



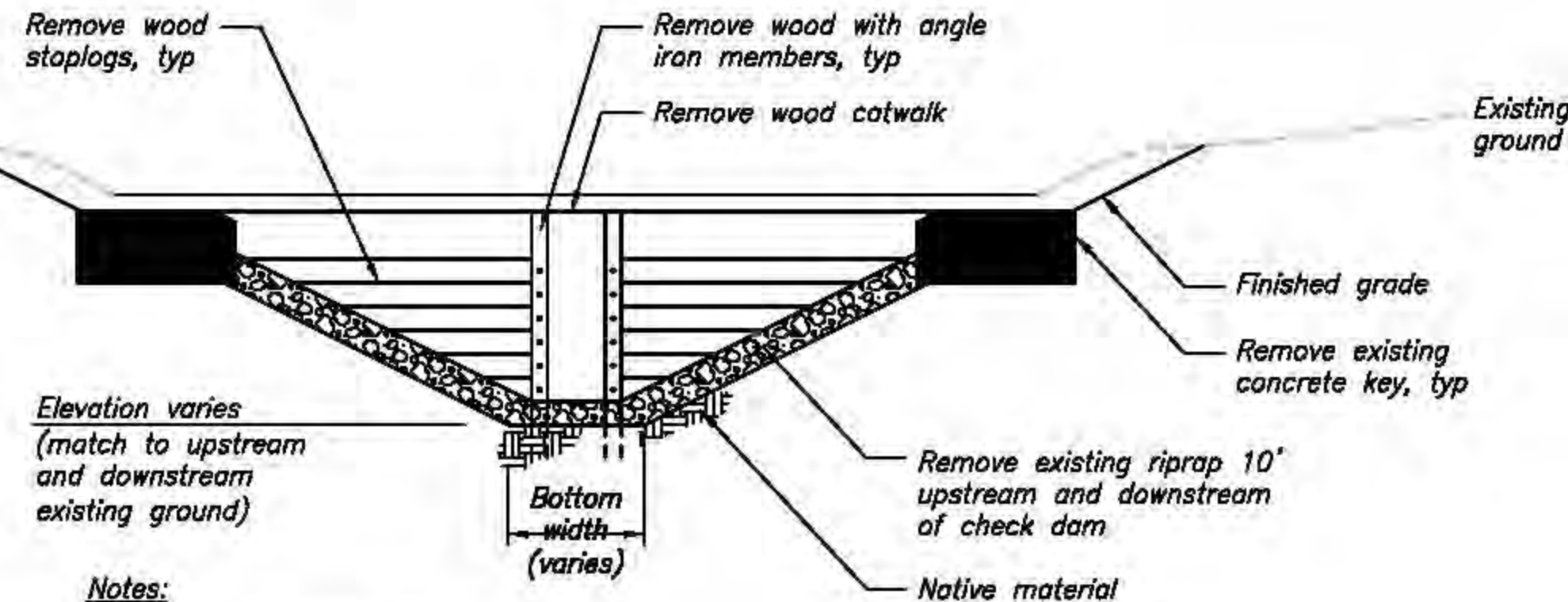
PRELIMINARY  
NOT FOR  
CONSTRUCTION

CH2MHILL

CONTRACTOR DRAWING NO C-14

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U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION  
COLUMBIA SNAKE RIVER SALMON RECOVERY PROGRAM - IDAHO  
FISH HABITAT IMPROVEMENT PROGRAM  
UPPER SALMON SUBBASIN  
YANKEE FORK PROJECT: PS3 SIDE CHANNEL  
DETAILS - 2

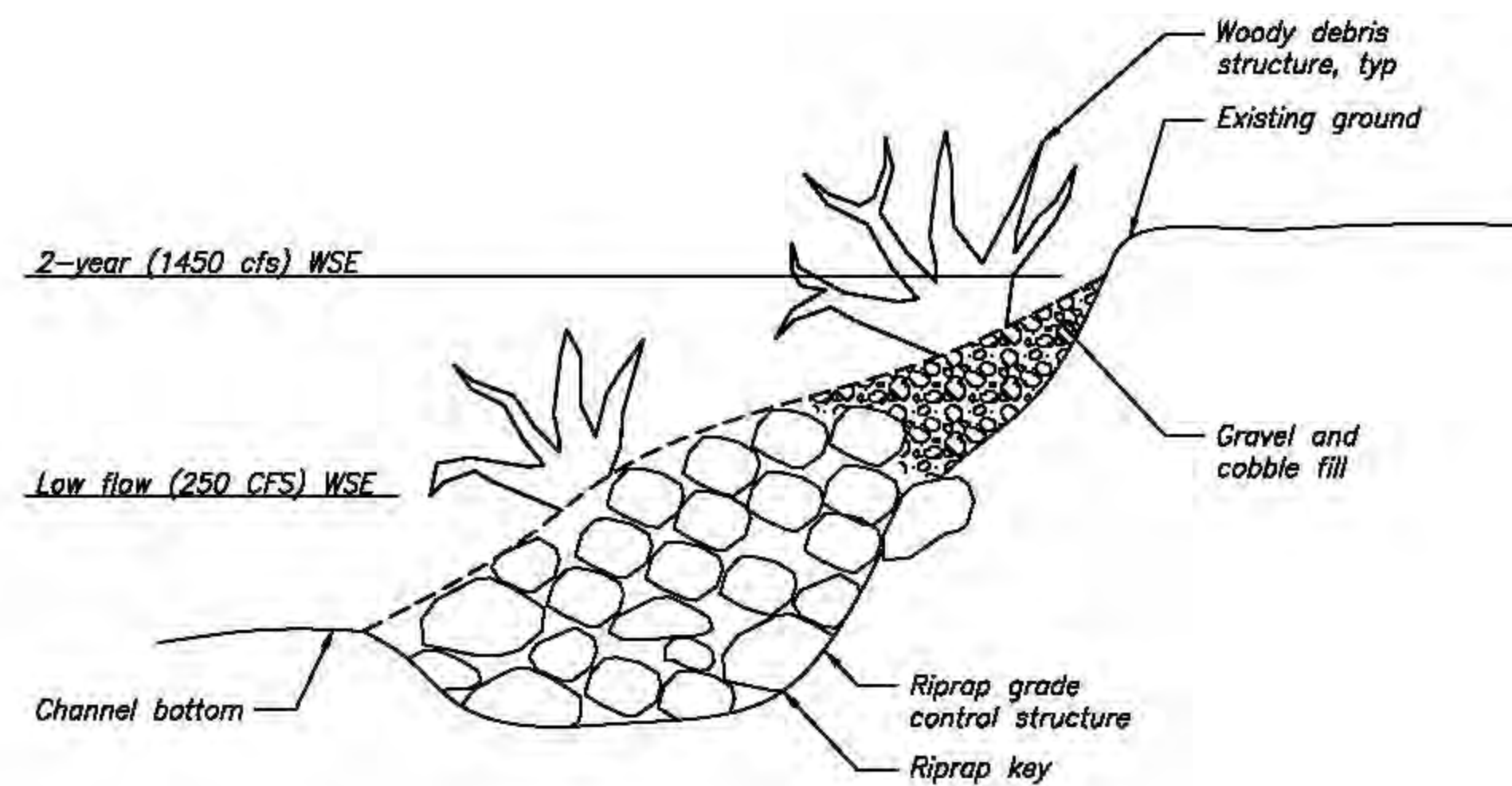


**Notes:**

1. Depth of existing riprap unknown
2. Extent of existing concrete key unknown
3. Maintain Check Dam 3 for several years following construction to manage water levels and water quality and to increase riparian vegetation recruitment
4. Excavate tailings piles near Check Dam 3 above 1-year flow-elevation to maintain portion of tailings piles near Check Dam 3
5. Excavate remaining tailings piles near Check Dam 3 to match surrounding floodplain when Check Dam 3 is removed

**REMOVE CHECK DAM 1, 2, AND 3**

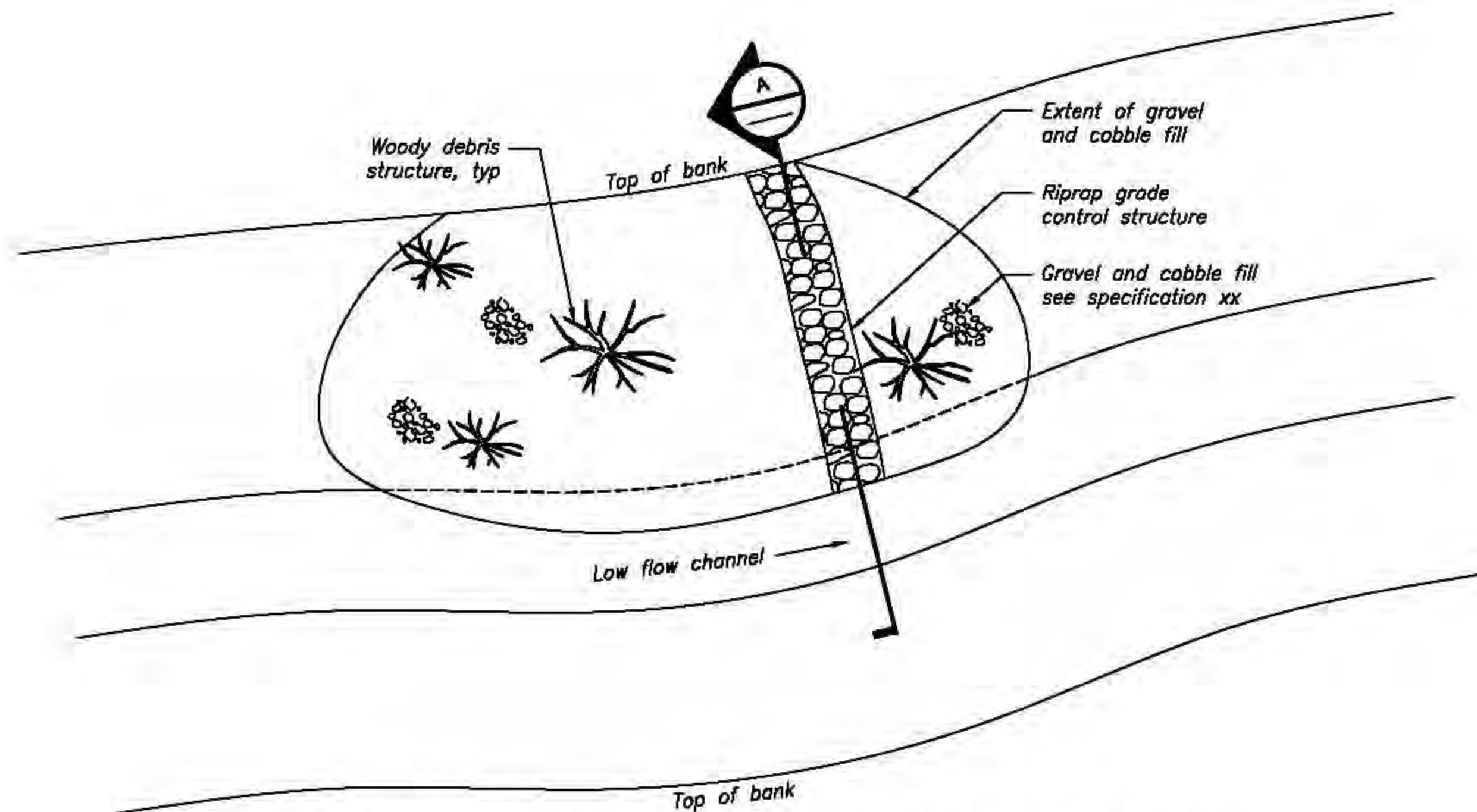
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**GRADE CONTROL AND GRAVEL BAR SECTION**

NTS



**GRADE CONTROL AND GRAVEL BAR SCHEMATIC**

NTS

Permit No. NYWV-2012-125  
PROJECT: Yankee Fork Habitat Improvement  
APPLICANTS: USFS and J.R. Simplot Company  
WATERBODY: Yankee Fork  
COUNTY/STATE: Custer, Idaho  
DATE: 12 June 2012  
SHEET 16 of 20

DESIGNED: CONTRACTOR  
DRAWN:  
CHECKED:  
TECH. ACCEPTANCE: NAME - TITLE  
ACCEPTED: NAME - TITLE

BOISE, IDAHO 2012-03-23

DETAILS - 2

1678-100-1645

SHEET OF

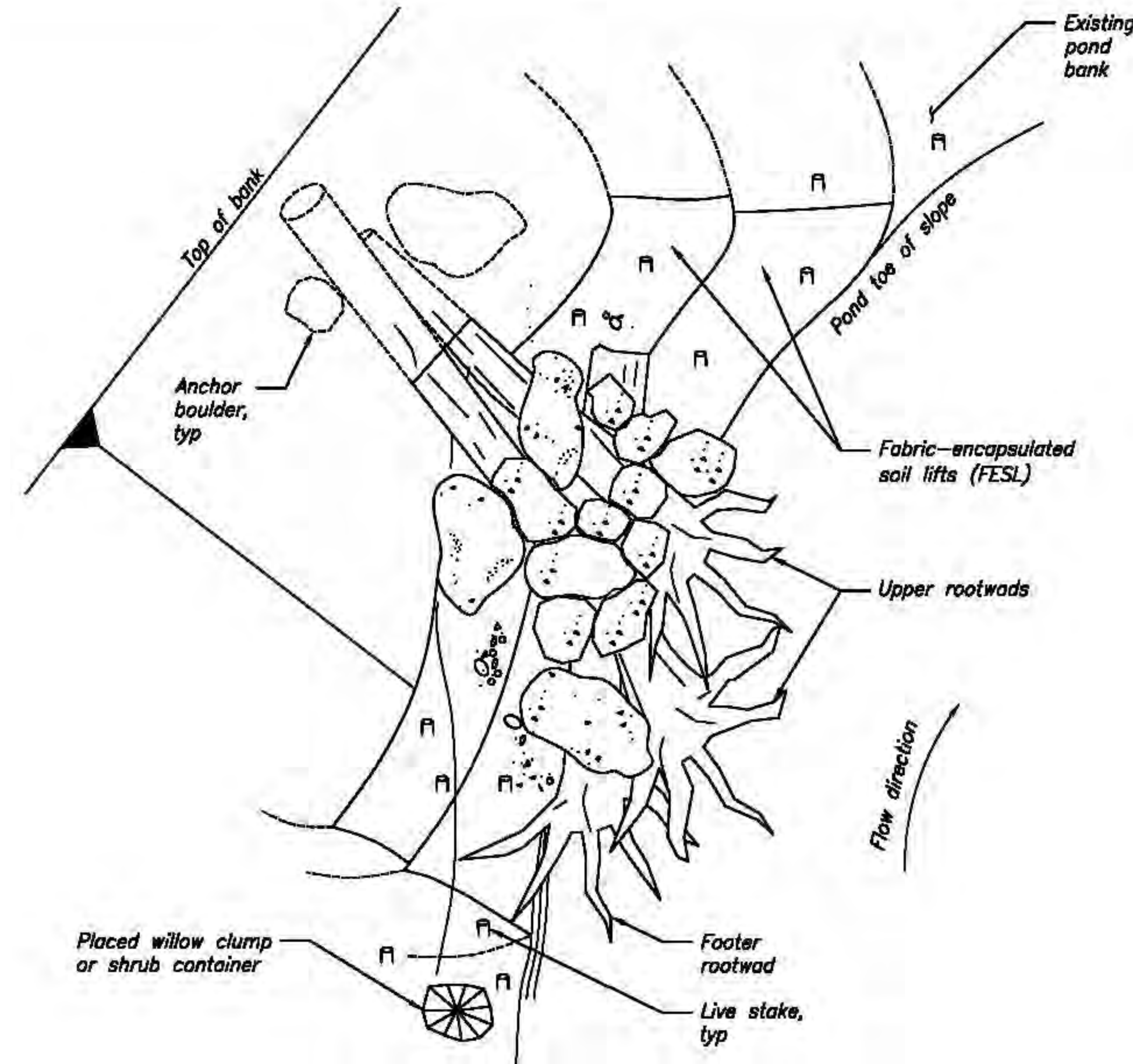
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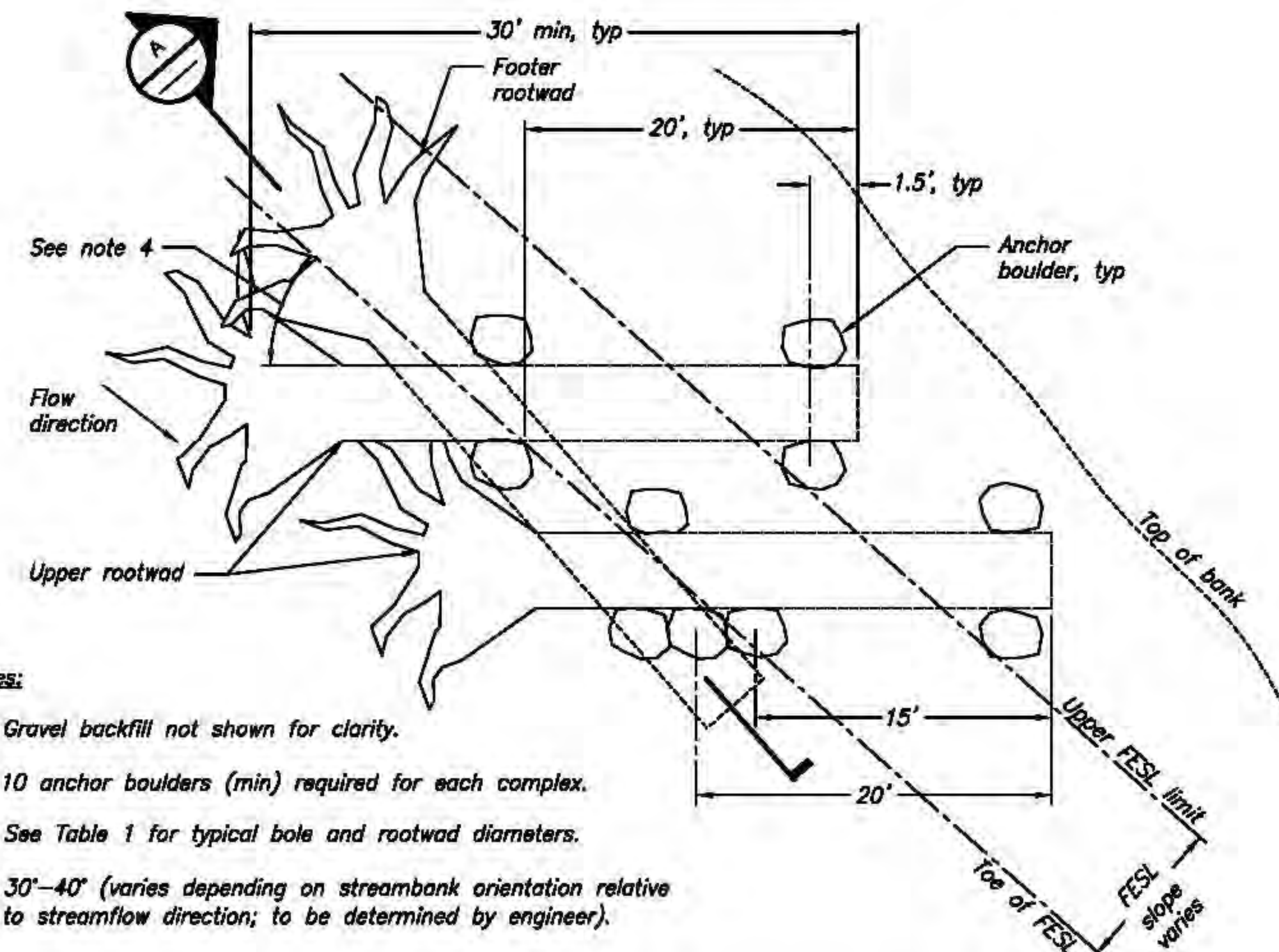
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**WOOD HABITAT STRUCTURE/RIPARIAN  
VEGETATION ESTABLISHMENT SCHEMATIC**

NTS



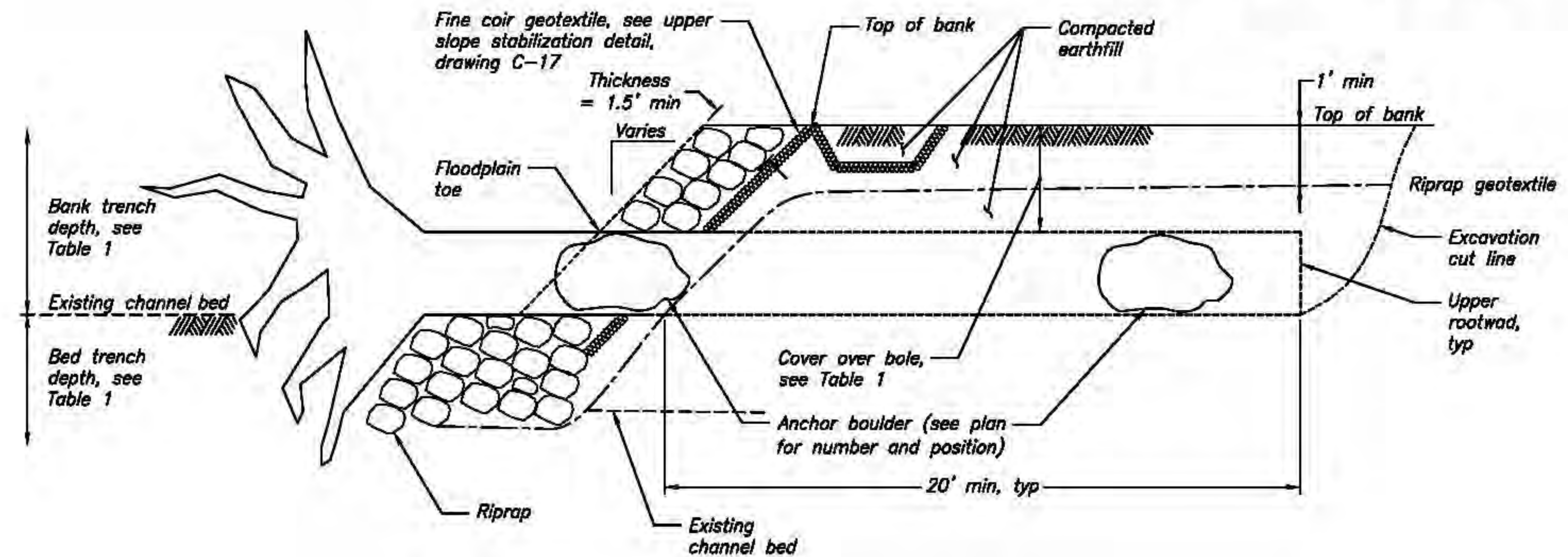
**Notes:**

1. Gravel backfill not shown for clarity.
2. 10 anchor boulders (min) required for each complex.
3. See Table 1 for typical bole and rootwad diameters.
4. 30"-40" (varies depending on streambank orientation relative to streamflow direction; to be determined by engineer).

**WOOD HABITAT STRUCTURE PLAN**

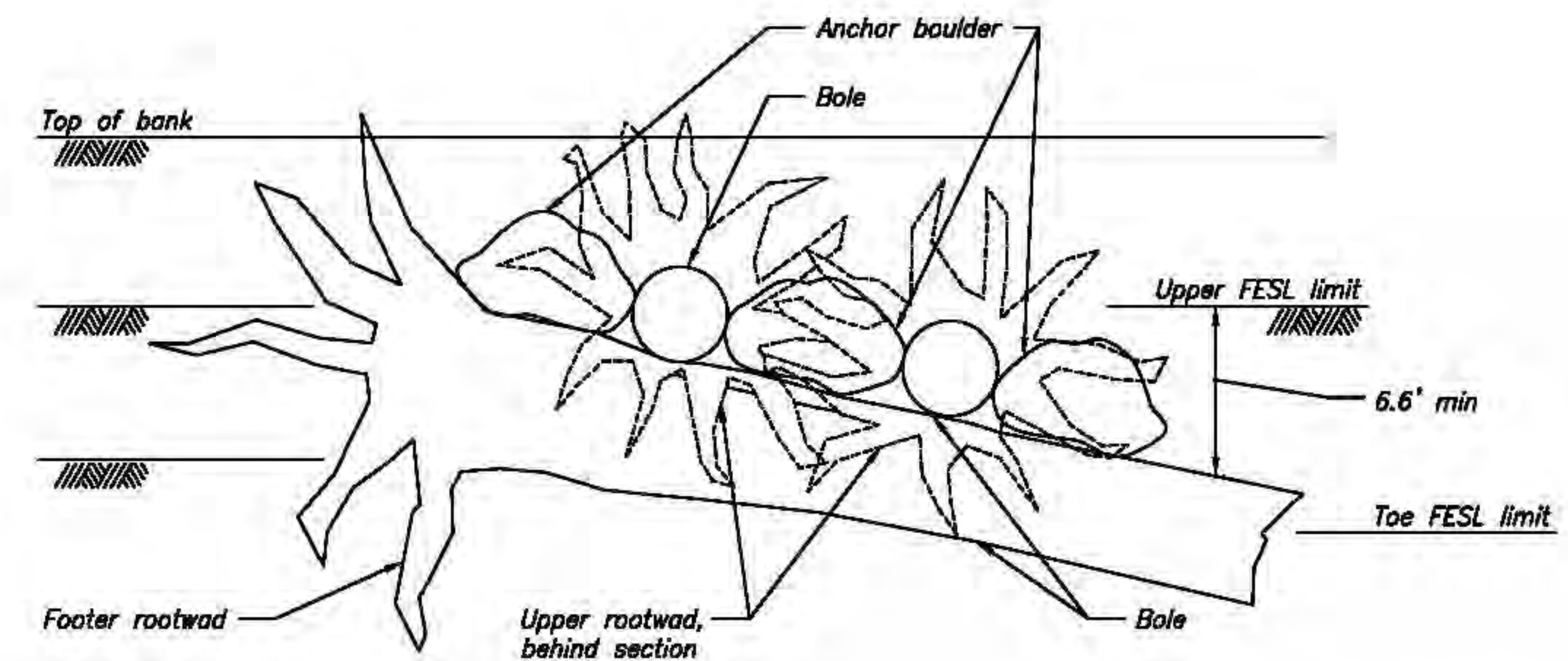
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TABLE 1						
Bole Diameter (ft)	Rootwad Diameter (ft) Min Acceptable	Bed Trench Depth (ft) Min	Bank Trench Depth (ft) Min	Cover Over Bole (ft) Min	Anchor Boulder Diameter (ft) Min	Anchor Boulder Mass (lb) Min
xx	xx	xx	xx	xx	xx	xx
xx	xx	xx	xx	xx	xx	xx



**WOOD HABITAT STRUCTURE ELEVATION**

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**WOOD HABITAT STRUCTURE SECTION**

NTS

Permit No. NWV-2012-125  
PROJECT: Yankee Fork Habitat Improvement  
APPLICANTS: USFS and J.R. Simplot Company  
WATERBODY: Yankee Fork  
COUNTY/STATE: Ouster, Idaho  
DATE: 12 June 2012  
SHEET 17 of 20

**NOTES:**

1. Key pieces to be Spruce, Douglas Fir, large Cottonwood, or Ponderosa Pine with total (combined bole and rootwad) length of 30' (min) and bole and rootwad diameters as specified in Table 1.
2. Anchor boulders to have intermediate diameter and mass as specified in Table 1.
3. Gravel backfill not shown for clarity. On-site source to be approved by field engineer.
4. Dewatering required for placement.
5. Refer to specifications for additional requirements.
6. Treatment not continuous. Expected at eight sites selected by field engineer or as shown on drawings C-5 and C-6.

**RECLAMATION**  
Managing Water in the West

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CONTRACTOR DRAWING NO C-15

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COLUMBIA SNAKE RIVER SALMON RECOVERY PROGRAM  
FORPS HABITAT IMPROVEMENT PROGRAM - IDAHO  
UPPER SALMON SUBBASIN  
YANKEE FORK PROJECT: PS3 SIDE CHANNEL  
DETAILS - 3

DESIGNED: CONTRACTOR  
DRAWN:  
CHECKED:  
TECH. ACCEPTANCE NAME - TITLE  
ACCEPTED NAME - TITLE  
BOISE, IDAHO 2012-03-23

DETAILS - 3

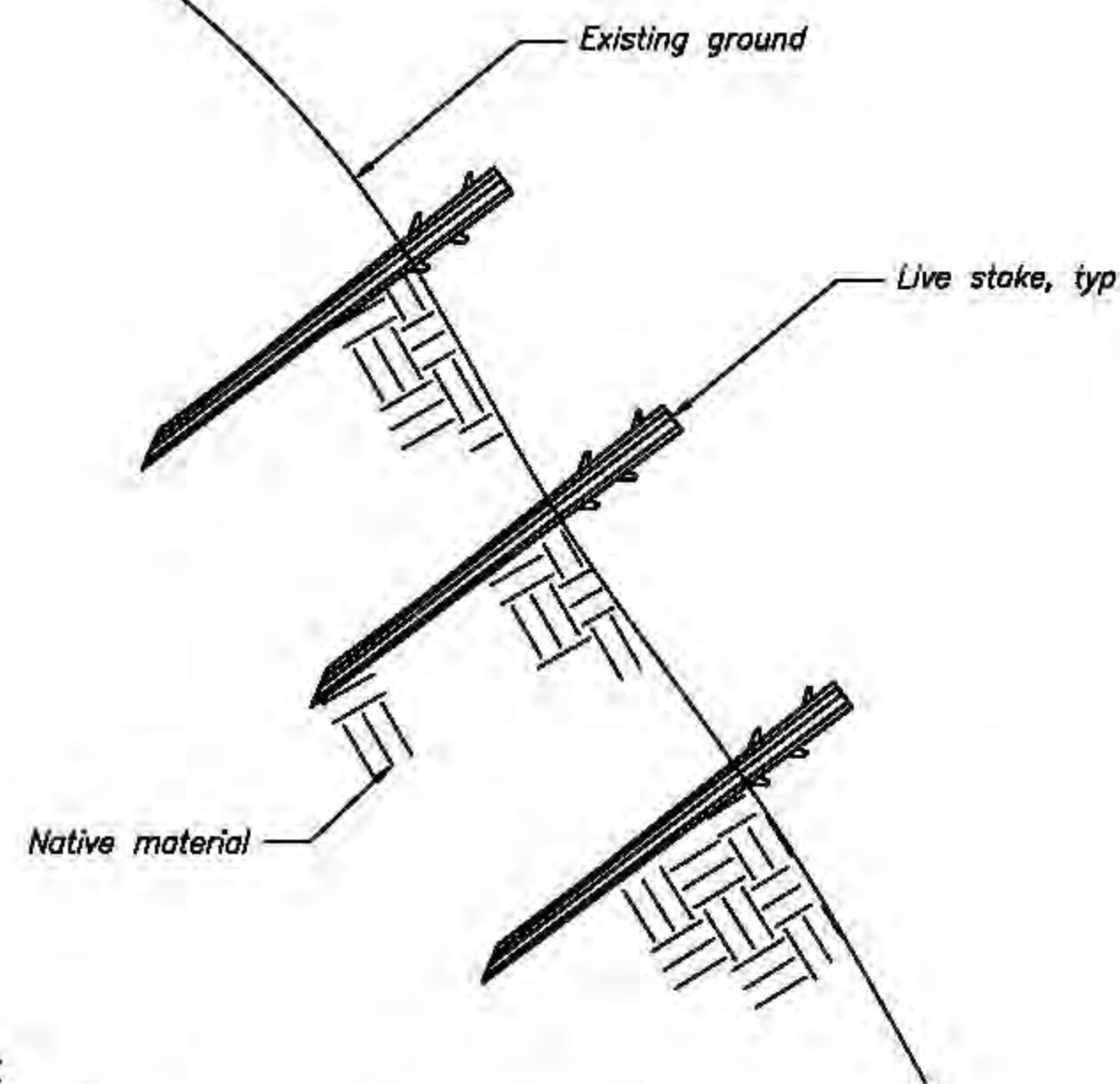
1678-100-1646

SHEET OF



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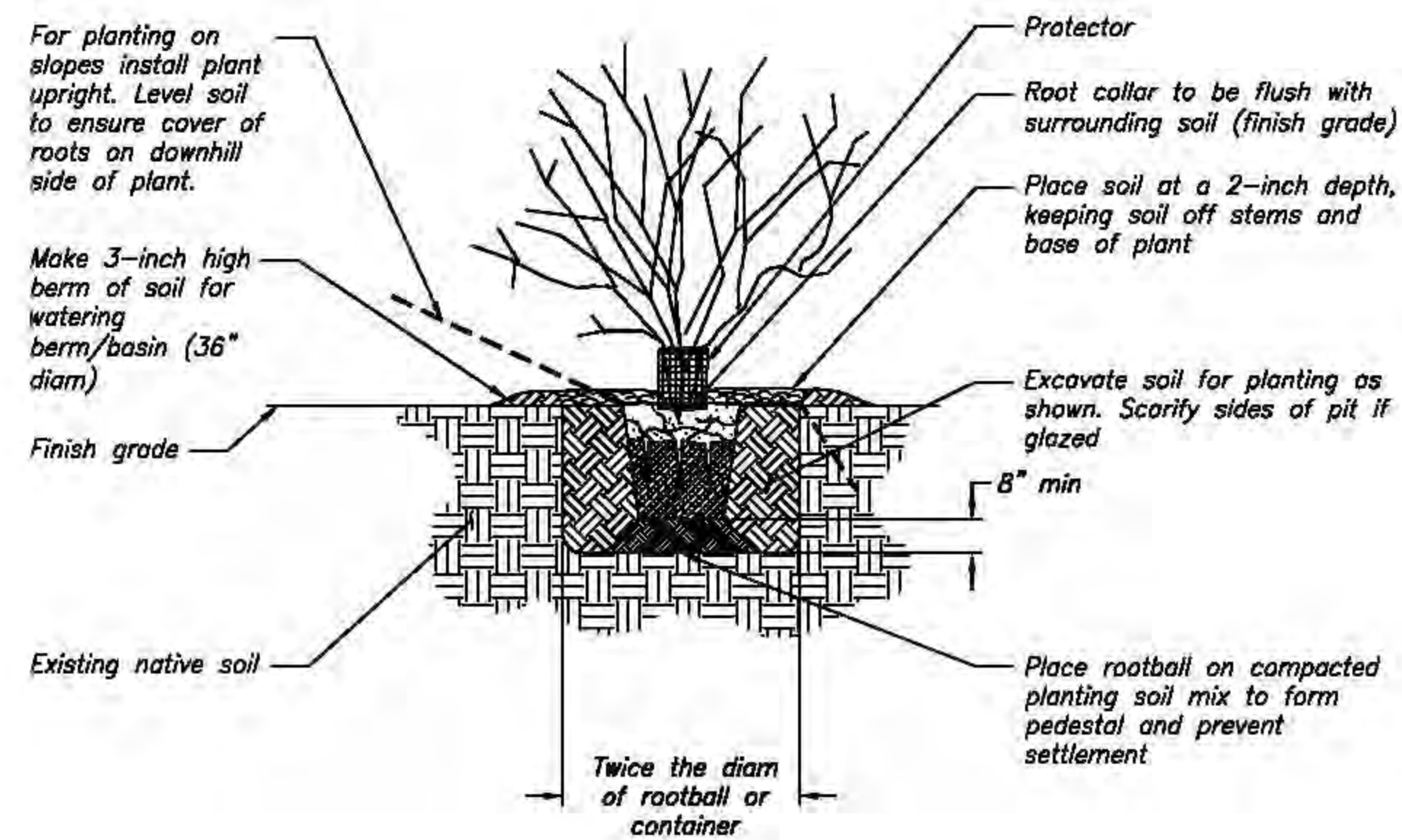


**Notes:**

1. Place live stakes in a random species configuration with 3-ft on center triangular spacing.
2. Install live stakes with top oriented upward.
3. Tamp live stakes into the slope as shown, oriented perpendicular to the surface using a dead blow hammer to avoid damage to the stake. First create a pilot hole in the riprap layer if necessary.
4. Length of live stakes shall be 4 ft to 6 ft.
5. Bottom of live stake must be within 0.5 ft of channel bed elevation.

**LIVE STAKE INSTALLATION DETAIL**

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**SHRUB PLANTING**

NTS

Permit No. NYPW-2012-125  
PROJECT: Yankee Fork Habitat Improvement  
APPLICANTS: USFS and J.R. Simplot Company  
WATERBODY: Yankee Fork  
COUNTY/STATE: Custer, Idaho  
DATE: 12 June 2012  
SHEET 18 of 20

**RECLAMATION**  
Managing Water in the West

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CONTRACTOR DRAWING NO C-16

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COLUMBIA SNAKE RIVER SALMON RECOVERY PROGRAM - IDAHO  
FORPS HABITAT IMPROVEMENT PROGRAM  
UPPER SALMON SUBBASIN  
YANKEE FORK PROJECT: PS3 SIDE CHANNEL  
DETAILS - 4

DESIGNED CONTRACTOR  
DRAWN  
CHECKED  
TECH. ACCEPTANCE NAME - TITLE  
ACCEPTED NAME - TITLE  
BOISE, IDAHO 2012-03-23

DETAILS - 4

1678-100-1647

SHEET OF



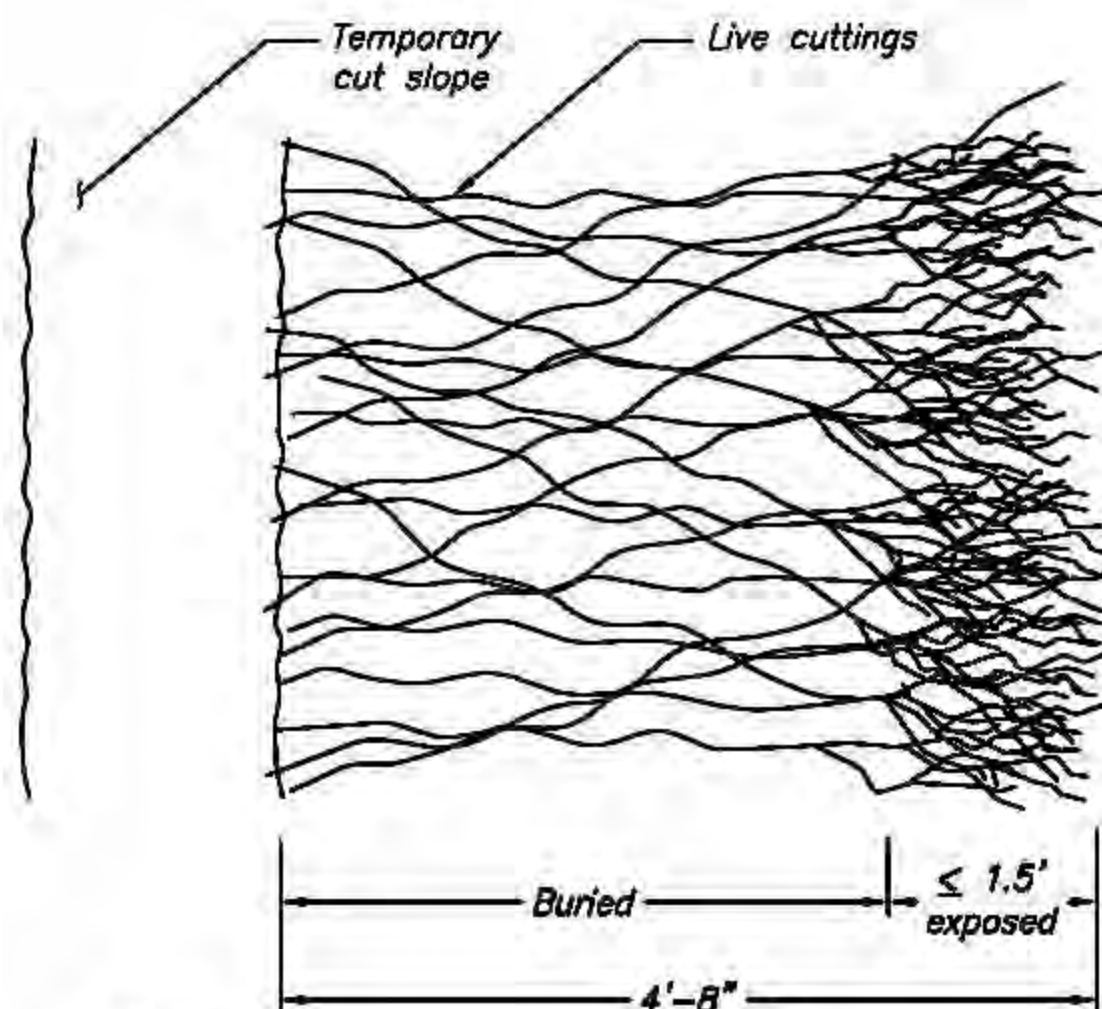
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CONSTRUCTION

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CONTRACTOR DRAWING NO C-17

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COLUMBIA SNAKE RIVER SALMON RECOVERY PROGRAM - IDAHO  
FISH HABITAT IMPROVEMENT PROGRAM  
UPPER SALMON SUBBASIN  
YANKEE FORK PROJECT: PS3 SIDE CHANNEL  
DETAILS - 5

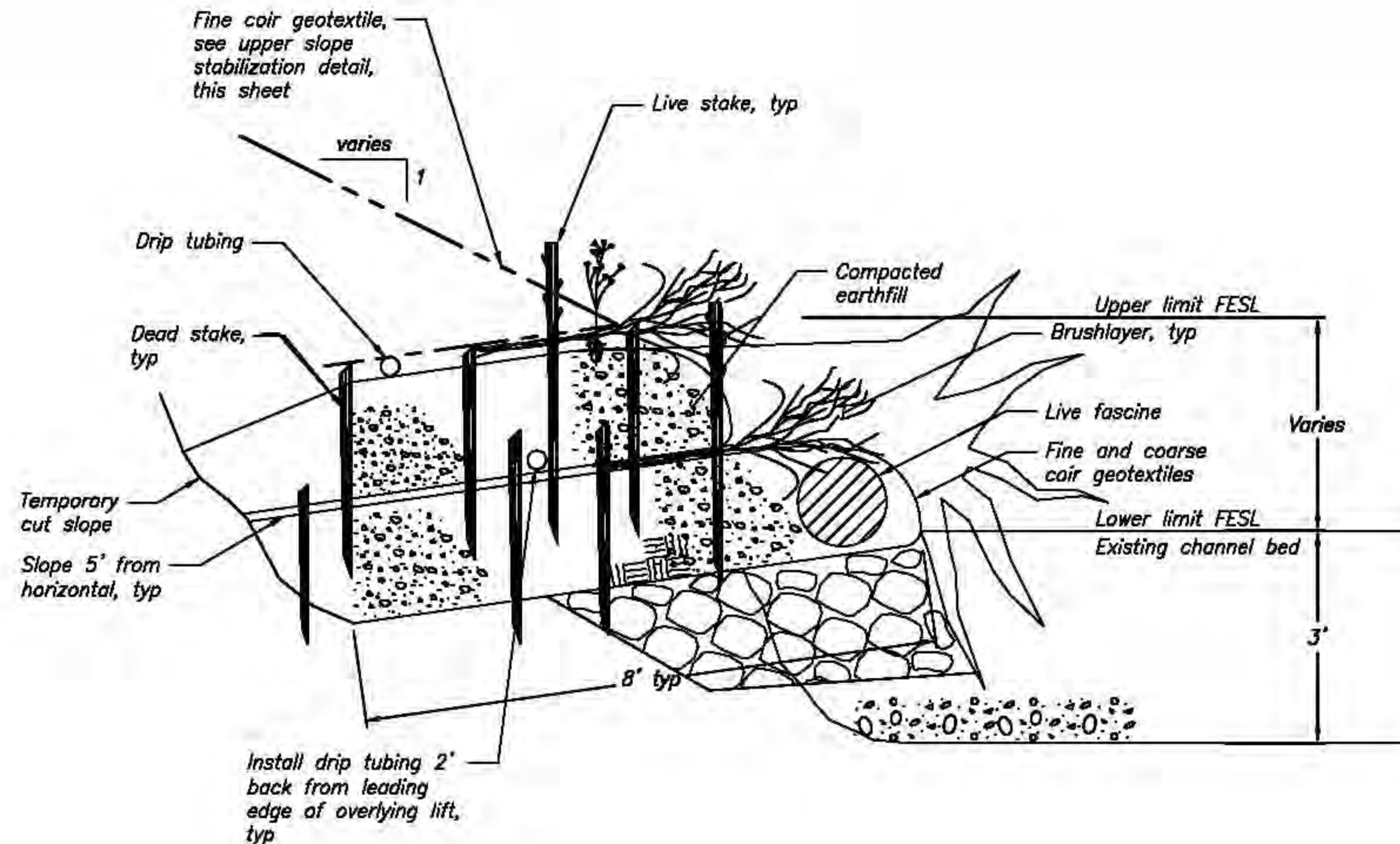


Notes:

1. See live cuttings table for species selection.
2. Orient live cuttings with growing tips extending out of slope face.
3. Place live cuttings at a density of 20 to 25 cuttings per foot within each brushlayer row, in accordance with specification xx planting.
4. Compact topsoil on top of live cuttings, back to finish grade (or to form a base for the next successive soil lift in areas with FESL).

### BRUSHLAYER PLAN VIEW

NTS

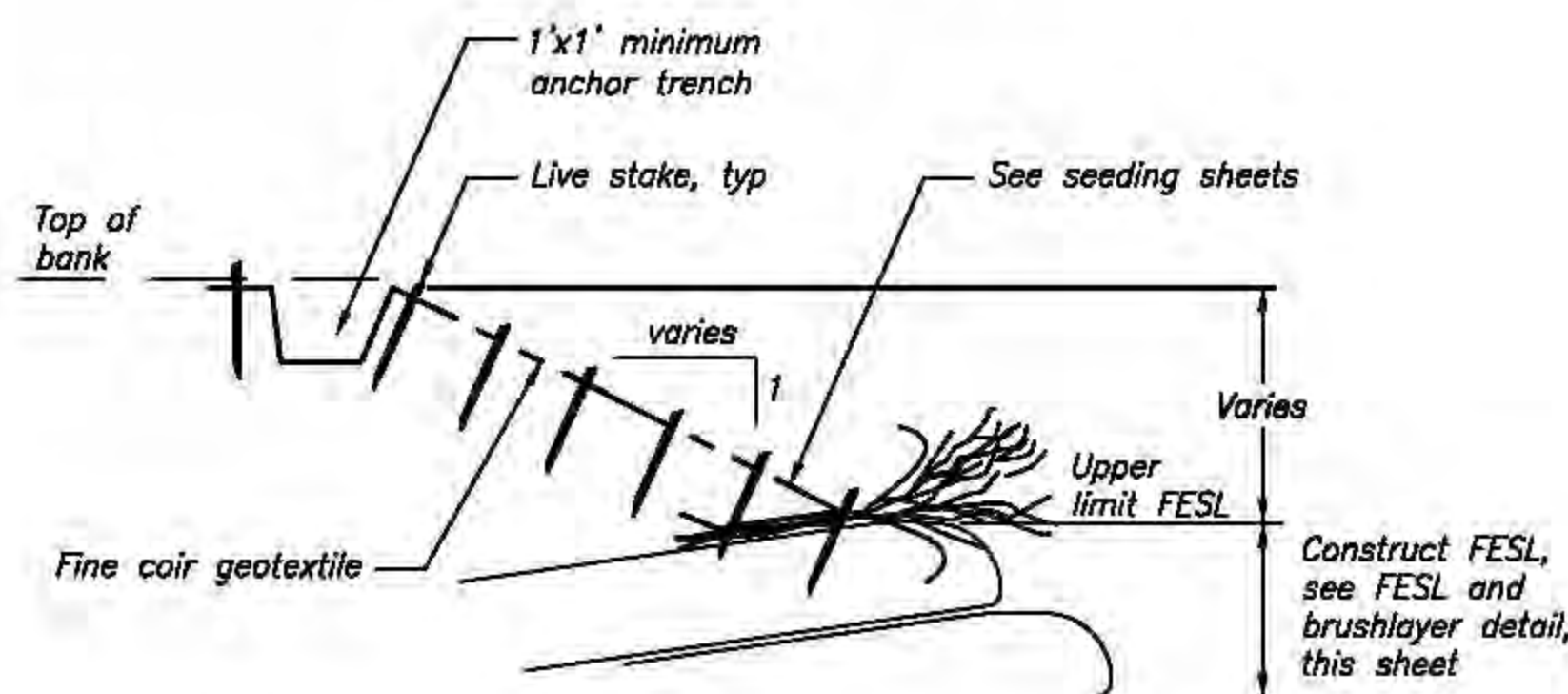


### FABRIC-ENCAPSULATED SOIL LIFT (FESL) AND BRUSHLAYER DETAIL

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Notes:

1. Construct FESL in accordance with specification xx earthwork. Excavate slope according to plans. Place fine and coarse coir geotextiles, and backfill with soil to finish grades. Use a form or buttress at the face of each FESL lift to achieve the dimensions shown. Contractor shall compact backfill to approximately 80% of maximum density. Pull each layer of geotextile snug but not tight, and anchor with dead and live stakes. Remove form at face of lifts.
2. Harvest of material for live stakes, fascines, and brushlayers shall occur at times and locations approved by the contracting officer. See live cuttings table for selection of acceptable species for this application. Nursery stock may be substituted with contracting officer approval. Install live and dead stakes in accordance with the specification xx planting.
3. Prepare live fascine in accordance with the specification xx planting and place inside leading edge of lowest lift.
4. For each lift, place fabric with rolls oriented perpendicular to the channel. Start at downstream end of treatment and work upstream, ensuring the edge of each upstream piece overlaps (is "shingled" over) the edge of adjacent downstream piece by 1' minimum.
5. Drip tubing to be installed in accordance with specification xx irrigation hose ends to be extended above ground surface. Cap all tube ends.
6. Construct FESL with 1' maximum thickness. If local grading and geometry requires a variation in the number of lifts or in lift thickness, the variation must be approved by the contracting officer.

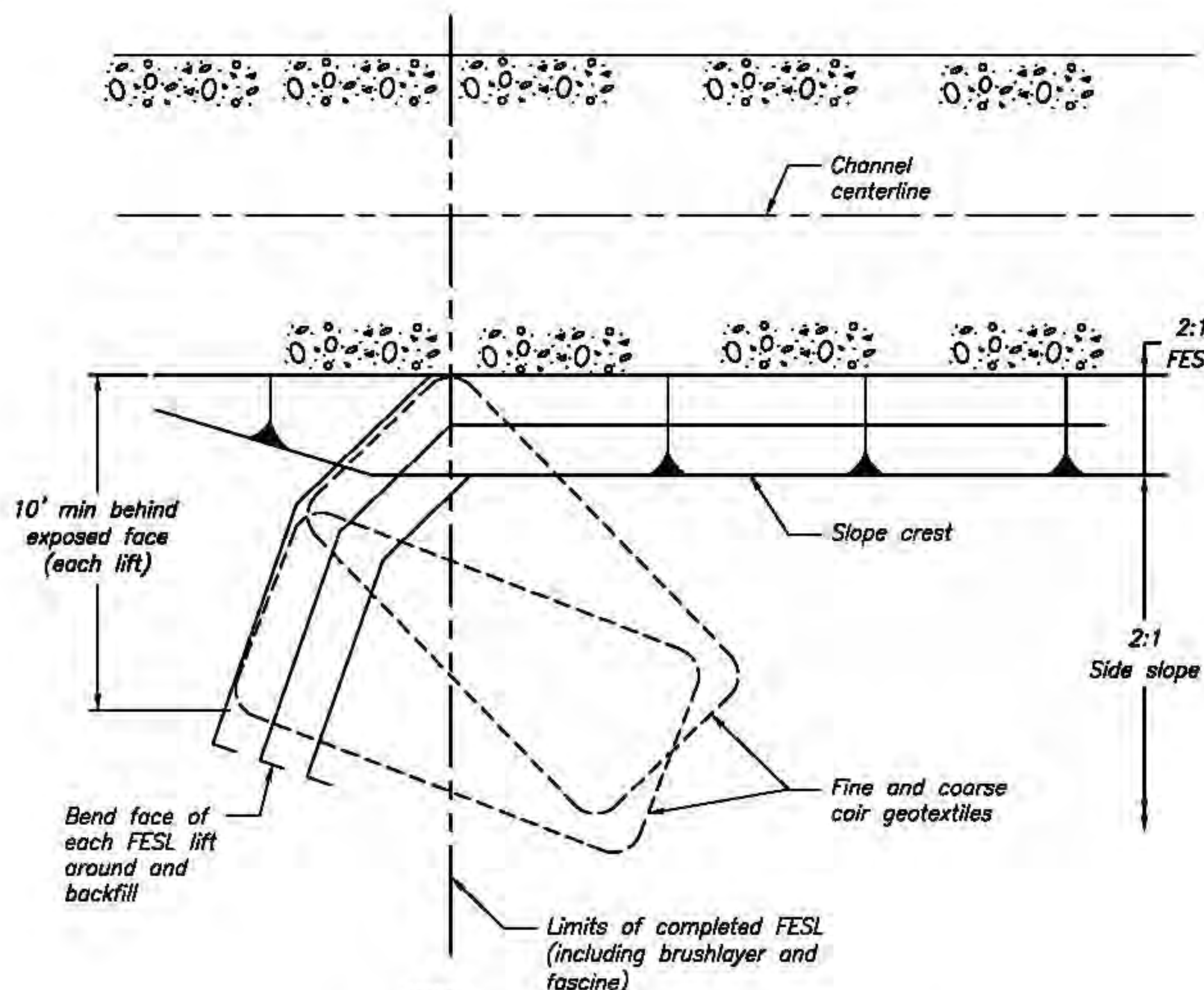


Notes:

1. Wood stakes to be made of Spruce or Fir, having a minimum dimension of 1"x2"x18". Space wood stakes per geotextile manufacturer's recommendations.
2. Ensure each edge of fine coir pieces overlap (is "shingled" over) the edge of the adjacent downstream piece by 1' minimum.
3. Backfill anchor trench with native material.

### UPPER SLOPE STABILIZATION DETAIL

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Notes:

1. Key in FESL ends (upstream and downstream) as shown at all limits where it is constructed.

### FESL END DETAIL

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### Live Cuttings Table

Scientific Name	Common Name	Approximate %
<i>Salix sitchensis</i>	Sitka Willow	35-40
<i>Salix lucida ssp. lasiandra</i>	Pacific Willow	20-30
<i>Salix exigua</i>	Coyote Willow	35-40

Notes:

1. The number of cuttings required to construct FESL (including brushlayer, live fascine, and live stakes incidental to FESL) is estimated to be xxxx live cuttings. Size varies based on application (see specification xx planting).
2. Dead stakes required to construct FESL estimated to be xx (see specification xx planting).

Permit No. WYNY-2012-125  
PROJECT: Yankee Fork Habitat Improvement  
APPLICANTS: USFS and J.R. Simplot Company  
WATERBODY: Yankee Fork  
COUNTY/STATE: Ouster, Idaho  
DATE: 12 June 2012  
SHEET 19 of 20

DESIGNED  
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CHECKED  
TECH. ACCEPTANCE NAME - TITLE  
ACCEPTED NAME - TITLE

BOISE, IDAHO 2012-03-23

DETAILS - 5

1678-100-1648

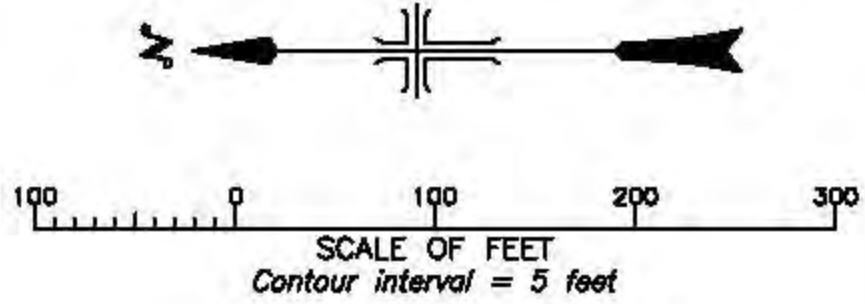
SHEET OF



Zone	Gross Area (sq ft)	Common Name	Scientific Name	Plant Material	Spacing (ft on center)	Seeding (lbs/acre)
1A	12,488	Common spikerush	<i>Eleocharis palustris</i>	Plugs/sod	1	n.a.
		Softstem bulrush	<i>Schoenoplectus tabernaemontani</i>	Plugs/sod	1	n.a.
1B	19,438	Water sedge	<i>Carex aquatilis</i>	Plugs/sod	1	n.a.
		Beaked sedge	<i>Carex rostrata</i>	Plugs/sod	1	n.a.
		Northwest territory sedge	<i>Carex utriculata</i>	Plugs/sod	1	n.a.
		Baltic rush	<i>Juncus balticus</i>	Plugs along boundary 1 and 2	2	n.a.
		Bluejoint	<i>Calamagrostis canadensis</i>	Plugs along boundary 1 and 2	2	n.a.
2	138,364	Geyer willow*	<i>Salix geyeriana</i>	Cuttings/container/fascines	5	n.a.
		Gray alder*	<i>Alnus incana</i>	Cuttings/container/fascines	5	n.a.
		Water birch	<i>Betula occidentalis</i>	Container	15	n.a.
		Peachleaf willow*	<i>Salix amygdaloides</i>	Cuttings/container/fascines	25	n.a.
		Black cottonwood	<i>Populus angustifolia ssp. trichocarpa</i>	Container	25	n.a.
		Drooping woodreed	<i>Cinna latifolia</i>	Plugs/seed if interspaces have fines	2	2
		Tufted hairgrass	<i>Deschampsia cespitosa</i>	Plugs/seed if interspaces have fines	2	4
		Swordleaf rush	<i>Juncus ensifolius</i>	Plugs/seed if interspaces have fines	2	1
3	31,744	White spirea	<i>Spiraea betulifolia</i>	Container	5	n.a.
		Serviceberry	<i>Amelanchier alnifolia</i>	Container	5	n.a.
		Kinnikinnick	<i>Arctostaphylos uva-ursi</i>	Container	5	n.a.
		Mountain brome	<i>Bromus marginatus</i>	Seed	n.a.	3
		Prairie junegrass	<i>Koeleria macrantha</i>	Seed	n.a.	3
		*Collect plant material on site.				

NOTES

1. Unless shown otherwise, adjacent seeding and planting zones should overlap a distance of 1 foot.



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Managing Water in the West

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CONTRACTOR DRAWING NO C-18

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COLUMBIA SNAKE RIVER SALMON RECOVERY PROGRAM - IDAHO  
FORPS HABITAT IMPROVEMENT PROGRAM  
UPPER SALMON SUBBASIN  
YANKEE FORK PROJECT: PS3 SIDE CHANNEL  
SEEDING AND PLANTING PLAN

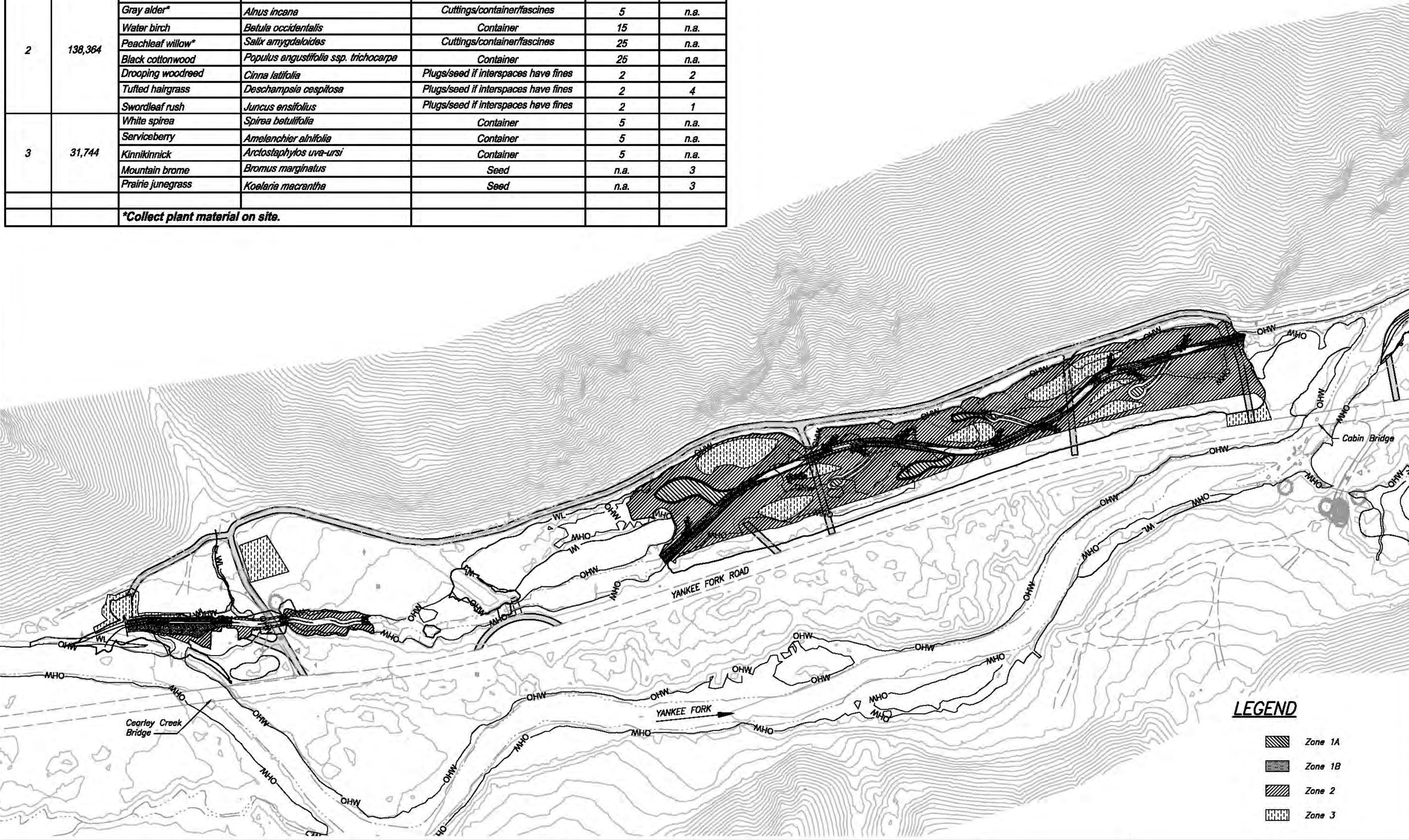
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PROJECT: Yankee Fork Habitat Improvement  
APPLICANTS: USFS and LR  
Simplot Company  
WATERBODY: Yankee Fork  
COUNTY/STATE: Custer, Idaho  
DATE: 12 June 2012  
SHEET 20 of 20

DESIGNED CONTRACTOR  
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CHECKED  
TECH. ACCEPTANCE NAME - TITLE  
ACCEPTED NAME - TITLE

BOISE, IDAHO 2012-03-28

SEEDING AND PLANTING PLAN

1678-100-1649  
SHEET OF



LEGEND

Zone 1A  
Zone 1B  
Zone 2  
Zone 3

DATE AND TIME PLOTTED  
AMERICAN, 2012-07-18  
PLOTTED BY  
LWMS

CAD SYSTEM  
2012-07-18  
CAD FILENAME  
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