING, OR MAINTENANCE OF CONSTRUCTION VEHICLES SHALL BE CONDUCTED WITHIN APPROVED CONSTRUCTION STAGING AREAS.
- PROPERTY LINES SHOWN HEREIN ARE APPROXIMATE.
- STAGING AREAS MUST BE CONTAINED BY MEANS DESCRIBED IN THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP) TO CONFINE THE AREA AND PREVENT CONTAMINANTS FROM ENTERING NEARBY CHANNELS AND WATER BODIES.
- ELEVATIONS ARE RELATIVE TO THE NAVD 88 DATUM, AND ARE BASED ON LIDAR DATA COLLECTED BY THE USFS IN 2013. SUPPLEMENTAL SURVEY DATA MAY BE REQUIRED.
- PRESERVE TREES AND VEGETATION OUTSIDE OF THE LIMITS OF WORK. ANY TREES OR VEGETATION DISTURBED OUTSIDE OF THE LIMITS OF WORK SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. ANY TREES GREATER THAN 6" DBH THAT ARE OUTSIDE OF THE GRADING LIMITS AND INTERFERE WITH THE WORK MAY ONLY BE REMOVED WITH APPROVAL FROM THE ENGINEER'S REPRESENTATIVE.
- SCALE SIZES INDICATED HEREIN ARE INTENDED FOR PLOTTING ON ANSI SIZE D SHEETS (22" BY 34").
- REFER TO SHEET 4.6 FOR EARTHWORK NOTES.

TEMPORARY CREEK DIVERSION AND DEWATERING NOTES:

- GENERAL
 - THESE DIVERSION AND DEWATERING NOTES HAVE BEEN PREPARED TO HELP THE CONTRACTOR UNDERSTAND THE SCOPE OF THE DIVERSION AND DEWATERING WORK. THE CONTRACTOR SHALL SUBMIT A DIVERSION AND DEWATERING PLAN FOR APPROVAL BY THE ENGINEER'S REPRESENTATIVE NO LATER THAN 10 DAYS BEFORE MOBILIZATION. THE PLAN MAY INCLUDE ALTERNATE DEWATERING AND DIVERSION METHODS IF, IN THE OPINION OF THE CONTRACTOR, THE WORK WOULD BE BETTER COMPLETED BY OTHER MEANS. ANY ALTERNATE PLAN MUST BE APPROVED BY THE ENGINEER'S REPRESENTATIVE. ULTIMATELY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXECUTE A DIVERSION AND DEWATERING PLAN THAT REASONABLY PREPARES THE SITE TO COMPLETE THE WORK DEPICTED IN THESE DRAWINGS AND IS CONSISTENT WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
 - A TEMPORARY CREEK DIVERSION WILL BE REQUIRED FOR DESIGN ELEMENTS THAT INVOLVE PLACEMENT OF FILL WITHIN AN ACTIVE CHANNEL. ONLY LACEY CREEK IS ANTICIPATED TO BE ACTIVE DURING CONSTRUCTION AS SMALLER TRIBUTARY CHANNELS TYPICALLY ARE DRY BY MID-SUMMER.
 - UNLESS NOTED OTHERWISE, DEBRIS JAMS PROPOSED WITHIN LACEY CREEK DO NOT REQUIRE A TEMPORARY CREEK DIVERSION AND CAN BE CONSTRUCTED "IN THE WET", HOWEVER, THE CONTRACTOR MUST TAKE CARE TO MINIMIZE DISTURBANCE OF THE CREEK BED. THE ENGINEER'S REPRESENTATIVE MAY REQUIRE THE CONTRACTOR TO INSTALL A TEMPORARY DIVERSION FOR DEBRIS JAMS WITHIN LACEY CREEK IF AT ANY TIME THE CONTRACTOR'S OPERATIONS RESULT IN A MORE THAN 50 NTU INCREASE IN TURBIDITY (MEASURED JUST UPSTREAM AND DOWNSTREAM OF THE DEBRIS JAM UNDER CONSTRUCTION).
 - THE NEED FOR TEMPORARY CREEK DIVERSION SYSTEMS CAN BE AVOIDED IN SOME CASES WITH CAREFULLY PLANNED PHASING OF DESIGN ELEMENTS. FOR EXAMPLE, REACH G(b) IS ANTICIPATED TO BE DRY AT THE ONSET OF CONSTRUCTION; CONSTRUCT ALL DESIGN ELEMENTS ALONG REACH G(b) THEN USE REACH G(b) TO DIVERT LACEY CREEK AT PILOT CHANNEL 1 TO CONSTRUCT FEATURES ALONG REACH G(a). THIS EXAMPLE IS A RECOMMENDATION ONLY AND THE FINAL DIVERSION PLAN IS THE CONTRACTOR'S RESPONSIBILITY.

- LOCATIONS OF TEMPORARY CREEK DIVERSION PIPE ALIGNMENTS SHOWN HEREIN ARE APPROXIMATE AND SHOULD NOT BE CONSIDERED PRESCRIPTIVE. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER'S REPRESENTATIVE PRIOR TO MOBILIZATION TO AGREE ON A FINAL CONFIGURATION FOR THE DIVERSION SYSTEMS BASED ON FIELD CONDITIONS.
 - THE DIVERSION SYSTEM SHALL BE DESIGNED TO DIVERT UP TO 2 CFS (900 GPM). PRIOR TO INSTALLATION OF THE DIVERSION SYSTEM, THE ENGINEER'S REPRESENTATIVE SHALL CONFIRM THAT STREAMFLOW LEVELS ARE WITHIN THE ANTICIPATED RANGE.
 - COFFERDAMS SHALL BE CONSTRUCTED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE DIVERTED CHANNEL SEGMENT. COFFERDAMS SHALL BE CONSTRUCTED TO MINIMIZE SEEPAGE.
 - THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND SERVICES AS REQUIRED TO INSTALL, OPERATE, AND REMOVE THE TEMPORARY CREEK DIVERSION SYSTEMS, INCLUDING BACK-UP EQUIPMENT AS NECESSARY FOR REPLACEMENT AND FOR UNANTICIPATED EMERGENCIES.
- MATERIALS
 - COFFERDAMS: THE CONTRACTOR SHALL SUBMIT A DRAWING AND/OR PRODUCT SHEET TO THE ENGINEER'S REPRESENTATIVE FOR THE PROPOSED COFFERDAM. IF USED, GRAVEL BAG FILL MATERIAL SHALL BE CLEAN AND FREE FROM CLAY BALLS, ORGANIC MATTER, WEEDS, AND OTHER DELETERIOUS MATERIALS. THE OPENING OF GRAVEL-FILLED BAGS SHALL BE SECURED SUCH THAT GRAVEL DOES NOT ESCAPE.
 - PUMPS: THE PUMPS AND PUMPING APPARATUS USED FOR THE DIVERSION SHALL HAVE SUFFICIENT CAPACITY TO CONTROL SUMP WATER LEVELS AS DESCRIBED HEREIN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE POWER TO OPERATE THE DIVERSION SYSTEMS, INCLUDING THE PUMPING EQUIPMENT, AS NEEDED TO ASSURE THAT DEWATERING IS EFFECTIVE DURING ALL WORK WITHIN THE BANKS OF THE CREEK. THE CONTRACTOR SHALL PROVIDE BACK-UP POWER AS NEEDED TO ASSURE THAT POWER INTERRUPTIONS DO NOT LEAD TO DAMAGE TO FINISHED OR IN-PROCESS WORK OR DELAYS IN COMPLETING THE WORK. ALL EQUIPMENT, INCLUDING ANY GENERATORS USED FOR PRIMARY OR BACK-UP POWER SUPPLY, SHALL BE OPERATED IN COMPLIANCE WITH ALL PERTINENT NOISE AND AIR POLLUTION REDUCTION REQUIREMENTS.
 - DIVERSION PIPE: DIVERSION PIPE AND COUPLINGS SHALL BE SELECTED FOR FLEXIBILITY AND DURABILITY TO ALLOW FOR THE OCCASIONAL RELOCATION OF THE DIVERSION PIPING DURING CONSTRUCTION ACTIVITIES. THE SIZE OF DIVERSION PIPE SHALL BE DETERMINED BY THE CONTRACTOR BASED ON THE ANTICIPATED FLOW RATES DESCRIBED HEREIN AND THE PERFORMANCE CHARACTERISTICS OF THE PROPOSED PUMPS.
 - ENERGY DISSIPATION: THE CONTRACTOR SHALL SUBMIT A PLAN FOR AN ENERGY DISSIPATION FEATURE TO BE INSTALLED AT THE OUTLET END OF EACH CREEK DIVERSION. THE ENERGY DISSIPATION FEATURE SHALL BE CAPABLE OF RETURNING FLOW FROM THE DIVERSION PIPE TO THE NATURAL CHANNEL WITHOUT CAUSING EROSION.
 - EXECUTION
 - THE CONTRACTOR SHALL COORDINATE WITH PROJECT BIOLOGISTS ON FISH RELOCATION PRIOR TO INSTALLING EACH CREEK DIVERSION SYSTEM.
 - THE COFFERDAMS SHALL BE CONSTRUCTED IN THE LOCATIONS AND TO THE MINIMUM ELEVATIONS SHOWN ON THE PLANS. PROVIDE WATER TIGHT SEALS IF THE DIVERSION PIPE PENETRATES COFFERDAMS.
 - GRADE A SUMP IN THE CHANNEL UPSTREAM OF THE COFFERDAM TO COLLECT STREAMFLOW FOR PUMPING.
 - INSTALL THE DIVERSION PIPE TO AVOID DAMAGE TO EXISTING VEGETATION AND STREAM BANKS.
 - INSPECT THE DIVERSION PIPE AND COFFERDAMS DAILY DURING THE CONSTRUCTION PERIOD TO ENSURE THEY ARE EFFECTIVELY CONVEYING STREAMFLOW. PERFORM CORRECTIVE MAINTENANCE AS NEEDED.
 - PUMP INCIDENTAL GROUNDWATER ENCOUNTERED DURING EXCAVATION AS NEEDED TO FACILITATE COMPLETION OF THE WORK, REGARDLESS OF WHETHER THERE IS A TEMPORARY CREEK DIVERSION IN PLACE.
 - WATER PUMPED FROM WITHIN EXCAVATION AREAS OR THE PORTION OF THE CHANNEL ENCLOSED BY THE COFFERDAMS SHALL BE DISCHARGED ONTO MEADOW SURFACES OR OTHER FEATURES AS NECESSARY TO MEET TURBIDITY REQUIREMENTS. MONITOR PUMPED WATER TO ENSURE IT DOES NOT CAUSE EROSION.
 - WHEN ALL WORK HAS BEEN COMPLETED, REMOVE THE DIVERSION SYSTEM AND RESTORE ANY EXISTING FEATURES THAT WERE ADVERSELY AFFECTED TO PRE-PROJECT CONDITIONS. BACKFILL THE SUMP WITH RIVERBED MATERIAL.



TYPICAL PROFILE VIEW

1 CREEK DIVERSION
SCALE: NTS

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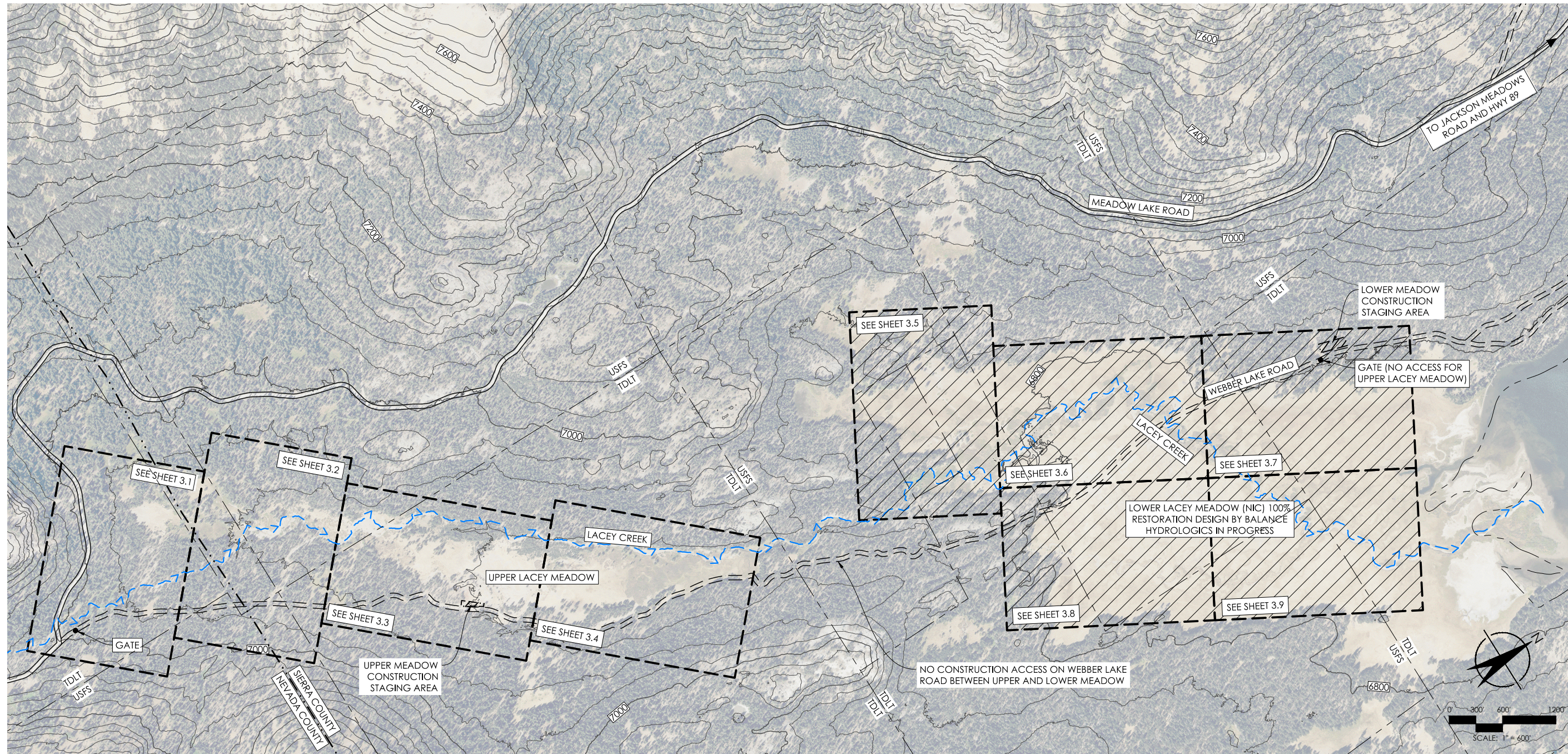
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NOT FOR CONSTRUCTION

LEGEND, GENERAL NOTES, AND DIVERSION PLAN
 UPPER LACEY MEADOW RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
SCALE (AT 22" X 34")

SHEET
2.0



SITE PREPARATION GENERAL NOTES:

- THE SITE IS ACCESSED VIA GATED ROADS OWNED BY TDLT. THE CONTRACTOR SHALL COORDINATE WITH TDLT PRIOR TO MOBILIZATION TO GAIN ACCESS THROUGH THE LOCKED GATES AND OTHER OPERATIONAL PROVISIONS.
- PRESERVE TREES AND VEGETATION OUTSIDE OF THE LIMITS OF WORK. LIMITS OF WORK SHALL BE THE AREA WITHIN THE GRADING LIMITS, CONSTRUCTION ACCESS ROUTES, AND STAGING AREAS. ANY TREES GREATER THAN 6" DBH THAT ARE OUTSIDE OF THE LIMITS OF WORK AND INTERFERE WITH THE WORK MAY ONLY BE REMOVED WITH APPROVAL FROM THE ENGINEER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL PLAN TO MITIGATE FOR ANY ANTICIPATED IMPACTS TO BICYCLE AND PEDESTRIAN TRAFFIC, AND TO PROVIDE ALL SIGNAGE FOR BICYCLE AND PEDESTRIAN SAFETY. THE CONTRACTOR SHALL SUBMIT THE TRAFFIC CONTROL PLAN TO THE ENGINEER'S REPRESENTATIVE NO LATER THAN 48 HOURS PRIOR TO MOBILIZATION.

STAGING AND ACCESS NOTES:

- THE CONTRACTOR SHALL FLAG THE LOCATIONS OF THE CONSTRUCTION ACCESS ROUTES AND STAGING AREAS FOR APPROVAL BY THE ENGINEER'S REPRESENTATIVE BEFORE THE ROUTES ARE UTILIZED.
- CONSTRUCTION ACCESS ROUTES ARE CLASSIFIED AS FOLLOWS:
 - TRACKED EQUIPMENT ONLY IS ALLOWED. TRIPS BETWEEN WORK AREAS AND WEBBER LAKE ROAD ARE ALLOWED FOR RE-FUELING AND MAINTENANCE ONLY. MINIMIZE TRIPS ACROSS MEADOW SURFACES TO THE MAXIMUM EXTENT POSSIBLE.
 - LIMITED HAULING IS REQUIRED TO TRANSPORT MATERIAL BETWEEN PILOT CHANNEL 1 AND PILOT CHANNEL 2; THIS IS THE ONLY EXCEPTION FOR WHERE RUBBER Tired EQUIPMENT IS ALLOWED ON ROUTES WITH EQUIPMENT LIMITATIONS, HOWEVER, THE CONTRACTOR IS ENCOURAGED TO USE
 - ALTERNATIVE, LOW GROUND PRESSURE EQUIPMENT FOR HAULING.
 - NO WORK TRUCKS, BUGGIES, ATVs, OR OTHER SMALL RUBBER Tired EQUIPMENT IS ALLOWED.
 - WATER TRUCKS AND WATER TRUCK DRIVERS ARE NOT PERMITTED, PREFERABLY FROM ALL PORTIONS OF THE CONSTRUCTION SITE.

- EXISTING WEBBER LAKE ROAD IS THE ONLY CONSTRUCTION ACCESS ROUTES WITH NO EQUIPMENT LIMITATIONS.
 - PORTIONS OF WEBBER LAKE ROAD REQUIRE IMPROVEMENT BEFORE EQUIPMENT MAY BE STAGED AT THE UPPER MEADOW CONSTRUCTION STAGING AREA; REFER TO SHEET 3.2 FOR DETAILS.
- CONSTRUCTION ACCESS ROUTES SHALL BE ESTABLISHED BY DRIVING ALONG THE ALIGNMENTS SHOWN HEREIN TO MINIMIZE GROUND DISTURBANCE. NO SCRAPING, BLADING, OR OTHER GRADING OPERATIONS ARE ALLOWED WITHOUT THE APPROVAL OF THE ENGINEER'S REPRESENTATIVE. REMOVAL OF ABOVE-GROUND VEGETATION LESS THAN 6 INCHES DBH, SHRUBS, AND OTHER VEGETATION IS ALLOWED.
- TEMPORARY REMOVAL OF BOULDERS AND TREES (BOTH ALIVE AND FALLEN DEAD TREES) WILL BE REQUIRED TO ESTABLISH CONSTRUCTION ACCESS ROUTES. MOVE BOULDERS AND SAW FALLEN TREES AS NEEDED; SET ASIDE BOULDERS AND TREE PIECES FOR DECOMMISSIONING. REMOVE LIVE TREES GREATER THAN 6" DBH ONLY IF APPROVED BY THE ENGINEER'S REPRESENTATIVE.
- PERFORM CORRECTIVE MAINTENANCE TO ACCESS ROUTES THROUGHOUT THE CONSTRUCTION PERIOD TO ADDRESS EROSION AND POTENTIAL SOURCES OF FINE SEDIMENT. ANY RUTS EXCEEDING 3 INCHES IN DEPTH OR 25 FEET IN LENGTH SHALL BE CORRECTED IMMEDIATELY.
- ACCESS ROUTES SHALL BE DECOMMISSIONED BY APPLYING SEED (EXCEPT FOR ROUTES THAT FOLLOW EXISTING WEBBER LAKE ROAD) AS REQUIRED TO REVEGETATE AREAS THAT HAVE BEEN DAMAGED BY CONSTRUCTION OPERATIONS. THE TYPE OF SEED MIX USED TO REVEGETATE ACCESS ROUTES SHALL VARY DEPENDING ON THE PREVAILING HYDROGEOGRAPHIC ZONE. CONSULT THE PROJECT REVEGETATION SPECIALIST FOR GUIDANCE. DECOMPACTION MEASURES DESCRIBED ON SHEET 5.0 SHALL BE COMPLETED FOR

- ACCESS ROUTES WHERE SEEDING IS REQUIRED.
- AT LEAST 30 DAYS PRIOR TO MOBILIZATION, THE CONTRACTOR SHALL SUBMIT A STAGING AND ACCESS PLAN THAT, AT MINIMUM, INCLUDES THE FOLLOWING INFORMATION:
 - PROPOSED DEVIATIONS FROM THE ACCESS ROUTE ALIGNMENTS AND STAGING AREA CONFIGURATIONS THAT ARE SHOWN HEREIN;
 - FUELS/CHEMICAL STORAGE AREAS;
 - MATERIALS/EQUIPMENT STAGING AREAS; AND
 - EMPLOYEE PARKING AREAS.
- CONTRACTOR SHALL SUBMIT A PLAN TO BE USED FOR ALL TEMPORARY STREAM CROSSINGS TO THE ENGINEER'S REPRESENTATIVE FOR APPROVAL.

CONSTRUCTION WATER:

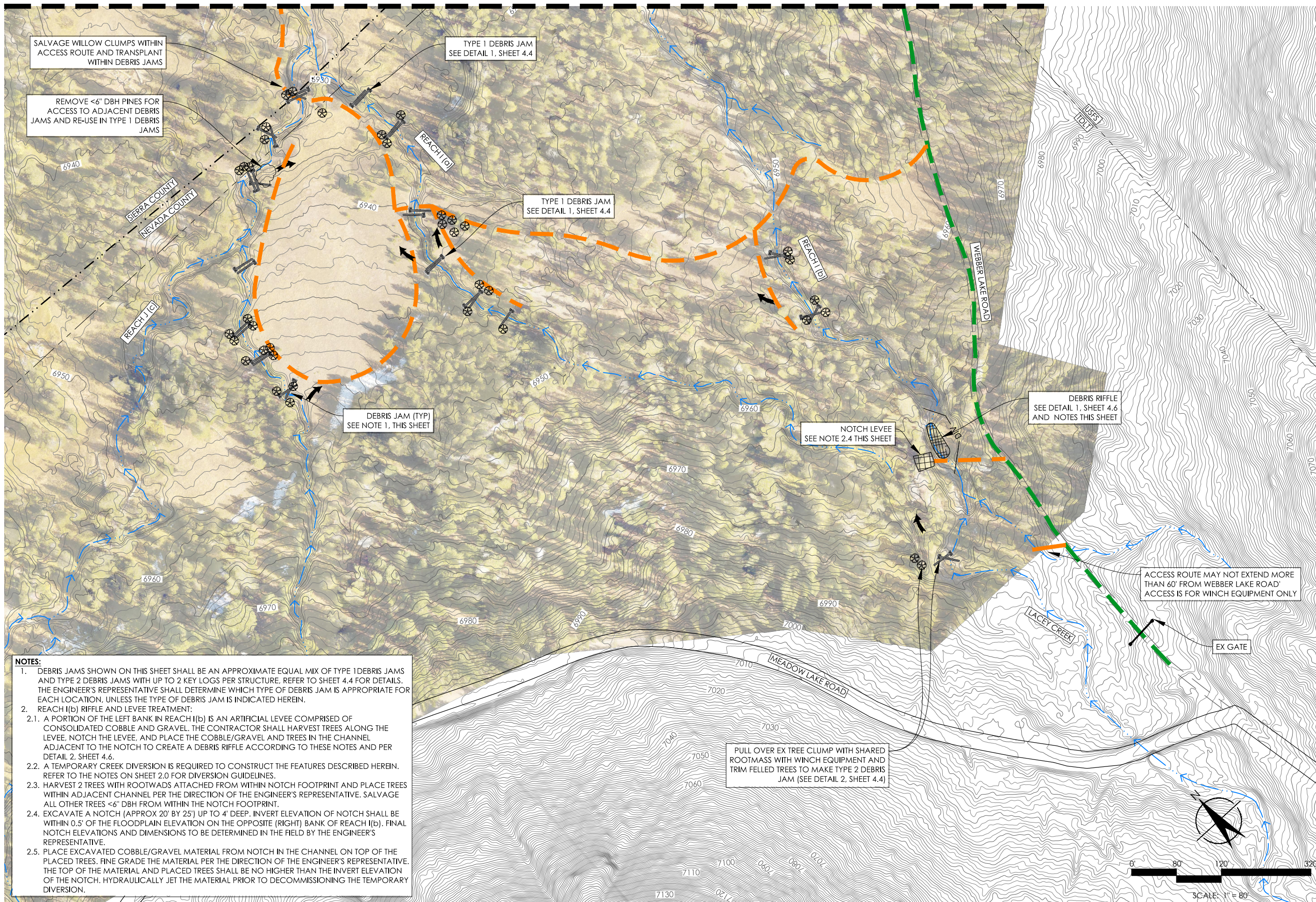
- WATER TRUCKS (IF USED) ARE RESTRICTED TO WEBBER LAKE ROAD. THERE IS NOT A RELIABLE SOURCE TO REFILL WATER TRUCKS WITHIN THE LACEY UPPER MEADOW PROJECT AREA.
- CONSTRUCTION WATER SHALL BE PROVIDED BY PUMPING FROM LACEY CREEK OR TRIBUTARIES THERE TO. THE CONTRACTOR SHALL SUPPLY PUMPS CAPABLE OF PUMPING 400 GPM (MIN) TO FULFILL REQUIREMENTS FOR INSTALLATIONS REQUIRING HYDRAULIC JETTING AND 300 FEET OF HOSE. PUMPS SHALL BE TRASH PUMPS OR EQUIVALENT EQUIPMENT CAPABLE OF BEING MOVED BY HAND OR BY TRACKED EQUIPMENT.
- LEVERAGE TEMPORARY CREEK DIVERSIONS TO SUPPLY CONSTRUCTION WATER, WHERE POSSIBLE.
- IF A WATER SOURCE IS NOT AVAILABLE WITHIN 300 FEET OF A DESIGN ELEMENT THAT REQUIRES WATER FOR INSTALLATION, CONTACT THE ENGINEER'S REPRESENTATIVE IMMEDIATELY.

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OVERVIEW & SHEET INDEX
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SCALE (AT 22" X 34")	1" = 600'
SHEET	3.0



SALVAGE WILLOW CLUMPS WITH ACCESS ROUTE AND TRANSPLANT WITHIN DEBRIS JAMS

REMOVE <6" DBH PINES FOR ACCESS TO ADJACENT DEBRIS JAMS AND RE-USE IN TYPE 1 DEBRIS JAMS

TYPE 1 DEBRIS JAM
SEE DETAIL 1, SHEET 4.4

TYPE 1 DEBRIS JAM
SEE DETAIL 1, SHEET 4.4

DEBRIS JAM (TYP)
SEE NOTE 1, THIS SHEET

NOTCH LEVEE
SEE NOTE 2.4 THIS SHEET

DEBRIS RIFFLE
SEE DETAIL 1, SHEET 4.6
AND NOTES THIS SHEET

ACCESS ROUTE MAY NOT EXTEND MORE THAN 60' FROM WEBBER LAKE ROAD
ACCESS IS FOR WINCH EQUIPMENT ONLY

PULL OVER EX TREE CLUMP WITH SHARED ROOTMASS WITH WINCH EQUIPMENT AND TRIM FELLEED TREES TO MAKE TYPE 2 DEBRIS JAM (SEE DETAIL 2, SHEET 4.4)

- NOTES:**
- DEBRIS JAMS SHOWN ON THIS SHEET SHALL BE AN APPROXIMATE EQUAL MIX OF TYPE 1 DEBRIS JAMS AND TYPE 2 DEBRIS JAMS WITH UP TO 2 KEY LOGS PER STRUCTURE. REFER TO SHEET 4.4 FOR DETAILS. THE ENGINEER'S REPRESENTATIVE SHALL DETERMINE WHICH TYPE OF DEBRIS JAM IS APPROPRIATE FOR EACH LOCATION, UNLESS THE TYPE OF DEBRIS JAM IS INDICATED HEREIN.
 - REACH I(b) RIFFLE AND LEVEE TREATMENT:
 - A PORTION OF THE LEFT BANK IN REACH I(b) IS AN ARTIFICIAL LEVEE COMPRISED OF CONSOLIDATED COBBLE AND GRAVEL. THE CONTRACTOR SHALL HARVEST TREES ALONG THE LEVEE, NOTCH THE LEVEE, AND PLACE THE COBBLE/GRAVEL AND TREES IN THE CHANNEL ADJACENT TO THE NOTCH TO CREATE A DEBRIS RIFFLE ACCORDING TO THESE NOTES AND PER DETAIL 2, SHEET 4.6.
 - A TEMPORARY CREEK DIVERSION IS REQUIRED TO CONSTRUCT THE FEATURES DESCRIBED HEREIN. REFER TO THE NOTES ON SHEET 2.0 FOR DIVERSION GUIDELINES.
 - HARVEST 2 TREES WITH ROOTWADS ATTACHED FROM WITHIN NOTCH FOOTPRINT AND PLACE TREES WITHIN ADJACENT CHANNEL PER THE DIRECTION OF THE ENGINEER'S REPRESENTATIVE. SALVAGE ALL OTHER TREES <6" DBH FROM WITHIN THE NOTCH FOOTPRINT.
 - EXCAVATE A NOTCH (APPROX 20' BY 25') UP TO 4' DEEP. INVERT ELEVATION OF NOTCH SHALL BE WITHIN 0.5' OF THE FLOODPLAIN ELEVATION ON THE OPPOSITE (RIGHT) BANK OF REACH I(b). FINAL NOTCH ELEVATIONS AND DIMENSIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER'S REPRESENTATIVE.
 - PLACE EXCAVATED COBBLE/GRAVEL MATERIAL FROM NOTCH IN THE CHANNEL ON TOP OF THE PLACED TREES. FINE GRADE THE MATERIAL PER THE DIRECTION OF THE ENGINEER'S REPRESENTATIVE. THE TOP OF THE MATERIAL AND PLACED TREES SHALL BE NO HIGHER THAN THE INVERT ELEVATION OF THE NOTCH. HYDRAULICALLY JET THE MATERIAL PRIOR TO DECOMMISSIONING THE TEMPORARY DIVERSION.

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DRAFT 100% DESIGN

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NOT FOR CONSTRUCTION

**UPPER LACEY MEADOWS
 REACHES I & J
 UPPER LACEY MEADOW
 RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA**

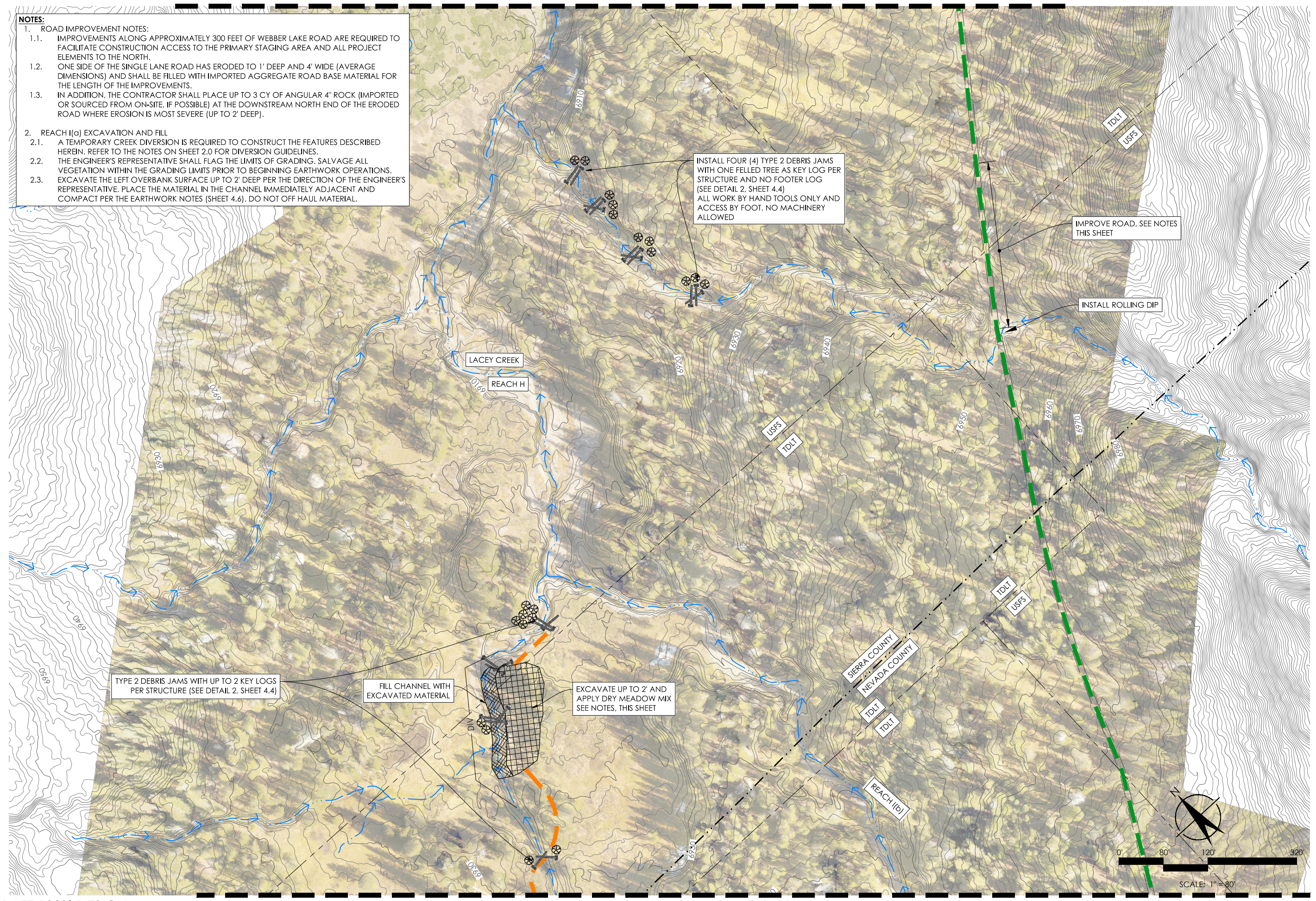
PROJECT NUMBER
218199
 SCALE (AT 22" X 34")
1" = 80'
 SHEET

3.1

MATCHLINE SEE SHEET 3.3

NOTES:

1. ROAD IMPROVEMENT NOTES:
 - 1.1. IMPROVEMENTS ALONG APPROXIMATELY 300 FEET OF WEBBER LAKE ROAD ARE REQUIRED TO FACILITATE CONSTRUCTION ACCESS TO THE PRIMARY STAGING AREA AND ALL PROJECT ELEMENTS TO THE NORTH.
 - 1.2. ONE SIDE OF THE SINGLE LANE ROAD HAS ERODED TO 1' DEEP AND 4' WIDE (AVERAGE DIMENSIONS) AND SHALL BE FILLED WITH IMPORTED AGGREGATE ROAD BASE MATERIAL FOR THE LENGTH OF THE IMPROVEMENTS.
 - 1.3. IN ADDITION, THE CONTRACTOR SHALL PLACE UP TO 3 CY OF ANGULAR 4" ROCK (IMPORTED OR SOURCED FROM ON-SITE, IF POSSIBLE) AT THE DOWNSTREAM NORTH END OF THE ERODED ROAD WHERE EROSION IS MOST SEVERE (UP TO 2' DEEP).
2. REACH II(a) EXCAVATION AND FILL
 - 2.1. A TEMPORARY CREEK DIVERSION IS REQUIRED TO CONSTRUCT THE FEATURES DESCRIBED HEREIN. REFER TO THE NOTES ON SHEET 2.0 FOR DIVERSION GUIDELINES.
 - 2.2. THE ENGINEER'S REPRESENTATIVE SHALL FLAG THE LIMITS OF GRADING. SALVAGE ALL VEGETATION WITHIN THE GRADING LIMITS PRIOR TO BEGINNING EARTHWORK OPERATIONS.
 - 2.3. EXCAVATE THE LEFT OVBANK SURFACE UP TO 2' DEEP PER THE DIRECTION OF THE ENGINEER'S REPRESENTATIVE. PLACE THE MATERIAL IN THE CHANNEL IMMEDIATELY ADJACENT AND COMPACT PER THE EARTHWORK NOTES (SHEET 4.6). DO NOT OFF HAUL MATERIAL.



Balance Hydrologics, Inc.
 12020 Donner Pass Road
 Truckee, CA 96161
 tel and fax (530) 550-9776
 www.balancehydro.com

DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
BKH	11/15/19	BKH	30% DESIGN
DE	7/15/20	BKH	65% DESIGN
TA	9/20/21	PK	DRAFT 100% DESIGN
IN CHARGE			
PK			
DATE	9/20/21		

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CONSTRUCTION

**UPPER LACEY MEADOWS
REACH H**
 UPPER LACEY MEADOW
 RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
 SCALE (AT 22" X 34")
1" = 80'
 SHEET

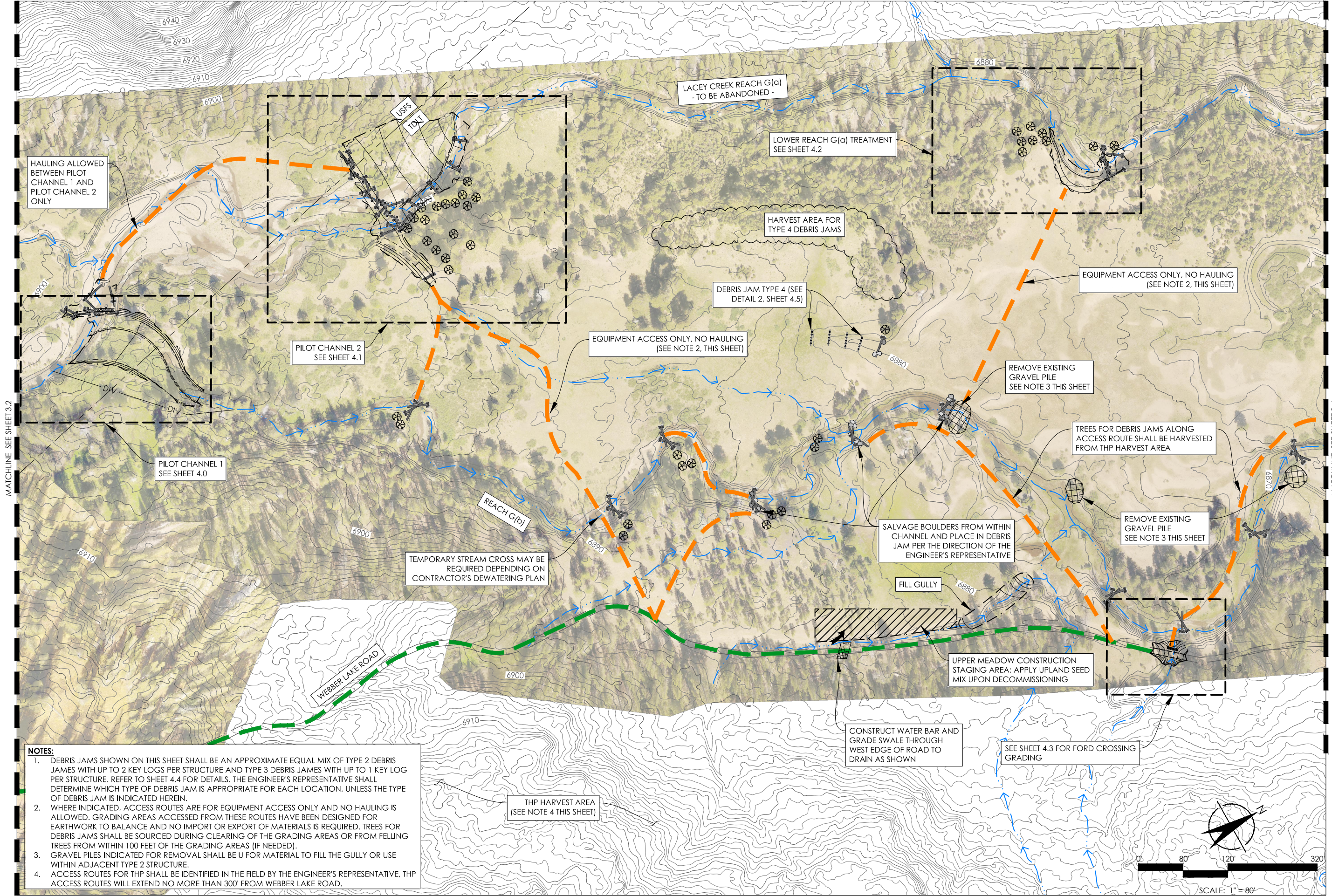
3.2

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MATCHLINE SEE SHEET 3.1

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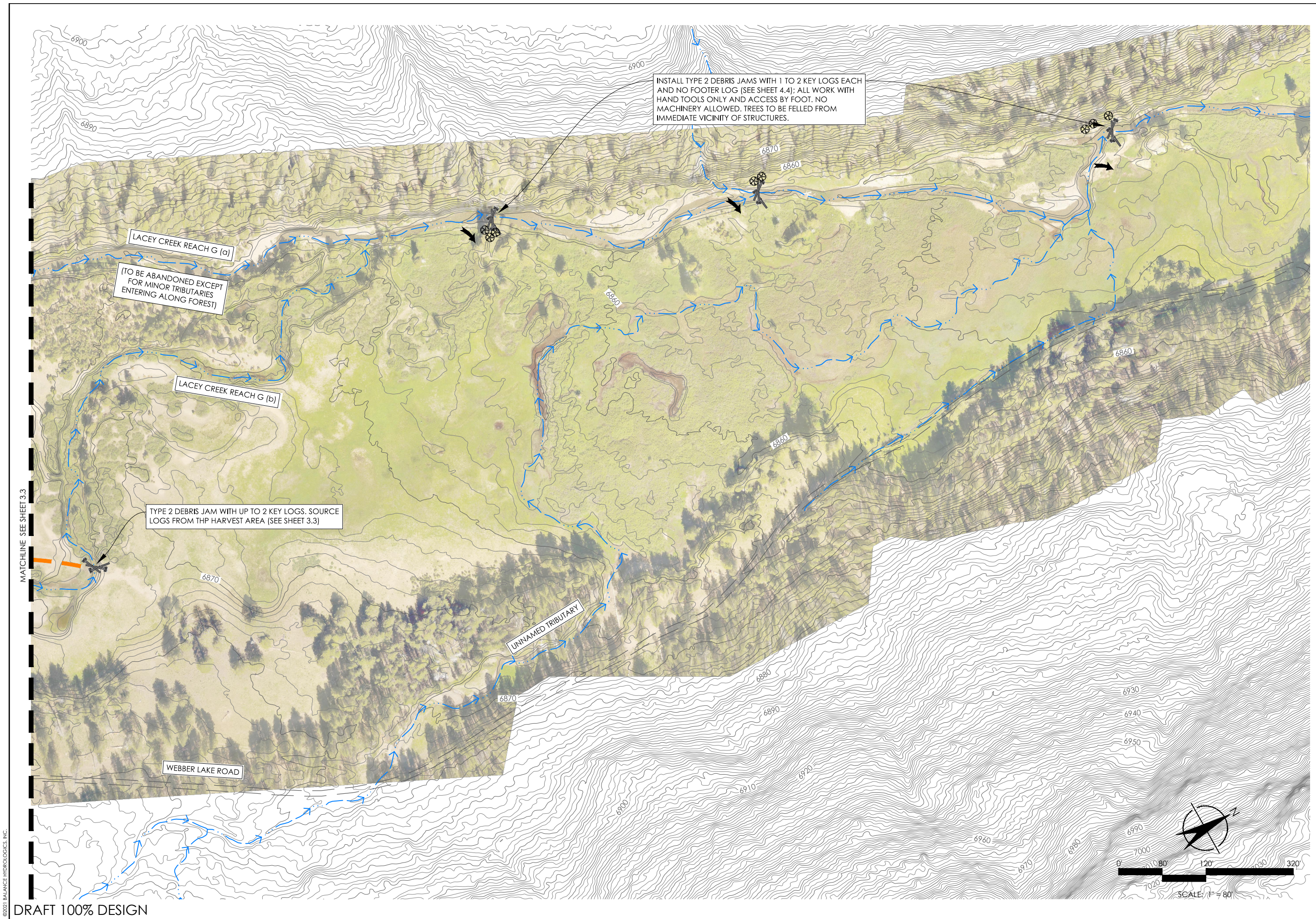
- NOTES:**
1. DEBRIS JAMS SHOWN ON THIS SHEET SHALL BE AN APPROXIMATE EQUAL MIX OF TYPE 2 DEBRIS JAMES WITH UP TO 2 KEY LOGS PER STRUCTURE AND TYPE 3 DEBRIS JAMES WITH UP TO 1 KEY LOG PER STRUCTURE. REFER TO SHEET 4.4 FOR DETAILS. THE ENGINEER'S REPRESENTATIVE SHALL DETERMINE WHICH TYPE OF DEBRIS JAM IS APPROPRIATE FOR EACH LOCATION, UNLESS THE TYPE OF DEBRIS JAM IS INDICATED HEREIN.
 2. WHERE INDICATED, ACCESS ROUTES ARE FOR EQUIPMENT ACCESS ONLY AND NO HAULING IS ALLOWED. GRADING AREAS ACCESSED FROM THESE ROUTES HAVE BEEN DESIGNED FOR EARTHWORK TO BALANCE AND NO IMPORT OR EXPORT OF MATERIALS IS REQUIRED. TREES FOR DEBRIS JAMS SHALL BE SOURCED DURING CLEARING OF THE GRADING AREAS OR FROM FELLING TREES FROM WITHIN 100 FEET OF THE GRADING AREAS (IF NEEDED).
 3. GRAVEL PILES INDICATED FOR REMOVAL SHALL BE U FOR MATERIAL TO FILL THE GULLY OR USE WITHIN ADJACENT TYPE 2 STRUCTURE.
 4. ACCESS ROUTES FOR THP SHALL BE IDENTIFIED IN THE FIELD BY THE ENGINEER'S REPRESENTATIVE, THP ACCESS ROUTES WILL EXTEND NO MORE THAN 300' FROM WEBBER LAKE ROAD.

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PK			
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**UPPER LACEY MEADOWS
 REACHES G(a) & G(b) SOUTH**
 UPPER LACEY MEADOW
 RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
 SCALE (AT 22" X 34")
1" = 80'
 SHEET



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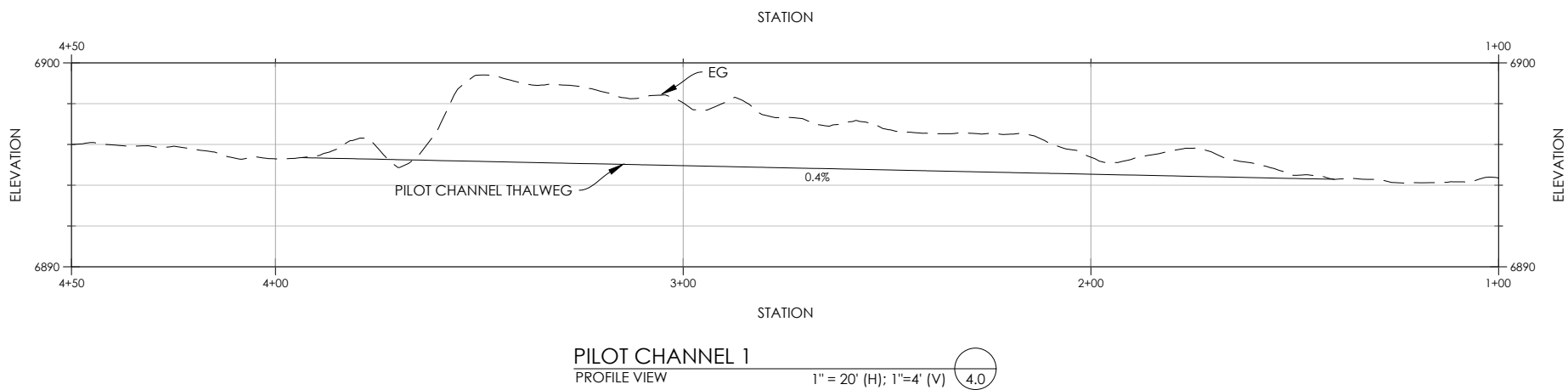
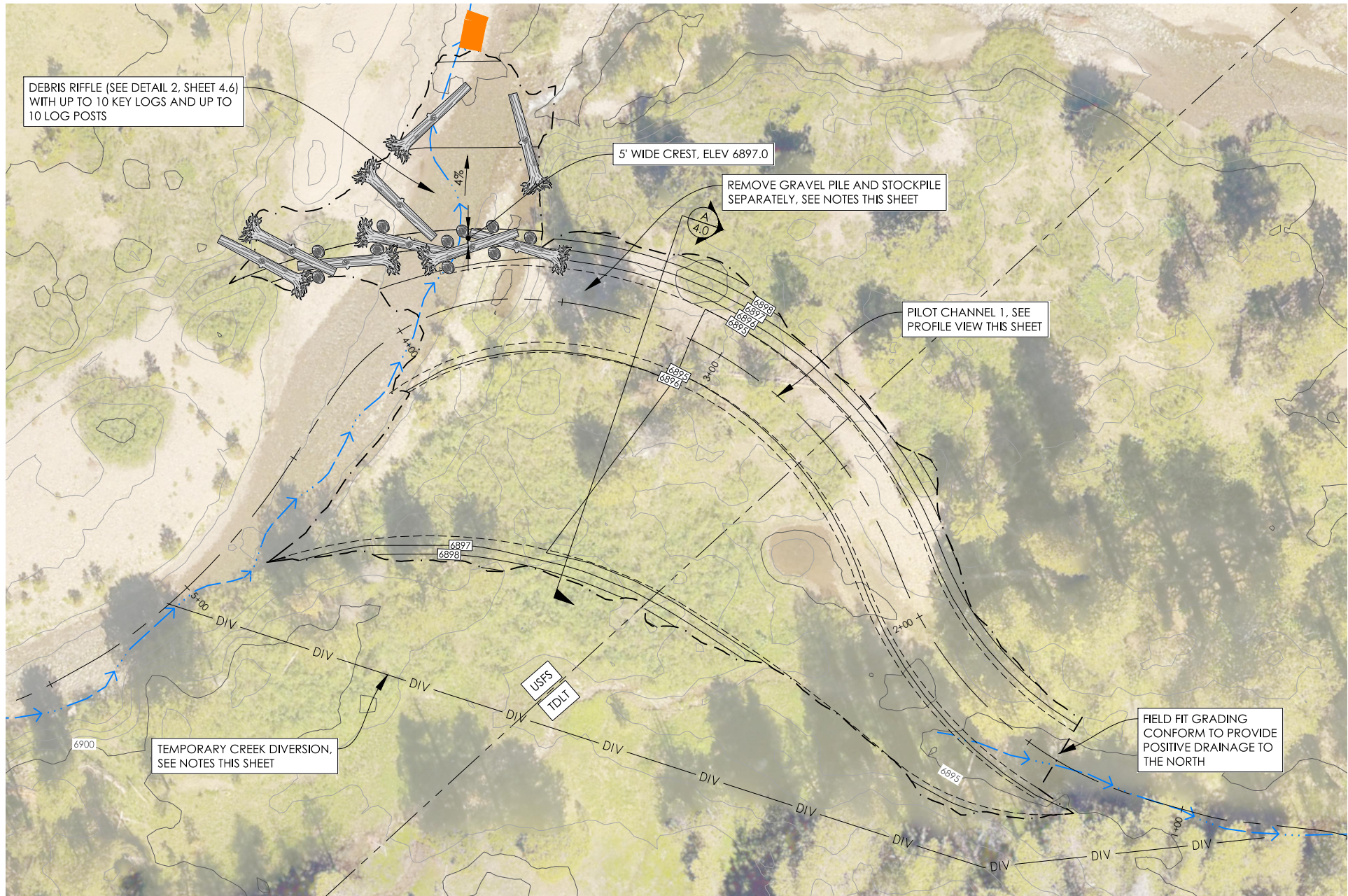
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PK			
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UPPER LACEY MEADOWS REACHES G(a) & G(b) NORTH
 UPPER LACEY MEADOW RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER 218199
 SCALE (AT 22" X 34") 1" = 80'
 SHEET

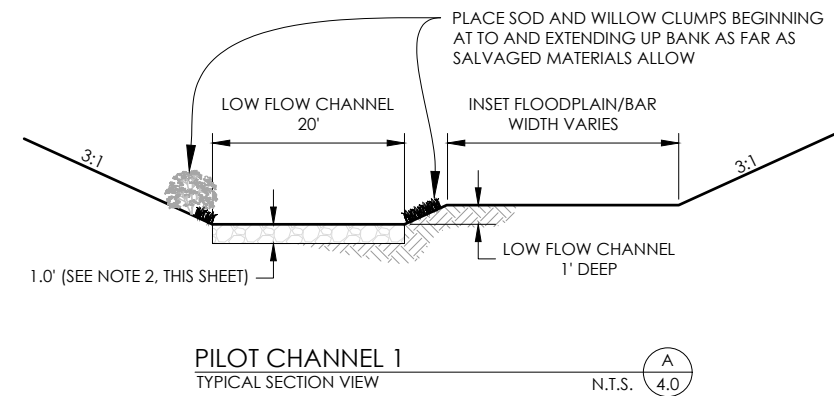
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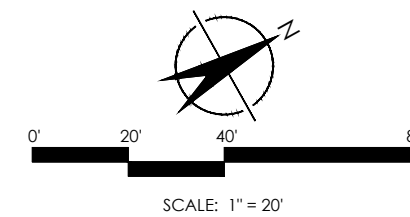
PILOT CHANNEL 1
PROFILE VIEW
1" = 20' (H); 1" = 4' (V) 4.0

NOTES:

1. THE NEED FOR A TEMPORARY CREEK DIVERSION, THE SCALE OF THE DIVERSION SYSTEM, AND THE AMOUNT OF TIME IT IS ACTIVE WILL DEPEND ON THE PHASING OF THE CONTRACTOR'S ACTIVITIES. REFER THE DIVERSION NOTES (SHEET 2.0) FOR ADDITIONAL DETAILS.
2. HARVEST ALL SOD AND WILLOW CLUMPS FROM WITHIN THE GRADING LIMITS.
3. SALVAGE ALL PINES FROM WITHIN THE GRADING LIMIT FOR REUSE IN THE DEBRIS RIFFLE AND/OR FOR FEATURES SHOWN ON SHEET 4.1.
4. STOCKPILE COARSE RIVERBED MATERIAL SEPARATELY FROM FINE-GRAIN SOIL. ALL SPOILS FROM PILOT CHANNEL 1 SHALL BE HAULED TO THE DEBRIS RIFFLE SHOWN ON SHEET 4.1.
5. THE ENGINEER'S REPRESENTATIVE SHALL EVALUATE THE SUITABILITY OF THE NATIVE MATERIAL FOR USE AS A FINISHED COURSE FOR THE BOTTOM OF PILOT CHANNEL 1 (LOW FLOW CHANNEL PER THE TYPICAL SECTION VIEW, THIS SHEET). IF THE NATIVE MATERIAL IS NOT SUITABLE, OVEREXCAVATE BY 1.0' AND BACKFILL WITH RIVERBED MATERIAL GENERATED FROM THE GRAVEL PILE OR NEARBY LOG TRENCHING.
6. RACKING LOGS AND SLASH IN DEBRIS RIFFLE NOT SHOWN FOR CLARITY.



PILOT CHANNEL 1
TYPICAL SECTION VIEW
N.T.S. 4.0

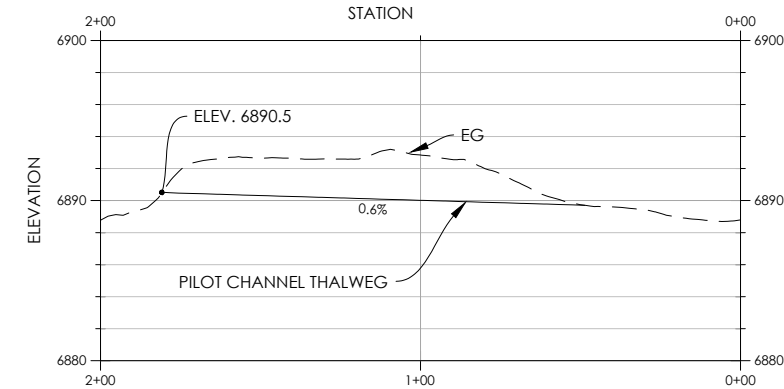
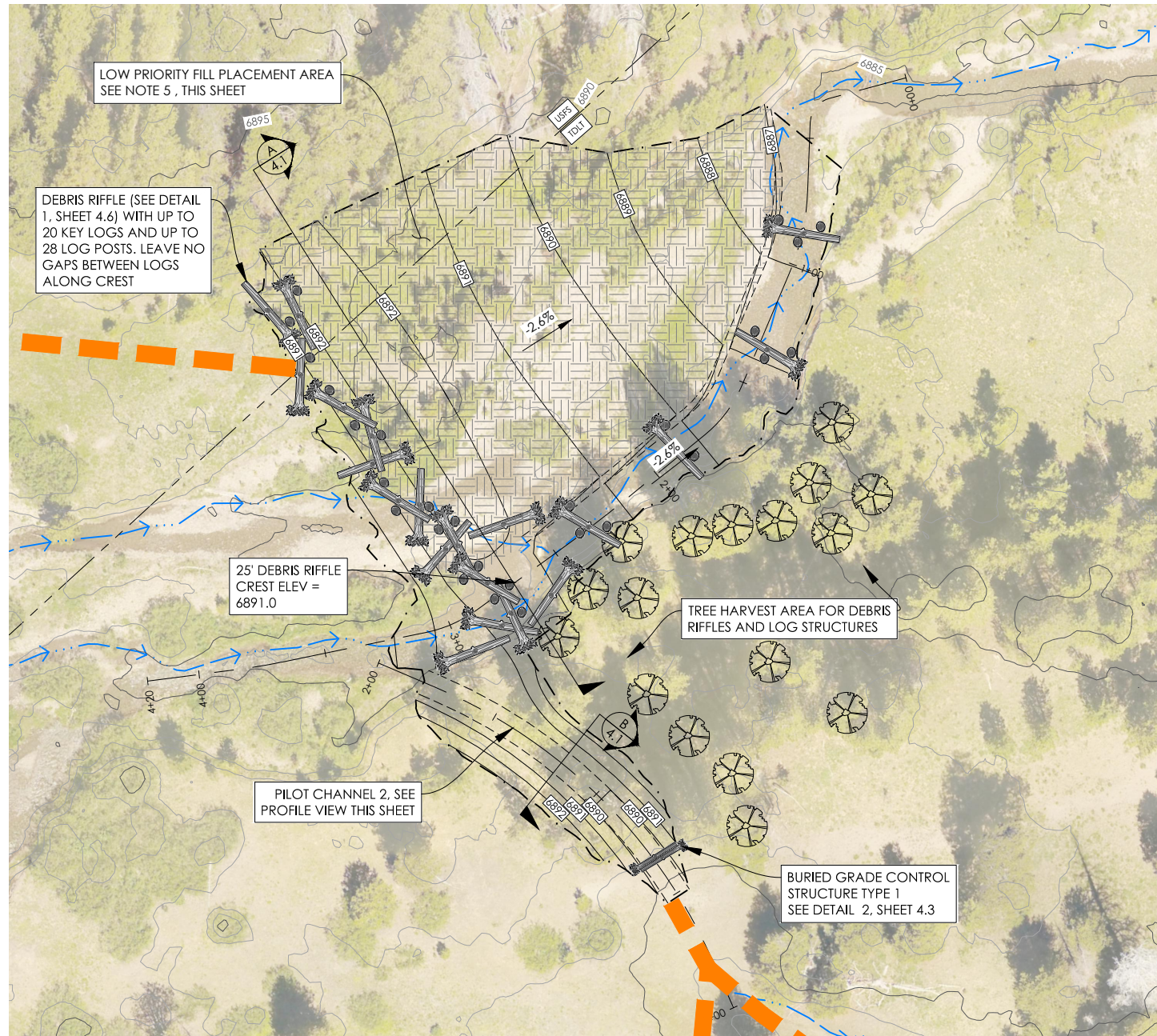


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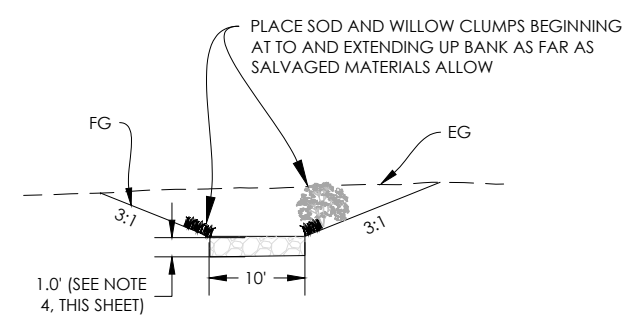
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PILOT CHANNEL 1 DETAIL VIEWS
UPPER LACEY MEADOW
RESTORATION DESIGN
SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
SCALE (AT 22" X 34")
1" = 20'
SHEET

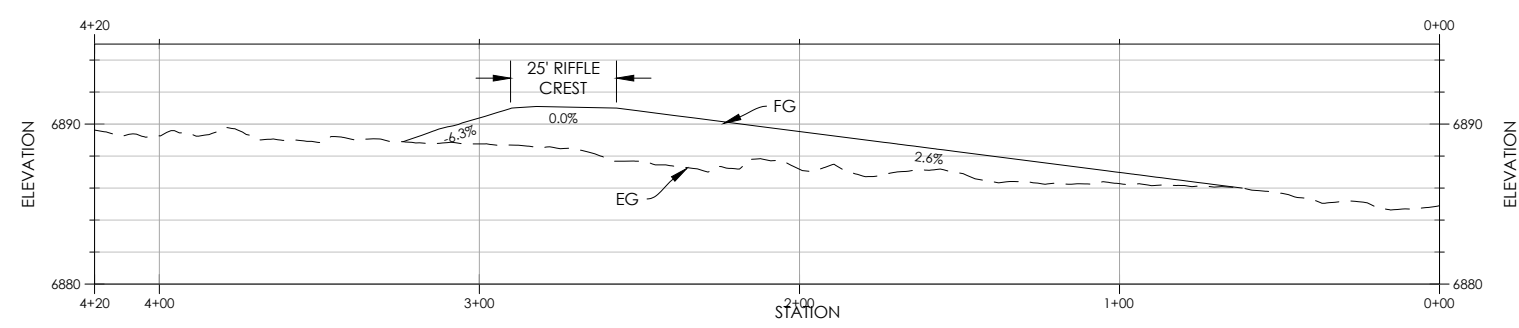


PILOT CHANNEL 2
PROFILE VIEW
1" = 30' (H); 1" = 6' (V) 4.1

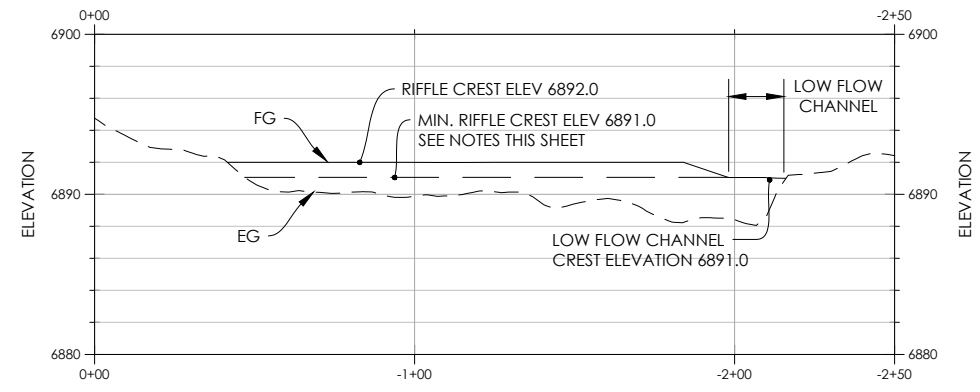


PILOT CHANNEL 2
TYPICAL SECTION VIEW
1" = 20' (H); 1" = 4' (V) 4.1

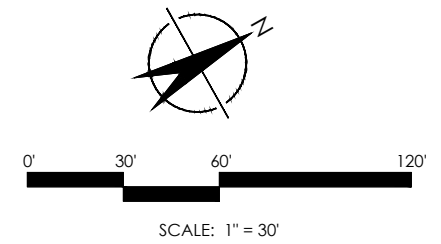
- NOTES:**
- HARVEST ALL SOD AND WILLOW CLUMPS FROM WITHIN THE GRADING LIMITS.
 - SALVAGE ALL PINES FROM WITHIN THE GRADING LIMIT FOR REUSE IN THE DEBRIS RIFFLE AND/OR FOR FEATURES SHOWN ON SHEET 4.1.
 - STOCKPILE COARSE RIVERBED MATERIAL SEPARATELY FROM FINE-GRAIN SOIL. ALL SPOILS FROM PILOT CHANNEL 1 SHALL BE HAULED TO THE DEBRIS RIFFLE SHOWN ON SHEET 4.1.
 - THE ENGINEER'S REPRESENTATIVE SHALL EVALUATE THE SUITABILITY OF THE NATIVE MATERIAL FOR USE AS THE BOTTOM OF PILOT CHANNEL 1 (LOW FLOW CHANNEL PER TYPICAL SECTION VIEW, THIS SHEET). IF THE NATIVE MATERIAL IS NOT SUITABLE, OVEREXCAVATE BY 1.0' AND BACKFILL WITH RIVERBED MATERIAL GENERATED FROM THE GRAVEL PILE OR NEARBY LOG TRENCHING.
 - THE HATCHED AREA IS LOWEST PRIORITY AREA FOR FILL PLACEMENT, HOWEVER, THE AREA MUST BE CONSTRUCTED TO NO LOWER THAN 1.0' BELOW THE FG SHOWN HEREIN. FILL SHALL BE FROM EXCAVATION OF GRADING AREAS SHOWN ON SHEETS 4.0 AND 4.1.
 - RACKING LOGS AND SLASH IN DEBRIS RIFFLE NOT SHOWN FOR CLARITY.



LACEY CREEK REACH G(a)
PROFILE VIEW
1" = 30' (H); 1" = 6' (V) 4.1



LACEY CREEK REACH G(a)
SECTION VIEW
1" = 30' (H); 1" = 6' (V) 4.1

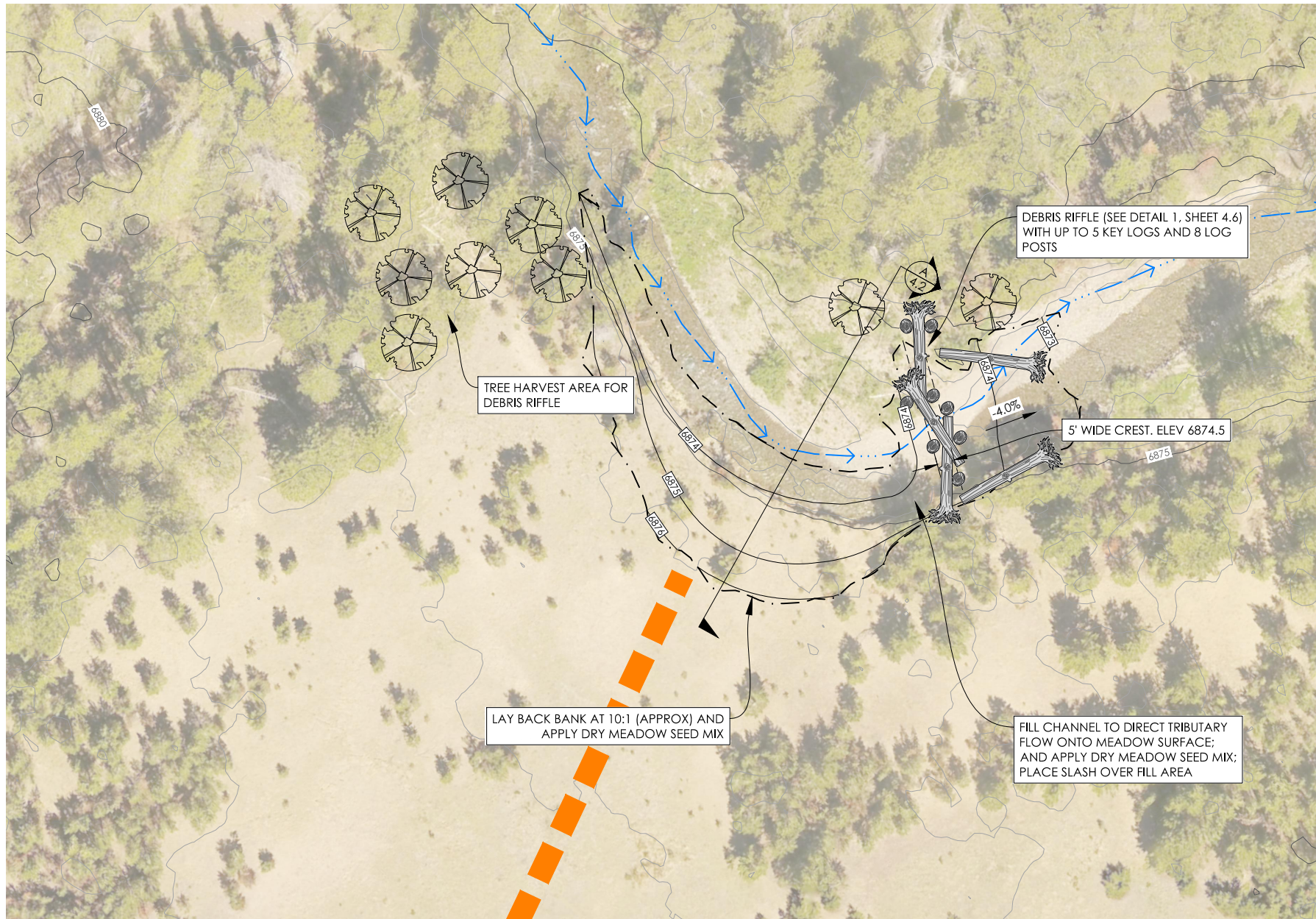


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TA	9/20/21	PK	DRAFT 100% DESIGN
IN CHARGE		PK	
DATE	9/20/21		

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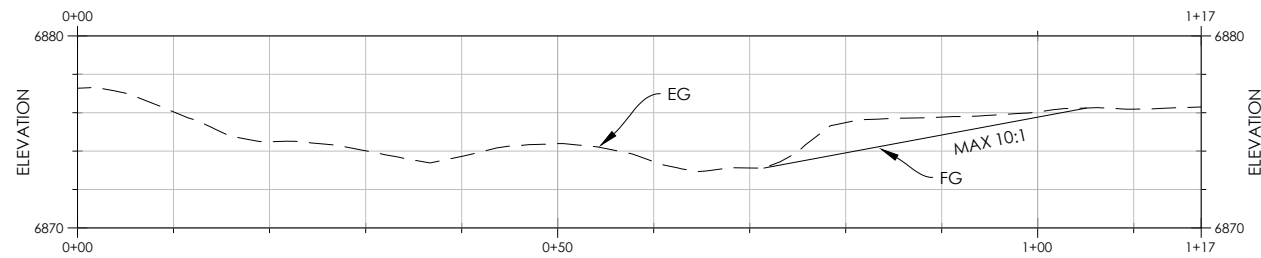
PILOT CHANNEL 2 DETAIL VIEWS
UPPER LACEY MEADOW
RESTORATION DESIGN
SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
SCALE (AT 22" X 34")
1" = 30'
SHEET

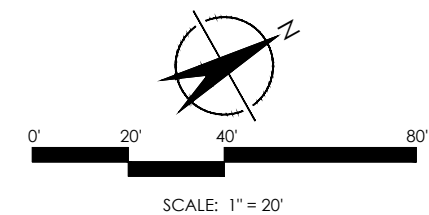


NOTES:

1. HARVEST ALL SOD AND WILLOW CLUMPS FROM WITHIN THE GRADING LIMITS.
2. STOCKPILE COARSE RIVERBED MATERIAL SEPARATELY FROM FINE-GRAIN SOIL. ALL SPOILS FROM BANK GRADING SHALL BE PLACED AT THE DEBRIS RIFFLE SHOWN ON THIS SHEET.
3. RACKING LOGS AND SLASH IN DEBRIS RIFFLE NOT SHOWN FOR CLARITY.



LACEY CREEK LOWER REACH G(a)
SECTION VIEW
1" = 10' (H); 1" = 5' (V) A 4.2



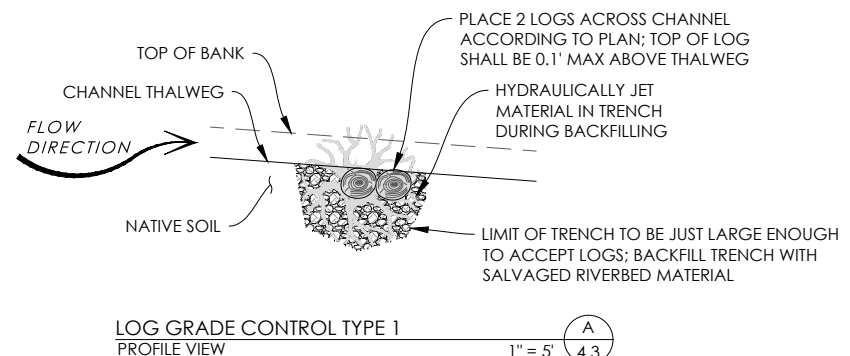
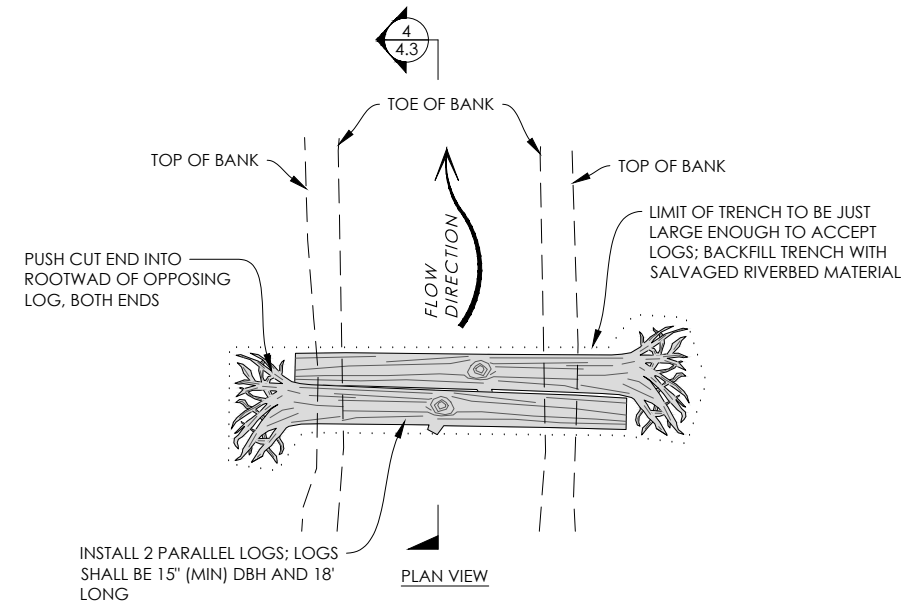
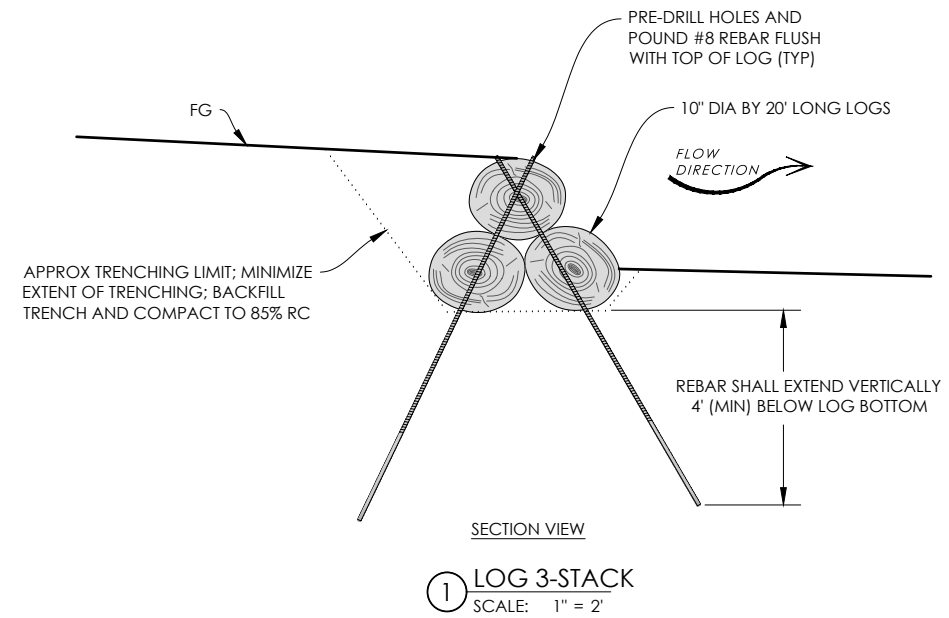
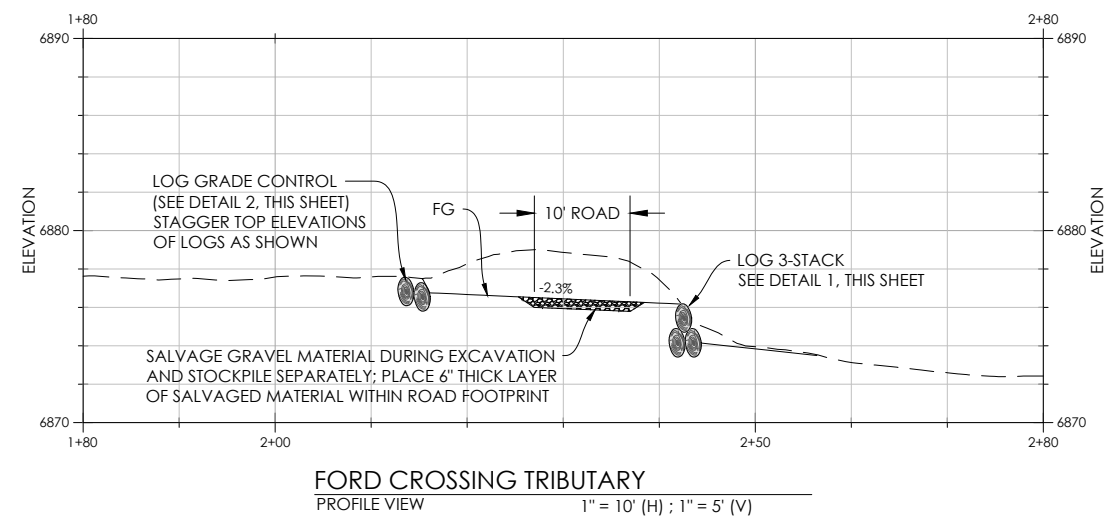
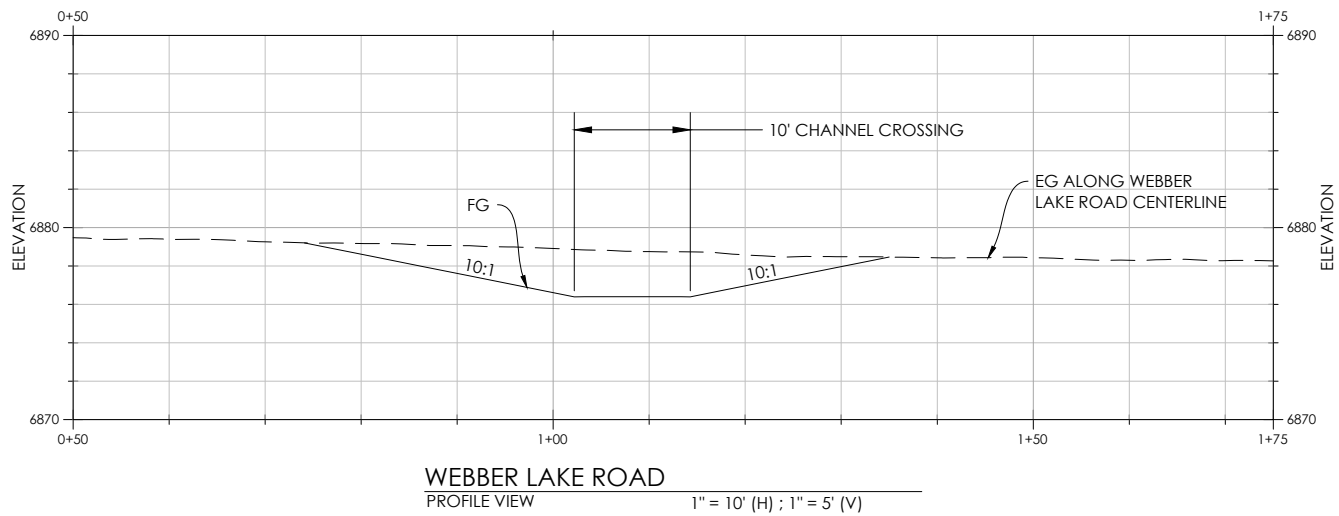
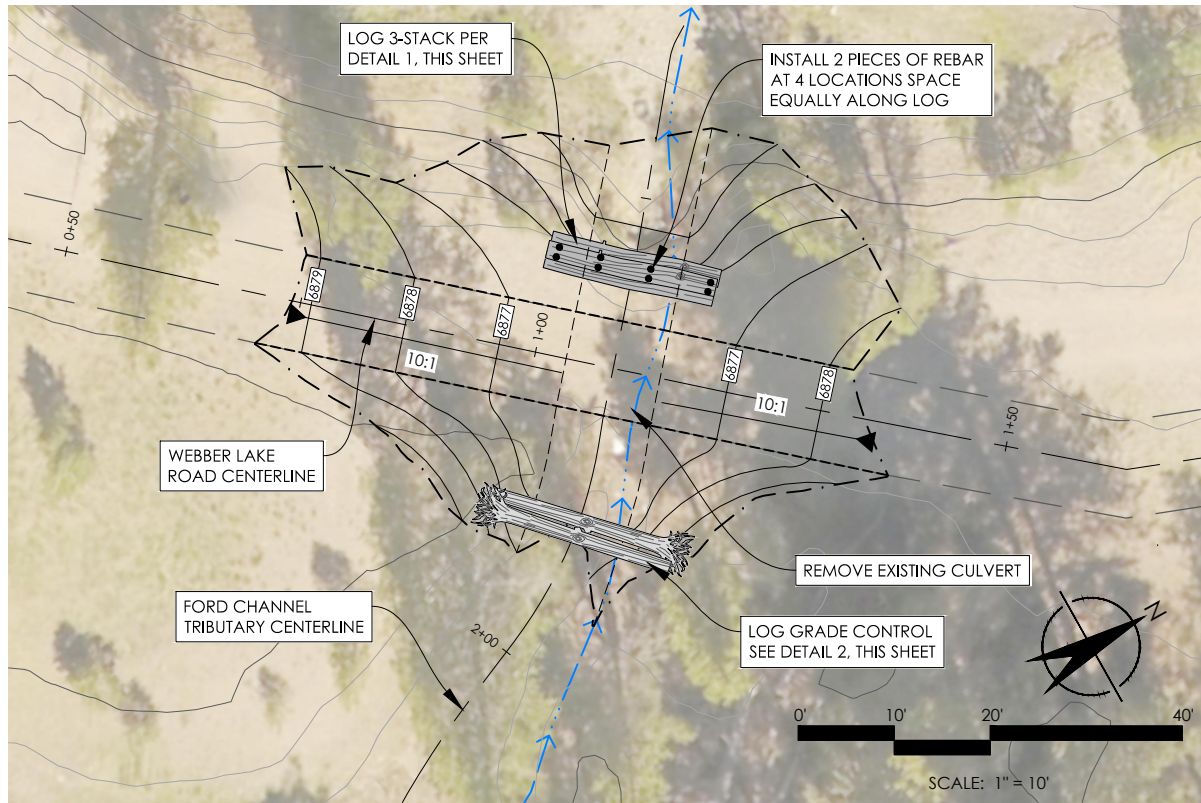
DESIGNED BY	DATE	BY	SUBMITTALS / REVISIONS
BKH	11/15/19	BKH	30% DESIGN
DE	7/15/20	BKH	65% DESIGN
TA	9/20/21	PK	DRAFT 100% DESIGN
IN CHARGE			
PK			
DATE	9/20/21		

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**LOWER REACH G(a) TREATMENT
DETAIL VIEWS**
UPPER LACEY MEADOW
RESTORATION DESIGN
SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
SCALE (AT 22' X 34")
1" = 20'
SHEET

4.2

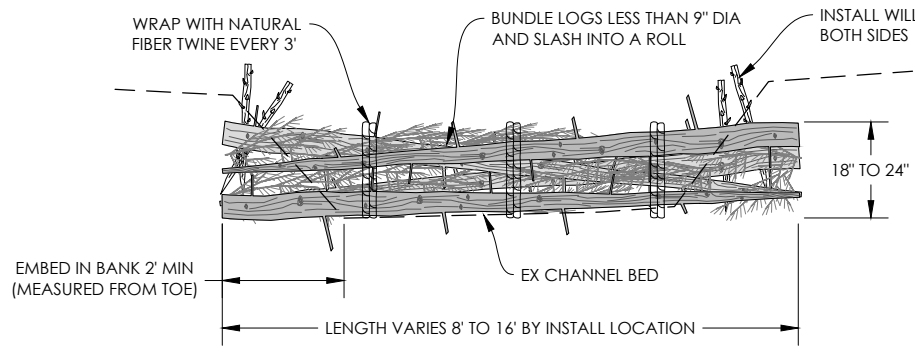


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BKH	11/15/19	BKH	30% DESIGN
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TA	9/20/21	PK	DRAFT 100% DESIGN
PK			
DATE	9/20/21		

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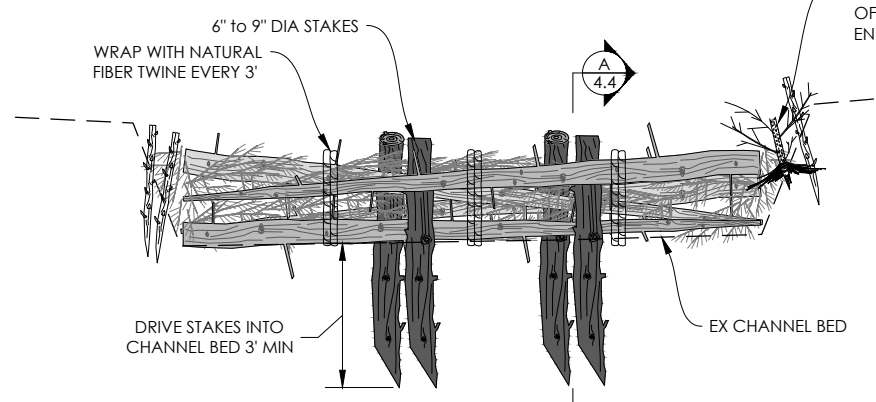
**FORD CROSSING
 DETAIL VIEWS**
 UPPER LACEY MEADOW
 RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
 218199
 SCALE (AT 22" X 34")
 1" = 10'
 SHEET

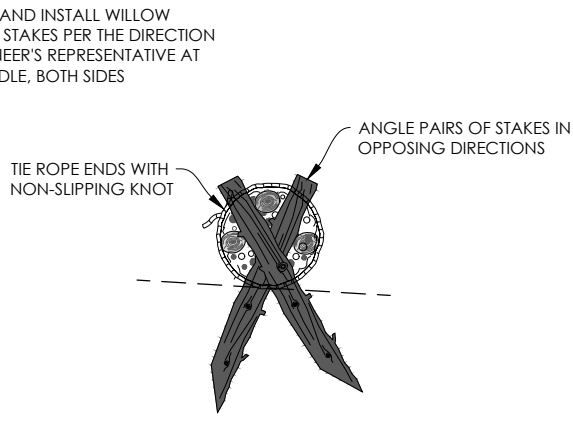


DEBRIS JAM TYPE 1 (BANK ANCHOR STYLE)
ELEVATION VIEW
1" = 2' 4.4

- NOTES:
1. BUNDLE MATERIAL SHALL BE PIECES OF TREES LESS THAN 9" DIAMETER AND THEIR BRANCHES.
 2. ALTERNATE ORIENTATION OF TREE PIECES WITHIN BUNDLE SO THICK AND THIN ENDS OF TREE PIECES POINT IN DIFFERENT DIRECTIONS.

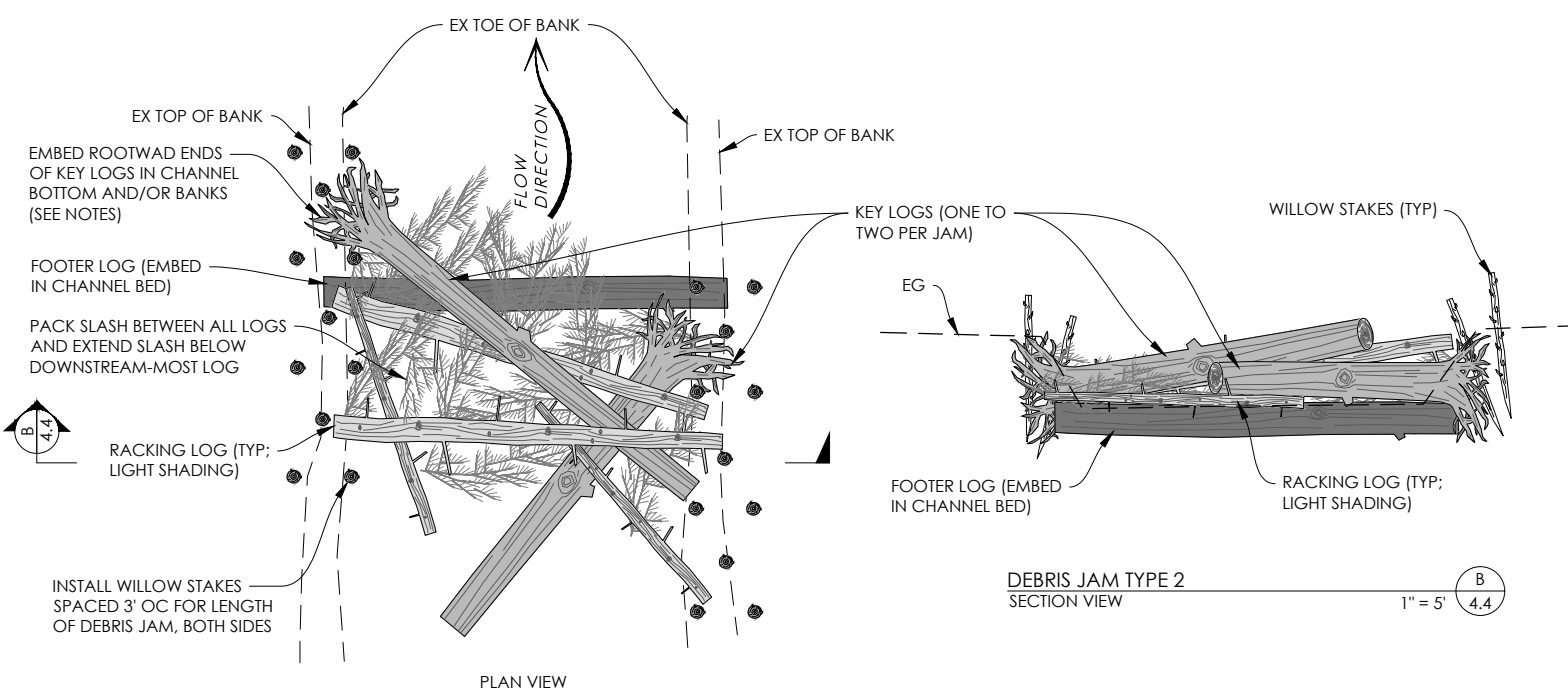


DEBRIS JAM TYPE 1 (STAKE ANCHOR STYLE)
ELEVATION VIEW
1" = 2' 4.4



DEBRIS JAM TYPE 1 (STAKE ANCHOR STYLE)
SECTION VIEW
1" = 2' 4.4

1 DEBRIS JAM TYPE 1 - BUNDLE
SCALE: 1" = 2'



2 DEBRIS JAM TYPE 2 - SMALL LOG JAM
SCALE: 1" = 5'

- UPPER SECTION:
- INCLUDES TRUNK AND ATTACHED LIMBS
 - LENGTH VARIES BY WHATEVER IS LEFTOVER, BUT TRIMMING MAY BE REQUIRED DEPENDING ON INSTALL LOCATION

- MIDDLE SECTION:
- INCLUDES TRUNK AND ATTACHED LIMBS
 - DEPENDING ON TREE SIZE, IT MAY NOT BE POSSIBLE TO HARVEST A SUITABLE MIDDLE SECTION OR IT MAY BE POSSIBLE TO HARVEST MULTIPLE MIDDLE SECTIONS

- LOWER SECTION:
- INCLUDES ROOTMASS WITH ATTACHED TRUNK AND LIMBS
 - LENGTHS IN THE BELOW TABLE ARE MEASURED FROM THE BOLE TO CUT END
 - DIAMETERS IN THE BELOW TABLE ARE MEASURED AT BREAST HEIGHT

- GENERAL:
- ALL LOGS TO BE USED AS KEY LOGS OR RACKING LOGS SHALL BE SOUND, FREE FROM ROT OR INFESTATION BY INSECTS, AND FREE OF ADHERED DIRT, LITTER, OR OTHER MATERIAL. LOGS SHALL HAVE NO WEAKNESSES SUCH AS CRACKS AND SPLITS THROUGH MORE THAN 25 PERCENT OF THE LOG DIAMETER.
 - LOGS NOT MEETING THE ABOVE CRITERIA MAY BE FURTHER DISSECTED AND USED AS SLASH.

TREE PIECE SIZING TABLE:

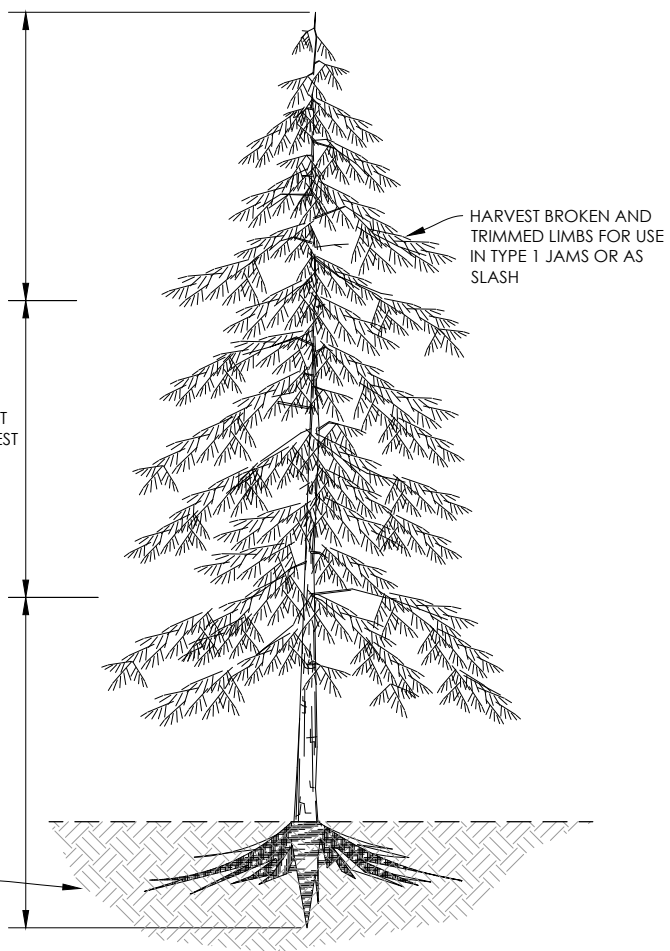
TREE SECTION	LOG TYPE	DETAIL REFERENCE (DETAIL #/SHEET#)	DIAMETER (INCHES)	LENGTH (FEET)
UPPER	SLASH	1/4.4, 2/4.4, 3/4.5	N/A	N/A
	TYPE 1 JAM BUNDLE MATERIAL	1/4.4	< 9"	8' TO 16'
MIDDLE	KEY LOG - TYPE 2 JAM	2/4.4	12" TO 15"	> 0.75 BFW
	RACKING LOG - TYPE 2 OR 3 JAM	2/4.4, 3/4.5	> 9"	> 0.5 BFW
	LOG POST TYPE B	2B/4.6	9" TO 12"	12' TO 20'
	LOG 3-STACK	1/4.3	> 18"	20'
LOWER	TYPE 1 JAM BUNDLE MATERIAL	1/4.4	< 9"	8' TO 16'
	KEY LOG - TYPE 2 JAM	2/4.4	12" TO 18"	> 0.75 BFW
	KEY LOG - TYPE 3 JAM	3/4.5	> 18"	> 1.0 BFW
	LOG POST TYPE A	2A/4.6	> 15"	10' TO 15'
	LOG GRADE CONTROL	2/4.3	> 15"	18'

BFW = BANKFULL WIDTH (TO BE PROVIDED BY THE ENGINEER'S REPRESENTATIVE)

3 TREE DISSECTION FOR DEBRIS JAMS
SCALE: NTS

DEBRIS JAM TYPES 1, 2, AND 3 NOTES:

1. THE ENGINEER'S REPRESENTATIVE SHALL FLAG LOCATIONS FOR DEBRIS JAMS. THE CONTRACTOR AND ENGINEER'S REPRESENTATIVE SHALL COORDINATE FOR THE INSTALLATION OF EACH DEBRIS JAM TO AGREE ON CONFIGURATIONS OF KEY LOGS AND RACKING LOGS. SOURCE TREES FOR LOGS, AND HAUL ROUTES.
2. TREES FOR DEBRIS JAMS SHALL BE SOURCED FROM EITHER EXISTING LIVE TREES WITHIN 50' OF THE STRUCTURE ("TREES TO BE HARVESTED AND REUSED" NOTED ON THE PLANS) OR FROM THE THP HARVEST AREA SHOWN ON SHEET 3.3.
3. THE ENGINEER'S REPRESENTATIVE SHALL MARK ALL TREES FOR REMOVAL. TREES SHALL BE LODGEPOLE PINE TO THE EXTENT PRACTICABLE.
4. FOR TYPE 2 AND TYPE 3 DEBRIS JAMS:
 - 4.1. INSTALL LOG POSTS CONCURRENT WITH THE DEBRIS JAMS WHERE THE PLANS INDICATE LOG POSTS ARE REQUIRED.
 - 4.2. ORIENT ROOTWAD ENDS OF LOGS WITH THE ROOTWAD POINTING IN THE DOWNSTREAM DIRECTION, AS SHOWN ON THE PLANS.
 - 4.3. KEY ROOTWAD ENDS INTO THE CHANNEL AND/OR BANKS TO FIRMLY SECURE THE KEY LOG IN PLACE. EXCAVATE A TRENCH JUST LARGE ENOUGH TO ACCEPT THE ROOTWAD FAN.
 - 4.4. PLACE ROOTWAD AND BACKFILL BY HYDRAULICALLY JETTING RIVERBED MATERIAL (IF WATER SOURCE IS AVAILABLE WITHIN 300' OF THE INSTALL LOCATION). IF WATER IS NOT AVAILABLE WITHIN 300', BACKFILL TRENCH WITH RIVERBED MATERIAL, BUCKET COMPACT IN 12" LIFTS, AND STIR MATERIAL WITH BUCKET TEETH BETWEEN LIFTS TO MINIMIZE VOIDS.

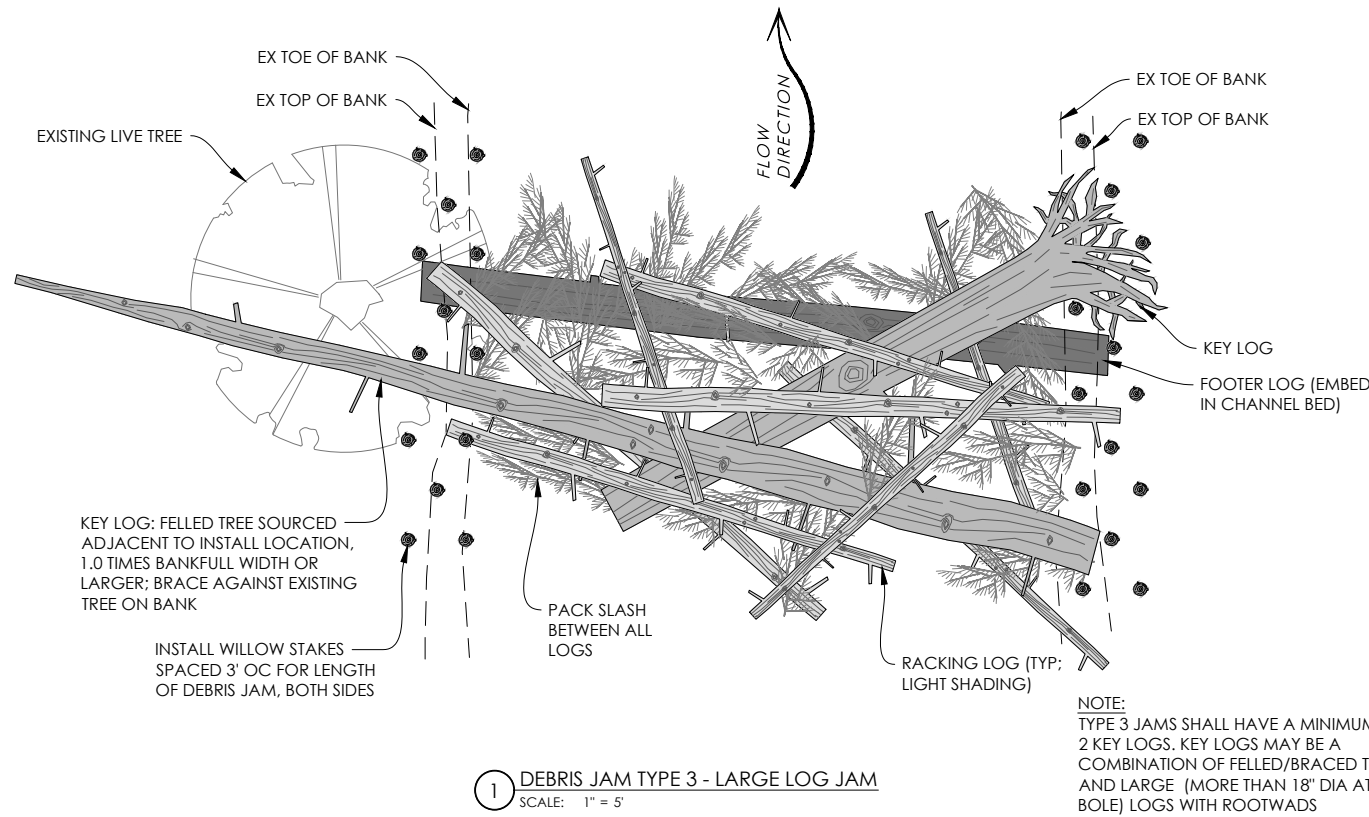


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PK				DRAFT 100% DESIGN
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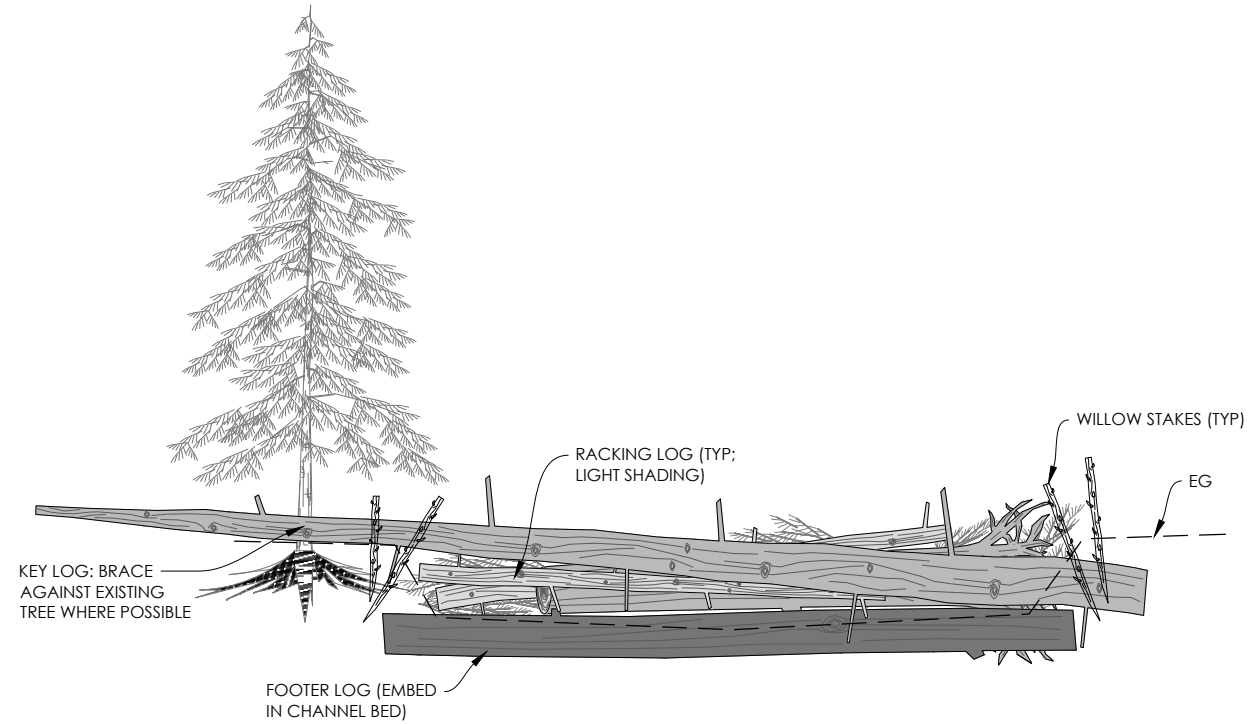
DEBRIS JAM TYPICALS 1
UPPER LACEY MEADOW
RESTORATION DESIGN
SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
SCALE (AT 22' X 34")
AS SHOWN
SHEET

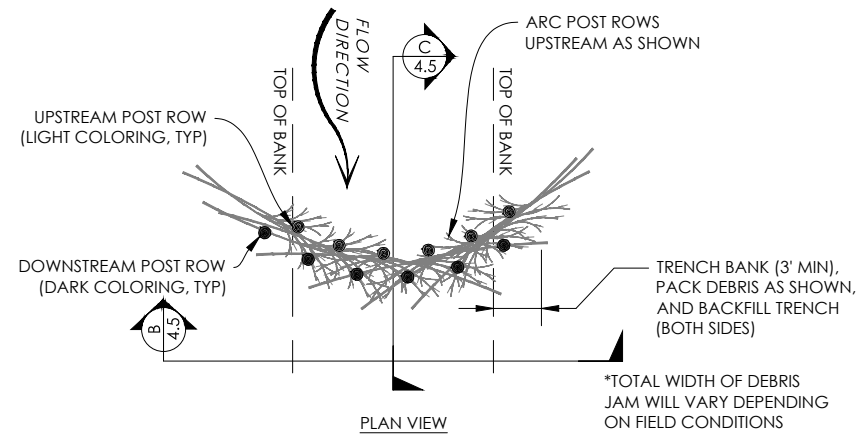


1 DEBRIS JAM TYPE 3 - LARGE LOG JAM
SCALE: 1" = 5'

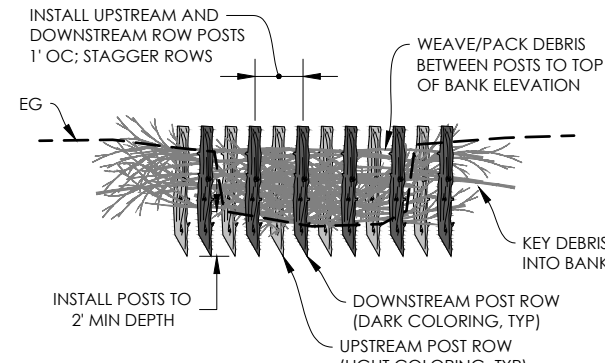
NOTE:
TYPE 3 JAMS SHALL HAVE A MINIMUM OF 2 KEY LOGS. KEY LOGS MAY BE A COMBINATION OF FELLED/BRACED TREES AND LARGE (MORE THAN 18" DIA AT BOLE) LOGS WITH ROOTWADS



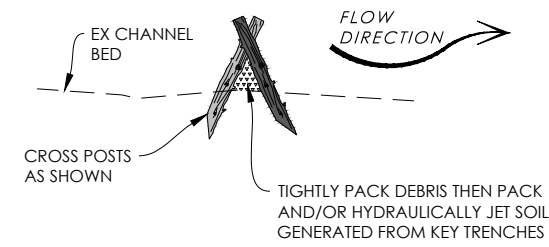
DEBRIS JAM TYPE 3
SECTION VIEW
1" = 5' A 4.5



2 DEBRIS JAM TYPE 4 - STAKED JAM
SCALE: NTS



DEBRIS JAM TYPE 4
ELEVATION VIEW
NTS B 4.5



DEBRIS JAM TYPE 4
PROFILE VIEW
NTS C 4.5

DEBRIS JAM TYPE 4 NOTES:

1. MATERIALS
 - 1.1. POSTS
 - 1.1.1. POSTS PROPOSED FOR THE CONSTRUCTION OF DEBRIS JAMS SHALL HAVE A DIAMETER OF 3 TO 4 INCHES, LENGTHS OF 2.0 TO 5.0 FEET. ONE END OF EACH POST SHALL BE SHARPENED TO A POINT (LENGTH WILL VARY DEPENDING ON INSTALL LOCATION).
 - 1.1.2. POSTS SHALL BE HARVESTED FROM BRANCHES OF LIVE WILLOW, ALDER, OR PINE AND SHALL BE TAKEN FROM SUITABLE PLANTS WITHIN THE PROJECT AREA.
 - 1.1.3. ONE END OF POSTS SHALL BE A CLEAN SQUARE CUT. THE OPPOSITE END SHALL BE SHARPENED TO A POINT.
 - 1.2. DEBRIS
 - 1.2.1. DEBRIS SHALL BE EITHER SLASH AS DESCRIBED IN THE TREE DISSECTION DETAIL ON SHEET 4.4 OR LIVE DEBRIS CONFORMING TO THE FOLLOWING:
 - 1.2.1.1. LIVE DEBRIS SHALL CONSIST OF LIVE WILLOW OR ALDER BRANCHES WITH A STEM DIAMETER 2 INCHES OR LESS.
 - 1.2.1.2. LIVE DEBRIS SHALL BE 5' MINIMUM LENGTH. THERE IS NO MAXIMUM LENGTH FOR DEBRIS, OTHER THAN IT MUST CONFORM WITH THE OVERALL DIMENSIONS OF THE INSTALL LOCATION.
 - 1.2.1.3. ALL LEAVES AND MINOR BRANCHES SHALL BE KEPT INTACT TO THE EXTENT PRACTICABLE.
 - 1.2.1.4. STORE LIVE DEBRIS WITH THE CUT ENDS SUBMERGED IN WATER.

2. EXECUTION
 - 2.1. PRIOR TO INSTALLATION, THE ENGINEER'S REPRESENTATIVE SHALL FIELD IDENTIFY THE LOCATIONS OF THE ENDPOINTS FOR EACH STRUCTURE WHICH, IN TURN, WILL DICTATE THE FINAL ELEVATIONS AND LENGTH OF THE DEBRIS JAM.
 - 2.2. POSTS SHALL BE DRIVEN INTO THE GROUND TO A MINIMUM DEPTH OF 2 FEET. PRE-DRILLING PILOT HOLES TO THE FULL OR PARTIAL BURIAL DEPTH OF POSTS MAY BE REQUIRED.
 - 2.3. PACK DEBRIS BETWEEN THE POSTS TO THE ELEVATIONS AND LOCATIONS SHOWN ON THE DRAWINGS. THE TOP OF THE PACKED DEBRIS SHALL BE FLUSH WITH THE TOP OF BANKS.

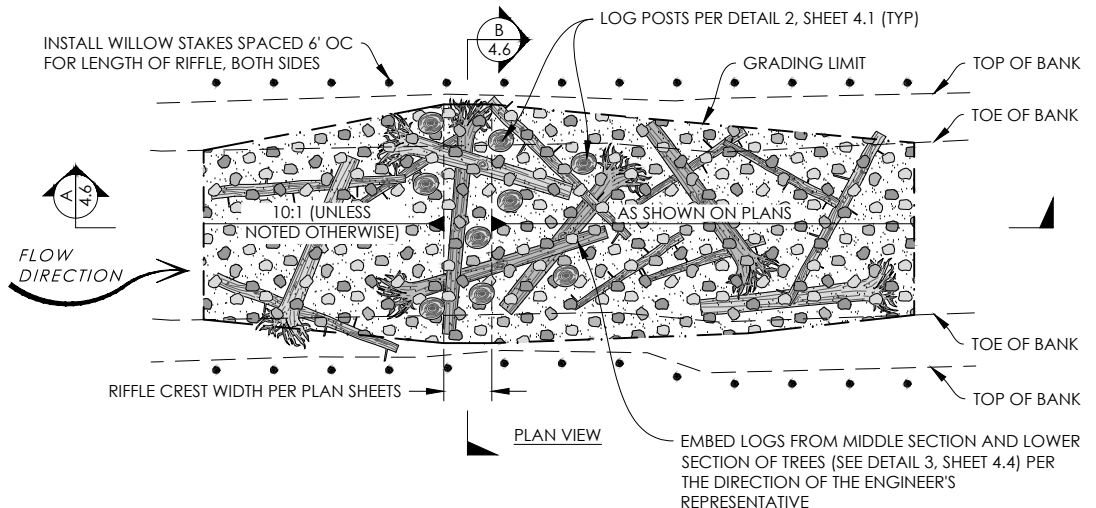
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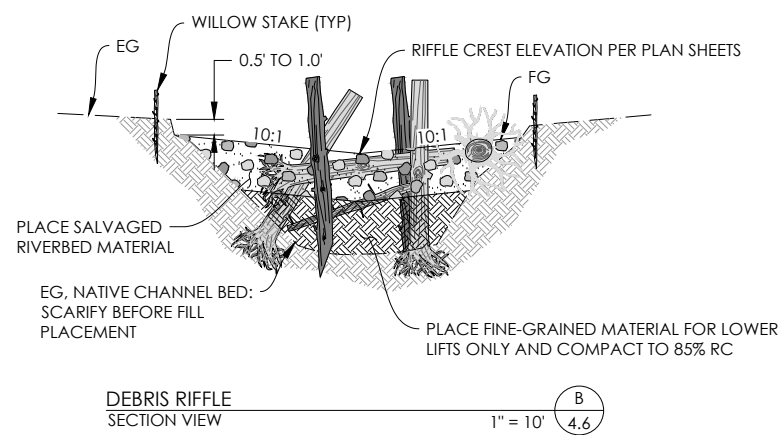
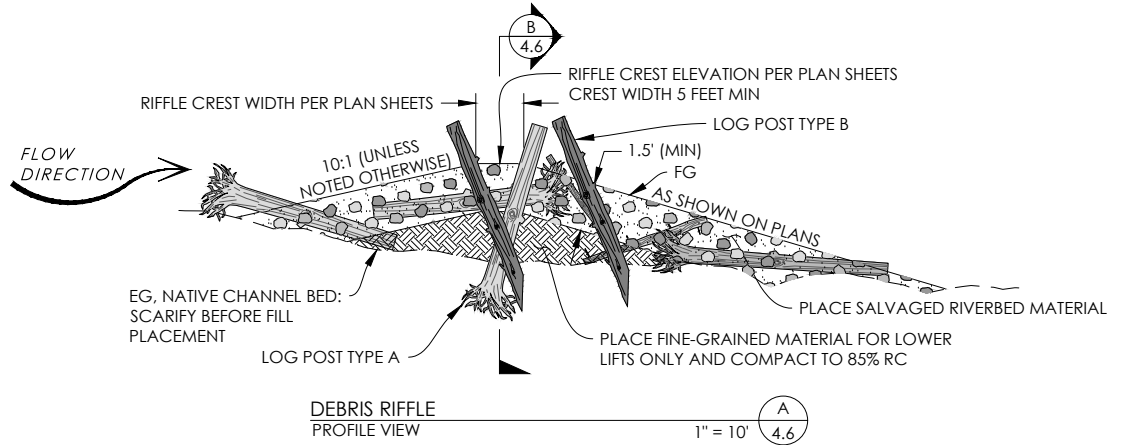
DEBRIS JAM TYPICALS 2
UPPER LACEY MEADOW
RESTORATION DESIGN
SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
218199
SCALE (AT 22" X 34")
AS SHOWN
SHEET

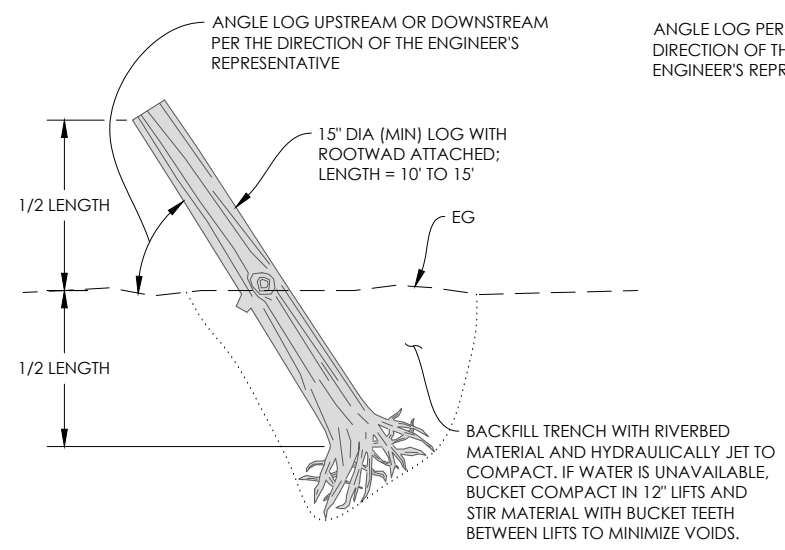
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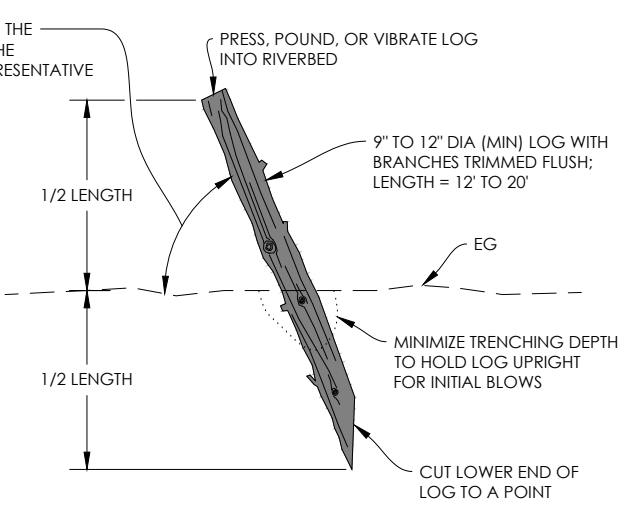
NOTE:
THE NUMBER AND ARRANGEMENT OF LOGS AND LOG POSTS SHOWN HEREIN IS SCHEMATIC. INSTALL THE NUMBER OF LOGS AND LOG POSTS INDICATED ON THE PLAN SHEETS AND ARRANGE PER THE DIRECTION OF THE ENGINEER'S REPRESENTATIVE.



1 DEBRIS RIFFLE
SCALE: 1" = 10'



2A LOG POST - TYPE A
SCALE: 1" = 5'



2B LOG POST - TYPE B
SCALE: 1" = 5'

NOTE:
THERE IS NOT A PRE-DETERMINED NUMBER OF TYPE A VERSUS TYPE B LOG POSTS. THE TYPE OF LOG POST FOR EACH INSTALLATION SHALL BE COORDINATED BETWEEN THE CONTRACTOR AND ENGINEER'S REPRESENTATIVE AND WILL DEPEND ON SIZES AND TYPES OF AVAILABLE LOGS, CHARACTERISTICS OF THE INSTALLATION SITE, AND EQUIPMENT AVAILABILITY. THE TWO TYPES OF LOG POSTS ARE SHOWN TO AFFORD FLEXIBILITY IN THE INSTALLATION.

EARTHWORK NOTES:

1. THESE EARTHWORK NOTES SHALL APPLY TO THE DEBRIS RIFFLE AS WELL AS ANY DESIGN ELEMENT INVOLVING EXCAVATION OR FILL PLACEMENT. IN ALL CASES, EARTHWORK OPERATIONS SHALL BE EXECUTED ACCORDING TO THESE PLANS AND THE RELEVANT PROJECT PERMITS.
2. THE PROJECT HAS BEEN DESIGNED SUCH THAT EXCAVATION QUANTITIES ARE BALANCED BY FILL QUANTITIES. THE PROJECT HAS ALSO BEEN DESIGNED TO MINIMIZE EARTHWORK HAULING TO AVOID DISTURBANCE TO SENSITIVE MEADOW SURFACES.
3. THE CONTRACTOR SHALL CONSTRUCT FINISHED SURFACES TO ±0.1' OF THE ELEVATIONS INDICATED ON THE PLANS.
4. EXCAVATING, FILLING, AND GRADING WORK SHALL NOT BE PERFORMED DURING WEATHER CONDITIONS WHICH MIGHT DAMAGE OR BE DETRIMENTAL TO THE CONDITION OF EXISTING GROUND, IN-PROGRESS WORK, OR COMPLETED WORK. WHEN THE WORK IS INTERRUPTED BY RAIN; EXCAVATING, FILLING, AND GRADING WORK SHALL NOT RESUME UNTIL THE SITE AND SOIL CONDITION (MOISTURE CONTENT) ARE SUITABLE FOR COMPACTION.
5. AREAS PROPOSED FOR GRADING SHALL BE CLEARED AND GRUBBED. CLEARING AND GRUBBING SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL UNSUITABLE MATERIAL SPECIFIED IN THE EARTHWORK NOTES, INCLUDING TREES (LESS THAN 6 INCHES IN DIAMETER MEASURED 4 FEET FROM THE GROUND), SHRUBS, OTHER VEGETATION, DEBRIS, AND RUBBISH OF ANY NATURE. PRESERVE VEGETATION FROM CLEARING AND GRUBBING FOR REUSE AS SLASH. MATERIAL GENERATED FROM CLEARING AND GRUBBING MAY NOT BE REUSED AS STRUCTURAL FILL. ALL ROCKS GREATER THAN 8 INCHES DIAMETER SHALL BE REMOVED FROM THE TOP 12 INCHES OF SOIL. CLEARING AND GRUBBING SHALL BE CLOSELY COORDINATED WITH SOD HARVEST EFFORTS SO AS TO NOT IMPINGE ON SOD QUANTITIES WHICH ARE ESSENTIAL TO SUCCESSFUL COMPLETION OF THE PROJECT.
6. PRIOR TO PLACEMENT OF FILL, THE NEAR-SURFACE SOIL SHALL BE SCARIFIED TO A DEPTH OF ROUGHLY 6 INCHES AND THEN UNIFORMLY MOISTURE CONDITIONED TO WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT.
7. SOIL MATERIAL THAT IS TOO WET FOR COMPACTION SHALL BE LEFT TO DRAIN, THEN TO BE AERATED AND DRIED BY DISKING AND HARROWING OR OTHER APPROVED METHODS UNTIL THE ENGINEER'S REPRESENTATIVE APPROVES THE DRIED MATERIAL.
8. MATERIAL EXCAVATED FROM THE PROJECT SITE SHALL BE DEEMED UNSUITABLE FOR REUSE IF IT IS: OF SUCH NATURE AS TO BE INCAPABLE OF BEING COMPACTED TO SPECIFIED DENSITY USING ORDINARY METHODS, TOO WET TO BE PROPERLY COMPACTED AND CIRCUMSTANCES PREVENT SUITABLE DRYING PRIOR TO INCORPORATION INTO THE WORK, FOUND TO CONTAIN DEBRIS WASTE, VEGETATION OR OTHER DELETERIOUS MATTER, OR OTHERWISE DEEMED UNSUITABLE BY THE ENGINEER'S REPRESENTATIVE.
9. FILL SHALL BE UNIFORMLY MOISTURE CONDITIONED TO WITHIN 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT AND PLACED IN MAXIMUM 8-INCH THICK, LOOSE LIFTS (LAYERS) PRIOR TO COMPACTION. STRUCTURAL FILL SHALL BE COMPACTED TO AT LEAST 85 PERCENT OF THE MAXIMUM DRY DENSITY (PER ASTM D1557). MOISTURE CONTENT, DRY DENSITY, AND RELATIVE COMPACTION OF FILL SHOULD BE EVALUATED BY THE ENGINEER'S REPRESENTATIVE AT REGULAR INTERVALS DURING FILL PLACEMENT. THE CONTRACTOR IS RESPONSIBLE FOR ACHIEVEMENT OF PROPER COMPACTION DURING FILL AND BACKFILL PLACEMENT, INCLUDING PROVIDING WATER TO ACHIEVE OPTIMUM MOISTURE CONTENT DURING FILL OPERATIONS. THE UPPER 4 TO 8 INCHES OF STRUCTURAL FILL SLOPES MAY BE SCARIFIED TO PROMOTE REVEGETATION.
10. FILL SHALL BE PLACED IN HORIZONTAL LIFTS TO THE LINES AND GRADES SHOWN ON THE PROJECT PLANS. SLOPES SHALL BE CONSTRUCTED BY OVERBUILDING THE SLOPE FACE AND THEN CUTTING IT BACK TO DESIGN SLOPE GRADES. FILL SLOPES SHALL NOT BE CONSTRUCTED OR EXTENDED HORIZONTALLY BY PLACING SOIL ON AN EXISTING SLOPE FACE AND/OR COMPACTED BY TRACK WALKING.
11. MAINTAIN SLOPES AND EMBANKMENTS UNTIL SUBSTANTIAL COMPLETION AND ACCEPTANCE OF THE WORK. PROMPTLY REPAIR SLIDES, SLIPOUTS, WASHOUTS, SETTLEMENTS, AND SUBSIDENCES THAT OCCUR FOR ANY REASON, AND REFINISH THE SLOPE OR EMBANKMENT TO THE INDICATED LINES AND GRADES. COMPLY WITH APPLICABLE REQUIREMENTS OF CCR, TITLE 8, TRENCH CONSTRUCTION SAFETY ORDERS.
12. THE CONTRACTOR SHALL TAKE ALL MEANS NECESSARY TO PREVENT THE INTRODUCTION AND SPREAD OF NON-NATIVE PLANTS ACCORDING TO PREVENTING THE SPREAD OF INVASIVE PLANTS: BEST MANAGEMENT PRACTICES FOR LAND MANAGERS (3RD EDITION) BY THE CALIFORNIA INVASIVE PLANT COUNCIL.
13. THE ENGINEER'S REPRESENTATIVE SHALL APPROVE FINISH GRADE ELEVATIONS.

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SUBMITTALS / REVISIONS	
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BKH	11/15/19
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PK	9/20/21

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DEBRIS RIFFLE AND LOG POST TYPICALS
UPPER LACEY MEADOW RESTORATION DESIGN
SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
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SHEET

4.6

PLANTING PALETTES:

SYMBOL	TREATMENT	SPECIES NAME	COMMON NAME	TYPE	CONTAINER SIZE	OC SPACING	APPROX TOTAL PLANTING AREA (SF)		
	WET / MESIC (CONTAINERS)	CAREX ANGSTATA	NARROW-LEAF SEDGE	PLUG CONTAINER	TREEBAND	2			
		CAREX LENTICULARIS VAR. LIPOCARPA	FAT FRUITED SEDGE	PLUG CONTAINER	TREEBAND	2			
		JUNCUS NEVADENSIS	SIERRA RUSH	PLUG CONTAINER	TREEBAND	2			
		HORDEUM BRACHYANTHERUM SSP. BRACHYANTHERUM	MEADOW BARLEY	PLUG CONTAINER	TREEBAND	2			
		DANTHONIA CALIFORNICA	CALIFORNIA OAT GRASS	PLUG CONTAINER	TREEBAND	2			
				SEEDING RATE (LBS PURE LIVE SEED PER ACRE)					
	UPLAND (SEED)	ELYMUS ELYMOIDES SSP. CALIFORNICUS	BOTTLEBRUSH SQUIRRELTAIL		4				
		ELYMUS GLAUCUS SSP. GLAUCUS	BLUE WILD RYE		4				
		STIPA OCCIDENTALIS	WESTERN NEEDLEGRASS		5				
		POA SECUNDA SSP. SECUNDA	ONE-SIDED BLUE GRASS		0.75				
		PURSHIA TRIDENTATA VAR. TRIDENTATA	ANTELOPE BITTERBRUSH		9				
		ARTEMISIA CANA	SILVER SAGEBRUSH		0.25				
		ERIOGONUM UMBELLATUM VAR. TORREYANUM	SULPHUR BUCKWHEAT		1.25				
		PENSTEMON RYDBERGII	RYDBERG'S PENSTEMON		0.5				
		WYETHIA MOLLIS	SOFT MULES EARS		5				
		ARCHILLEA MILLEFOLIUM	YARROW		0.25				
						TOTAL:		30	
						SEEDING RATE (LBS PURE LIVE SEED PER ACRE)			
	DRY MEADOW (SEED)	ELYMUS GLAUCUS SSP. GLAUCUS	BLUE WILD RYE		6				
		ELYMUS TRACHYCAULUS SSP. TRACHYCAULUS	SLENDER WHEATGRASS		6				
		HORDEUM BRACHYANTHERUM SSP. BRACHYANTHERUM	MEADOW BARLEY		8				
		ARGOSTIS EXARATA	SPIKE BENTGRASS		0.1875				
		POTENTILLA GRACILIS VAR. FASTIGIATA	SLENDER CINQUEFOIL		0.25				
		SOLIDAGO ELONGATA (AKA S. CANADENSIS SSP. ELONGATA)	CANADA GOLDENROD		0.0625				
		SYMPHYOTRICHUM SPATHULATUM/ASCENDENS	WESTERN MOUNTAIN ASTER		0.25				
		ACHILLEA MILLEFOLIUM	YARROW		0.25				
		PENSTEMON RYDBERGII	RYDBERG'S PENSTEMON		0.5				
						TOTAL:		21.5	

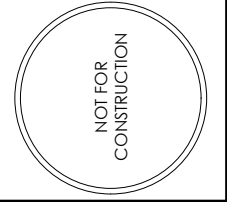
PLANTING NOTES:

- PRIOR TO APPLICATION, CONTRACTOR SHALL SUBMIT TO THE ENGINEER'S REPRESENTATIVE A SIGNED LETTER, SEED LOT TAGS, OR OTHER WRITTEN DOCUMENTATION FROM PLANT/SEED SUPPLIER STATING THE BOTANICAL NAME, COMMON NAME, AND PROVENANCE OF ALL PLANT MATERIALS. FOR SEEDS, SAID DOCUMENTATION SHALL ALSO INCLUDE THE MINIMUM PERCENT PURITY, MINIMUM PERCENT GERMINATION, AND POUNDS PURE LIVE SEED OF THE SEED MIX PRIOR TO APPLICATION.
- ALL PLANT MATERIALS (I.E., SALVAGED WILLOW AND WILLOW STAKES, CONTAINER STOCK, AND SEED) SHALL BE FROM LOCAL GENETIC STOCK ORIGINATING FROM SIMILAR MONTANE VEGETATION WITH SOILS AND CLIMATE SIMILAR TO THE PROJECT SITE, FROM AN ELEVATION WITHIN 1,500 FEET OF THE PROJECT SITE ELEVATION, FREE OF INSECTS AND DISEASE, AND ORIGINATING AT OR NEAR THE PROJECT SITE, AND/OR WITHIN THE LITTLE TRUCKEE RIVER-LAKE TAHOE BASIN. IF A PARTICULAR SPECIES IS NOT AVAILABLE WITHIN THIS ZONE, AVAILABLE PLANT MATERIALS FROM ADJACENT LOCALES MAY BE SUBSTITUTED ONLY UPON APPROVAL FROM THE ENGINEER'S REPRESENTATIVE. CONTRACTOR SHALL COORDINATE WITH THE ENGINEER'S REPRESENTATIVE NINETY (90) WORKING DAYS PRIOR TO PLANTING TO OBTAIN THESE APPROVALS.
- SOURCE LOCATIONS OF WILLOW TRANSPLANTS AND STAKES WILL BE AVAILABLE ON FOREST SERVICE LANDS NEAR THE PROJECT SITE AND WITHIN THE LACEY CREEK WATERSHED, OR FROM OTHER AREAS WITHIN THE LITTLE TRUCKEE RIVER BASIN AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE. DONOR PLANTS SHALL BE IDENTIFIED WHILE SAID PLANTS ARE IN FULL LEAF. APPROVED SOURCE PLANTS SHALL BE FLAGGED AT THIS TIME TO ENSURE THAT THEY CAN BE IDENTIFIED DURING COLLECTION SEASON WHILE THEY ARE DORMANT. PLANT MATERIAL FROM ANY WILLOW THAT CANNOT BE VERIFIED TO BE ONE OF THE NATIVE SPECIES SPECIFIED SHALL NOT BE COLLECTED. UNLESS OTHERWISE SPECIFIED, WILLOW TRANSPLANTS AND STAKES SHALL BE OBTAINED FROM HEALTHY, VIGOROUS WILLOW STANDS AT THE LOCATIONS SHOWN ON THE DRAWINGS, AND STAKES SHALL BE CUT FROM VERTICAL STEMS TO THE EXTENT POSSIBLE. CONTRACTOR SHALL HARVEST NO MORE THAN 50% OF THE PLANTS IN A DESIGNATED AREA. NO MORE THAN 30% OF EACH INDIVIDUAL PLANT SHALL BE CUT IN A SINGLE SEASON.
- SEED SHALL BE A FRESH, CLEAN, NEW CROP MIXED BY DEALER AND PACKAGED IN DEALER'S UNOPENED CONTAINER WITH ORIGINAL LABEL. CONTAINERS OPENED PRIOR TO INSPECTION OR WITHOUT A LABEL OR TAG WILL NOT BE ACCEPTED. EACH SEED BAG SHALL BE DELIVERED TO PROJECT SITE SEALED AND CLEARLY MARKED AS TO THE SPECIES, PURITY, PERCENT GERMINATION, WEED SEED, INERT MATERIAL, DEALER'S GUARANTEE, AND DATE OF TEST. SEED SHALL HAVE BEEN TESTED FOR PURITY AND GERMINATION NOT MORE THAN FIFTEEN (15) MONTHS PRIOR TO THE APPLICATION OF THE SEED.
- MULCH SHALL BE CERTIFIED NOXIOUS WEED FREE DERIVED FROM NATIVE GRASS SPECIES GROWN IN IRRIGATED CROPLAND (IF STRAW) OR LOCALLY COLLECTED PINE NEEDLE MULCH. MULCH PIECES SHALL BE AT LEAST 6 - 8 INCHES LONG. MULCH SHALL NOT CONTAIN GLASS, PLASTIC, METAL, ROCKS, OR OTHER INORGANIC MATERIAL. MULCH SHALL NOT HAVE BEEN USED PREVIOUSLY FOR ANY OTHER USE.
- CONTAINER STOCK SHALL BE CONTRACT GROWN BY A NURSERY SPECIALIZING IN NATIVE PLANT MATERIAL AND IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATE FREE OF DISEASE OR HAZARDOUS INSECTS AND, AS DESCRIBED BY ANSI Z60.1, THEY SHALL BE HEALTHY, VIGOROUS, WELL ROOTED, AND ESTABLISHED IN THE CONTAINER IN WHICH THEY ARE GROWING. PLANTS SHALL NOT BE PRUNED PRIOR TO DELIVERY AND SHALL BE LABELED AT THE SUPPLYING NURSERY WITH GENUS, SPECIES, VARIETY, AND COLLECTION LOCATION.
- ALL PLANT MATERIAL OR MULCH SUBSTITUTIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER'S REPRESENTATIVE. SUBSTITUTED PLANT OR MULCH MATERIALS SHALL MEET ALL ORIGINALLY STIPULATED CONDITIONS, BE OF THE SAME SIZE AS THE MATERIAL ORIGINALLY SPECIFIED, AND BE MADE AT NO ADDITIONAL COST TO FOREST SERVICE.

- CONTRACTOR SHALL COORDINATE WITH THE ENGINEER'S REPRESENTATIVE MINIMUM TEN (10) WORKING DAYS PRIOR TO PLANTING TO ENSURE THE ENGINEER'S REPRESENTATIVE IS ONSITE AT THE TIME OF PLANT DELIVERY AND TO ACCEPT OR REJECT PLANT MATERIALS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER STORAGE, HANDLING, AND PROTECTION OF PLANT MATERIALS ONCE THEY ARE DELIVERED TO PROJECT SITE. PLANTS SHALL BE MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES AND PROTECTED FROM SUN AND DRYING WINDS. PLANTS THAT CANNOT BE INSTALLED IMMEDIATELY UPON DELIVERY SHALL BE KEPT IN THE SHADE, WATERED, AND KEPT IN A DEER-PROOF ENCLOSURE TO PREVENT BROWSING. AFTER DELIVERY, CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY DAMAGED PLANT MATERIAL, AS DETERMINED BY THE ENGINEER'S REPRESENTATIVE AT NO EXPENSE TO FOREST SERVICE.
- CONTRACTOR SHALL COORDINATE WITH THE ENGINEER'S REPRESENTATIVE MINIMUM TEN (10) WORKING DAYS PRIOR TO PLANTING TO ACCEPT THE LAYOUT OF EACH PLANTING AREA. EACH PLANTING AREA SHALL BE FLAGGED BY CONTRACTOR MEETING THE APPROVAL OF THE ENGINEER'S REPRESENTATIVE. INDIVIDUAL WILLOW STAKE AND WATTLE LOCATIONS SHALL BE FLAGGED AND APPROVED BY THE ENGINEER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- CONTRACTOR SHALL INITIATE PLANTING IN THE AREAS FURTHEST FROM THE ACCESS POINT. THIS IS INTENDED TO MINIMIZE DISTURBANCE OF INSTALLED PLANTS. ADDITIONAL EFFORTS SHALL BE MADE TO LIMIT TRAMPLING OF SEED IN THE PLANTING AREA, INCLUDING RESTRICTING FOOT TRAFFIC TO A SINGLE-TRACK PATHWAY AROUND THE PERIMETER OF EACH PLANTING AREA, RATHER THAN CRISSCROSSING THE PLANTING AREAS IN MULTIPLE LOCATIONS. WORKERS SHALL LEAVE THE MAIN PATH ONLY TO PERFORM WORK AT SPECIFIC LOCALES WITHIN THE PLANTING AREA.
- PLANT MATERIALS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS AFTER GRADING AND OTHER DISRUPTIVE CONSTRUCTION ACTIVITIES ARE COMPLETED AND FINAL GRADES HAVE BEEN APPROVED BY THE ENGINEER'S REPRESENTATIVE, BETWEEN 1 SEPTEMBER AND 15 OCTOBER UNLESS OTHERWISE APPROVED BY THE ENGINEER'S REPRESENTATIVE. WILLOW STAKE COLLECTION AND INSTALLATION AND INSTALLATION OF SALVAGED WILLOW TRANSPLANTS SHALL OCCUR BETWEEN 1 OCTOBER - 31 OCTOBER.
- PRIOR TO INSTALLATION OF PLANT MATERIALS, CONTRACTOR SHALL PREPARE SOILS BY DECOMPACTING TO MINIMUM 12 INCHES IN DEPTH BY CROSS RIPPING IN AT LEAST 2 DIRECTIONS. PLANT MATERIALS SHALL BE INSTALLED BEFORE THE ONSET OF WINTER RAINS, SNOW ACCUMULATION, AND GROUND FREEZE. WORK SHALL BE PERFORMED ONLY AT TIMES WHEN WEATHER CONDITIONS AT PROJECT SITE ARE FAVORABLE. NO WORK SHALL BE PERFORMED WHEN WIND CONDITIONS PROHIBIT UNIFORM DISTRIBUTION OF SEED UNLESS APPROVED BY THE ENGINEER'S REPRESENTATIVE. NO WORK SHALL BE PERFORMED WHEN SOILS ARE SATURATED.
- SEED SHALL BE INSTALLED AS FOLLOWS:
 - PREPARE SEEDBED BY RAKING SEEDING AREAS WITH A METAL RAKE IN TWO (2) DIRECTIONS.
 - BROADCAST SEED BY HAND USING BELLYGRINDER, OR SIMILAR METHOD, AT THE STIPULATED APPLICATION RATE.
 - HAND RAKE ALL SEED INTO SOIL IMMEDIATELY AFTER APPLICATION. RAKE SEED BED LIGHTLY TO COVER SEED WITH 1/8-INCH TO 1/4-INCH LAYER OF SOIL. SEED COVER SHALL NOT EXCEED 1/4 INCH.
 - APPLY MULCH AT A RATE OF 2000 LBS PER ACRE (TO ACHIEVE ROUGHLY 2 - 3 INCHES COVER) AND CRIMP MULCH INTO SOIL USING A SHOVEL.
- FOLLOWING INSTALLATION OF WILLOW STAKES, WILLOW TRANSPLANTS, AND CONTAINER STOCK, CONTRACTOR SHALL ENSURE THAT PLANTS ARE IRRIGATED WITHIN ONE (1) HOUR OF INSTALLATION AS FOLLOWS: WILLOW TRANSPLANTS, 20 GALLONS WITHIN A 3-FOOT RADIUS SURROUNDING PLANT; WILLOW STAKES AND CONTAINER PLANTS, 10 GALLONS WITHIN A 3-FOOT RADIUS SURROUNDING PLANT; PLUG PLANTS, 1 GALLON WITHIN A 1-FOOT RADIUS SURROUNDING EACH PLANT. IRRIGATION MAY BE DONE BY HAND IF NECESSARY.
- SOD SHALL CONSIST OF WETLAND PLANT SPECIES SALVAGED BY THE CONTRACTOR FROM A LOCATION ON TDLT LAND AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SALVAGING THE SOD IN 4-FOOT WIDE STRIPS, EXCAVATING A MINIMUM OF 6-INCHES OF SOIL TO CONTAIN AS MANY OF THE PLANT ROOTS AS POSSIBLE. THE CONTRACTOR MAY COLLECT DIFFERENT SIZE SOD STRIPS IF APPROVED BY THE ENGINEER.
- SOD SHALL NOT BE STORED AT THE PROJECT SITE FOR LONGER THAN 8-HOURS; UNLESS THE CONTRACTOR HAS IDENTIFIED A SAFE LOCATION AND WATER SOURCE THAT IS APPROVED BY THE ENGINEER BEFORE STORAGE OPERATIONS. SOD SHALL BE PROTECT FROM EXPOSURE TO WIND, SHADED FROM THE SUN, AND KEPT IN MOIST CONDITIONS UNTIL READY FOR INSTALLATION. PROTECT ROOT SYSTEM FROM EXPOSURE TO THE WEATHER.



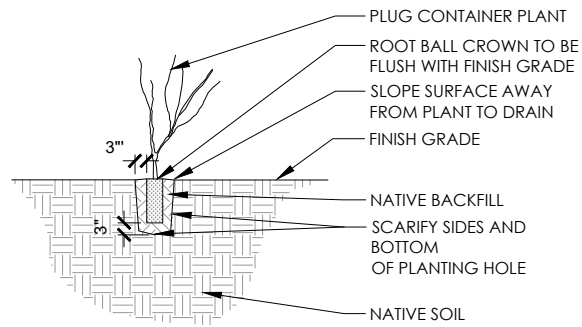
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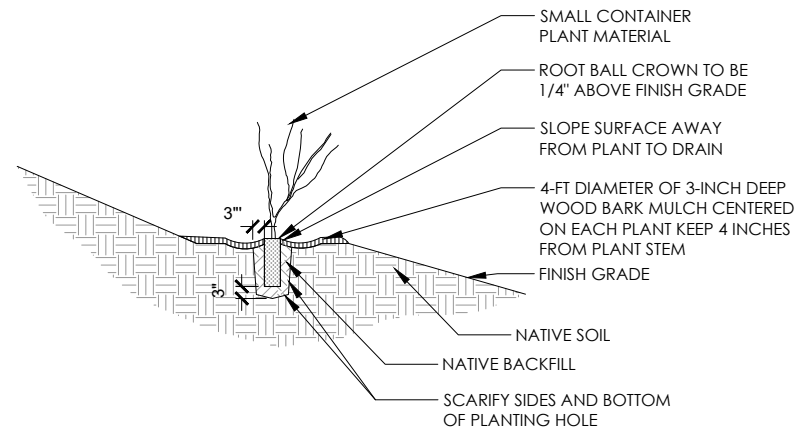
PLANTING PALETTE & NOTES
 UPPER LACEY MEADOW
 RESTORATION DESIGN
 SIERRA AND NEVADA COUNTIES, CALIFORNIA

PROJECT NUMBER
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SCALE (AT 22" X 34")

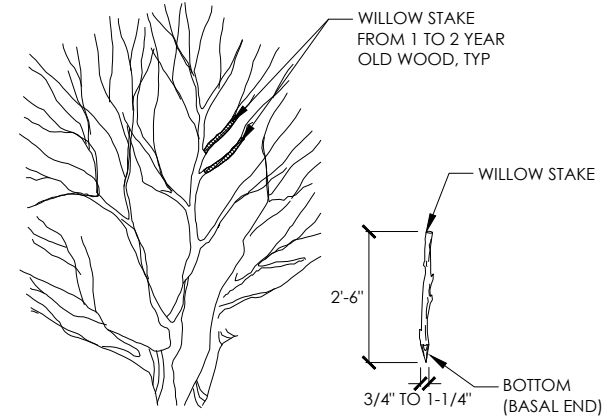
SHEET
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1 PLUG CONTAINER PLANT - FLAT
SCALE: NTS

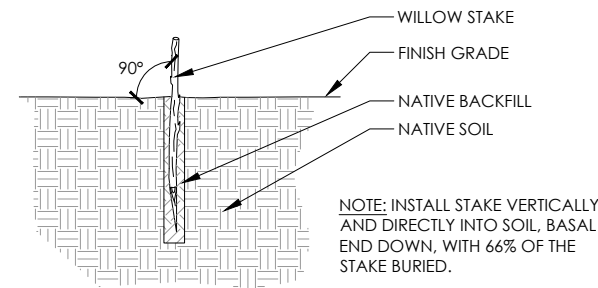


2 PLUG CONTAINER PLANT - SLOPE
SCALE: NTS



- NOTES:
1. COLLECT MATERIAL FROM SELECT, HEALTHY GREEN WOOD FROM LOCATIONS APPROVED BY PROJECT BIOLOGIST.
 2. NO MORE THAN 50% OF THE PLANTS IN A DESIGNATED AREA SHALL BE CUT. NO MORE THAN 30% OF EACH INDIVIDUAL PLANT SHALL BE CUT IN A SINGLE SEASON.
 3. AFTER CLEANLY CUTTING STAKE FROM TREE, TRIM TWIGS AND BRANCHES FLUSH TO STAKE.
 4. ORIENT STAKE WITH LEAF BUD SCARS POINTING UP.
 5. CUT TOP SQUARE.
 6. CUT BOTTOM (BASAL END) AT A 45 DEGREE ANGLE.
 7. IMMEDIATELY AFTER CUTTING AND TRIMMING, SUBMERGE 75% OF STAKE, BASAL END DOWN, IN WATER TO PREVENT DESICCATION.
 8. STAKES SHALL BE PLANTED THE SAME DAY THEY ARE CUT.

3 WILLOW STAKE COLLECTION
SCALE: NTS



4 WILLOW STAKE INSTALLATION
SCALE: NTS

DESIGNED BY	DATE	BY	REVISIONS / SUBMITTALS
BKH	11/15/19	BKH	30% DESIGN
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PLANTING DETAILS
UPPER LACEY MEADOW
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SIERRA AND NEVADA COUNTIES, CALIFORNIA

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SHEET

5.1