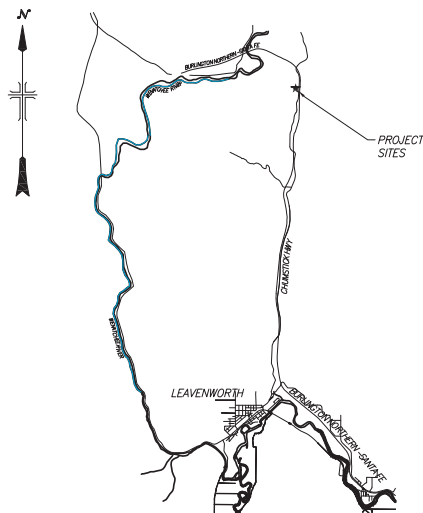


UPPER CHUMSTICK BARRIERS PROJECT
SCHEIBLER PROPERTY
CHELAN COUNTY, WASHINGTON

MARCH 2011



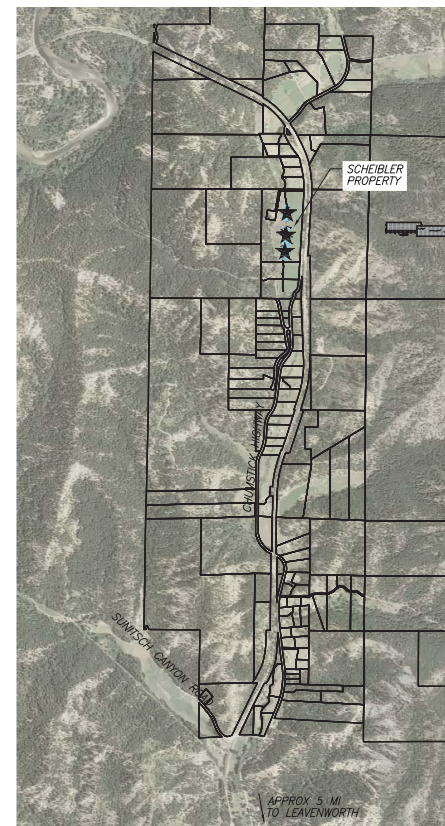
LOCATION MAP
NTS



VICINITY MAP
NTS

INDEX TO DRAWINGS

DRAWING	TITLE
1678-100-1363	TITLE, INDEX TO DRAWINGS, LOCATION, VICINITY, AND SITE MAPS
1678-100-1364	GENERAL NOTES, CONSTRUCTION ACCESS, LEGEND, AND ABBREVIATIONS
1678-100-1365	EXISTING STRUCTURE DEMOLITION
1678-100-1366	LOWER BARRIER GRADING PLAN AND PROFILE
1678-100-1367	MIDDLE BARRIER GRADING PLAN AND PROFILE
1678-100-1368	UPPER BARRIER ROUGHENED CHANNEL USFWS
1678-100-1369	STEP POOL DETAILS
1678-100-1370	WEIR SILL LOG DETAIL AND PUMP INTAKE
1678-100-1371	PLANTING/RESTORATION DETAILS



SITE MAP
NTS

RECLAMATION
Managing Water to the West

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COLUMBIA/SNAKE RIVER SALMON RECOVERY PROGRAM - WASHINGTON
FEDERAL HABITAT IMPROVEMENT PROGRAM
WENATCHEE SUBBASIN
UPPER CHUMSTICK BARRIERS PROJECT
SCHEIBLER PROPERTY

DESIGNED
DRAWN
CHECKED
TECH. APPROV.
ADJ. APPROV.
NAME, PRINT, SIGNATURE
BOISE, ID 2011-01-28

TITLE PAGE, INDEX,
LOCATION, VICINITY, AND
SITE MAPS

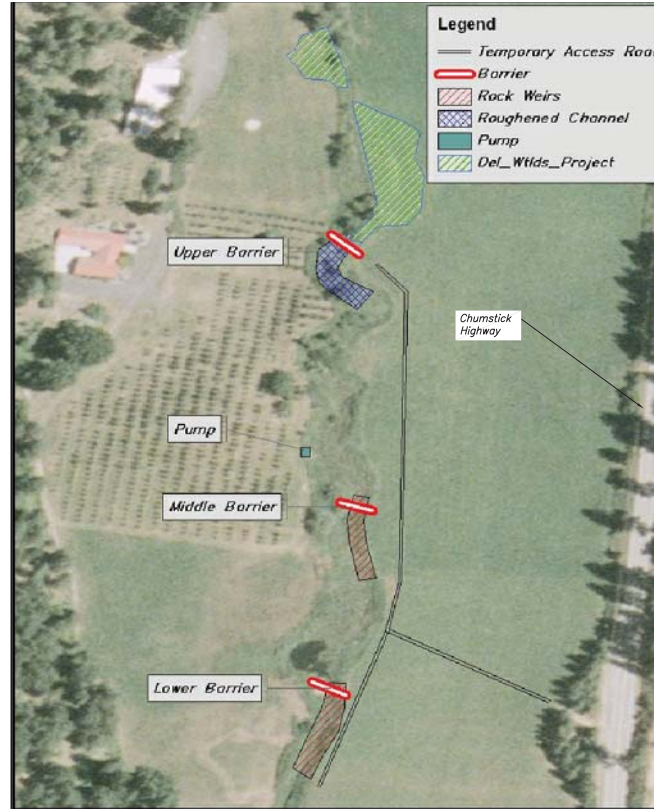
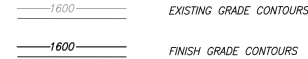
1678-100-1363

SHEET 1 OF 9

GENERAL NOTES

- ALL COMPONENTS OF THE CONTRACT DOCUMENTS SHALL FULLY APPLY TO THE WORK WHETHER SPECIFICALLY REFERENCED IN THE DRAWINGS OR NOT.
- STATIONING, DISTANCES, AND LENGTHS SHOWN ON THE DRAWINGS ARE BASED ON HORIZONTAL MEASUREMENTS ALONG THE STREAM CENTERLINE, CROSS SECTIONS, CROSSING DETAILS, AND REFERENCES TO LEFT (L) AND RIGHT (R) ON THE DRAWINGS ASSUME LOOKING IN THE DIRECTION OF INCREASING STATION ALONG STREAM CENTERLINE ALIGNMENT (FACING DOWNSTREAM).
- ALL DIMENSIONS, INCLUDING, BUT NOT LIMITED TO, ELEVATIONS, STATIONS, AND DISTANCES ARE IN STANDARD ENGLISH UNITS.
- ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND ACTUAL SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES BETWEEN THE DRAWINGS AND OTHER COMPONENTS OF THE CONTRACT DOCUMENTS SHALL BE IMMEDIATELY REPORTED IN WRITING TO THE ENGINEER. THE ENGINEER WILL PROMPTLY CORRECT INCONSISTENCIES OR AMBIGUITIES IN WRITING. WORK DONE BY THE CONTRACTOR INVOLVING SUCH DISCREPANCIES WITHOUT A WRITTEN REPORT AND RESPONSE FROM THE ENGINEER SHALL BE DONE AT THE CONTRACTOR'S SOLE RISK AND EXPENSE.
- CONTRACTOR SHALL NOT DISTURB OR DESTROY ANY EXISTING SURVEY MONUMENTS OR BENCHMARKS. ANY BENCHMARKS DISTURBED OR DESTROYED BY THE CONTRACTOR SHALL BE REPLACED TO THE ENGINEER'S SATISFACTION AT THE CONTRACTOR'S SOLE EXPENSE.
- EXISTING UTILITIES ARE NOT SHOWN ON THE DRAWINGS. UTILITY LOCATION AND PROTECTION IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT TYPE, OWNER, LOCATION, AND ELEVATION OF ALL BURIED AND OVERHEAD UTILITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM THE WORK IN A SAFE MANNER AND IN ACCORDANCE WITH ANY REQUIREMENTS SET FORTH BY THE UTILITY OWNER AND APPLICABLE LAWS AND REGULATIONS.
- CONTRACTOR IS ADVISED THAT NORTH ARROWS AND ORIENTATION OF PLAN VIEW SHEETS VARY TO ALLOW FOR LEFT-TO-RIGHT STATIONING AND STATIONING IN THE DIRECTION OF STREAM FLOW.
- CONTRACTOR SHALL NOTIFY UTILITY OWNERS WITHIN THE LIMITS OF CONSTRUCTION A MINIMUM OF TWO WEEKS PRIOR TO EXCAVATION, OR OTHER CONSTRUCTION ACTIVITY THAT MAY IMPACT THE UTILITY. CONTRACTOR SHALL ALSO CONTACT OWNER PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE AREA. CONTRACTOR SHALL PROVIDE ACCESS TO UTILITY OWNERS FOR MAINTENANCE AND WORK ON THEIR UTILITIES DURING THE COURSE OF THE WORK.
- CONTRACTOR SHALL ENSURE THAT OPERATION OF EXISTING IRRIGATION, SEWER, DRAINAGE, DOMESTIC WATER, AND OTHER UTILITY SYSTEMS ARE CONTINUOUS DURING CONSTRUCTION.
- RELOCATIONS AND/OR REPLACEMENTS OF EXISTING UTILITIES SHALL BE COORDINATED BY THE CONTRACTOR WITH THE UTILITY OWNER. CONTRACTOR SHALL CONTACT, SCHEDULE, AND ESTABLISH UTILITY SHUT DOWN TIMES AND DETERMINE THE RELOCATION AND/OR REPLACEMENT REQUIREMENTS OF EXISTING UTILITIES PRIOR TO THE START OF ANY WORK. THE UTILITY SHALL BE RELOCATED OR REPLACED TO THE SATISFACTION OF THE UTILITY OWNER.
- IF APPLICABLE, CONSTRUCTION EASEMENTS SHALL NOT BE USED IN ANY MANNER THAT WILL CAUSE PERMANENT DAMAGE TO THE PROPERTY. DESCRIPTIONS OF THE EASEMENTS ACQUIRED FOR THE WORK WILL BE ON FILE AT THE OFFICE OF THE OWNER. CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE EASEMENT AGREEMENTS.
- FENCING THE WORK AREA FOR PROTECTION OF WORK AND PROPERTY AND PUBLIC SAFETY SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONTRACTOR SHALL KEEP ALL CONSTRUCTION ACTIVITIES WITHIN THE CONSTRUCTION LIMITS AND ANY TEMPORARY CONSTRUCTIONS OR PERMANENT EASEMENTS OBTAINED FOR THIS PROJECT. IF APPLICABLE THIS INCLUDES, BUT IS NOT LIMITED TO, VEHICLES AND EQUIPMENT, LIMITS OF EXCAVATION, STOCKPILED EXCAVATED AND IMPORTED MATERIAL, BACKFILL MATERIAL, STREAMBED MATERIAL, AND WEIR MATERIAL. IF THE CONTRACTOR REQUIRES ADDITIONAL CONSTRUCTION EASEMENTS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SUCH EASEMENTS FROM INDIVIDUAL PROPERTY OWNERS AND BEAR ALL ASSOCIATED COSTS.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR SPECIFICATIONS, ALL EXISTING ITEMS INCLUDING, BUT NOT LIMITED TO, STRUCTURES, IMPROVEMENTS, GROUNDWATER WELLS, SIGNS, FENCES, GATES, CURBS, PAVEMENT, BRIDGES, UTILITIES, IRRIGATION PIPELINES AND DITCHES, ETC. SHALL BE PROTECTED BY THE CONTRACTOR. IF SUCH ITEMS ARE DAMAGED OR MUST BE REMOVED OR MODIFIED TO FACILITATE CONSTRUCTION, CONTRACTOR SHALL FIRST NOTIFY THE OWNER AND THEN REPLACE THE ITEMS TO A LIKE OR BETTER CONDITION AT CONTRACTOR'S EXPENSE TO SATISFACTION OF OWNER OF FACILITIES.
- REQUIREMENTS RELATED TO THE PROTECTION AND/OR REMOVAL OF TREES, VEGETATION, AND STRUCTURES WITHIN THE WORK AREA ARE DETAILED IN THE SPECIFICATIONS.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING THE TRENCH LIMITS NEEDED TO COMPLETE THE WORK IN CONFORMANCE WITH LOCAL, STATE AND FEDERAL CODES GOVERNING SHORING, SHEETING, BRACING OF EXCAVATIONS AND TRENCHES, AND FOR PROTECTION AND SAFETY OF THE WORKERS AND OTHER CONSTRUCTION RELATED PERSONNEL.
- EXCAVATION SHALL MEET THE REQUIREMENTS OF OSHA 29 CFR PART 1926, SUBPART P, EXCAVATIONS. ACTUAL SLOPES SHALL NOT EXCEED THE MAXIMUM ALLOWABLE SLOPES (SUBPART P, APPENDIX B).
- HORIZONTAL DATUM IS NAD83/91. HORIZONTAL COORDINATES SHOWN HEREIN ARE WASHINGTON STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, US SURVEY FEET.
- VERTICAL DATUM IS NAVD 88, FEET.
- ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE INDICATED.
- SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
- THE CONTRACTOR IS RESPONSIBLE FOR PRODUCING, IMPLEMENTING, ADHERING TO, AND MAINTAINING A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE REGULATIONS AND GUIDELINES SET FORTH AND SUBJECT TO APPROVAL BY THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, WATER QUALITY PROGRAM. CONTRACTOR SHALL IMPLEMENT AND DOCUMENT ANY ADDITIONAL MEASURES NECESSARY TO PREVENT ANY EROSION OR HAZARDOUS MATERIALS FROM LEAVING THE SITE, DISCHARGING, BEING ENTRAINED, ABSORBED OR OTHERWISE ENTERING SURFACE WATERS, GROUND WATER OR SOILS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES AT ALL TIMES. MAINTENANCE OF TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE CONSIDERED INCIDENTAL.
- THE CONTRACTOR SHALL BE HELD SOLELY RESPONSIBLE FOR ANY NPDES OR OTHER APPLICABLE ENVIRONMENTAL PERMIT VIOLATIONS AND FINES.

LEGEND



ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY OF TESTING & MATERIALS
BM	BENCHMARK
C	CENTERLINE
CNRD	CHELSEA COUNTY NATURAL RESOURCE DEPARTMENT
CDF	CONTROLLED DENSITY FILL
CFS	CUBIC FEET PER SECOND
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONT	CONTINUOUS
CP	CONTROL POINT
CSBC	CRUSHED SURFACING BASE COURSE
CSTC	CRUSHED SURFACING TOP COURSE
CY	CUBIC YARD
E	EAST
EF	EACH FACE
EL	ELEVATION
EXIST	EXISTING
G	GRADE
H	HORIZONTAL
L	LENGTH
LF	LINEAR FOOT
LFSUM	LINEAR SUM
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH
NO.	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OG	ORDINARY GROUND
OHW	ORDINARY HIGH WATER
PSI	POUNDS PER SQUARE INCH
PT	POINT
Q	FLOW
ROW	RIGHT-OF-WAY
S	SOUTH
SF	SQUARE FOOT
SPEC	SPECIFICATION
SST	STAINLESS STEEL
STA	STATION
SY	SQUARE YARD
T & B	TOP & BOTTOM
TYP	TYPICAL
USFWS	UNITED STATES FISH AND WILDLIFE SERVICE
VC	VERTICAL CURVE
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENT
W	WEST
WSE	WATER SURFACE ELEVATION
USFWS	UNITED STATES FISH AND WILDLIFE SERVICE

UPPER CHUMSTICK BARRIERS PROJECT SCHEIBLER PROPERTY N.T.S.

NOTE:

- Construction access and staging area to be authorized, staked and coordinated by contracting officer.



EXISTING LOWER SCHEIBLER BARRIER

REMOVE AND DISPOSE OF
EXISTING ROCK STRUCTURES
(APPROXIMATELY 15'x5'x5')



EXISTING MIDDLE SCHEIBLER BARRIER



EXISTING UPPER SCHEIBLER BARRIER
(Designed by USFWS)

EXISTING ROCK STRUCTURE
TO REMAIN IN PLACE
(APPROXIMATELY 15'x5'x5')

NOTE:
Boulders from the rock structures
may be reused on-site at the engineer's
discretion.

DATE AND TIME PLOTTED
DRAWN BY
PLOTTED BY
ATTENDANCE
CADD SYSTEM
1678-100-1365.DWG
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Managing Water in the West

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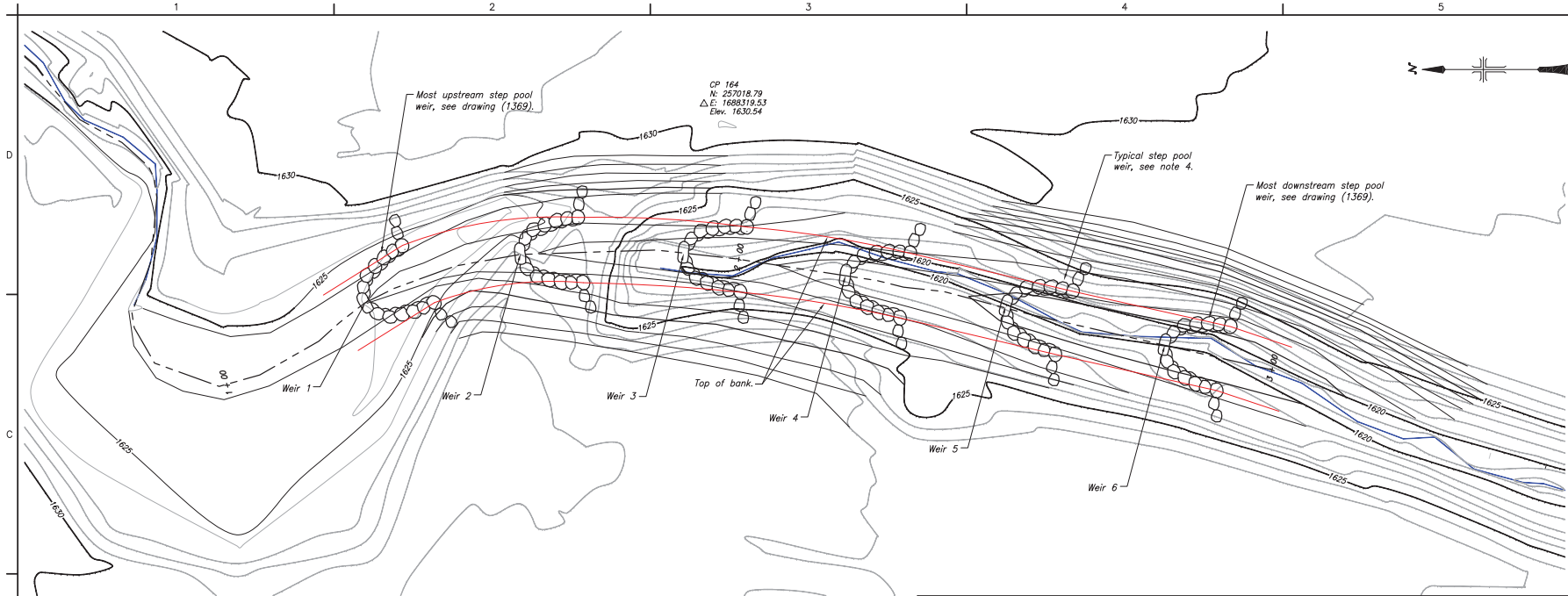
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BUREAU OF RECLAMATION
COLUMBIA/SNAKE RIVER SALMON RECOVERY PROGRAM - WASHINGTON
FORDS INITIATIVE IMPROVEMENT PROGRAM
WENATCHEE SUBBASIN
UPPER CHUMSTOCK BARRIERS PROJECT
UPPER SCHEIBLER PROPERTY

PROJECT NO. 1678-100-1365
SHEET NO. 3 OF 9
DATE: 2011-01-26
BY: [Signature]
CHECKED BY: [Signature]
DESIGNED BY: [Signature]

DESIGNED: [Signature]
DRAWN: [Signature]
CHECKED: [Signature]
TECH. APPR.: [Signature]
ADMIN. APPROVAL: [Signature]
BOISE, IDAHO 2011-01-26

EXISTING STRUCTURE
DEMOLITION

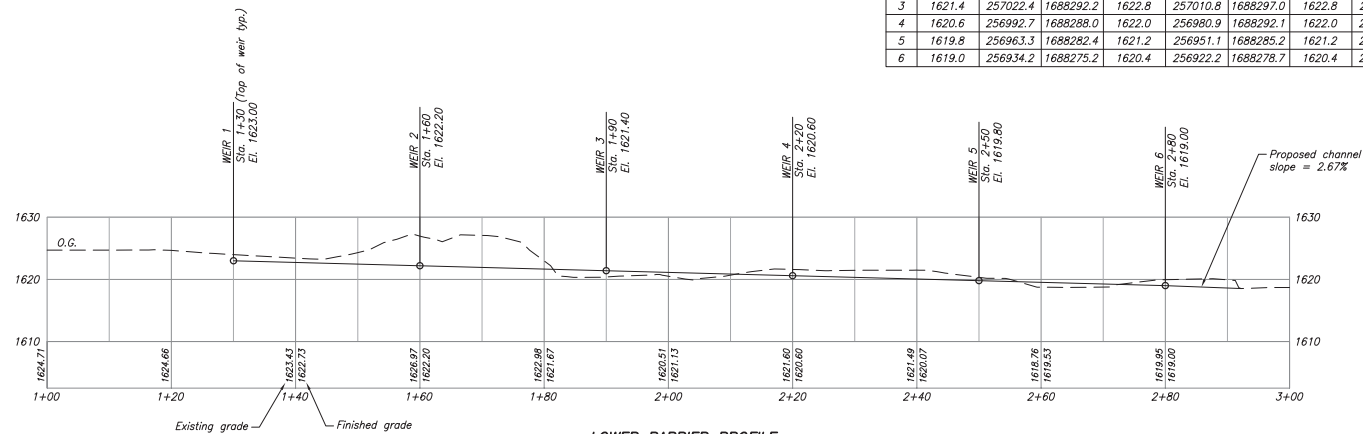
1678-100-1365
SHEET 3 OF 9



LOWER BARRIER PLAN

10 0 10 20 30
SCALE OF FEET

LOWER BARRIER - see drawing 1369 for ①, ②, ③, and ④ locations													
LOW FLOW CHANNEL - CENTER ①		LEFT END OF VANE - CENTER ②			RIGHT END OF VANE - CENTER ③			SCOUR POOL LOCATION ④					
WEIR	INVERT ELEVATION	NORTHING	EASTING	WING ELEVATION	NORTHING	EASTING	WING ELEVATION	NORTHING	EASTING	NORTHING	EASTING	ELEVATION	
1	1623.0	257080.8	1688283.0	1624.4	257074.1	1688293.6	1624.4	257068.2	1688283.1	257072.1	1688287.8	1620.5	
2	1622.2	257052.3	1688292.0	1623.6	257041.8	1688298.7	1623.6	257040.9	1688286.8	257042.4	1688292.7	1619.7	
3	1621.4	257022.4	1688292.2	1622.8	257010.8	1688297.0	1622.8	257012.1	1688285.0	257012.5	1688291.1	1618.9	
4	1620.6	256992.7	1688288.0	1622.0	256980.9	1688292.1	1622.0	256982.8	1688280.3	256982.9	1688286.4	1618.1	
5	1619.8	256963.3	1688282.4	1621.2	256951.1	1688285.2	1621.2	256954.4	1688273.6	256953.8	1688279.7	1617.3	
6	1619.0	256934.2	1688275.2	1620.4	256922.2	1688278.7	1620.4	256924.8	1688267.0	256924.6	1688273.1	1619.0	



LOWER BARRIER PROFILE

10 0 10 20 30
SCALE OF FEET

- NOTES:**
- For typical step pool weir configuration see (1369)
 - Materials staging areas shall be located at least 150 feet from the stream and wetlands.
 - Construction limits shall be determined and staked prior to construction in coordination with CCNRD and the landowner. Contractor shall assume only one point of access to the site unless otherwise approved by CCNRD and the landowner. All materials, equipment, and land disturbance shall be confined within the construction limits.

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FEDERAL PROJECT IMPROVEMENT PROGRAM
WENATCHEE SUBBASIN
UPPER CHUMSTICK BARBERS - PROJECT
SCHEBLER PROPERTY

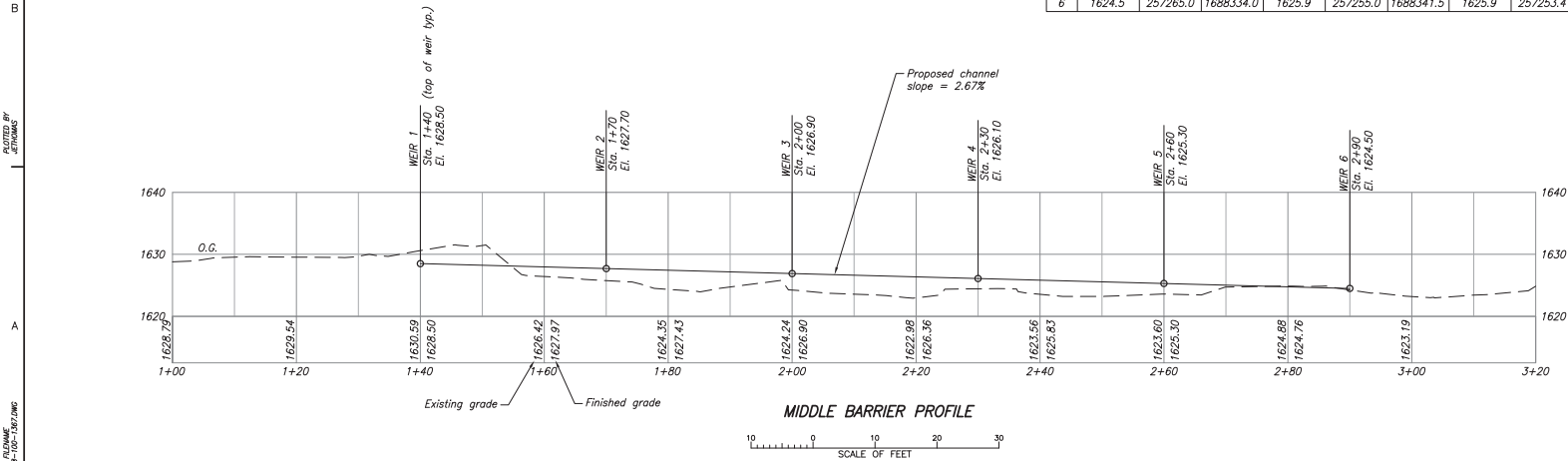
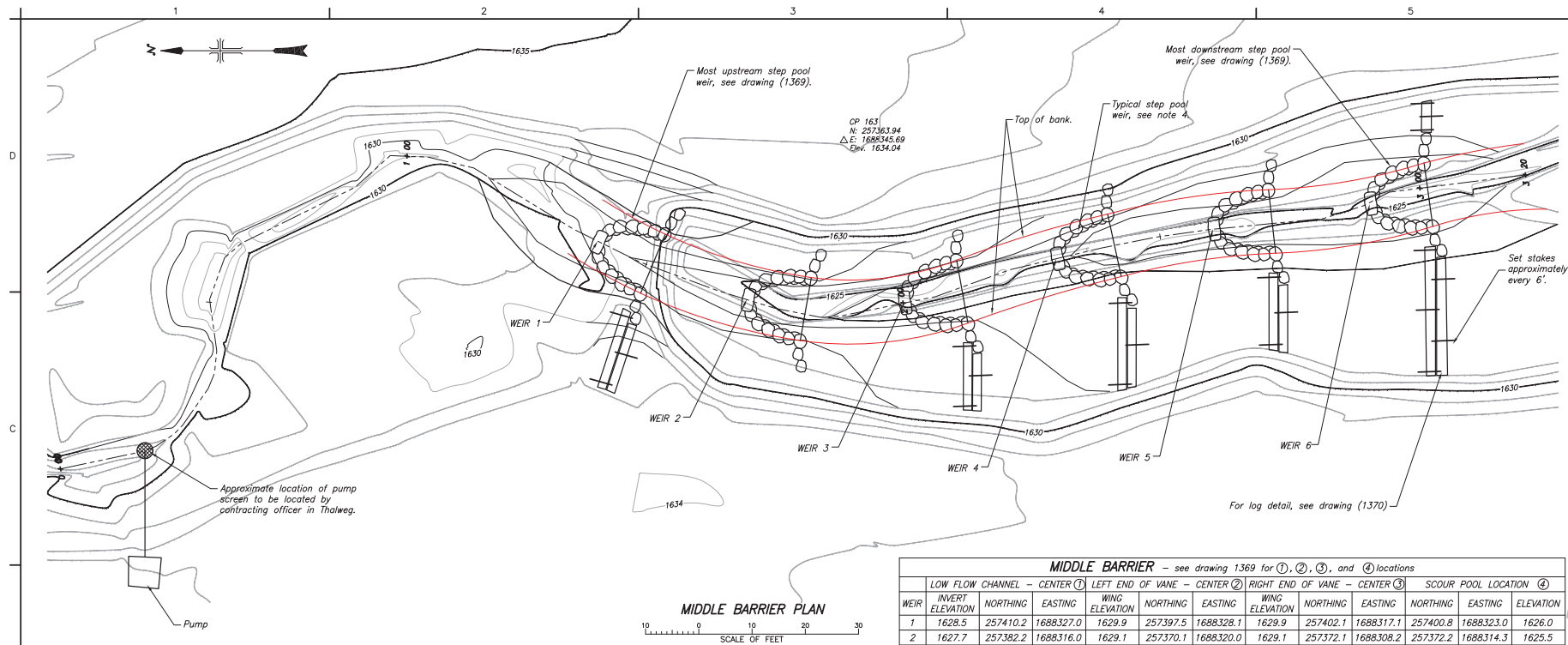
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ADJ. APPR.: [Signature]
BOISE, ID 2011-01-28

LOWER BARRIER GRADING PLAN AND PROFILE

1678-100-1366
SHEET 4 OF 9

DATE AND TIME PLOTTED
PLOTTER'S NAME
PLOTTER'S NUMBER
PLOTTER'S PHONE
PLOTTER'S FAX
PLOTTER'S E-MAIL
PLOTTER'S ADDRESS
PLOTTER'S CITY
PLOTTER'S STATE
PLOTTER'S ZIP

DATE AND TIME PLOTTED
PLOTTER'S NAME
PLOTTER'S NUMBER
PLOTTER'S PHONE
PLOTTER'S FAX
PLOTTER'S E-MAIL
PLOTTER'S ADDRESS
PLOTTER'S CITY
PLOTTER'S STATE
PLOTTER'S ZIP



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- For typical step pool weir configuration see (1369)
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WENATCHEE SUBBASIN
UPPER CHUMSTICK BARBERS - PROJECT
SCHEBLER PROPERTY

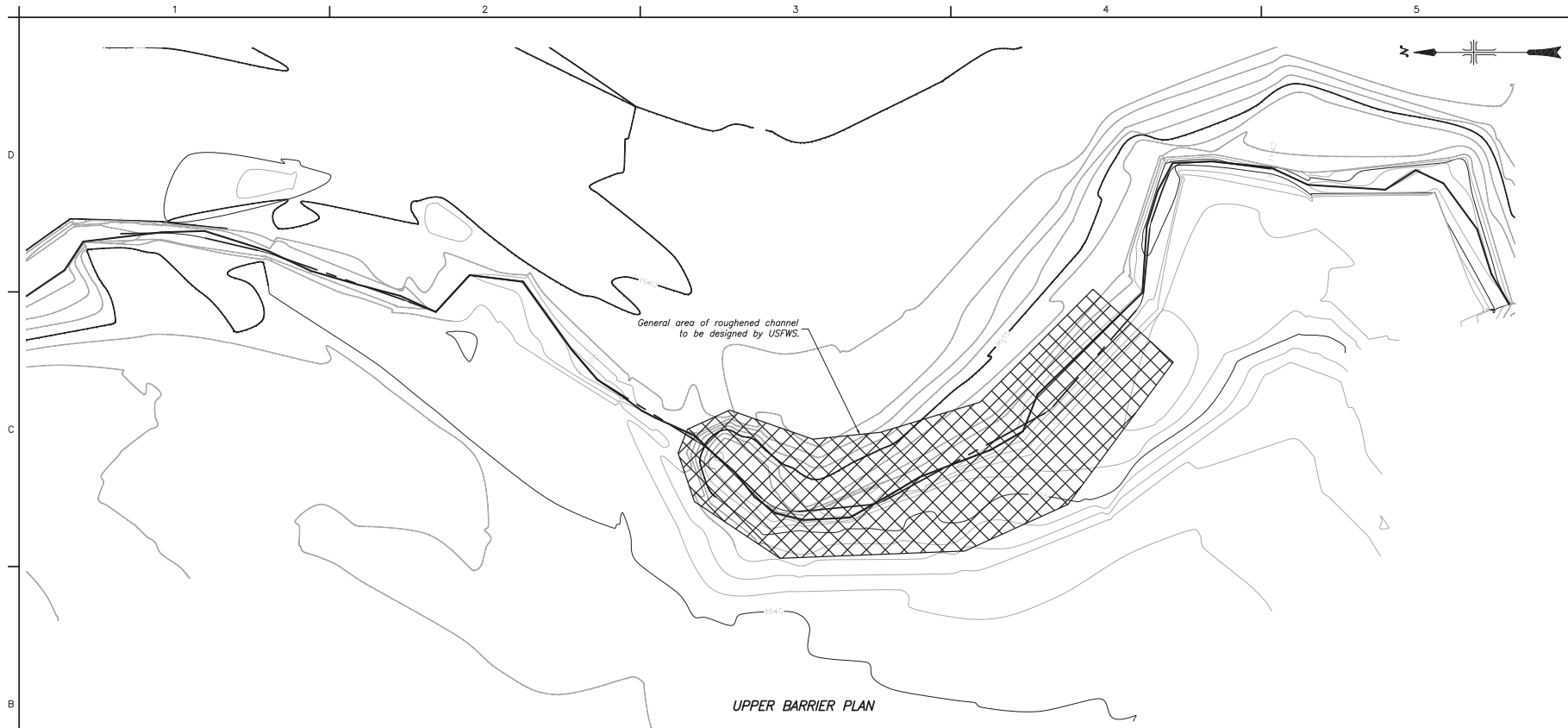
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NAME, PRINT NAME
DATE
BOISE, ID 2011-01-28

MIDDLE BARRIER
GRADING PLAN AND
PROFILE

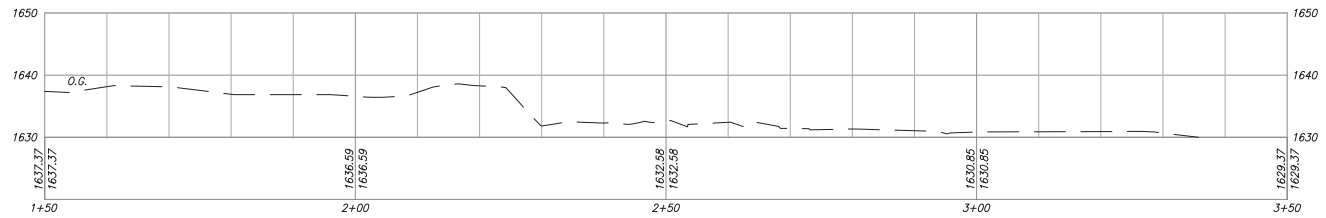
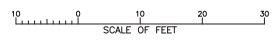
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SHEET 5 OF 9

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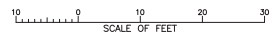
GRID SYSTEM
GRID REFERENCE
GRID PLACEMENT
GRID SCALE



UPPER BARRIER PLAN



UPPER BARRIER PROFILE



FOR ALWAYS THINK SAFETY

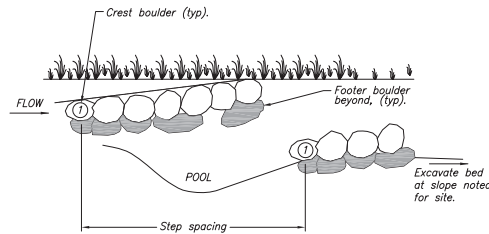
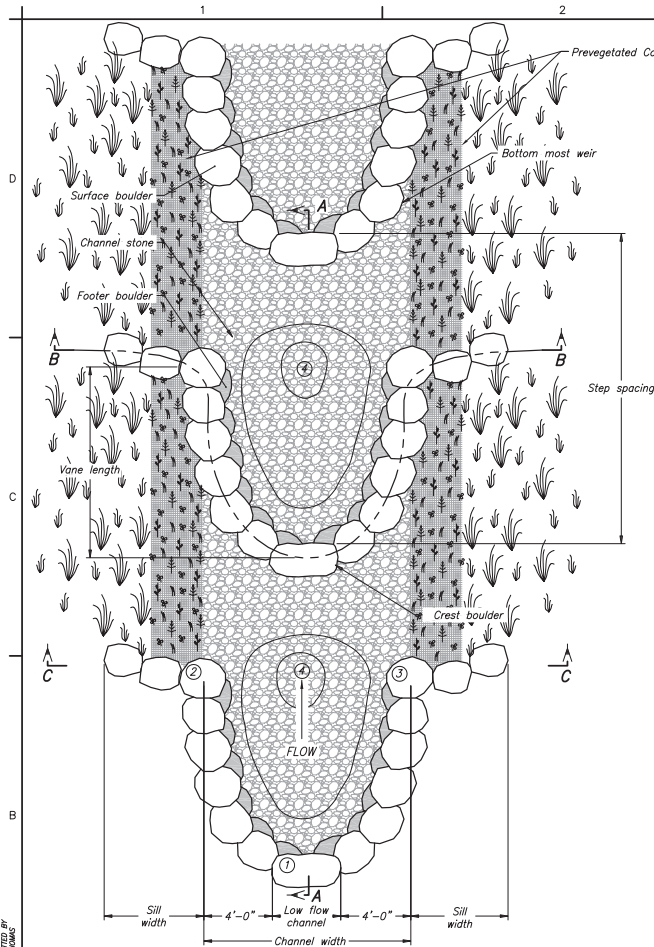
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WENATCHEE SUBBASIN
UPPER CHUMSTOCK BARBERS PROJECT
UPPER SCHUBERT PROPERTY

DESIGNED: J. NELSON/J.E.T.
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TECH. APPR.: [Signature]
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DATE: [Date]
BOISE, ID 2011-01-28

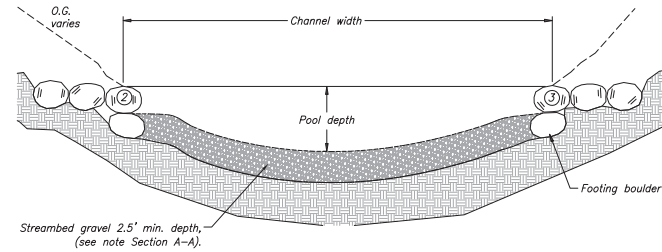
UPPER BARRIER
ROUGHENED CHANNEL
USFWS

1678-100-1368
SHEET 6 OF 9

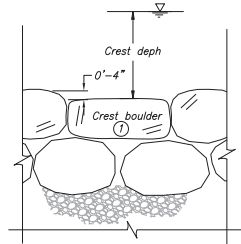
Reach	Channel width	Low flow Channel	Sill width	Step spacing	Pool depth	Crest depth	Vane Length	Rock Size	Drop Height
Lower Scheibler	12'	4'	5'	30'	2.5'	1.4'	11'	24" min.	0.8'
Middle Scheibler	12'	4'	5'	30'	2.5'	1.4'	11'	40" max.	0.8'



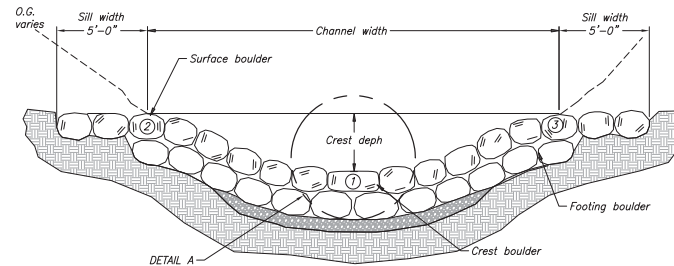
CHANNEL PROFILE VIEW AT CENTERLINE
(NTS)



ROCK WEIR SECTION C-C (NTS)



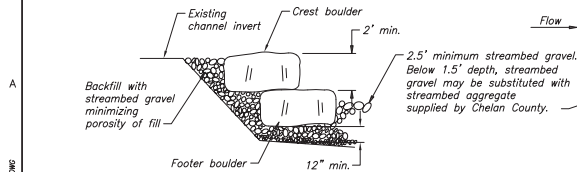
DETAIL A
LOW FLOW CHANNEL DETAIL (NTS)



ROCK WEIR - SECTION B-B (NTS)

Notes:

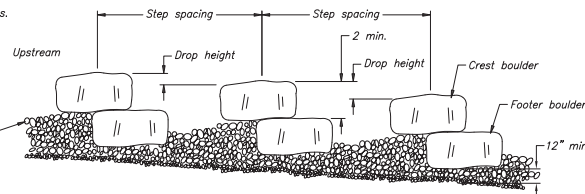
- Place crest boulder on footer boulders so that they rest on each footer boulder below
- Dimensions and layout as shown are approximate for straight reach. To accommodate channel sinuosity, step pool weirs shall be constructed to field fit dimensions as indicated on grading plans.



UPSTREAM CREST BOULDER
PLACEMENT DETAIL (NTS)

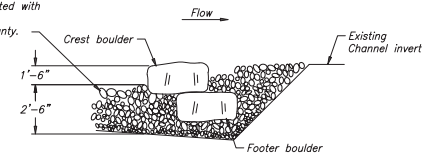
Notes:

- Order of gravel and boulder placement: streambed gravel, footer boulders, streambed gravel, crest boulder and streambed gravel



SECTION A-A
ROCK WEIR PROFILE DETAIL (NTS)

2.5' minimum streambed gravel.
Below 1.5' depth, streambed
gravel may be substituted with
streambed aggregate
supplied by Chelan County.



DOWNSTREAM CREST BOULDER
PLACEMENT DETAIL (NTS)

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WENATCHEE SUBBASIN
UPPER CHUMSTOCK BARBERS PROJECT
STEP POOL DETAILS
Not for Distribution

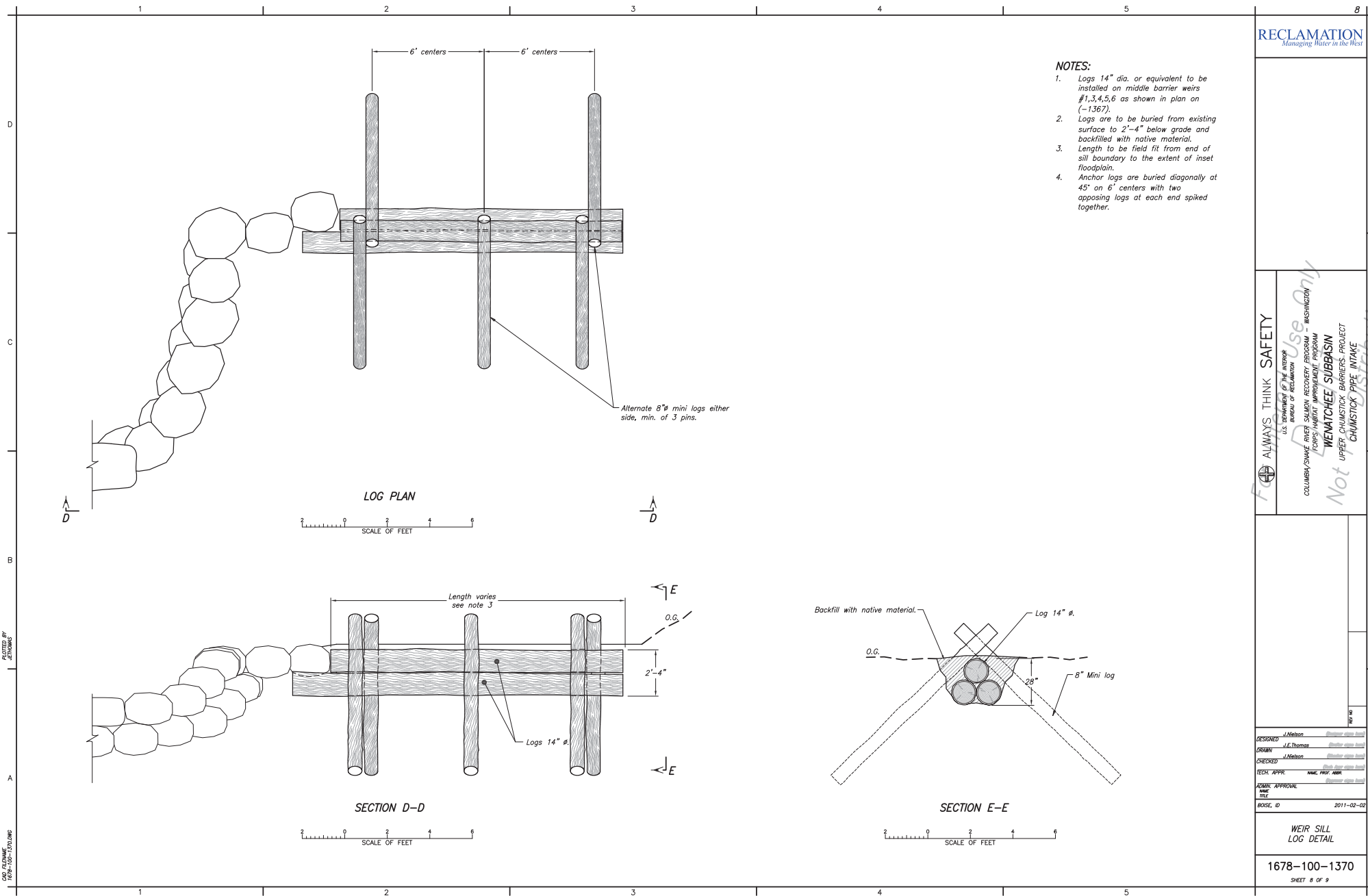
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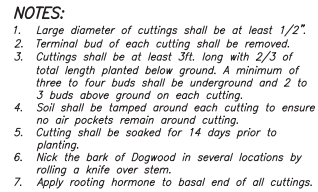
ROCK WEIR
DETAILS

1678-100-1369
SHEET 7 OF 9

DATE AND TIME PLOTTED
DRAWN BY
PLOTTED BY
REVISIONS

OLD SYSTEM # 1618
NEW SYSTEM # 1618-100-1370

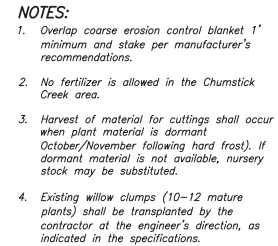




PLANTING DETAIL 1
NTS



PLANT SCHEDULE						
PLANT COMMUNITY		SCIENTIFIC NAME	COMMON NAME	MIN. SPACING (FEET)	SIZE	NOTES
UPLAND FOREST 16000 total sq. ft.	TREE	PINUS PONDEROSA	PONDEROSA PINE	10	1 gal.	
		ACER GLABRUM DOUGLASSII	DOUGLAS MAPLE	8	1 gal.	
		POPULUS TRICHOCARPA	BLACK COTTONWOOD	10	1 gal.	
	SHRUB	PRUNUS VIRGINIANA	CHOKECHERRY	6	1 gal.	
		AMELANCHIER ALNIFOLIA	SERVICEBERRY	6	1 gal.	
		ROSA WOODSII	WOOD'S ROSE	6	1 gal.	
		SAMBUCUS CERULEA	BLE ELDERBERRY	6	1 gal.	
		SALIX SCOULERIANA	SCOULER'S WILLOW	4	72" ht.	2" DBH Pole Cutting
RIPARIAN BANK 15000 total sq.	TREE	BETULA OCCIDENTALIS	WATER BIRCH	8	1 gal.	
		SALIX EXIGUA	COYOTE WILLOW	4	72" ht.	2" DBH Pole Cutting
	SHRUB	COMUS STOLONIFERA	RED-OSIER DOGWOOD	4	72" ht.	1" DBH Pole Cutting
		SALIX GEYERIANA	GEYER WILLOW	4	72" ht.	2" DBH Pole Cutting



NTS (FACING DOWNSTREAM)