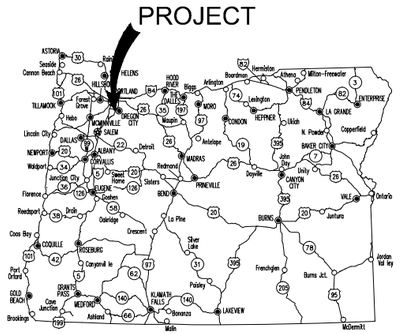
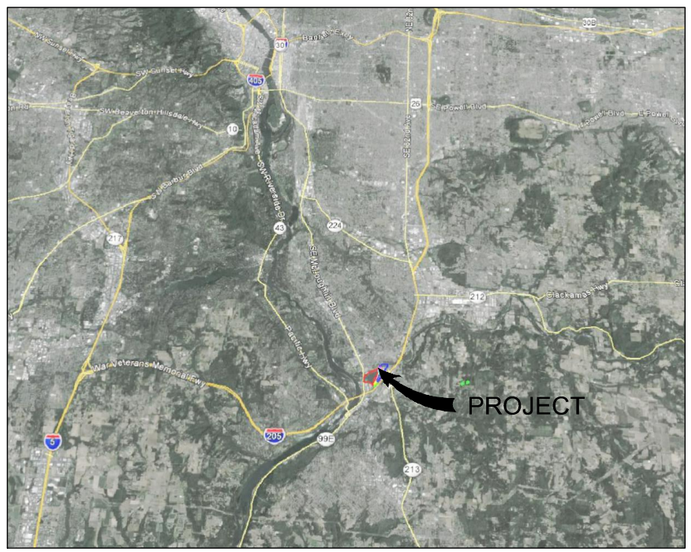
UNION PACIFIC RAILROAD
GLADSTONE, OREGON
GLADSTONE BRIDGE BANK RESTORATION
ISSUED FOR CONSTRUCTION



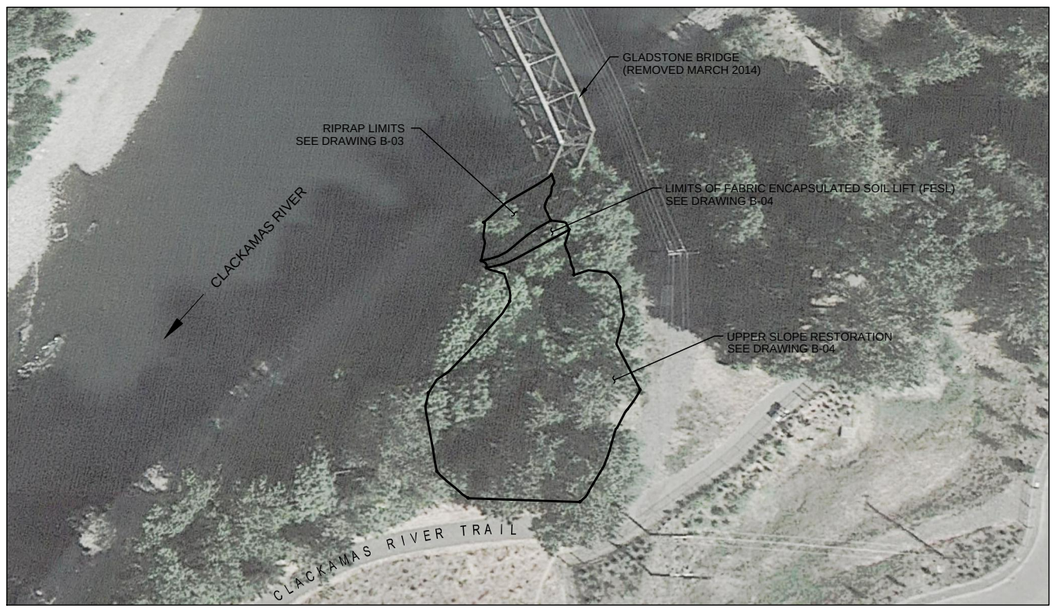
VICINITY MAP

DESIGN DRAWINGS

PLATE	DRAWING TITLE
A-01	TITLE, PROJECT MAPS, INDEX TO DRAWINGS
A-02	ABBREVIATIONS, LEGEND, NOTES, QUANTITIES, PLAN OVERVIEW
B-01	SITE PLAN - EXISTING CONDITIONS
B-02	SITE PLAN - FINAL GRADING PLAN
B-03	RIPRAP TYPICAL SECTION AND DETAILS
B-04	UPPER SLOPE RESTORATION AND SOIL LIFT AND VEGETATION DETAILS
B-05	REVEGETATION PLAN
B-06	SEEDING AND PLANTING DETAILS AND QUANTITIES
B-07	EROSION AND SEDIMENT CONTROL PLAN (DURING CONSTRUCTION) - 1
B-08	EROSION AND SEDIMENT CONTROL PLAN (DURING CONSTRUCTION) - 2
B-09	FINAL EROSION AND SEDIMENT CONTROL PLAN
B-10	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS



LOCATION MAP
NOT TO SCALE



PROJECT SITE
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER 53,061PE OREGON JUN. 14, 2005 GREGORY S. FISCHER
EXPIRES:12/31/15

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
1	4/14/14	J. YOUNG	A. STEPHENSON	D. TAKASUMI		G. FISCHER	

REVISED DESIGN PACKAGE
REVISION

CH2MHILL.

UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL AND SITE RESTORATION
GLADSTONE, OR

UNION PACIFIC RAILROAD
GLADSTONE
TITLE, PROJECT MAPS, INDEX TO DRAWINGS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	A-01
SHEET	1

LEGEND

- PROPERTY LINE
- SILT FENCE
- EXISTING ROAD
- EXISTING FENCE
- COMM — UNDERGROUND COMMUNICATION LINE
- EL — UNDERGROUND ELECTRICAL LINE
- OH EL — OVERHEAD ELECTRICAL LINE
- OHW — ORDINARY HIGH WATER
- SURVEY CONTROL POINTS
- TEMPORARY CONSTRUCTION ACCESS ROAD
- FINE EROSION CONTROL BLANKET
- HYDROSEED/MULCH STABILIZATION
- SEEDING AREA

SUMMARY OF QUANTITIES

Material Quantities Estimate

Item Description	Est. Quantity	Units
General Site Work		
Erosion and Sediment Control BMPs		
Silt Fence	300	LF
Straw wattles	150	LF
Site Access		
3" Minus Crushed Rock (for access road)	18	CY
Geotextile Fabric (8 ounce; non-woven)	107	SY
Riprap Slope Protection		
Class 2000 Riprap	200	CY
Riprap Erosion Control Geotextile	183	SY
Riprap Bedding	74	CY
Riprap Revegetation		
Pacific Willow Stakes (5 to 6 foot lengths)	200	EA
Sitka Willow Stakes (5 to 6 foot lengths)	200	EA
Dogwood Stakes (5 to 6 foot lengths)	100	EA
Fabric Encapsulated Soil Lifts (FESL)		
Coarse Coir Matting	448	SY
Fine Coir Matting	448	SY
Dead Stakes (24-inch lengths)	210	EA
FESL Brushlayer		
Pacific Willow Stakes (4 to 8 foot lengths)	810	EA
Sitka Willow Stakes (4 to 8 foot lengths)	810	EA
Dogwood Stakes (4 to 8 foot lengths)	405	EA
Upper Slope Restoration		
Fine Coir Matting	1,440	SY
Vegetation		
Trees (see DWG B-05 for species)	100	EA
Shrubs (see DWG B-05 for species)	500	EA
Seeding		
Seed (see DWG B-05 for species)	27	LB
Upper Slope Restoration Brushlayer		
Scouler's Willow Stakes (4 to 6 foot lengths)	1,620	EA
Dogwood Stakes (4 to 6 foot lengths)	405	EA

NOTES:

1. SEE DRAWING B-06 FOR QUANTITY OF SEED AND PLANTING BY SEPCIES.

CONSTRUCTION SEQUENCE NOTES

1. PLACE AND COMPACT RIPRAP IN HORIZONTAL LIFTS WITH A MAXIMUM THICKNESS OF 36 INCHES. AFTER KEYING RIPRAP STONES TOGETHER AND COMPACTING WITH EXCAVATOR BUCKET, PLACE EARTH FILL (FROM EXCAVATED SPOILS ON SITE) OVER RIPRAP SURFACE IN 6 INCH LIFTS AND WORK INTO RIPRAP PORE SPACES. REPEAT WITH ADDITIONAL LAYERS OF EARTH FILL AS NECESSARY UNTIL RIPRAP WILL NOT ACCEPT ANY MORE EARTH FILL, BEFORE PROCEEDING WITH NEXT SUCCESSIVE LIFT OF RIPRAP.
2. LIVE CUTTINGS USED FOR JOINT PLANTING RIPRAP SHALL BE INSTALLED BY TWO METHODS: 1) PLACEMENT OF LIVE CUTTINGS INTO FACE OF RIPRAP SLOPE AS IT IS CONSTRUCTED, AND 2) INSTALLATION OF LIVE CUTTINGS FOLLOWING COMPLETION OF RIPRAP SLOPE BY DRIVING LIVE CUTTINGS INTO THE INTERSTITIAL SPACES WITHIN THE FACE OF THE COMPLETED SLOPE. SEE ADDITIONAL NOTES FOR JOINT PLANTING WITH THE JOINT PLANTING DETAIL.
3. FESL CONSTRUCTION SHALL CONSIST OF PLACING FINE AND COARSE EROSION CONTROL BLANKET (ECB) TO CONSTRUCT FESL AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER. PLACE ECB AND MAINTAIN SMOOTH AND FREE OF FOLDS, WRINKLES, OR CREASES, AND TAUT AT THE ROUNDED FACE OF FESL LIFTS. ORIENT ECB LAYERS WITH LONG DIMENSION OF EACH SHEET PARALLEL TO DIRECTION OF SLOPE (E.G. PERPENDICULAR TO THE DIRECTION OF STREAM FLOW). OVERLAP JOINTS A MINIMUM OF 1 FOOT. SEE ADDITIONAL NOTES ON FESL DETAILS.
4. BRUSHLAYER CONSTRUCTION SHALL CONSIST OF FIRST PLACING, COMPACTING, AND GRADING THE SLOPE TO FINISH GRADE AS SHOWN ON THE DRAWINGS. THEN, EXCAVATE A TEMPORARY "TRENCH" INTO THE GRADED SLOPE AT THE POSITION INDICATED ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER, PLACE LIVE CUTTINGS INTO THE TRENCH AT THE REQUIRED DENSITY, THEN BACKFILL AND COMPACT BACK TO GRADE. PLACE TEMPORARY EROSION CONTROL BLANKET OVER FINISHED SLOPES. SEE ADDITIONAL NOTES ON BRUSHLAYER DETAILS.

ABBREVIATIONS

AC	ACRE
APPROX	APPROXIMATE
ASPH	ASPHALT
BMP	BEST MANAGEMENT PRACTICE
CF	CUBIC FOOT
CFS	CUBIC FOOT PER SECOND
℄	CENTERLINE
CONC	CONCRETE
CP	CONTROL POINT
CY	CUBIC YARD
EA	EACH
EL, ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EX, EXIST	EXISTING
FESL	FABRIC ENCAPSULATED SOIL LIFT
FT	FEET
H	HORIZONTAL
IE	INVERT ELEVATION
INV	INVERT
LF	LINEAR FOOT
MIN	MINIMUM
MAX	MAXIMUM
N.A.	NOT APPLICABLE
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NTS	NOT TO SCALE
OHW	ORDINARY HIGH WATER
R/W	RIGHT-OF-WAY
STA	STATION
SWPP	STORM WATER POLLUTION PREVENTION PLAN
SY	SQUARE YARD
TEMP	TEMPORARY
TYP	TYPICAL
V	VERTICAL
WL	WETLAND
WS	WATER SURFACE
WSEL	WATER SURFACE ELEVATION
"	INCH, INCHES OR SECOND
'	FOOT, FEET OR MINUTE
°	DEGREE

GENERAL NOTES

1 WORK SHOWN ON THESE PLANS WILL BE PERFORMED FOR UPRR HEREIN REFERRED TO AS "CONTRACTING AGENCY." CONTRACTING AGENCY'S REPRESENTATIVE (OR OTHER PERSONS ASSIGNED BY CONTRACTING AGENCY TO ACT AS CONTRACTING AGENCY'S REPRESENTATIVE) ARE HEREIN REFERRED TO AS THE "REPRESENTATIVE."

2 ANY ITEM NOT SPECIFICALLY DISCUSSED IN CONTRACTOR NOTES ON SHEETS IN THE DRAWINGS SHALL BE AS DESCRIBED IN THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION (LAST UPDATED 2008). CONTRACTOR IS RESPONSIBLE FOR BEING FAMILIAR WITH OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION AND FOR HAVING ACCESS TO OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION AT THE PROJECT SITE TO ENSURE THAT CONSTRUCTION OF THE PROJECT IS IN CONFORMANCE WITH OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION. INFORMATION SHOWN ON THE DRAWINGS SUPERSEDES ANY DUPLICATE INFORMATION IN OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION.

3 CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS OF THE PROJECT SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK.

4 REQUIRED CONSTRUCTION MATERIALS ARE SHOWN ON THE DRAWINGS, NO OTHER CONTRACT DOCUMENTS ARE BEING PROVIDED.

5 FOR THOSE PORTIONS OF FULL-SIZE DRAWINGS (22X34 INCHES) SHOWING SCALE BARS, THE MAJOR SCALE UNIT EQUALS 1 INCH. ON COMPARABLE PORTIONS OF HALF-SIZE DRAWINGS (11X17 INCHES), THE MAJOR SCALE UNIT EQUALS ½ INCH.

6 ELEVATIONS AND DISTANCES SHOWN ARE IN FEET AND DECIMALS WITH CONTOUR INTERVALS AT 1-FOOT AND 5-FOOT INCREMENTS.

7 HORIZONTAL DATUM: STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE INTERNATIONAL, NAD 83. VERTICAL DATUM: NAVD88.

8 TOPOGRAPHIC MAPPING CONSISTS OF SURVEYED POINTS AND BREAKLINES PERFORMED BY CH2MHILL IN MARCH AND APRIL 2014.

9 TOPOGRAPHIC MAPPING NOT PERFORMED BATHYMETRIC.

10 DIGITAL TERRAIN SURFACES SHOULD BE CONSIDERED APPROXIMATE REPRESENTATIONS OF ACTUAL EXISTING SITE CONDITIONS.

11 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT.

12 CONTRACTOR SHALL PROTECT ALL EXISTING POWER POLES AND UTILITIES. ALL EQUIPMENT SHALL MAINTAIN MINIMUM CLEARANCE HORIZONTALLY AND VERTICALLY FROM OVERHEAD POWER LINES, AS REQUIRED FOR SAFETY.

13 CONTRACTOR SHALL CONFIRM THE ACCESS POINT, ROUTE(S), AND LOCATION FOR STORAGE OF MATERIALS AND EQUIPMENT WITH CONTRACTOR REPRESENTATIVE PRIOR TO TRANSPORTING MATERIALS AND EQUIPMENT TO THE PROJECT SITE.

14 THE DRAWINGS DO NOT SHOW ALL EXISTING VEGETATION.

15 CONTRACTOR SHALL AVOID, PRESERVE, AND PROTECT EXISTING VEGETATION AND SENSITIVE AREAS SHOWN ON THE DRAWINGS OR AS SUBSEQUENTLY MARKED IN THE FIELD BY CONTRACTOR REPRESENTATIVE.

16 ENGINEER RESPONSIBLE FOR THE PREPARATION OF THE DRAWINGS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO, OR USE OF, THE DRAWINGS. ALL CHANGES TO THE DRAWINGS MUST BE IN WRITING AND APPROVED BY ENGINEER RESPONSIBLE FOR THE PREPARATION OF THE DRAWINGS.

17 LAND OWNERSHIP BOUNDARIES ARE APPROXIMATE AND FOR DISPLAY PURPOSES ONLY.

REGISTERED PROFESSIONAL ENGINEER — OREGON — JUN. 14, 2005 — GREGORY S. FISCHER — 53,061PE — EXPIRES:12/31/15

NO.	DATE	DR	CHK	APVD	BY	APVD
1	4/14/14	J. YOUNG	A. STEPHENSON	REVISED DESIGN PACKAGE	D. TAKASUMI	G. FISCHER

UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL AND SITE RESTORATION
GLADSTONE , OR

CH2MHILL.

UNION PACIFIC RAILROAD
GLADSTONE
ABBREVIATIONS, LEGEND, NOTES, QUANTITIES, PLAN OVERVIEW

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	APRIL 2014
PROJ	491004
DWG	A-02
SHEET	2

CONTROL POINT TABLE

POINT	NORTHING	EASTING	ELEV	DESCRIPTION
100	629993.8159	7664421.9003	61.18	5/8" IR W/RPC "CH2MHILL CONTROL"
105	630341.7672	7664537.9621	48.07	HUB-N-TACK
110	630446.8015	7664501.2893	32.19	HUB-N-TACK

CLACKAMAS RIVER
OHW
OH EL
PT 110
HUB-N-TACK
EL=32.19
ACCESS RAMP
TREE/BRUSH LIMIT
60" DECID
DIRT STOCKPILE
COMM
EL
GUY LINE
ELEC VAULT
LOW OH POWER
SILT FENCE
36" DECID
SPLIT 18"/12" DECID
16" DECID
CLUSTER 4x12" DECID
12" DECID
SPLIT 18"/10" DECID
40" DECID
TEMP CHN LNK FENCE
CLUSTER 4x12" DECID
12" CONIF
CONIF
PT 105
HUB-N-TACK
EL=48.07
CLACKAMAS RIVER TRAIL
FENCE (CH LINK)

SCALE IN FEET
0 10 20

REGISTERED PROFESSIONAL ENGINEER
53,061PE
OREGON
JUN. 14, 2007
GREGORY S. FISCHER
EXPIRES:12/31/15

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REVISED DESGIN PACKAGE
REVISION

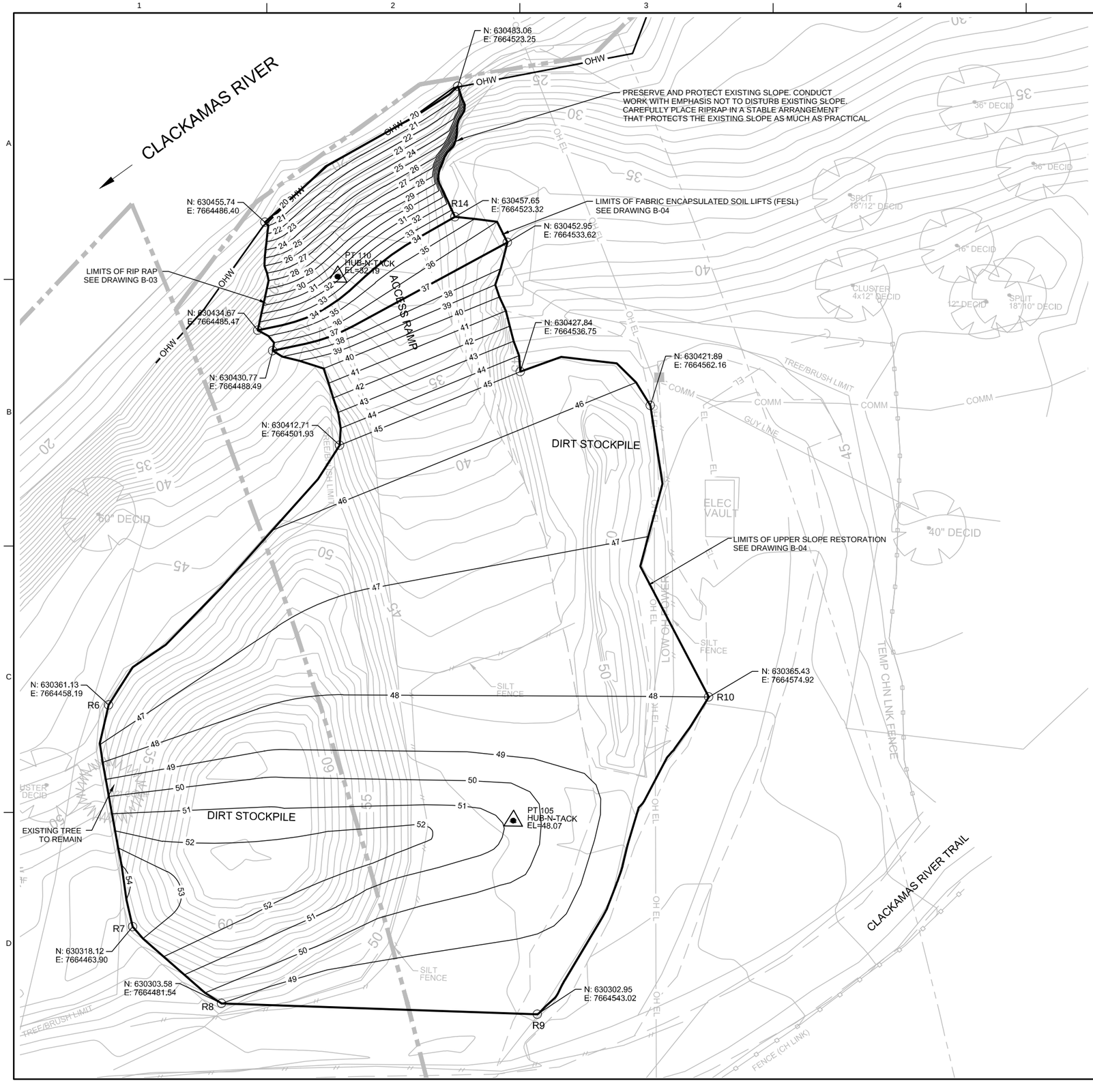
UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL
AND SITE RESTORATION
GLADSTONE , OR

CH2MHILL.

UNION PACIFIC RAILROAD
GLADSTONE
SITE PLAN
EXISTING CONDITIONS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-01
SHEET	3



CONTROL POINT TABLE

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105	630341.7672	7664537.9621	48.07	HUB-N-TACK
110	630446.8015	7664501.2893	32.19	HUB-N-TACK

EARTH WORK POINT TABLE

POINT	NORTHING	EASTING	ELEV
R1	630483.06	7664523.25	20.16
R2	630455.74	7664486.40	20.00
R3	630434.67	7664485.47	34.00
R4	630430.77	7664488.49	37.00
R5	630412.71	7664501.93	45.00
R6	630361.13	7664458.19	42.34
R7	630318.12	7664463.90	57.29
R8	630303.58	7664481.54	49.29
R9	630302.95	7664543.02	48.00
R10	630365.43	7664574.92	48.00
R11	630421.89	7664562.16	49.38
R12	630427.84	7664536.75	45.00
R13	630452.95	7664533.62	37.00
R14	630457.65	7664523.32	34.00

GRADING NOTES

1 BACKFILL FOR FESL AND UPPER SLOPE RESTORATION ZONE SHALL BE NATIVE, ALREADY STOCKPILED MATERIAL IDENTIFIED IN THE PLANS.

2 FINISH GRADING SHALL BE COMPLETED SO ALL LOCATIONS SHOWN ON THE PLANS ARE WITHIN ± 0.50 FEET HORIZONTAL. ALL LOCATIONS SHALL BE WITHIN ± 0.50 FEET VERTICAL.

3 GRADING SHALL BE INSPECTED AND APPROVED BY THE CONTRACTING OFFICER.

4 BLEND ALL FINISH GRADES INTO EXISTING SLOPES TO FORM SMOOTH TRANSITION WHILE MINIMIZING IMPACTS TO EXISTING VEGETATION.

5 PROTECT EXISTING UTILITIES.

SCALE IN FEET
0 10 20

REGISTERED PROFESSIONAL ENGINEER 53,061PE OREGON JUN. 14 2007 GREGORY S. FISCHER
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1	4/14/14	J. YOUNG	A. STEPHENSON	D. TAKASUMI	G. FISCHER		

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UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL AND SITE RESTORATION
GLADSTONE, OR

CH2MHILL.

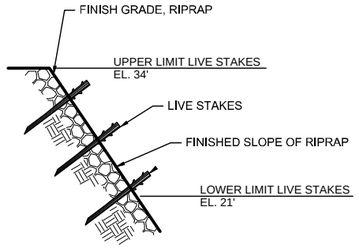
UNION PACIFIC RAILROAD
GLADSTONE
SITE PLAN
FINAL GRADING PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-02
SHEET	4

NOTES:

1. PLACE LIVE STAKES IN A RANDOM CONFIGURATION AVERAGING 4 STAKES PER 10 SF.
2. INSTALL LIVE STAKES WITH BUDS 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, OR INSTALL AS RIPRAP IS PLACED.
4. LENGTH OF LIVE STAKES SHALL BE 4 FT TO 6 FT.
5. BASAL END OF LIVE STAKE MUST BE NO MORE THAN 0.5 FT ABOVE FINISH GRADE OF RIPRAP TOE.
6. FILL INTERSTICES IN ROCK WITH SOIL TO CREATE GOOD CONTACT WITH LIVE STAKES. CUT OFF BROKEN/SPLIT ENDS AFTER INSTALLATION.



2 JOINT PLANTING DETAIL
NTS

RIPRAP LIVE CUTTING TABLE

RIPRAP LIVE CUTTINGS TABLE		
SCIENTIFIC NAME	COMMON NAME	APPROXIMATE %
SALIX LASIANDRA	PACIFIC WILLOW	40
ALTERNATE: SALIX SESSILIFOLIA	*NORTHWEST WILLOW*	
SALIX SITCHENSIS	SITKA WILLOW	40
ALTERNATE: SALIX HOOKERIANA, SALIX PIPERI	*HOOKER'S WILLOW*	
CORNUS SERICEA	RED-OSIER DOGWOOD	20

A. LIVE CUTTINGS SHALL BE PROVIDED BY A NURSERY OF THE CONTRACTOR'S SELECTION CAPABLE OF SUPPLYING NATIVE SPECIES LISTED IN THE TABLE.

B. LIVE CUTTINGS SHALL CONSIST OF THE APPROXIMATE MIX OF SPECIES LISTED IN THE TABLE, AND USED FOR JOINT PLANTING WITHIN THE RIPRAP ZONE. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE HANDLING, DELIVERY, STORAGE, PLACING, AND DISPOSAL OF ALL MATERIALS USED ON THIS PROJECT. ALL LIVE CUTTINGS SHALL BE SOUND, HEALTHY, VIGOROUS, AND FREE FROM PLANT DISEASE, INFECTION, OR DECAY. DO NOT ALLOW LIVE CUTTINGS TO DRY OUT PRIOR TO INSTALLATION. DO NOT STORE LONGER THAN 7 DAYS ON SITE PRIOR TO INSTALLATION.

C. THE APPROXIMATE NUMBER OF LIVE CUTTINGS REQUIRED TO CONSTRUCT JOINT PLANTING RIPRAP IS LISTED IN THE QUANTITY SCHEDULE. DENSITIES ARE 15 CUTTINGS PER LINEAR FOOT OF ROW WITHIN FESL AND BRUSHLAYER, AND 4 STAKES PER 10 SF OF RIPRAP FACE IN JOINT PLANTING.

D. LIVE CUTTINGS USED IN JOINT PLANTING WITHIN THE RIPRAP ZONE CONSTRUCTION SHALL BE 4-6 FEET IN LENGTH, AND WITH A MINIMUM DIAMETER OF 1.5 INCHES.

E. TRIM ALL LEAVES AND SECONDARY BRANCHES FROM CUTTINGS PRIOR TO STORAGE OR INSTALLATION.

F. SEE DRAWING A-02 FOR QUANTITY OF RIPRAP LIVE CUTTINGS.

RIPRAP NOTES:

A. CLASS 2000 RIPRAP SHALL CONSIST OF IMPORTED DURABLE, CLEAN, ANGULAR STONE, WITH A MINIMUM OF THREE FRACTURED FACES, AND NO PREVALENT ROUNDED SURFACES. THE REQUIREMENTS FOR GRADING SHALL BE AS FOLLOWS:

PERCENT SMALLER	MAXIMUM SIZE
100%	36 IN.
80% TO 100%	30 IN.
40% TO 50%	24 IN.
15 TO 25%	12 IN.
5% TO 15%	4 IN.

B. SIZE SHALL BE DETERMINED BY MEASURING THE DIAMETER ALONG THE LONGEST AXIS OF THE STONE. MINIMUM DIMENSION OF INDIVIDUAL PIECES SHALL NOT BE LESS THAN ONE-THIRD THE MAXIMUM DIMENSION.

C. ACCEPTANCE OF RIPRAP BY THE ENGINEER IS REQUIRED, PRIOR TO PLACEMENT, AT THE STOCKPILE ON SITE. ACCEPTANCE SHALL BE CONDUCTED BY VISUAL INSPECTION. INSPECTION WILL REQUIRE THE CONTRACTOR USING EQUIPMENT TO MIX, TURN, OR EXCAVATE INTO THE STOCKPILE, AS NECESSARY OR AS REQUESTED BY THE ENGINEER.

D. RIPRAP SHALL BE FREE OF FINES, OVERBURDEN, SPOIL, SHALE, AND ORGANIC MATERIAL. NON-DURABLE ROCK, SHALE, OR ROCK WITH SHALE SEAMS IS NOT ACCEPTABLE.

E. SEE DRAWING A-02 FOR QUANTITY OF RIPRAP.

RIPRAP BEDDING MATERIAL NOTES:

A. RIPRAP BEDDING MATERIAL SHALL CONSIST OF IMPORTED DURABLE GRANULAR MATERIAL, FREE FROM ROOTS AND OTHER ORGANIC MATTER, ASHES, CINDERS, TRASH, DEBRIS, AND OTHER DELETERIOUS MATERIALS. THE REQUIREMENTS FOR GRADING SHALL BE AS FOLLOWS:

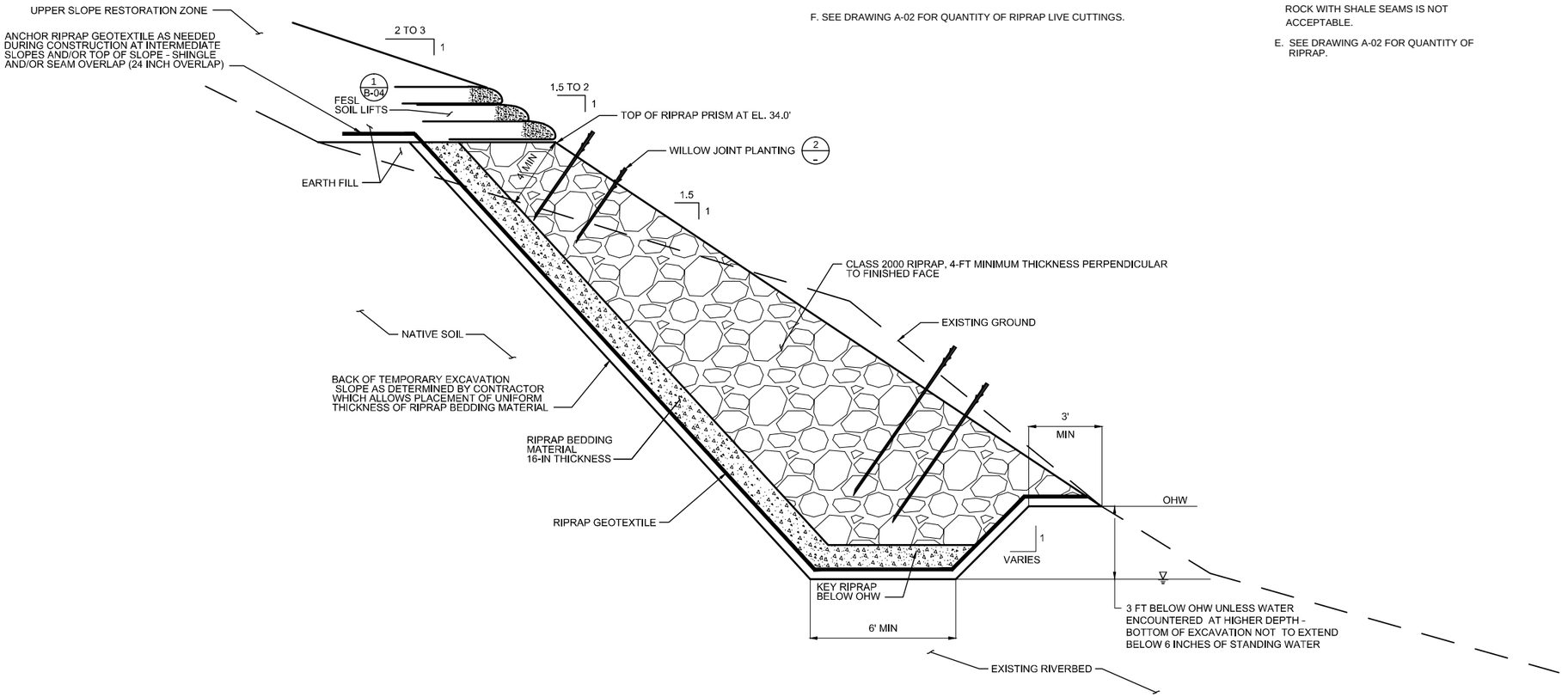
PERCENT PASSING (BY WEIGHT)	SIZE
100%	8 TO 10 IN.
80 TO 100%	6 TO 8 IN.
40 TO 50%	4 TO 6 IN.
15 TO 25%	3/8 TO 3 IN.

B. SIZE SHALL BE DETERMINED BY VISUAL INSPECTION BY THE ENGINEER, INCLUDING GRADATION TEST RESULTS SUBMITTED BY THE MATERIAL SUPPLIER.

C. RIPRAP BEDDING MATERIAL SHALL BE FREE OF FINES, SPOIL, SHALE, AND ORGANIC MATERIAL. NON-DURABLE ROCK, SHALE, OR ROCK WITH SHALE SEAMS IS NOT ACCEPTABLE.

D. ACCEPTANCE OF RIPRAP BEDDING BY THE ENGINEER IS REQUIRED, PRIOR TO PLACEMENT, AT THE STOCKPILE ON SITE. ACCEPTANCE SHALL BE CONDUCTED BY VISUAL INSPECTION. INSPECTION WILL REQUIRE THE CONTRACTOR USING EQUIPMENT TO MIX, TURN, OR EXCAVATE INTO THE STOCKPILE, AS NECESSARY OR AS REQUESTED BY THE ENGINEER.

E. SEE DRAWING A-02 FOR QUANTITY OF RIPRAP BEDDING.



1 RIPRAP TYPICAL SECTION
NTS

REGISTERED PROFESSIONAL ENGINEER
53,061PE
OREGON
JUN. 14, 2005
GREGORY S. FISCHER
EXPIRES:12/31/15

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
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UNION PACIFIC RAILROAD
GLADSTONE
RIPRAP TYPICAL SECTION AND DETAILS

VERIFY SCALE
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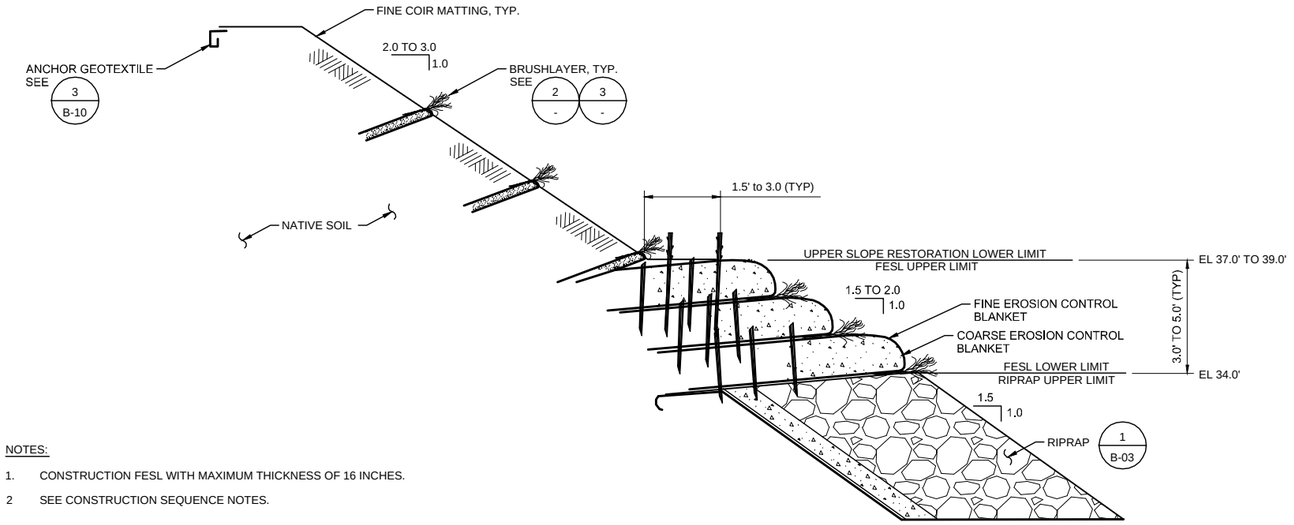
DATE	APRIL 2014
PROJ	491004
DWG	B-03
SHEET	5



NOTES:

1. CONSTRUCTION FESL WITH MAXIMUM THICKNESS OF 16 INCHES.
2 SEE CONSTRUCTION SEQUENCE NOTES.

1 FABRIC ENCAPSULATED SOIL LIFT (FESL) AND UPPER SLOPE RESTORATION TYPICAL SECTION

NTS

GEOTEXTILES

GEOTEXTILE PRODUCTS REQUIRED		
PRODUCT NAME	PRODUCT ID	MANUFACTURER
RIPRAP GEOTEXTILE	TYPE II NONWOVEN RIPRAP SEPARATION GEOTEXTILE GEOTEX 1001 (BY PROPEX) OR MIRIFI 1100N (BY TENCATE)	PROPEX OR TENCATE
COARSE EROSION CONTROL BLANKET FOR FESL	Rollmax Bionet C700BN	Tensar North American Green
FINE EROSION CONTROL BLANKET FOR FESL	Rollmax Bionet C125	Tensar North American Green

A. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING A SUPPLIER FOR THE ABOVE PRODUCTS.

B. THE CONTRACTOR SHALL SUPPLY TO THE ENGINEER A CERTIFICATE STATING THE NAME OF THE MANUFACTURER, PRODUCT NAME, STYLE NUMBER, CHEMICAL COMPOSITION OF THE FILAMENTS OR YARNS AND OTHER PERTINENT INFORMATION TO FULLY DESCRIBE THE GEOTEXTILE.

C. EACH ROLL SHALL BE DELIVERED WITH SUFFICIENT INFORMATION ATTACHED TO IT TO IDENTIFY FOR INVENTORY AND QUALITY CONTROL, AND CLEARLY IDENTIFY THE MANUFACTURER AND PRODUCT NAME.

D. EACH GEOTEXTILE ROLL SHALL BE WRAPPED WITH A MATERIAL THAT WILL PROTECT THE GEOTEXTILE FROM DAMAGE DUE TO SHIPMENT, WATER, SUNLIGHT, AND CONTAMINANTS.

E. STAKING USED TO SECURE GEOTEXTILES SHALL BE WOODEN STAKES AND IN SOME LOCATIONS LIVE CUTTINGS USED AS STAKES.

F. PLACE GEOTEXTILE FOR FESL AS DIRECTED BY THE ENGINEER, AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES. OVERLAP ALL JOINTS A MINIMUM OF 1 FOOT AND STAKE TOGETHER. COMPACT EARTH FILL (SOURCED FROM EXCAVATED SPOILS ON SITE) TO APPROXIMATELY 85 PERCENT RELATIVE COMPACTION, USING THE EXCAVATOR BUCKET OR OTHER EQUIPMENT.

G. PLACE RIPRAP GEOTEXTILE AS INDICATED ON THE DRAWINGS, AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES AND SECTION 350 OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION 2008. PLACE GEOTEXTILE WITH THE UPPER SHEETS OVER THE LOWER SHEETS AND START PLACEMENT OF RIPRAP BEDDING MATERIAL ON THE GEOTEXTILE AT THE TOE OF THE SLOPE AND PROCEED UPWARDS. OVERLAP ALL JOINTS A MINIMUM OF 2 FEET AND SECURE. DO NOT DROP BEDDING RIPRAP MORE THAN 3 FEET ON TO GEOTEXTILE AND AVOID DROPPING RIPRAP ON TO BEDDING RIPRAP AND TEARING GEOTEXTILE. REPAIR TEARS OR PUNCTURES BY OVERLAPPING DAMAGED GEOTEXTILE WITH PATCH OF THE SAME GEOTEXTILE THAT PROVIDES 2 FEET OF OVERLAP IN ALL DIRECTIONS FROM TEAR OR PUNCTURE .

H. SEE DRAWING A-02 FOR QUANTITY OF GEOTEXTILES.

UPPER SLOPE RESTORATION BRUSHLAYER LIVE CUTTINGS TABLE

UPPER SLOPE RESTORATION BRUSHLAYER LIVE CUTTINGS TABLE		
SCIENTIFIC NAME	COMMON NAME	APPROXIMATE %
SALIX SCOULERIANA	SCOULER'S WILLOW	80
CORNUS SERICEA	RED-OSIER DOGWOOD	20

A. LIVE CUTTINGS SHALL BE PROVIDED BY A NURSERY OF THE CONTRACTOR'S SELECTION CAPABLE OF SUPPLYING NATIVE SPECIES LISTED IN THE TABLE.

B. LIVE CUTTINGS SHALL CONSIST OF THE APPROXIMATE MIX OF SPECIES LISTED IN THE TABLE, AND USED FOR FESL CONSTRUCTION, JOINT PLANTING WITHIN THE RIPRAP ZONE, AND FOR CONSTRUCTION OF BRUSHLAYERS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE HANDLING, DELIVERY, STORAGE, PLACING, AND DISPOSAL OF ALL MATERIALS USED ON THIS PROJECT. ALL LIVE CUTTINGS SHALL BE SOUND, HEALTHY, VIGOROUS, AND FREE FROM PLANT DISEASE, INFECTION, OR DECAY. DO NOT ALLOW LIVE CUTTINGS TO DRY OUT PRIOR TO INSTALLATION. DO NOT STORE LONGER THAN 7 DAYS ON SITE PRIOR TO INSTALLATION.

C. THE APPROXIMATE NUMBER OF LIVE CUTTINGS REQUIRED TO CONSTRUCT FESL, BRUSHLAYER, AND USED IN JOINT PLANTING RIPRAP IS LISTED IN THE QUANTITY SCHEDULE. DENSITIES ARE 15 CUTTINGS PER LINEAR FOOT OF ROW WITHIN FESL AND BRUSHLAYER, AND 4 STAKES PER 10 SF OF RIPRAP FACE IN JOINT PLANTING.

D. LIVE CUTTINGS INSTALLED AS PART OF FESL OR BRUSHLAYER CONSTRUCTION SHALL BE 4-8 FEET IN LENGTH, AND ½ TO 2 INCHES IN DIAMETER.

E. LIVE CUTTINGS USED IN JOINT PLANTING WITHIN THE RIPRAP ZONE CONSTRUCTION SHALL BE 4-6 FEET IN LENGTH, AND WITH A MINIMUM DIAMETER OF 1.5 INCHES.

F. TRIM ALL LEAVES AND SECONDARY BRANCHES FROM CUTTINGS PRIOR TO STORAGE OR INSTALLATION.

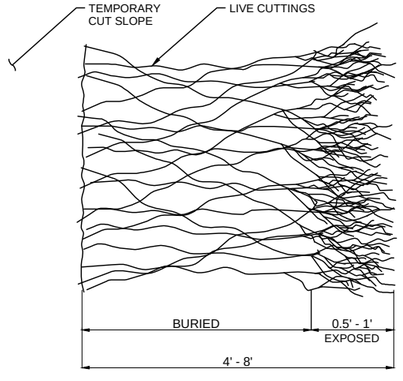
G. SEE DRAWING A-02 FOR QUANTITY OF LIVE CUTTINGS FOR UPPER SLOPE AND FESL BRUSHLAYERS.

FESL BRUSHLAYER LIVE CUTTING TABLE

LIVE CUTTINGS TABLE		
SCIENTIFIC NAME	COMMON NAME	APPROXIMATE %
SALIX LASIANDRA [1]	PACIFIC WILLOW	40
ALTERNATE: SALIX SESSILIFOLIA	NORTHWEST WILLOW	
SALIX SITCHENSIS	SITKA WILLOW	40
ALTERNATE: SALIX HOOKERIANA, SALIX PIPERI	HOOKER'S WILLOW	
CORNUS SERICEA	RED-OSIER DOGWOOD	20

NOTES:

1 ALTERNATE WILLOW SPECIES THAT MAY BE USED IN PLACE OF EITHER OF THE ABOVE WILLOW SPECIES: NORTHWEST WILLOW (SALIX SESSILIFOLIA), HOOKERS WILLOW (SALIX HOOKERIANA, SALIX PIPEN).

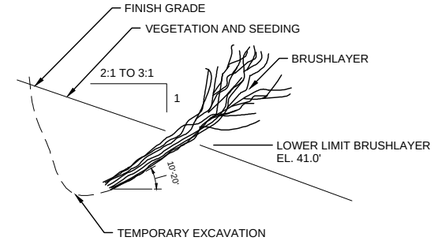


NOTES:

1. SEE BRUSHLAYER LIVE CUTTING TABLE FOR SPECIES SELECTION.
2. ORIENT LIVE CUTTINGS WITH GROWING TIPS EXTENDING OUT OF SLOPE FACE.

2 BRUSHLAYER PLAN VIEW

NTS

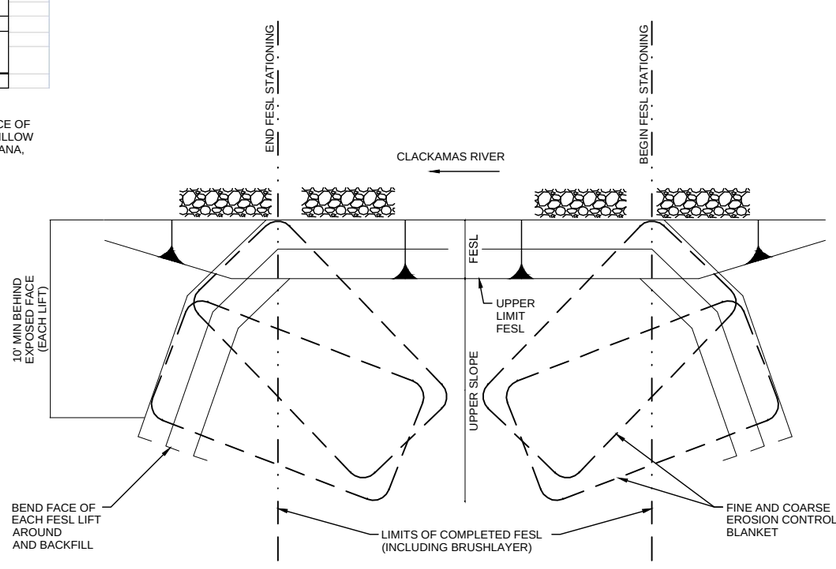


NOTES:

1. PLACE LIVE CUTTING WITH GROWING TIPS ALIGNED IN DIRECTION OF DOWNWARD SLOPE.
2. PLACE LIVE CUTTINGS AT DENSITY OF 15-20 CUTTINGS PER FOOT WITHIN EACH BRUSHLAYER ROW.
3. COMPACT EARTH FILL ON TOP OF LIVE CUTTINGS, BACK TO FINISH GRADE.

3 BRUSHLAYER SECTION

NTS



NOTE:

1. KEY IN FESL ENDS (UPSTREAM AND DOWNSTREAM) AS SHOWN AT ALL LIMITS WHERE IT IS CONSTRUCTED.

4 FESL END DETAIL

NTS

REGISTERED PROFESSIONAL ENGINEER 53,061PE OREGON JUN. 14, 2007 GREGORY S. FISCHER

EXPIRES:12/31/15

NO.	DATE	DR	CHK	APVD	BY	APVD
1	4/14/14	J. YOUNG	A. STEPHENSON	D. TAKASUMI		G. FISCHER

REVISED DESGIN PACKAGE

REVISION

UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL AND SITE RESTORATION
GLADSTONE , OR

CH2MHILL.

UNION PACIFIC RAILROAD
GLADSTONE
UPPER SLOPE RESTORATION
SOIL LIFT AND VEGETATION DETAILS

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-04
SHEET	6

CONTROL POINT TABLE

POINT	NORTHING	EASTING	ELEV	DESCRIPTION
100	629993.8159	7664421.9003	61.18	5/8" IR W/RPC "CH2MHILL CONTROL"
105	630341.7672	7664537.9621	48.07	HUB-N-TACK
110	630446.8015	7664501.2893	32.19	HUB-N-TACK

NOTES

1 SEE DRAWING B-06 FOR PLANTING DETAILS AND QUANTITY OF SEED AND PLANTINGS BY SPECIES.

2 FINAL PLANTING LAYOUT MAY BE FIELD ADJUSTED BY REPRESENTATIVE TO ENSURE EVEN SPACING BY VEGETATION TYPE AND SPECIES.

LEGEND

- SALMONBERRY
- THREE SHRUBS (RED-FLOWERING CURRANT, OREGONGRAPE, NOOTKA ROSE)
- BLACK COTTONWOOD
- BIG-LEAF MAPLE
- DOUGLAS-FIR
- RED ALDER
- BEAKED HAZELNUT
- VINE MAPLE
- SERVICEBERRY
- UPPER SLOPE TO BE SEEDED/HYDROMULCHED
- BRUSHLAYER

SCALE IN FEET
0 10 20

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUN. 14, 2007
GREGORY S. FISCHER
53,061PE
EXPIRES:12/31/15

NO.	DATE	DSGN	DR	CHK	APVD	BY
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REVISION

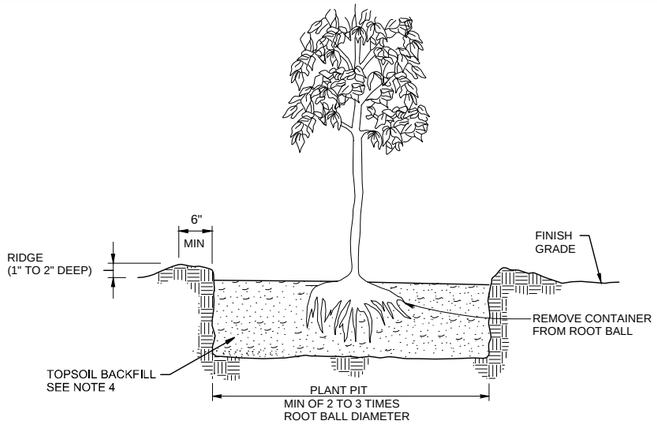
UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL
AND SITE RESTORATION
GLADSTONE , OR

CH2MHILL.

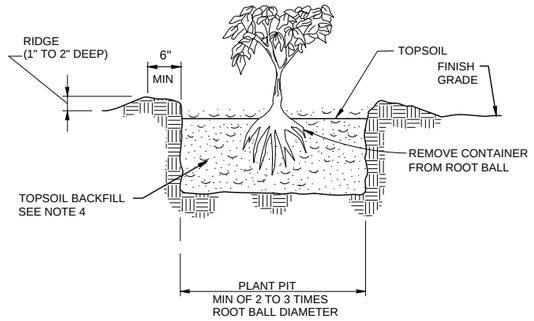
UNION PACIFIC RAILROAD
GLADSTONE
REVEGETATION PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-05
SHEET	7



1 TYPICAL CONTAINER GROWN TREE
NTS

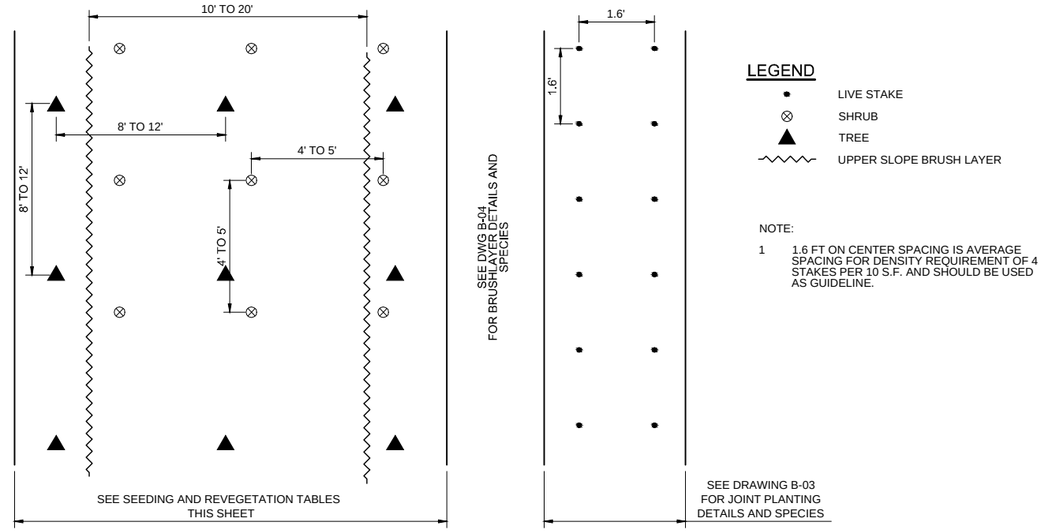


2 TYPICAL CONTAINER GROWN SHRUB
NTS

NOTES:

1. EXCAVATE PLANT PIT TO 2 TO 3 TIMES THE WIDTH OF THE ROOT BALL DIAMETER AND AS DEEP AS THE CONTAINER DEPTH.
2. PLANT PITS SHALL BE DUG TO PRODUCE TAPERED SIDES THAT ARE ROUGH AND SOFT WITH FLAT, UNCOMPACTED BOTTOMS. WHEN PITS ARE DUG WITH AN AUGER AND THE SIDES OF THE PIT BECOME GLAZED, THE GLAZED SURFACE SHALL BE SCARIFIED SO THE PLANT PIT SIDES ARE ROUGH AND SOFT.
3. REMOVE PLANT FROM CONTAINER WITHOUT DISTURBING THE ROOT BALL. IF THE PLANT HAS BECOME ROOTBOUND, SCORE THE ROOTS IN 3 TO 4 PLACES WITH A KNIFE. SET PLANT IN THE PIT, CRADLING AND SUPPORTING THE ROOT BALL.
4. BACKFILL PIT WITH TOPSOIL A FEW INCHES AT A TIME, FIRMING THE SOIL AFTER EACH ADDITION. FORM A RIDGE AROUND THE EDGE OF THE PIT TO HOLD WATER. WHEN PLANT IS SET AND BACKFILL HAS BEEN WATER-SETTLED, THE TOP OF THE ROOT BALL SHOULD BE LEVEL WITH FINISH GRADE.

UPPER SLOPE RESTORATION FESL RIPRAP



LEGEND

- LIVE STAKE
- SHRUB
- TREE
- UPPER SLOPE BRUSH LAYER

NOTE:

1 1.6 FT ON CENTER SPACING IS AVERAGE SPACING FOR DENSITY REQUIREMENT OF 4 STAKES PER 10 S.F. AND SHOULD BE USED AS GUIDELINE.

SEEDING TABLE

Scientific Name	Common Name	Minimum lbs of Seed
Red fescue	*Festuca rubra*	15
Pacific bentgrass	*Agrostis exerata*	10
Sickle-keeled lupine	*Lupinus albicaulis*	2
	Total	27

NOTES:

1 OBTAIN SEED FROM REPUTABLE SOURCE TO AVOID CONTAMINATION.

2 MINIMUM LBS/ACRE OF PURE LIVE SEED IS 54 LBS/ACRE.

REVEGETATION

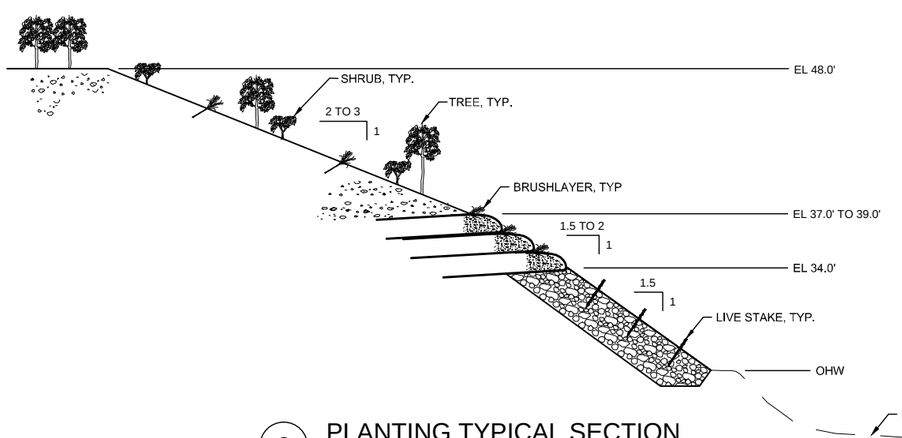
Scientific Name	Common Name	Number	Form
Populus balsamifera	black cottonwood	20	tree
Acer macrophyllum	bigleaf maple	20	tree
Pseudotsuga menzeisii	Douglas-fir	20	tree
Alnus rubra	red alder	28	tree
Corylus cornuta	beaked hazelnut	12	tree
Acer circinatum	vine maple	50	shrub
Rubus spectabilis	salmonberry	75	shrub
Amelanchier alnifolia	serviceberry	75	shrub
Ribes sanguineum	flowering currant	80	shrub
Mahonia aquifolium	tall oregongrape	110	shrub
Rosa nutkana	Nootka rose	110	shrub

NOTES:

1 PLANTING MAY VARY IN SIZE DEPENDING ON FORM (LIVE CUTTING, SHRUB, AND TREE). NO PLANTINGS SHALL BE SHORTER THAN 12 INCHES IN HEIGHT.

2 SHRUBS PLANTED ON 4 TO 5 FOOT ON CENTER OR CLUSTERED AT 8 TO 10 FOOT ON CENTER; TREES PLANTED ON 8 TO 12 FOOT ON CENTER.

3 UPPER SLOPE RESTORATION BRUSHLAYER INSTALLED ON SLOPE CONTOUR ACROSS ENTIRE WIDTH OF SLOPE SPACED 10' TO 20' APART FROM ELEVATION 39' TO 46'.



3 PLANTING TYPICAL SECTION
NTS

REGISTERED PROFESSIONAL ENGINEER 53,061PE OREGON JUN. 14, 2005 GREGORY S. FISCHER
EXPIRES:12/31/15

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
1	4/14/14	J. YOUNG	A. STEPHENSON	D. TAKASUMI	G. FISCHER		

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REVISION

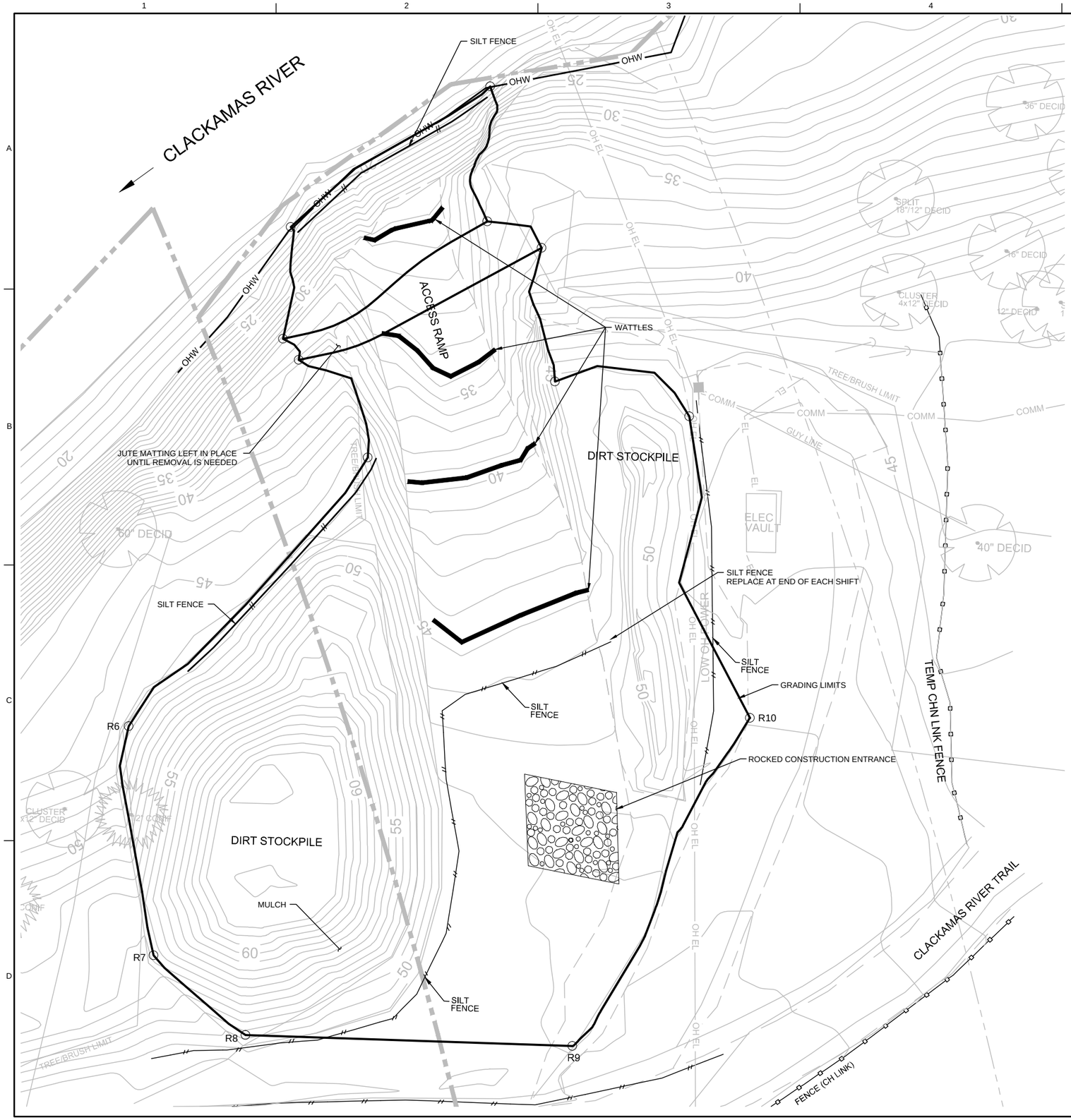
UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL AND SITE RESTORATION
GLADSTONE, OR

CH2MHILL.

UNION PACIFIC RAILROAD
GLADSTONE
SEEDING AND PLANTING
DETAILS AND QUANTITIES

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-06
SHEET	8



NOTES

1. REPLACE WATTLES AND SILT FENCE AT THE END OF EACH WORKDAY.
2. REPLACE SILT FENCE AROUND STOCKPILE AT THE END OF WORKDAY.
3. MONITOR SLOPE FOR SIGNS OF RILLS AND GULLIES.
4. APPLY STRAW MULCH OR SOIL TACKIFERS IF STOCKPILE IS LEFT UNWORKED OVER THE WEEKEND OR PRIOR TO A PRECIPITATION EVENT.

LEGEND

- SILT FENCE (SEE B-10)
- STRAW WATTLE (SEE B-10)

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUN. 14, 2007
GREGORY S. FISCHER
EXPIRES:12/31/15

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
1	4/14/14	J. YOUNG	A. STEPHENSON	D. TAKASUMI	G. FISCHER		

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REVISION

CH2MHILL.

UNION PACIFIC RAILROAD

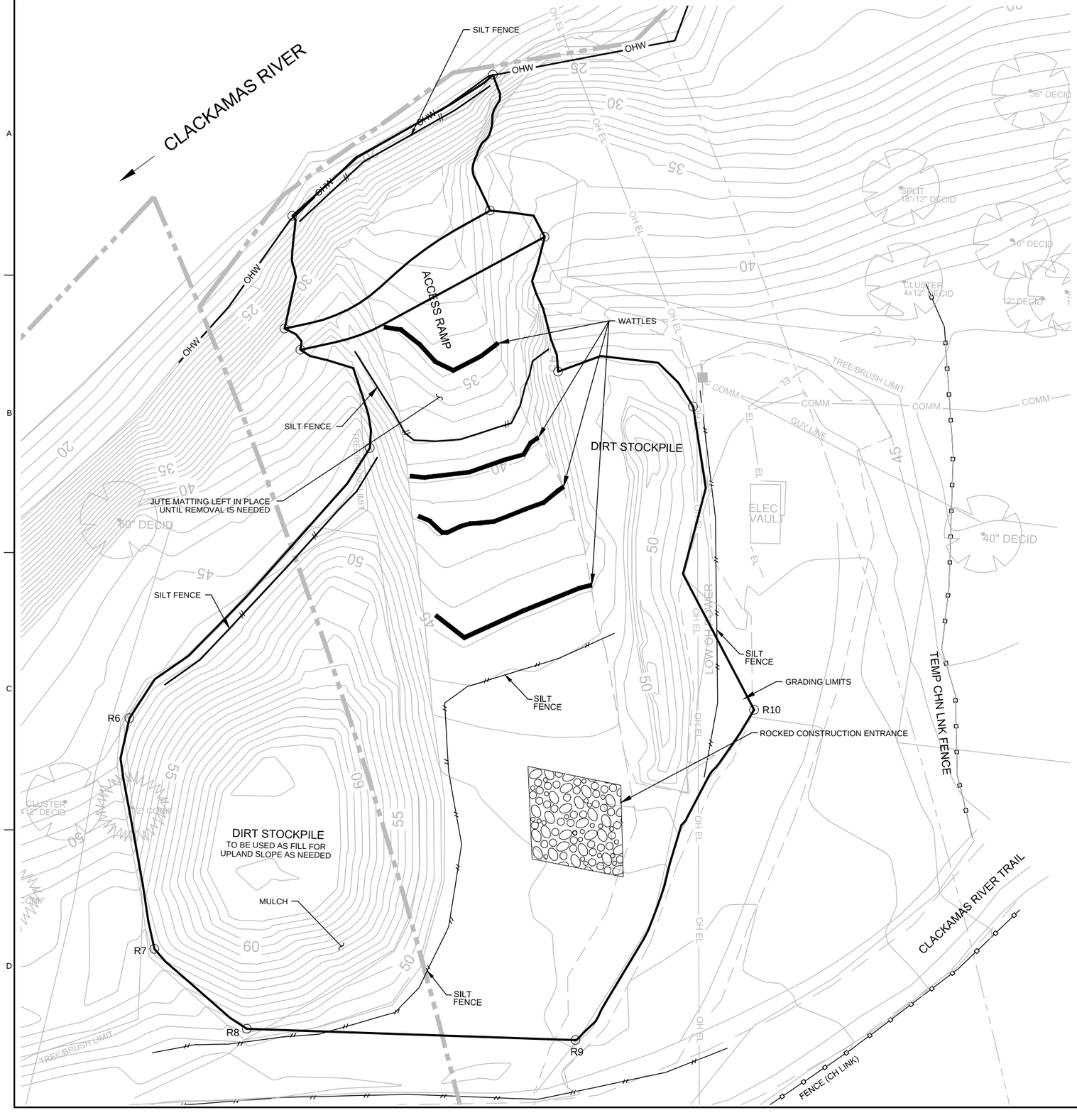
GLADSTONE
EROSION AND SEDIMENT CONTROL PLAN (DURING CONSTRUCTION) - 1

UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL AND SITE RESTORATION
GLADSTONE , OR

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-07
SHEET	9



NOTES

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4. APPLY STRAW MULCH OR SOIL TACKIFERS IF STOCKPILE IS LEFT UNWORKED OVER THE WEEKEND OR PRIOR TO A PRECIPITATION EVENT.

LEGEND

- SILT FENCE (SEE B-10)
- STRAW WATTLE (SEE B-10)

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUN. 14, 2001
GREGORY S. FISCHER
EXPIRES:12/31/15

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
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REVISION

UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL
AND SITE RESTORATION
GLADSTONE, OR

CH2MHILL.

UNION PACIFIC RAILROAD

GLADSTONE
EROSION AND SEDIMENT CONTROL PLAN (DURING CONSTRUCTION) - 2

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-08
SHEET	10

NOTES

1. MULCH MAY BE SUBSTITUTED WITH FINE EROSION CONTROL FABRIC WITH APPROVAL BY REPRESENTATIVE.

LEGEND

- SILT FENCE
- STRAW WATTLE
- HYDROSEED/MULCH STABILIZATION
- FINE EROSION CONTROL BLANKET
- SEEDING AREA

SCALE IN FEET
0 10 20

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUN. 14, 2007
GREGORY S. FISCHER
53,061PE
EXPIRES:12/31/15

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
1	4/14/14	J. YOUNG	A. STEPHENSON	D. TAKASUMI	G. FISCHER		

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UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL AND SITE RESTORATION
GLADSTONE, , OR

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UNION PACIFIC RAILROAD
GLADSTONE
FINAL EROSION AND SEDIMENT CONTROL PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-09
SHEET	11

EROSION AND SEDIMENT CONTROL NOTES

1. THE PREDOMINANT SOIL TYPE IN THE PROJECT AREA IS PRONE TO WATER EROSION. THEREFORE THE IMPLEMENTATION OF EROSION CONTROL PRACTICES MUST BE AN INTEGRAL PART OF ALL ASPECTS OF CONSTRUCTION.
2. THE IMPLEMENTATION OF THESE EROSION CONTROL PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADE OF THESE FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED, APPROVED, AND THE SITE IS STABILIZED.
3. THE EROSION CONTROL MEASURES SHOWN IN THESE PLANS MUST BE CONSTRUCTED IN CONNECTION WITH ALL GRADING ACTIVITIES AND IN SUCH A MANNER TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT ENTER THE CLACKAMAS RIVER, NEARBY SENSITIVE AREAS, OR THE ADJACENT BIKE PATH.
4. THE EROSION AND SEDIMENT CONTROL BMPS SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS, DURING THE ACTIVE CONSTRUCTION PERIOD, THESE EROSION AND SEDIMENT CONTROL BMPS SHALL BE MAINTAINED AND UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO INSURE THAT SEDIMENT LADEN WATER DOES NOT LEAVE THE CONSTRUCTION SITE.
5. TEMPORARILY STABILIZE EXISTING BARE SOIL AREAS BY SPREADING STRAW MULCH AND CRIMPING INTO THE SURFACE. THE APPLICATION RATE FOR STRAW MULCH IS 2,500 LBS PER ACRE. PERMANENTLY SEED THE DISTURBED UPLAND AREAS USING THE SEED MIX SPECIFIED ON DRAWING B-06.
6. SILT FENCE WILL BE INSTALLED ON CONTOUR AT THE LOCATIONS SPECIFIED IN DRAWINGS B-07, B-08, AND B-09. SILT FENCE WILL BE INSTALLED PER DETAIL 1. SILT FENCE WILL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS OCCURRED.
7. STRAW WATTLES WILL BE INSTALLED ON CONTOUR, PERPENDICULAR TO THE FLOW VELOCITY, AT THE LOCATIONS SPECIFIED ON SHEETS B-07, B-08, AND B-09. STRAW WATTLES WILL BE INSTALLED PER DETAIL 2. STRAW WATTLES WILL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT AND WILL BE LEFT IN PLACE AT THE END OF THE PROJECT.

NARRATIVE

THE PROJECT CONSISTS OF RESTORATION OF AN AREA OF STREAMBANK EXCAVATED FOR ACCESS TO THE BRIDGE REMOVAL LOCATION ON THE SOUTH BANK OF THE CLACKAMAS RIVER. THE PURPOSE OF THE PROJECT IS TO RESTORE THE STREAMBANK AT THE FORMER SOUTH BRIDGE ABUTMENT TO MATCH WITH EXISTING GRADES AND STABILIZE THE SLOPE WITH RIPRAP AND VEGETATION TO MINIMIZE EROSION. THE EXISTING BANK ABOVE OHW WILL BE STABILIZED WITH RIPRAP AND WILLOW CUTTINGS (ZONE 1). ABOVE THE UPPER LIMITS OF THE RIPRAP ZONE, THE SLOPES WILL BE RESTORED AT A FLATTER SLOPE AND WILL MATCH THE EXISTING BANK GEOMETRY. BANK RESTORATION ABOVE THE RIPRAP ZONE WILL BE ACCOMPLISHED USING FABRIC ENCAPSULATED SOIL LIFTS, OR FESL (ZONE 2). THIS SOLUTION INCORPORATES NATURAL COIR FIBER EROSION CONTROL FABRIC PLACED IN HORIZONTAL LAYERS, FURTHER REINFORCED BY SHRUB VEGETATION. ABOVE THE FESL ZONE, THE UPPER SLOPE RESTORATION ZONE (ZONE 3) WILL CONSIST OF REVEGETATING THE SLOPE WITH NATIVE PLANTS (SEEDING) AND TREE AND SHRUB INSTALLATION. NATIVE SOIL EXCAVATED DURING BRIDGE REMOVAL AND RIPRAP INSTALLATION WILL BE USED FOR BACKFILL IN THE FESL AND UPPER SLOPE RESTORATION ZONES. BEST MANAGEMENT PRACTICES (BMPS) WILL BE INSTALLED DURING RESTORATION OF EACH OF THE THREE ZONES DESCRIBED ABOVE TO MINIMIZE EROSION, AND CONTROL SEDIMENTATION.

SEQUENCING

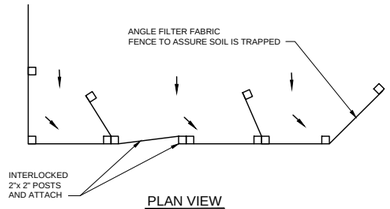
NUMEROUS BMPS WILL BE IMPLEMENTED DURING EACH PHASE OF CONSTRUCTION. THE FOLLOWING NARRATIVE PROVIDES THE MAJOR ELEMENT OF CONSTRUCTION, THE BMPS THAT WILL BE INSTALLED, AND THE FINAL STABILIZATION.

WORK ELEMENT	BMPS INSTALLED	FINAL STABILIZATION
RIP RAP SLOPE PROTECTION	1. SILT FENCE INSTALLED DOWNGRADIENT OF THE CONSTRUCTION ZONE. 2. LIMIT CLEARING AND GRADING 3. JUTE MATTING, AND STRAW WATTLES INSTALLED UPGRADIENT OF THE SLOPE	THE PLACEMENT OF THE RIPRAP WILL CONSTITUTE FINAL STABILIZATION. DOWNGRADIENT SILT FENCE WILL BE REMOVED.
FESL INSTALLATION	1. STRAW WATTLES INSTALLED DOWNGRADIENT OF FESL. 2. RIPRAP INSTALLED DOWNGRADIENT 3. FESL WILL CONSIST OF FINE COIR MATTING TO PROTECT SLOPE WHILE VEGETATION IS ESTABLISHED.	THE FESL AND BRUSH LAYER WILL BE STABILIZED ONCE VEGETATION HAS ESTABLISHED.
UPLAND RESTORATION	1. STRAW WATTLES AND SILT FENCE INSTALLED DOWNGRADIENT OF GRADING ACTIVITIES. 2. STRAW MULCH FOR STABILIZING DISTURBED SOILS. 3. LIMIT THE AREA NEEDED FOR CLEARING AND GRADING 4. REVEGETATION OF THE UPLAND SLOPES AND UPLAND AREAS.	THE UPLAND AREA WILL BE STABILIZED ONCE VEGETATION HAS ESTABLISHED.

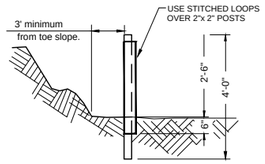
INSPECTION FREQUENCY

SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT, IS OCCURRING. AT LEAST ONCE EVERY TWO WEEKS, REGARDLESS OF WHETHER OR NOT RUNOFF IS OCCURRING.
2. PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3. INACTIVE PERIODS GREATER THAN FOURTEEN (14) CALENDAR DAYS.	ONCE EVERY TWO (2) WEEKS.
4. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.

NOTE:
TO BE PERFORMED BY REPRESENTIVE.

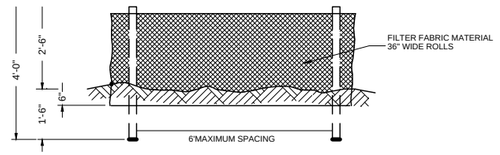


PLAN VIEW



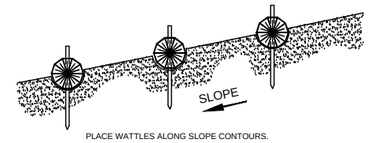
PROFILE

NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
5. PANELS MUST BE PLACED ACCORDING TO SPACING ON FRONT VIEW

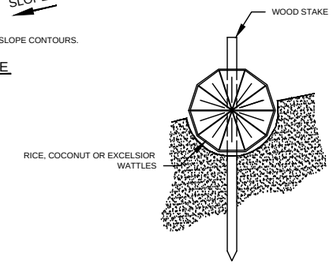


FRONT VIEW

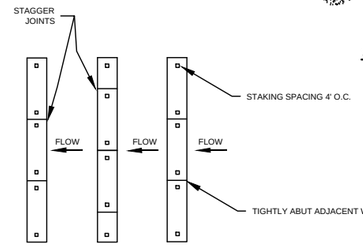
1 SEDIMENT FENCE
NTS



PROFILE



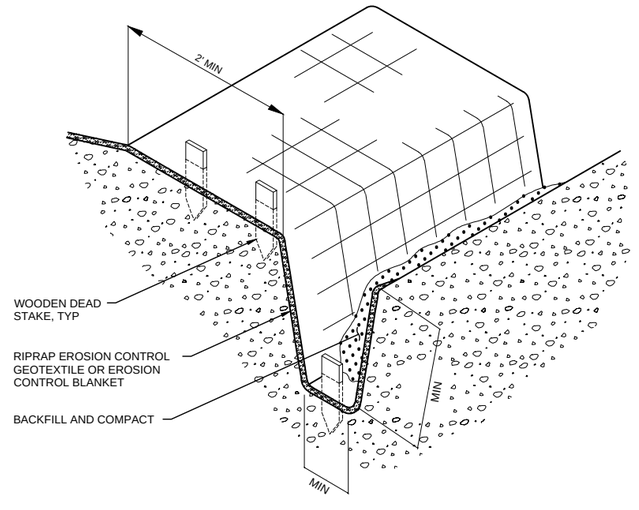
SECTION



PLAN VIEW

NOTES:
1. STAKING SPECIFICATIONS:
A. 1"X2" WOODEN STAKES
B. ADDITIONAL STAKES MAY BE INSTALLED ON DOWNHILL SIDE OF WATTLES, ON STEEP SLOPE OR HIGHLY EROSIVE SOILS.
2. SPACING IN ACCORDANCE WITH PROFILE VIEW.

2 WATTLES
NTS



3 GEOTEXTILE ANCHOR DETAIL
NTS

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUN. 14, 2005
GREGORY S. FISCHER
EXPIRES: 12/31/15

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
1	4/14/14	J. YOUNG	A. STEPHENSON	D. TAKASUMI		G. FISCHER	

REVISED DESGIN PACKAGE
REVISION

CH2MHILL.

UNION PACIFIC RAILROAD
GLADSTONE
EROSION AND SEDIMENT CONTROL
NOTES AND DETAILS

UNION PACIFIC RAILROAD
GLADSTONE BRIDGE REMOVAL
AND SITE RESTORATION
GLADSTONE, OR

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	APRIL 2014
PROJ	491004
DWG	B-10
SHEET	12