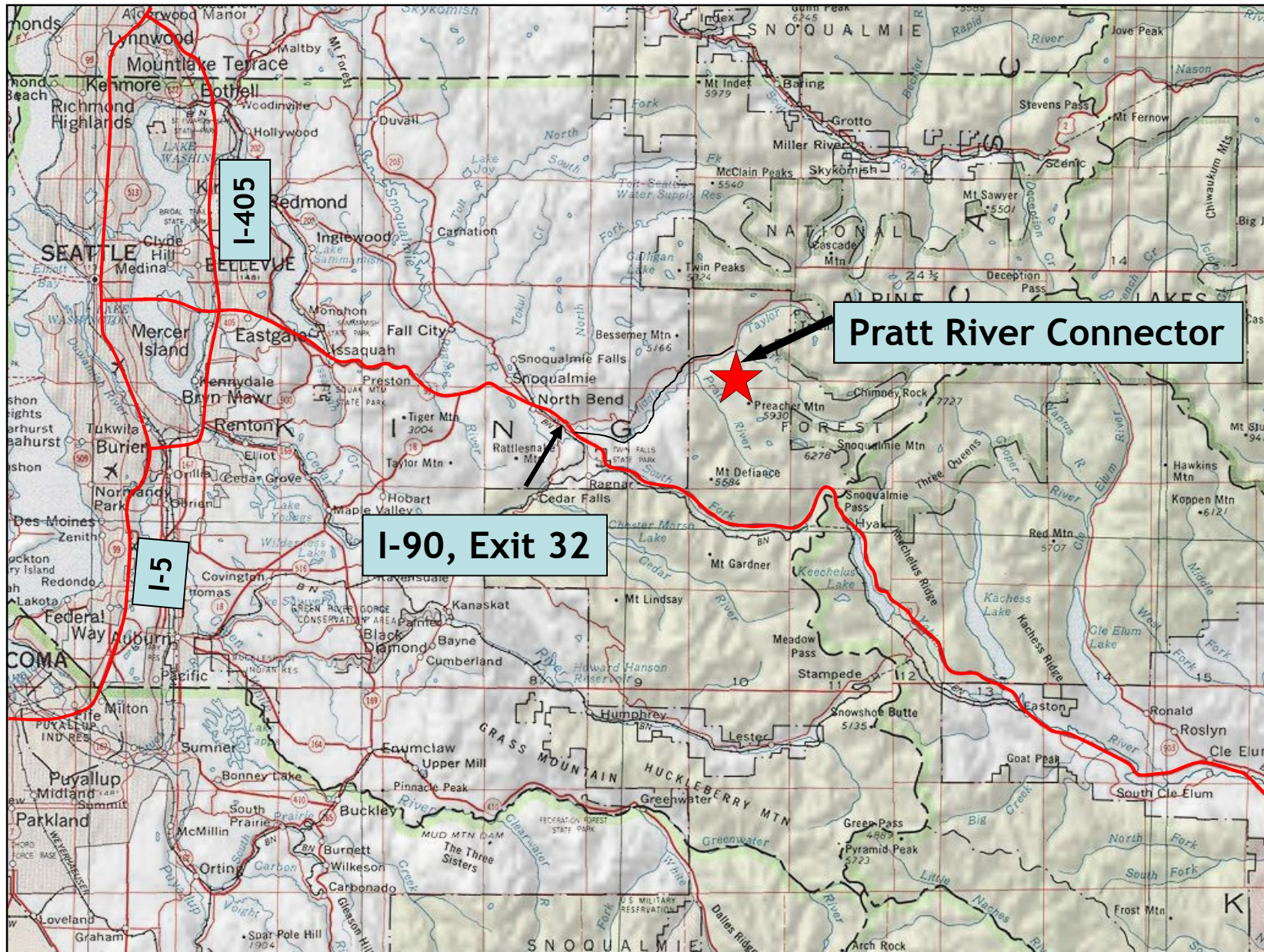


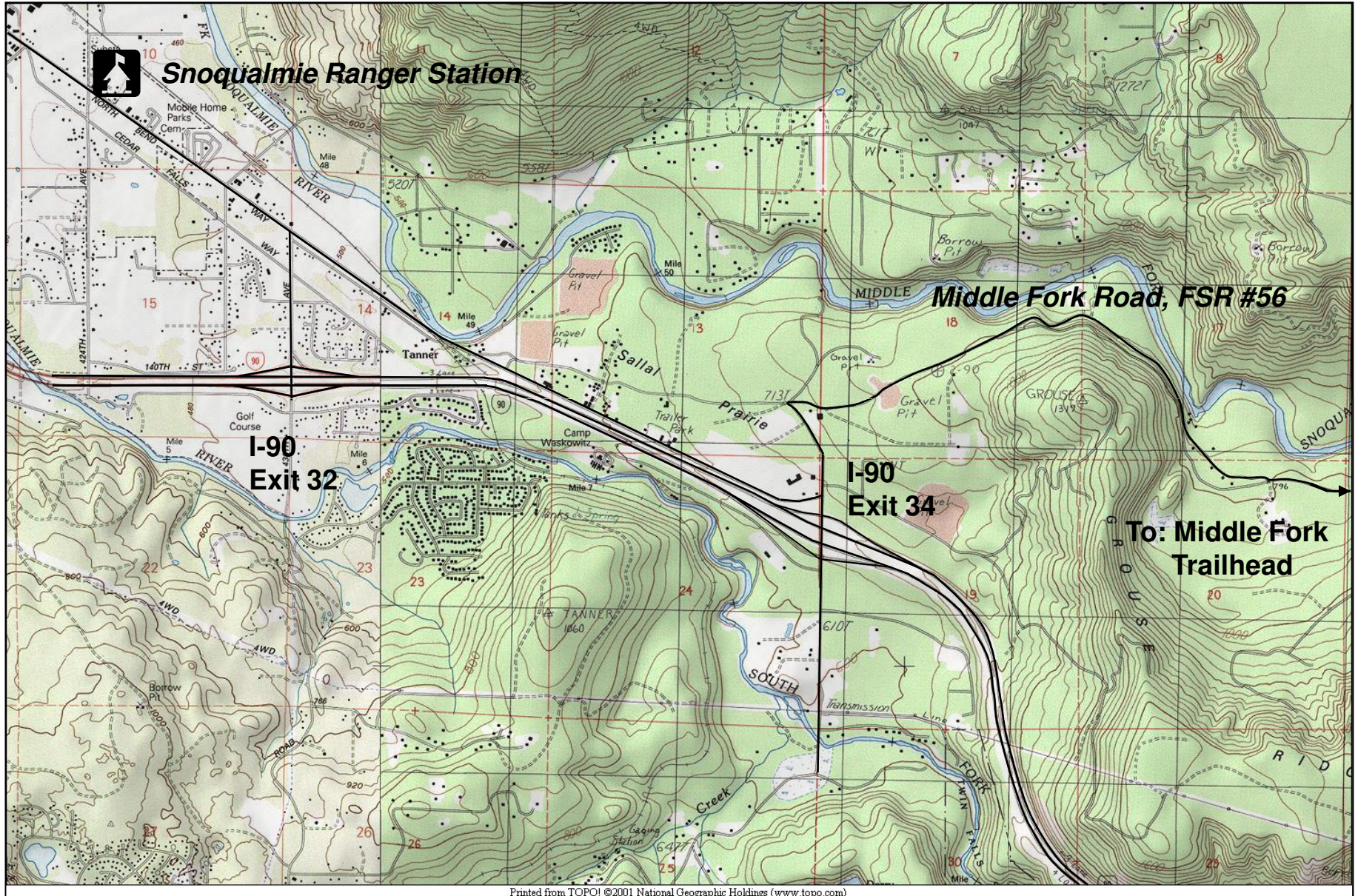
Project Location  
Pratt River Trail Connector #1035

Mt. Baker-Snoqualmie National Forest  
Snoqualmie Ranger District



Project Location  
North Bend, Exit 34

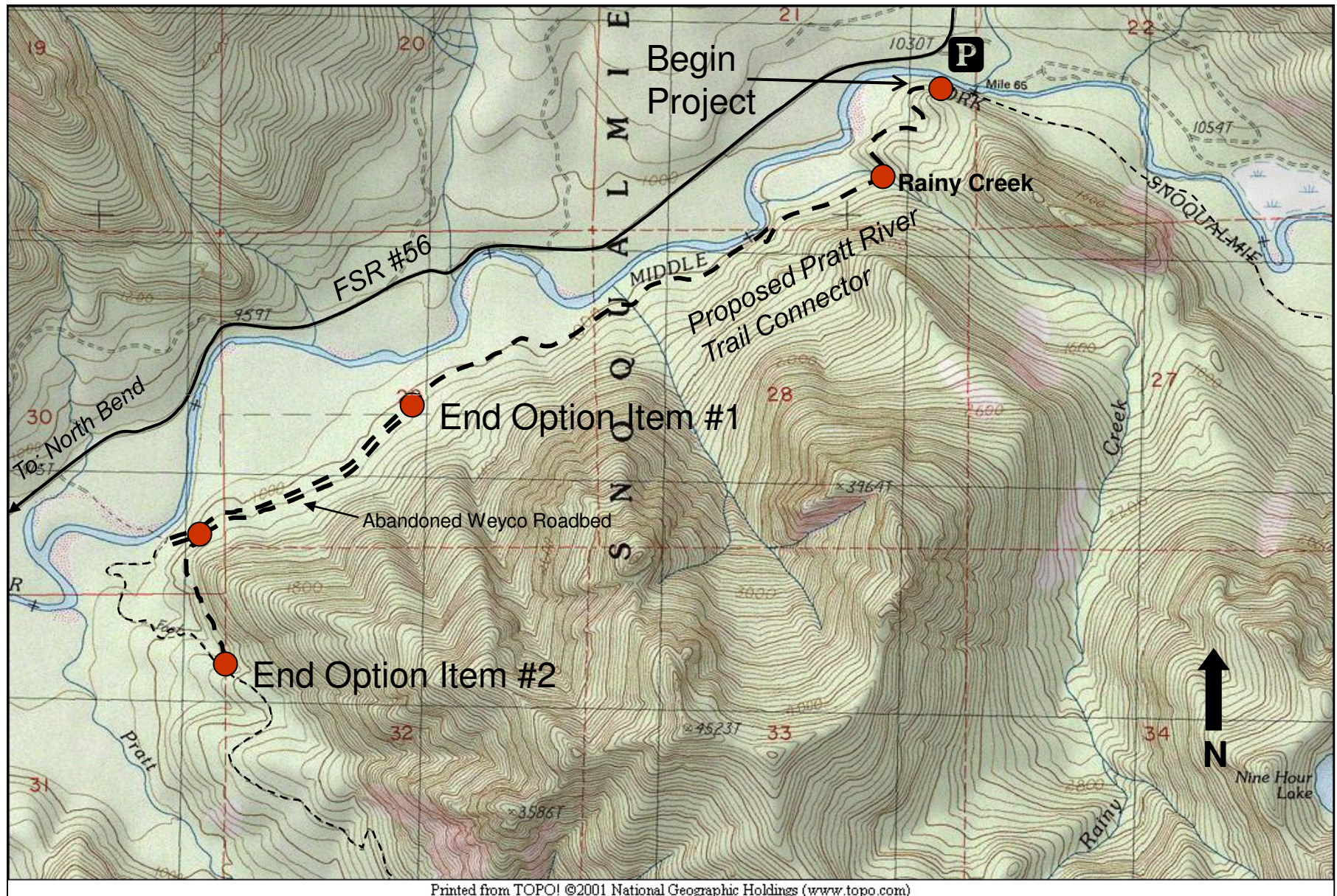
Mt. Baker-Snoqualmie National Forest  
Snoqualmie Ranger District



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**Project Location**  
**Pratt River Connector #1035**

*Mt. Baker-Snoqualmie National Forest*  
*Snoqualmie Ranger District*



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# Mount Baker – Snoqualmie Blasting Guidelines for Protection of Fish

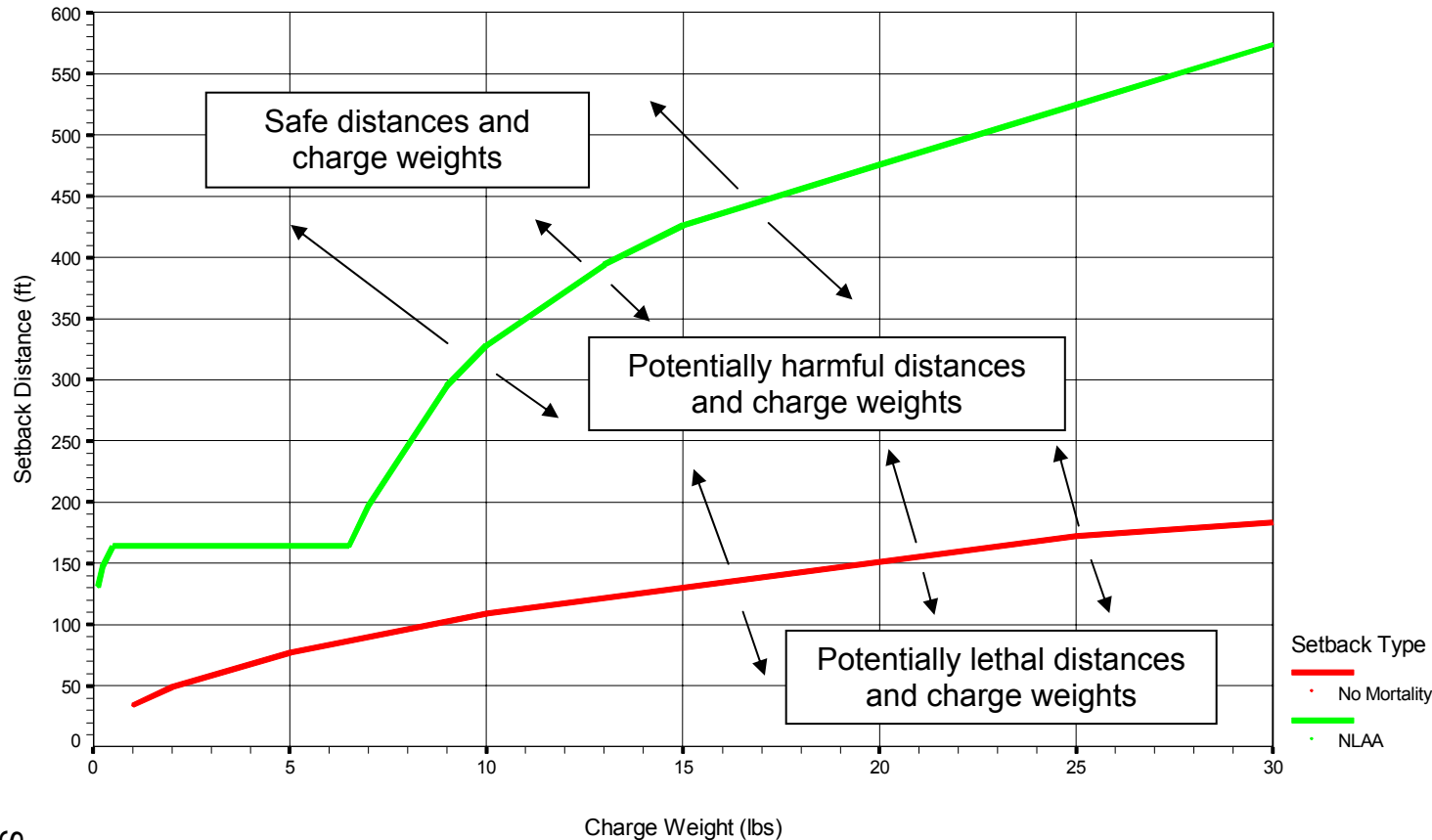
Guidelines agreed to at Aquatic Level 1 Team meeting on January 31, 2007 by USFWS (Marc Whisler, Joe Hiss) and NMFS (Joel Moribe).

Minimum setback distance from streams for a given charge weight to

1. Keep fish safe and guarantee an NLAA call for the concussive effects of the blast, or
2. Potentially harm fish but not kill them (Alaska Guidelines)

NOTE: Guidelines do not apply to areas/seasons when eggs are in the gravel nor to any other aspects of a project other than blasting.

Guidelines may be modified as more information becomes available.



NLAA Setback (minimum safe distance by charge weight)		
Charge Weight (lbs)	Distance (m)	Distance (ft)
0.125	40	131
0.25	45	148
0.5	50	164
6.5	50	164
7	60	197
8	75	246
9	90	295
10	100	328
13	120	394
15	130	426
20	145	476
25	160	525
30	175	574

"No Mortality" Setback Alaska Guidelines for Rock (minimum distance to prevent mortality by charge weight)		
Charge Weight (lbs)	Distance (m)	Distance (ft)
1	10	34
2	15	49
5	23	77
10	33	109
25	52	172
100	103	344

Note: Alaska Guidelines for specific substrate and valley bottom configuration can be used to determine more precise distances if blasts are close to the potentially lethal effects line for rock.



U.S.D.A. FOREST SERVICE R-6

FIGURE-1

PROJECT NAME:

PRAATT RIVER TRAIL RELOCATION

REVISION DATE:

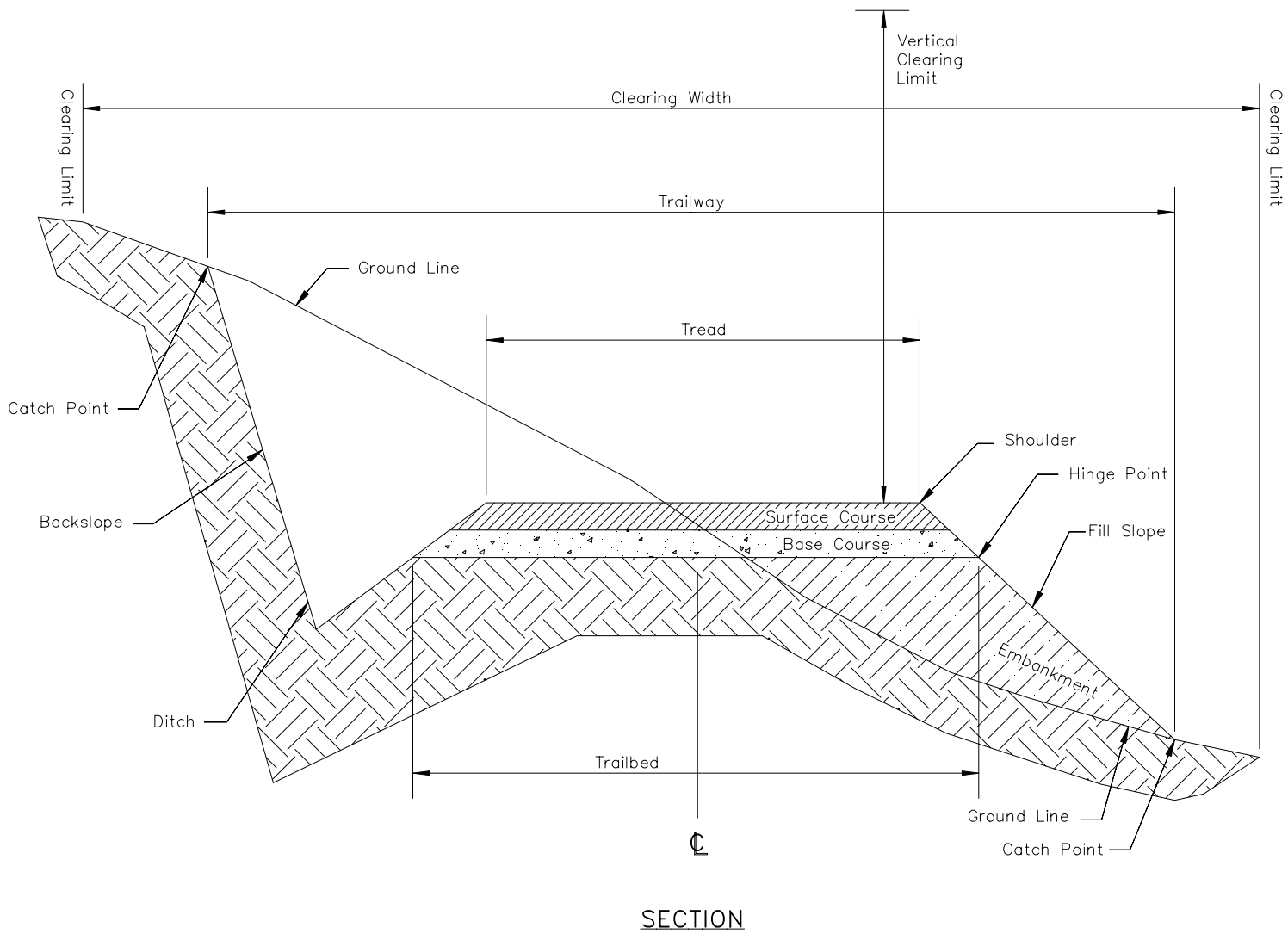
2-14-2005

TITLE:

ILLUSTRATION OF TRAIL STRUCTURE TERMS

SHEET:

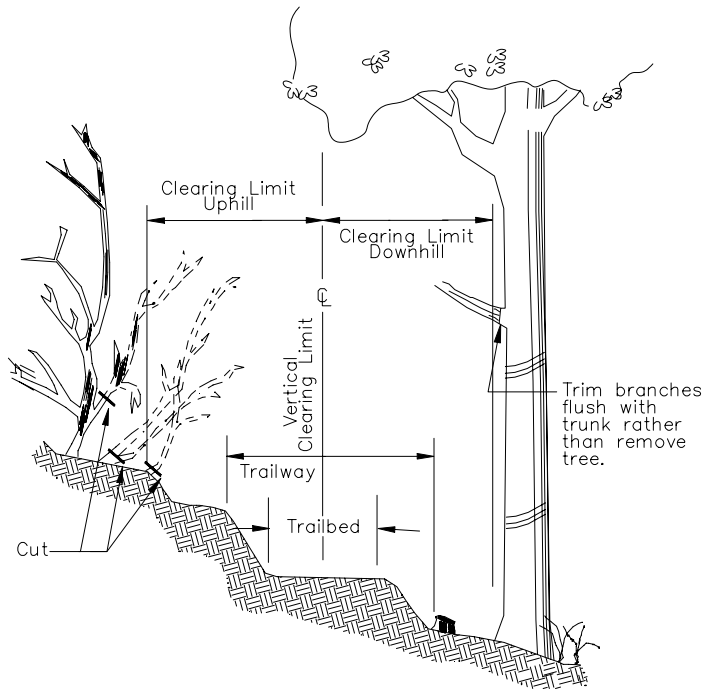
NOT TO SCALE



### Clearing Limits (FEET)

Location	Uphill	Downhill	Vertical
ALL	4'	4'	10'

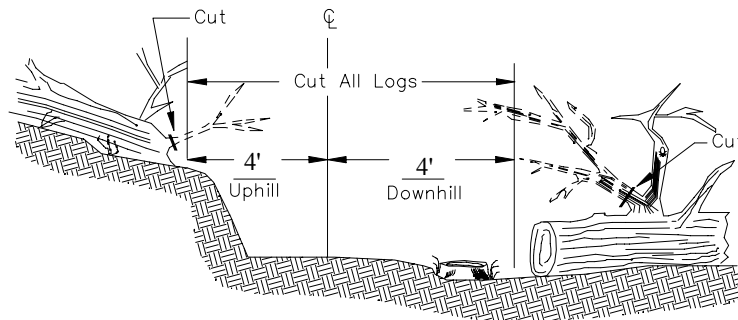
Do not remove trees over 3 1/2" inches in diameter if they are over 4' feet from the centerline (both sides).



### Stump Height Requirements\* (inches)

Stump Position	Side Slope	Uphill	Downhill
Stumps between the trailway and clearing limits.	Side slope less than or=to 10%	2"	2"
	Side slope over 10%	2"	2"
Stumps outside the clearing limits	Side slope less than or=to 10%	N/A	N/A
	Side slope over 10%	N/A	N/A

\*All heights measured on uphill side of stumps.



NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

TITLE:

CLEARING LIMITS

DRAWING NO.:

911-1

REVISION DATE:

2-14-2005

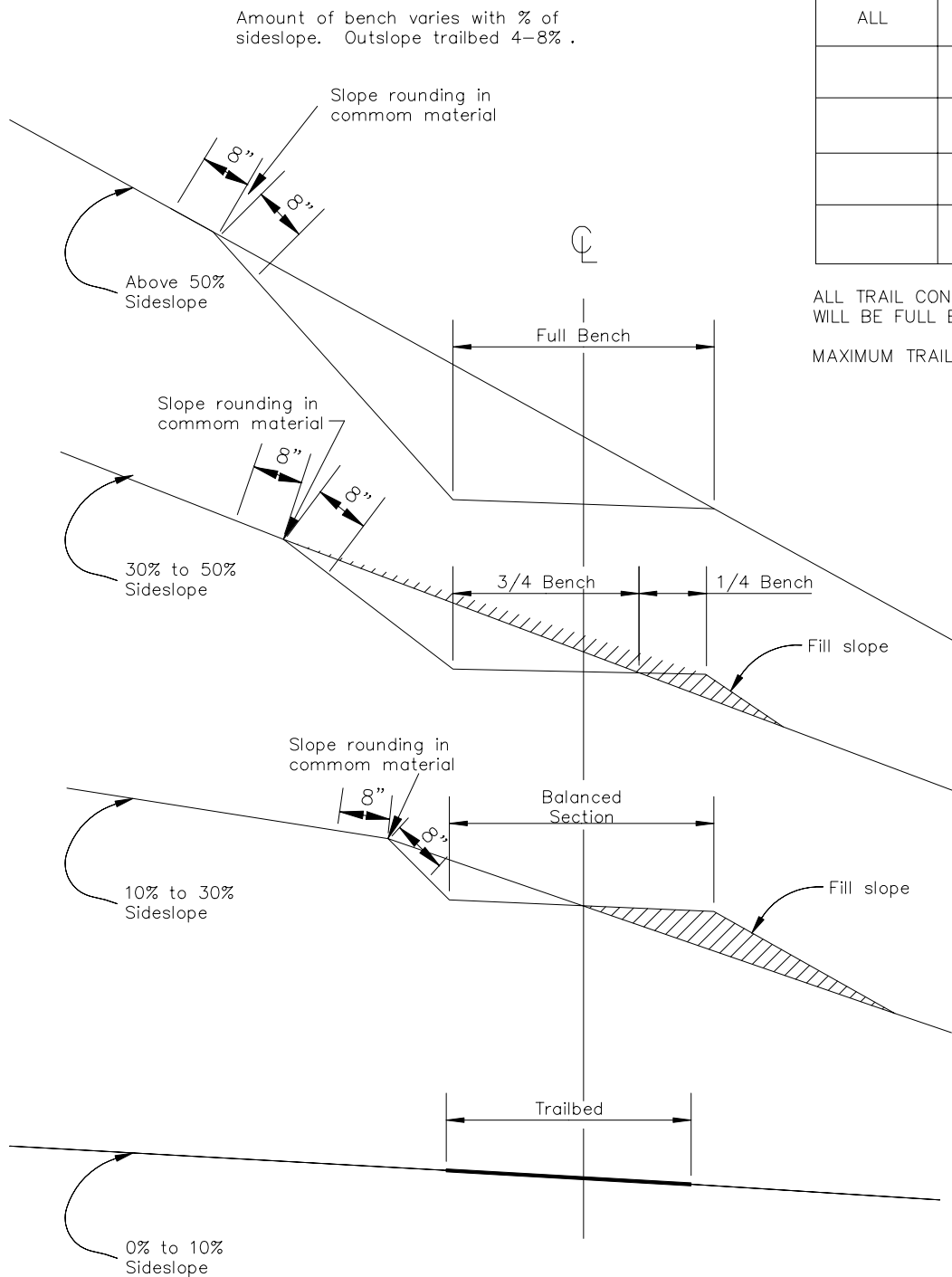
SHEET:

## Trailbed Width

Location	Trailbed Width (inches)
ALL	36"

ALL TRAIL CONSTRUCTION  
WILL BE FULL BENCH.

MAXIMUM TRAIL GRADE OF 15%



NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

TITLE:

TYPICAL TRAIL CROSS SECTIONS

DRAWING NO.:

912-1

REVISION DATE:

2-14-2005

SHEET:

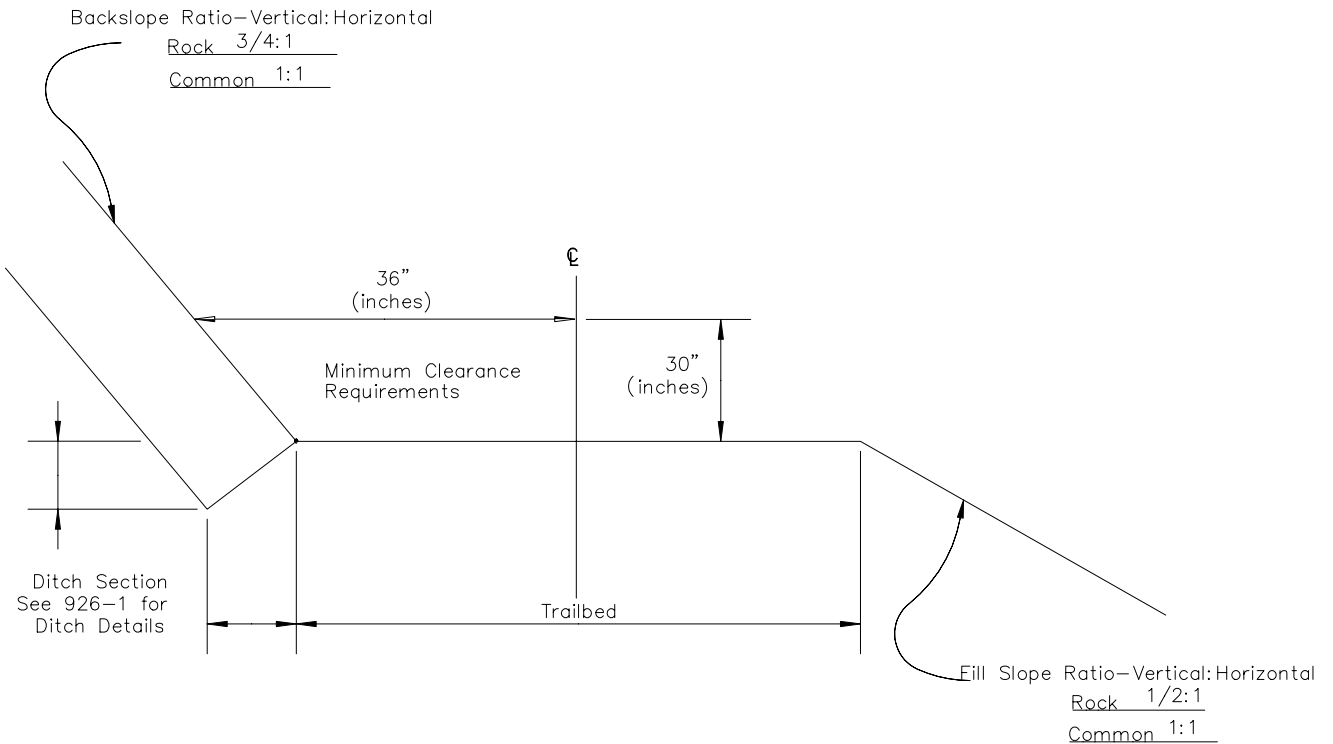
### Slope Finish

Remove roots over 1/2" inches in diameter that protrude from the backslope.

### Trailbed Finish

Remove loose rock on the trailbed surface over 2" inches in the smallest dimension.

Remove or reduce embedded rock that protrudes more than 2" inches above the trailbed.



NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

TITLE:

TRAILBED AND SLOPE FINISH

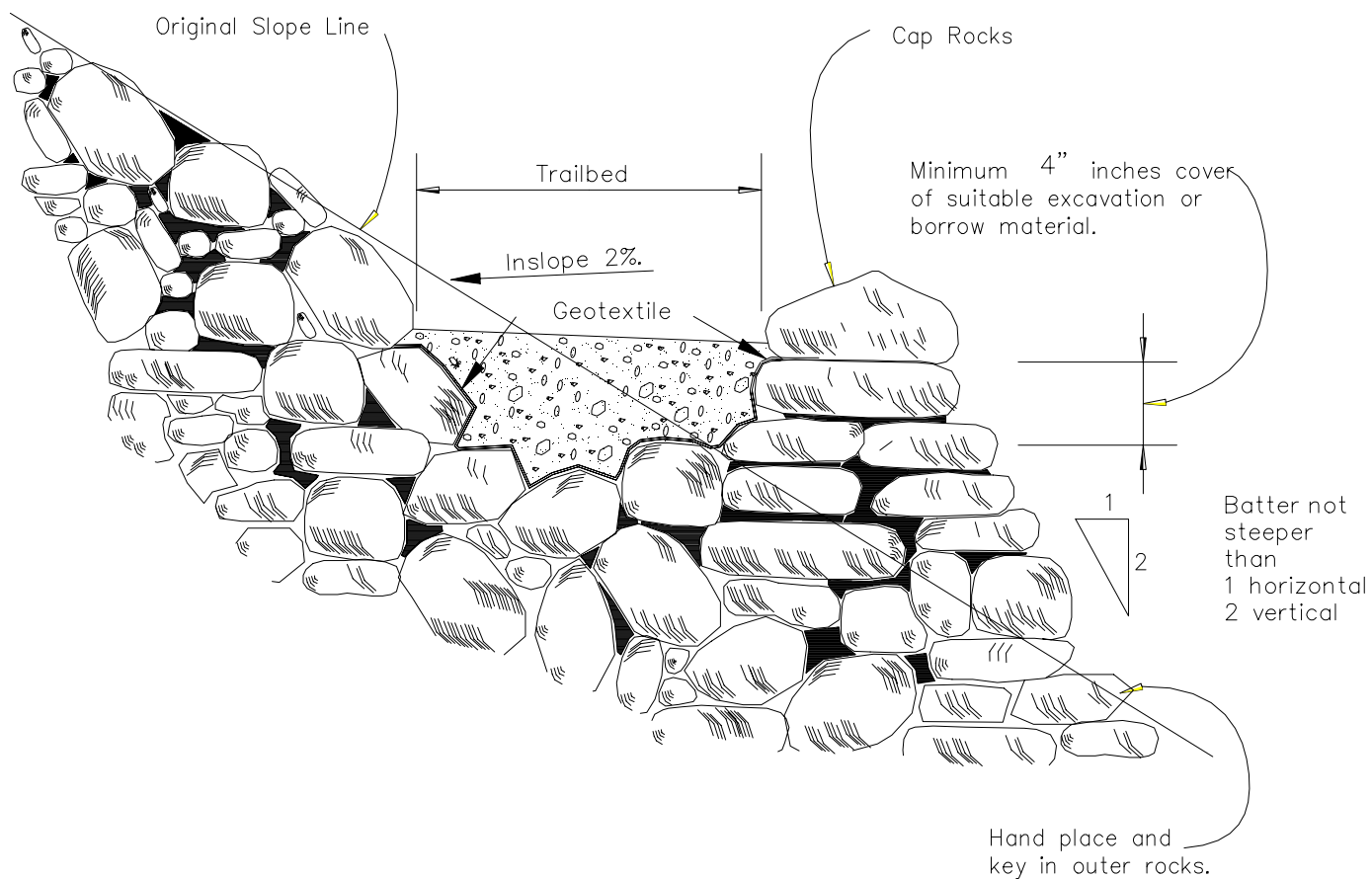
DRAWING NO.:

912-2

REVISION DATE:

2-14-2005

SHEET:



GEOTEXTILE NOT REQUIRED

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

TITLE:

TALUS AND RUBBLE ROCK SECTION

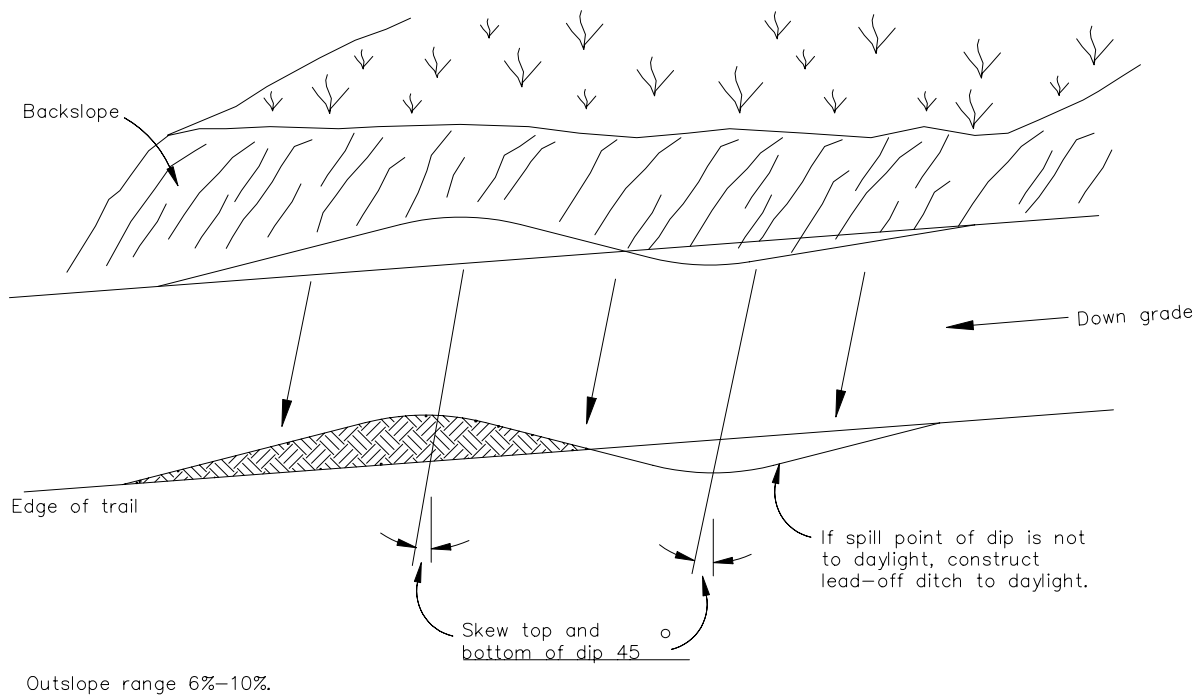
DRAWING NO.:

912-3

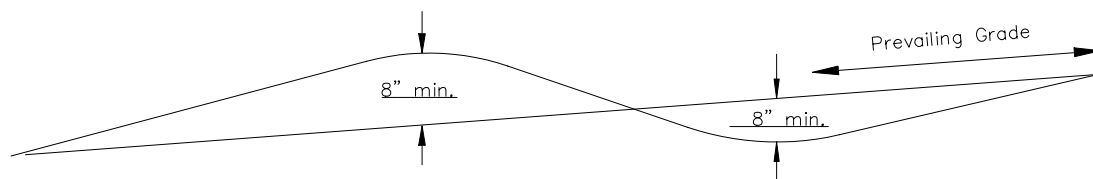
REVISION DATE:

2-14-2005

SHEET:



### PLAN VIEW



### PROFILE

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

DRAWING NO.:  
912-5

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

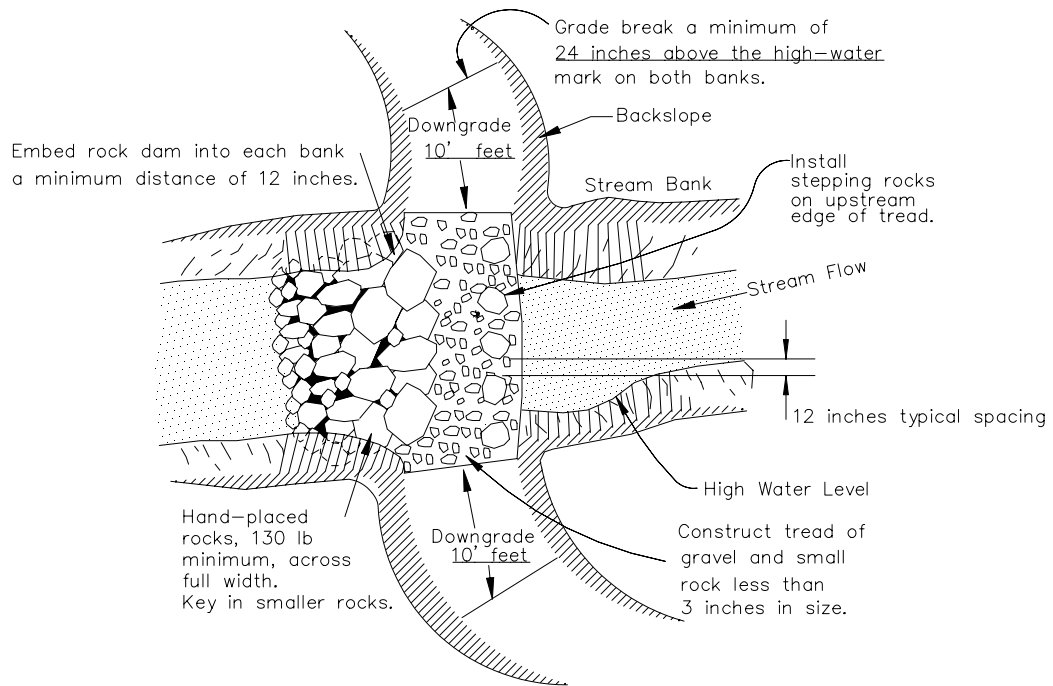
REVISION DATE:

2-14-2005

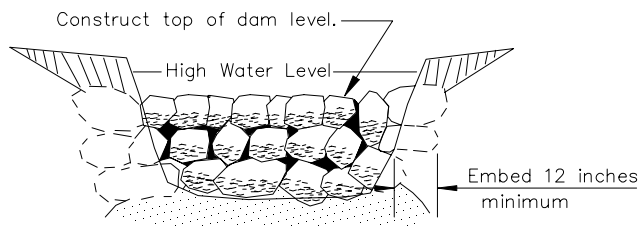
TITLE:

ROLLING DIP

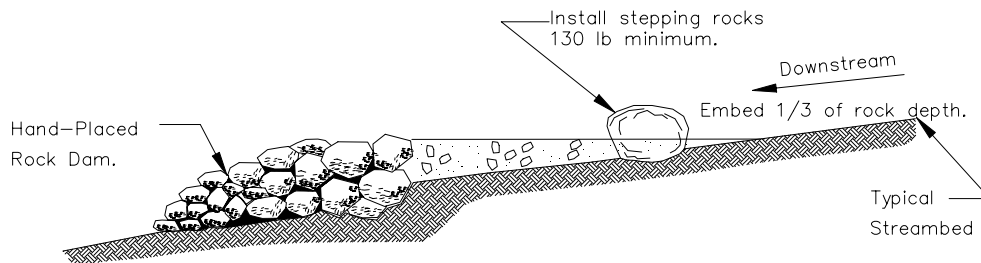
SHEET:



PLAN VIEW



PROFILE - ROCK DAM



CROSS SECTION

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

TITLE:

SHALLOW STREAM FORD AND GULLY CROSSING  
ROCK STRUCTURE

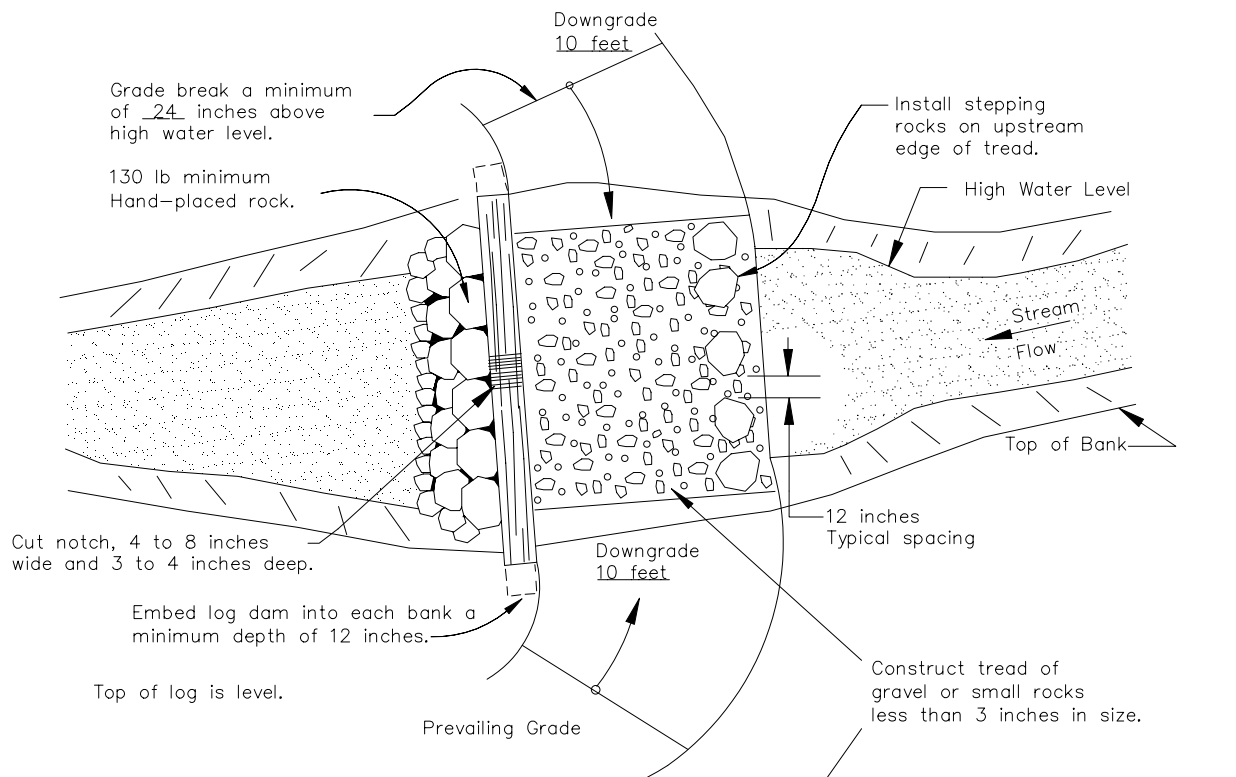
DRAWING NO.:

912-7

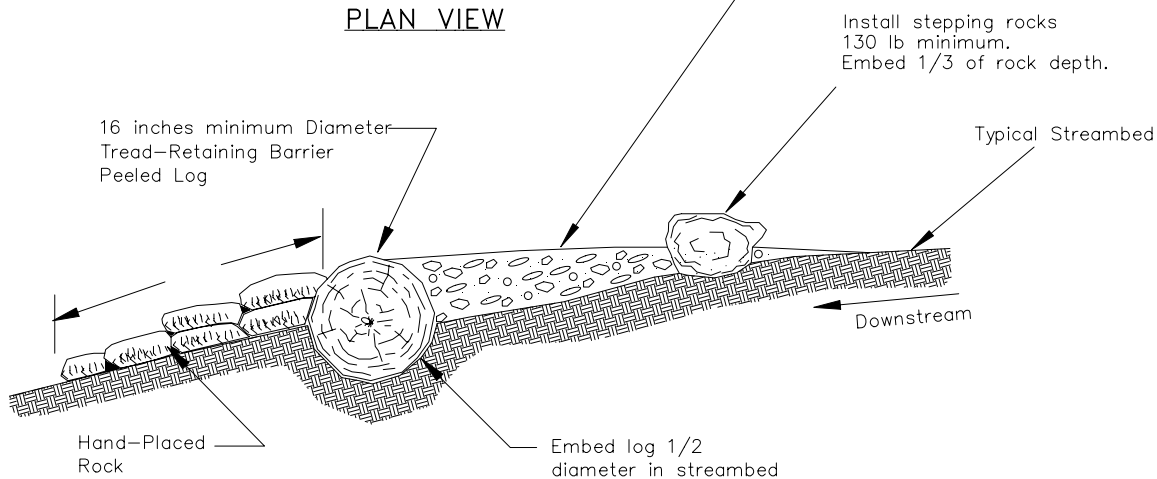
REVISION DATE:

2-14-2005

SHEET:



PLAN VIEW



CROSS SECTION

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

TITLE:

SHALLOW STREAM OR GULLY CROSSING  
LOG STRUCTURE

DRAWING NO.:

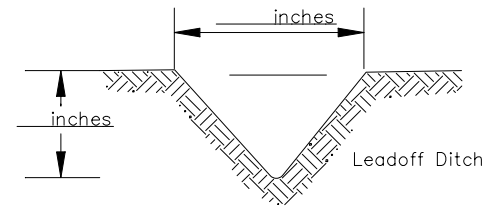
912-8

REVISION DATE:

2-14-2005

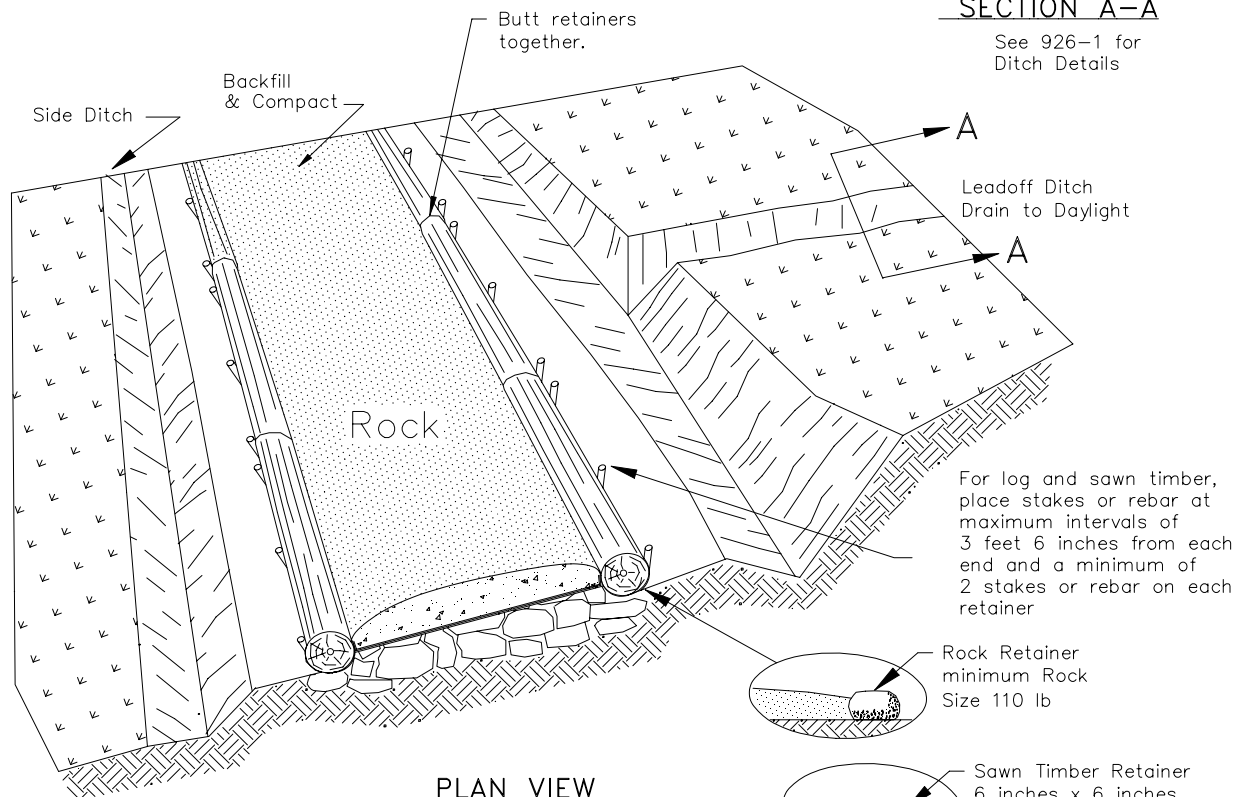
SHEET:

Element	Type of Material	Obtain From	Size	Treatment
Retainers	Treated Pole/Hem-Fir	Imported	6" min. dia.	CCA/.40 PCF
Flush Check Dams	N/A			
Base Course	4"-, Native rock	On Site	4"-	
Top Course	2"-, Native Borrow	On Site	2"-	
Stakes	WR Cedar	On Site	24" x 3"	
Geotextiles	N/A			

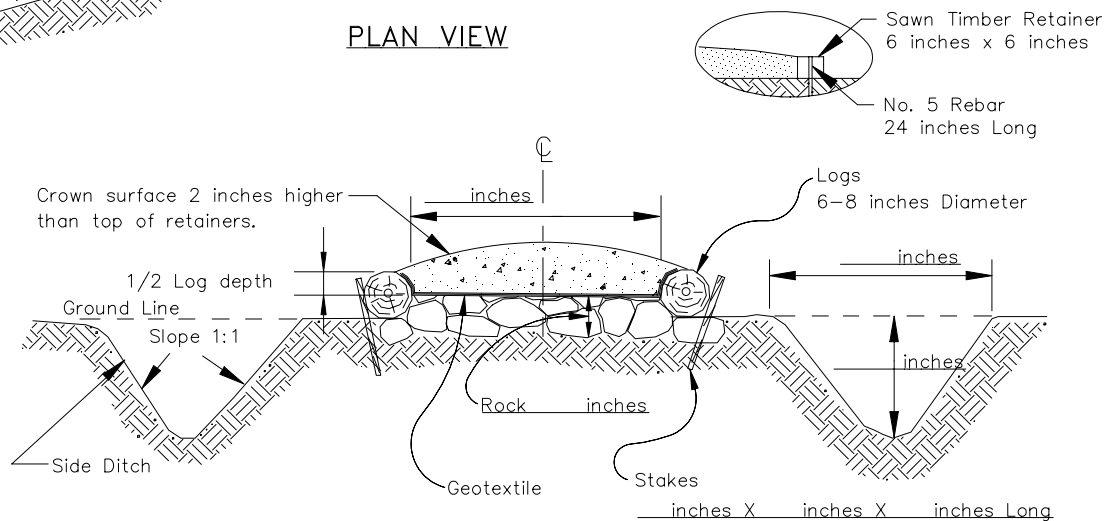


### SECTION A-A

See 926-1 for  
Ditch Details



### PLAN VIEW



### CROSS SECTION

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL RELOCATION

TITLE:

TURNPIKE - TYPE II

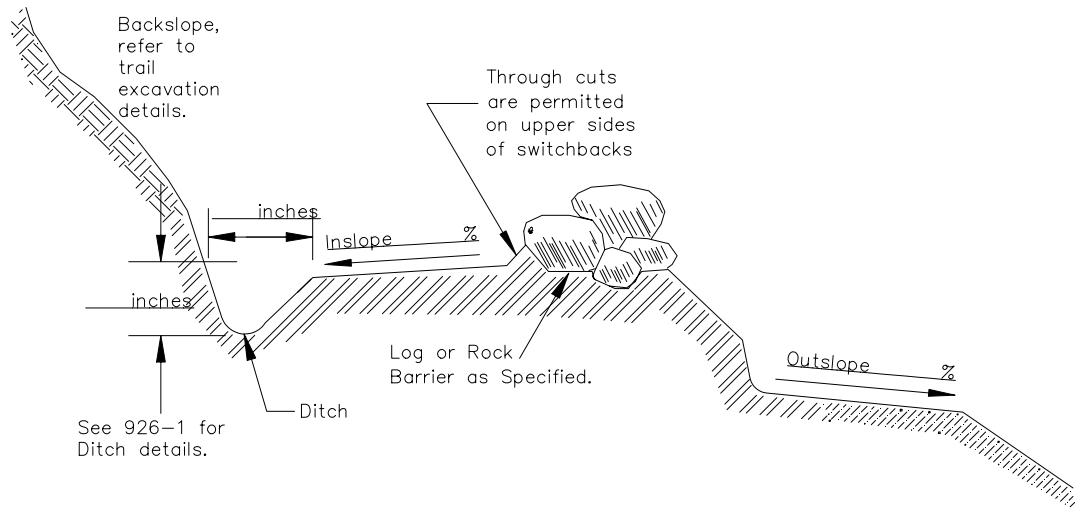
DRAWING NO.:

913-2

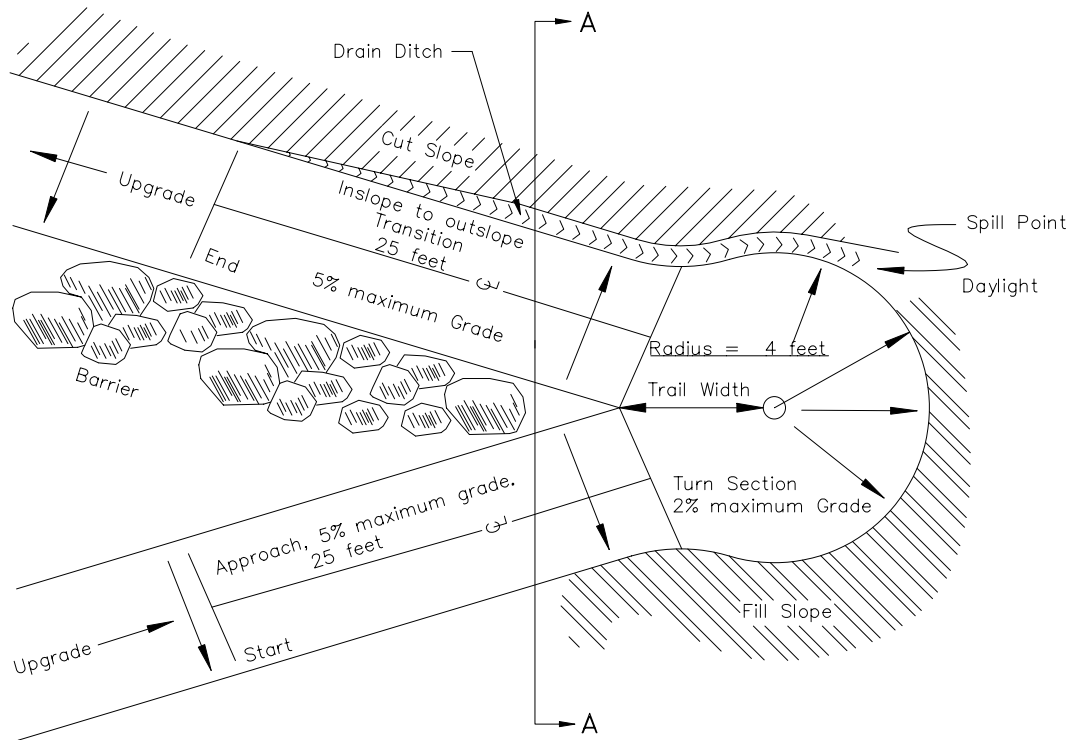
REVISION DATE:

2-14-2005

SHEET:



SECTION A-A



Radius point is staked at each individual site.

PLAN VIEW

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

DRAWING NO.:  
914-2

PROJECT NAME:  
PRATT RIVER TRAIL RECONSTRUCTION

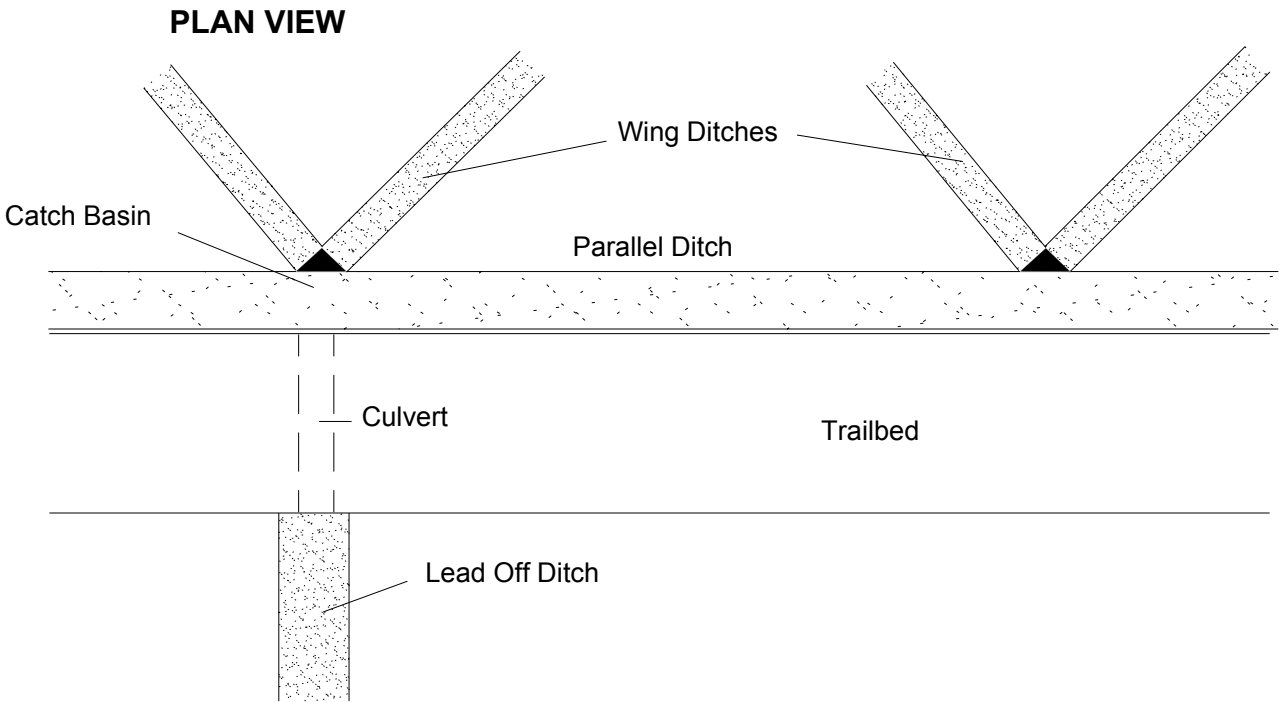
REVISION DATE:  
2-14-2005

TITLE:  
SWITCHBACK - TYPE II

SHEET:

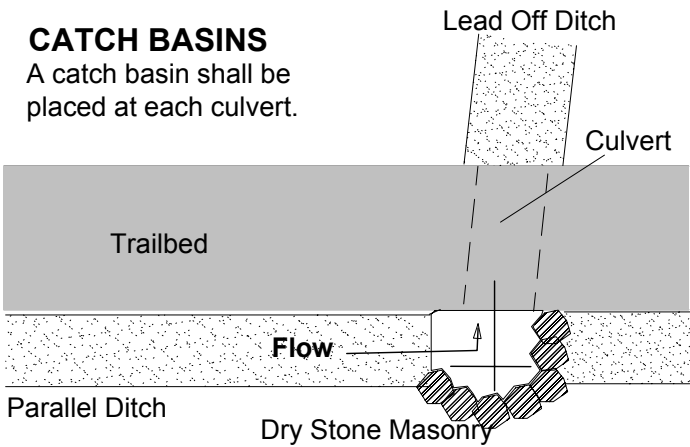
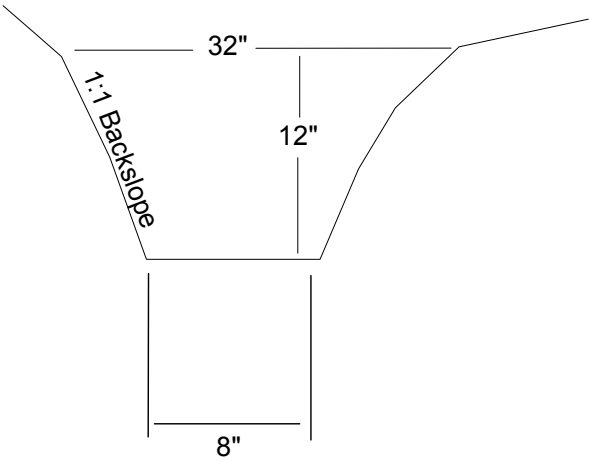
# DRAINAGE DITCHES

Not to Scale



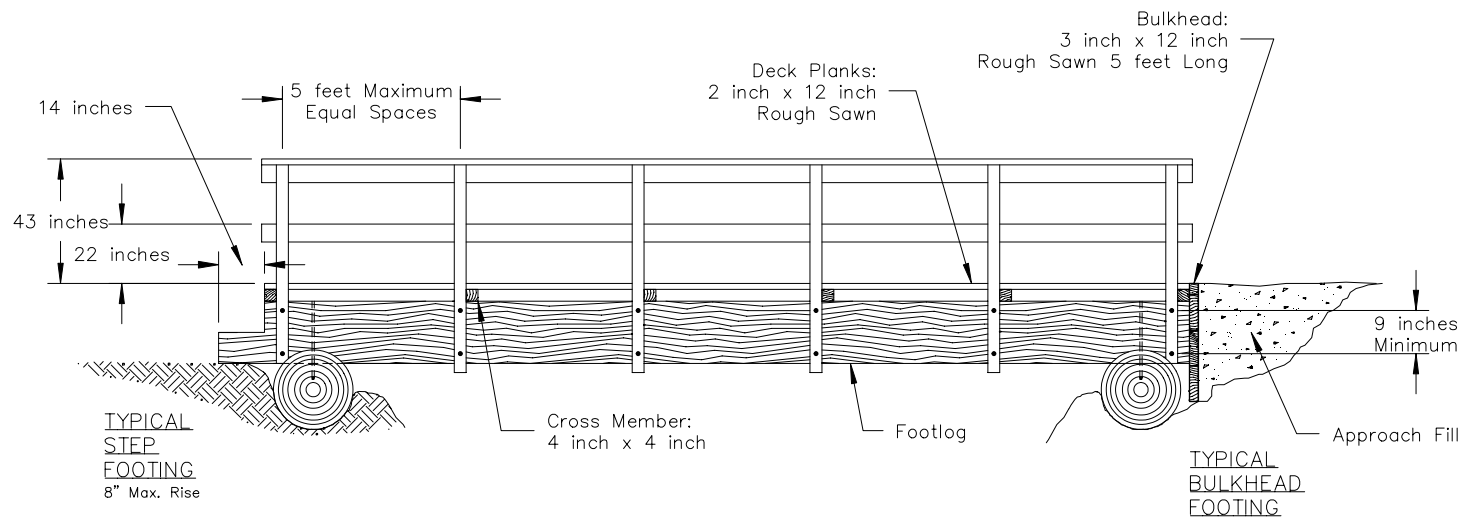
## LEAD OFF & PARALLEL DITCHES

Depth shall increase as necessary for min. 5% drain slope.



Parallel Ditch

Catch Basin



SIDE VIEW

Notes:

- This drawing applies to all species except aspen, cottonwood and cedar.
- Dap log a maximum of 3 inches for rail posts and cross members.
- Predrill holes for lag screws and insert by turning with a wrench. Do not drive with a hammer.
- Peel all Logs.

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:

PRATT RIVER TRAIL – RAINY CREEK

TITLE:

FOOT LOG TRAIL BRIDGE WITH 2 HANDRAILS

DRAWING NO.:  
931-1a

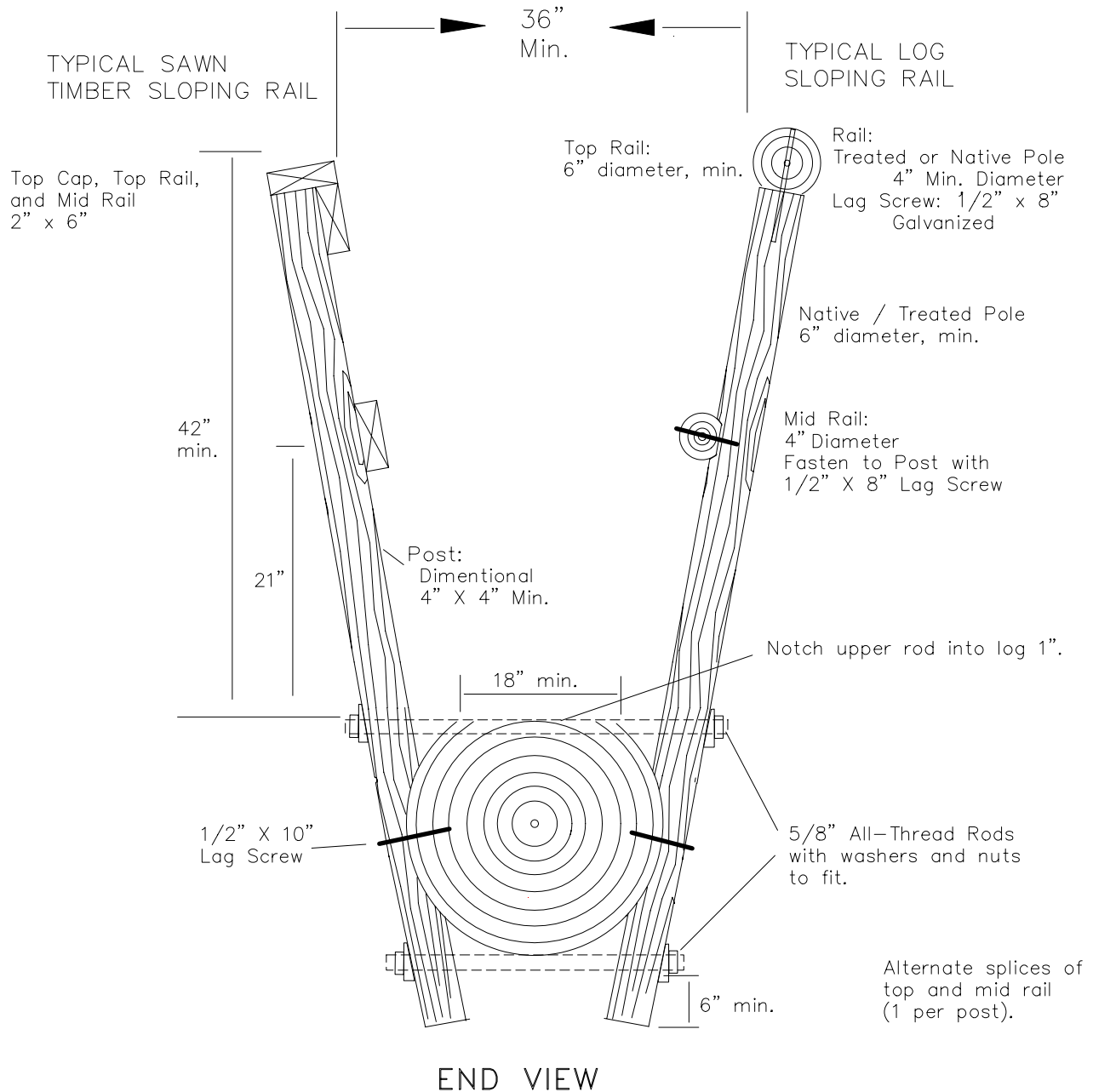
REVISION DATE:

2-14-2005

SHEET:

# FOOT LOG TRAIL BRIDGE WITH 2 HANDRAILS

NOT TO SCALE



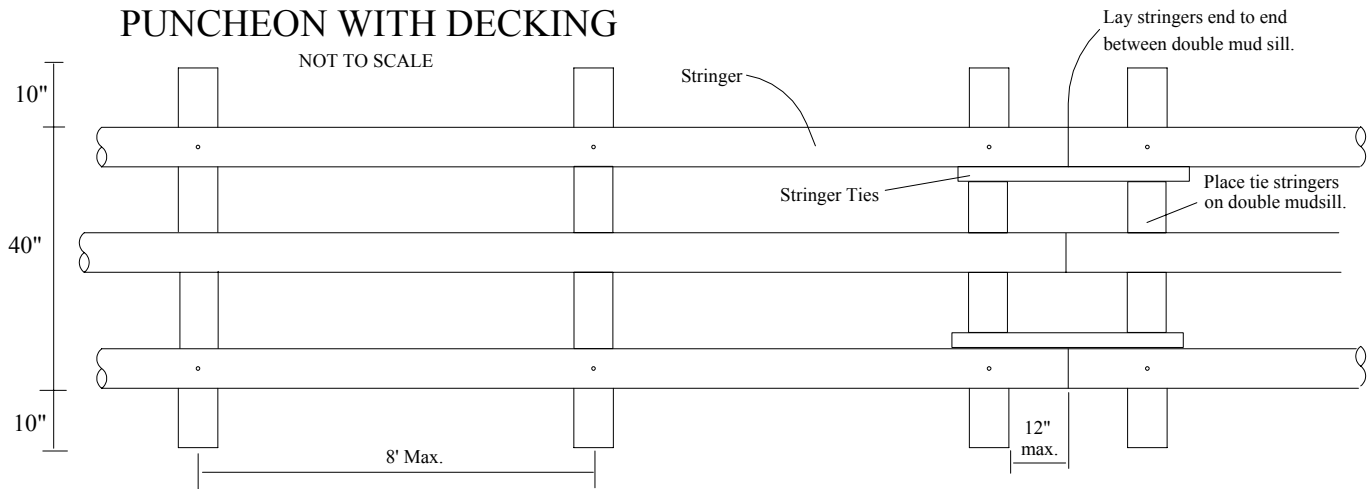
END VIEW

PROJECT DATA: Single Foot Log with Post and Pole Handrail; Native, on-site materials. 45' Long x 24" Mid-Span.

Member	Type	Species	Min. Size	Treatment/Ret.
Sill / Crib Piers	Native	Doug Fir	18" Min.	N/A
Stringer	Native	Doug Fir	24" Mid. Span	N/A
Rail Posts	Native	WR Cedar	6" Min.	N/A
Rail Cap	Native	WR Cedar	4" Min.	N/A
Top Rail	Native	N/A	N/A	N/A
Mid Rail	Native	WR Cedar	4" Min.	N/A
Bulkhead	Native	WR Cedar	4" x 12" x 4'	N/A

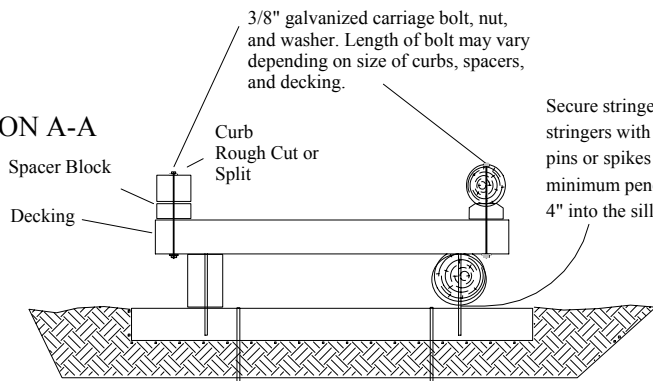
# PUNCHEON WITH DECKING

NOT TO SCALE



MUD SILL AND STRINGER LAYOUT

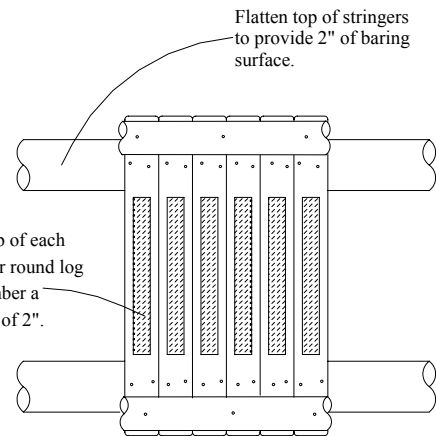
## SECTION A-A



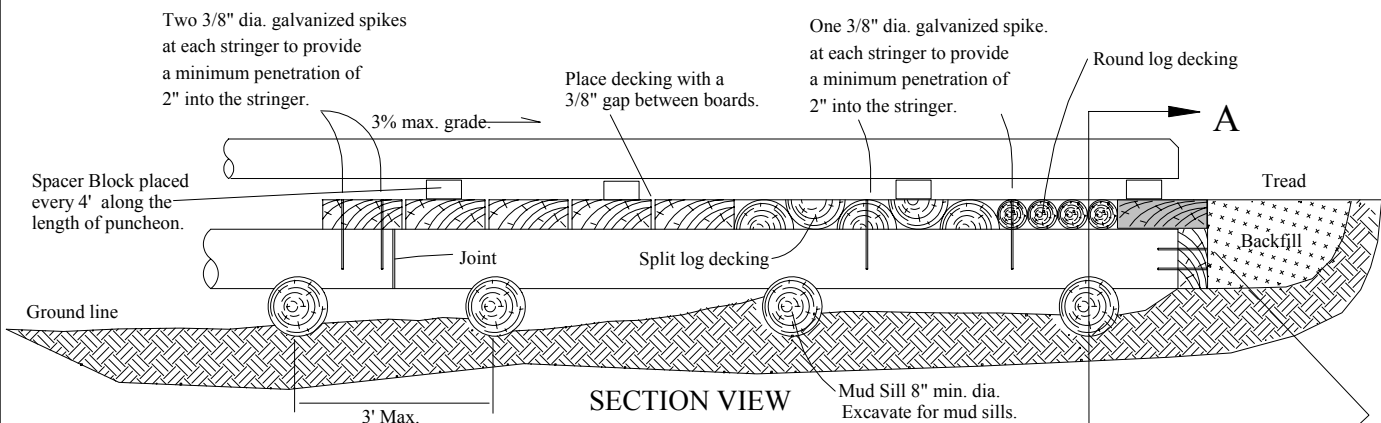
### Sill Pinned to Bedrock

Min. 6" into bedrock.  
Pins will be glued to the bedrock using "Rock Tite" or other commercially available rock adhesive.

Treated Material / Field Treatment: All field cuts and drill holes shall be treated with 3 brush coats of Commercially available Copper Napthanate.



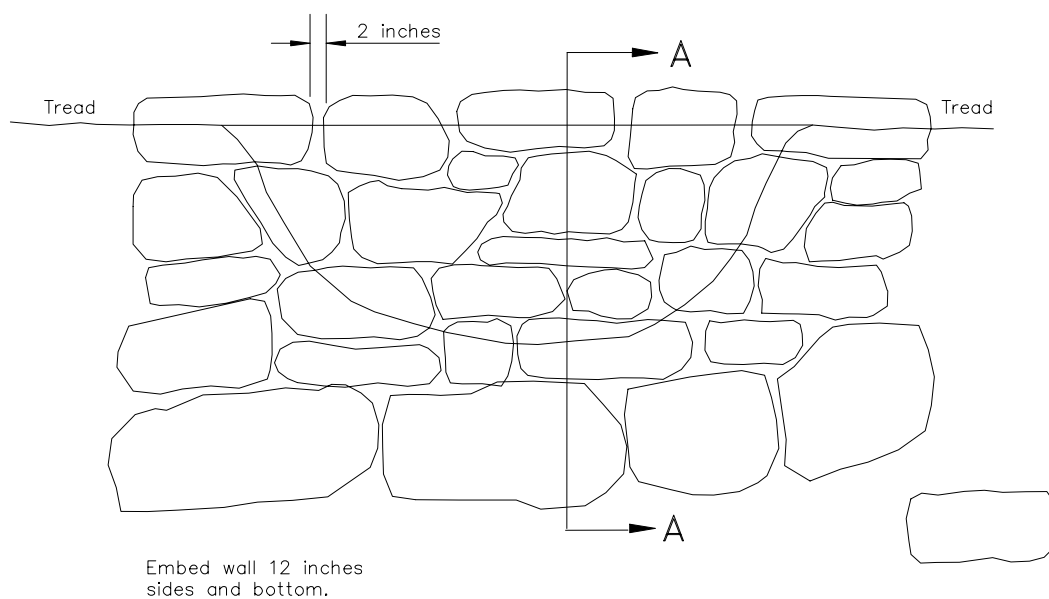
PLAN VIEW



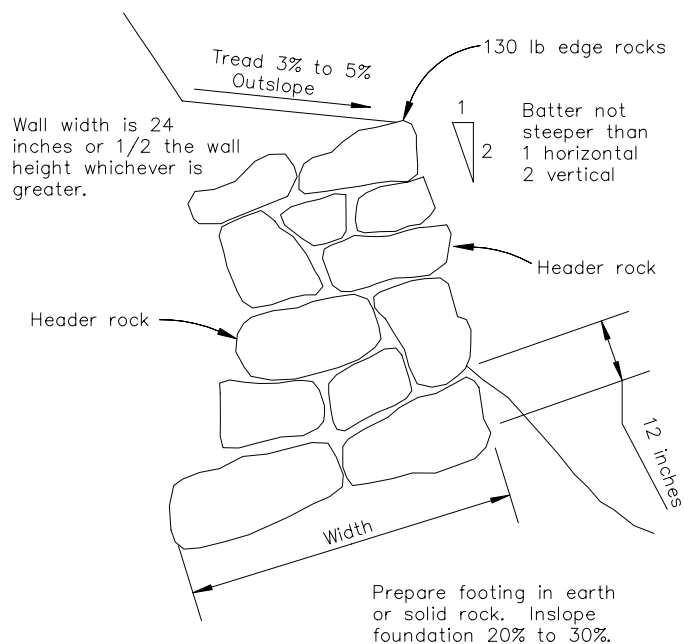
SECTION VIEW

Member	Type	Species	Min. Size	Treatment/Ret. Brown Tone
Sill / Crib Piers	Treated	Hem/Fir	8" x 8" x 6'	ACQ/.40 LB/CF
Stringer (3 ea.)	Treated	Hem/Fir	6" x 8"	ACQ/.40 LB/CF
Stringer Ties	Treated	Hem/Fir	2" x 8" x 2'	ACQ/.25 LB/CF
Deck	Treated/Rough Cut	Hem/Fir	4" x 12" x 4'	ACQ/.25 LB/CF
Curb	Treated/Rough Cut	Hem/Fir	4" x 4"	ACQ/.25 LB/CF
Spacer Blocks	Treated/Rough Cut	Hem/Fir	4" x 4" x 8"	ACQ/.25 LB/CF

Bulkhead:  
Secure with a minimum of two galvanized spikes with a minimum penetration of 2" into the stringer.



FRONT VIEW

[illegible]

NOT TO SCALE



U.S.D.A. FOREST SERVICE R-6

PROJECT NAME:
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PRATT RIVER TRAIL RELOCATION

TITLE:

## ROCK RETAINING WALL

DRAWING NO.:
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935-1

REVISION	DATE:
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2-14-2005

	SHEET:
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