

REPORT OF THE 1973 SURVEY OF SEDIMENT BELOW STREAM GAGE
SITES 1, 2, AND 3 ON THE H.J. ANDREWS EXPERIMENTAL FOREST.

by

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The winter of 1972-1973 was just opposite of the winter of the year before. The precipitation especially after December 1, was below average and produced only two moderate storms. During these two storms, the Watershed 3 stream peaked at .695 feet on December 24, 1972 and at .786 feet on January 12, 1973. It was at this time that the Watershed 1 basin was filling with bedload, being approximately one-third full after December 24 and about one-half by January 13.

Seven years have passed since logging and slash burning on Watershed 1. On Watershed 3, it has been 14 years since roadbuilding, 10 years since logging, 8 years since the slides of December 1964, and 5 years since the G road slide.

MEASUREMENTS AND CALCULATIONS

Measurements and calculations were consistent with those used in previous years.

Lines of sight were checked as in other years and small differences averaged.

Accumulated bedload was removed from the sediment basin at gage sites 1, 2, and 3 the week of Sept. 22, 1973 by a 1 1/2 yard front end loader.

The initial survey of all three basins was performed within the next week.

DISCUSSION

The small amount of material that accumulated in the Watershed 3 basin probably came from the toe of the existing slides or from material already in the creek. Upon examination, all slide areas appear to have been fairly stable throughout the winter period.

On Watershed 1, there are two slide areas which cross the trail on the south side of the watershed. There is evidence of movement of material from these areas. Examination of the bedload material in the basin showed a similarity to the material which came from the slide area above the waterfall last year. An examination of this area disclosed no apparent new movement. This material probably was present in the stream channel and moved down with the high water this past winter.

A decrease in soil movement this year was probably due more to the mild winter than to increased stability of the watershed slopes.

Table 1.--Sediment Accumulation 1972-1973

Year	Number of Points	Line of Sight	Average Rod Reading	Average Bottom Elevation	Change of Bottom Elevation	Basin Area in Sq. Feet	Total Accum. in Cubic Feet	Ave. Accum. in Cubic Feet/ Acre	Ratio
<u>WATERSHED 1 (237A)</u>									
1972	261	114.540	8.903	105.637					
1973	261	114.360	6.675	107.685	2.048	2133	4368.384	18.432	----
<u>WATERSHED 2 (149A)</u>									
1972	275	107.923	6.931	100.992 ⁵⁷⁰					
1973	275	108.119	7.168	100.951	^{.413} - .041	1887	^{799.331} - 77.367	^{8.23} - .519	
<u>WATERSHED 3 (250A)</u>									
1972	225	105.022	8.398	96.624					
1973	225	105.645	8.686	96.959	0.355	890	298.150	1.193	

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Benchmark:

H.I.

Elev.

Experimental Area:

Basin Location:

H.T.A.

WWS #1

Date: 8-25-72

Party: Level MW

Rod SF

Notes RM

Station*	Transects (Designated in ft. starting at crest of dam)													
	1	2	3	4	5	6	7							
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
3		start		start		End		start		End		start		End
6	WE 8'	4.46	WE 8'	4.46	WE 8'	4.77	WE 8'	4.77	WE 8'	4.80	WE 8'	4.60		4.52
9	WE 9'	5.22		8.38		9.10		9.22		8.92		9.07		9.09
12		8.18		10.43		10.80		10.99		10.88		11.12		10.92
15		9.08		10.78		10.97		10.88		10.91		10.90		11.09
18		8.82		10.85		10.93		10.96		10.93		10.82		11.02
21		9.50		10.71		10.96		11.08		10.82		10.78		10.98
24		9.31		10.83		10.94		10.90		10.96		10.72		10.74
27		8.94		10.68		10.88		10.83		10.86		10.76		10.70
30	WE 30'	8.12		10.70		10.90		10.76		10.70		10.62		10.72
33		6.12		10.20		10.73		10.70		10.66		10.59		10.70
36				9.54		10.72		10.64		10.60		10.48		10.62
39				9.20		10.22		10.59		10.50		10.36		10.32
42				7.16		9.56		10.48		10.40		10.24		10.29
45				7.26		8.74		10.26		10.40		10.26		10.16
48				6.55		8.50		9.74		10.00		9.98		10.15
51				6.30		8.31		9.28		9.92		10.01		10.15
54			WE 54'	5.49		6.90		8.07		9.54		9.96		10.10
57					WE 57'	5.34		7.15		9.26		9.88		10.00
60						5.22		7.00		8.55		9.78		9.87
63					Rock	5.34		6.90		6.90		9.12		9.72
66					stream	5.78	WE 66'	5.69	WE 65'	5.00		5.96		9.12
69											WE 70'	5.37		7.16
72												4.47	WE 73'	4.78
75														4.24
78		End		End		Start		End		Start		End		Start

Temporary BM on stump start 1.900 No. of Points = 261

End of Line 3 1.900 Total Rod Reading = 2323.71

" " " 5 1.900 AVE Rod Reading = 8.903

" " " 7 1.900

" " " 10 1.900

" " " 14 1.880

For AVE BM Use 1.900

Line of Sight = Assumed Elev. of 100.00 + Aux. spike Elev. 12.640 + AVE. Rod Reading
Line of Sight = 100.00 + 12.640 + 1.900 = 114.540

0 pts	(10)	(11)	(21)	(21)	(21)	(23)	(24)
total	77.75	149.52	185.61	196.89	201.51	215.85	226.16
average							

Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

Benchmark:
H. I.
Elev.

Experimental Area: HJA
Basin Location: HAS #1

Date: 8-25-72
Party: Level mw
Rod sf
Notes RM

[illegible]

Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Date: 6-29-73
Party: Level RM
Rod G.P.
Notes JM

Benchmark:

H.I.
Elev.

Experimental Area: H.T.A.
Basin Location: W/S #1

Station#	Transects (Designated in ft. starting at crest of dam)											
	1		2		3		4		5		6	
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
03												
06		4.14		4.22		4.70		4.60		4.76		4.35
09		5.33		8.72		9.10		9.70		9.35		9.39
12		9.07		9.73		10.39		10.52		10.49		10.29
15		8.82		9.40		9.88		9.83		9.83		10.02
18		7.42		7.40		8.35		8.79		8.82		9.76
21		6.28		6.29		6.33		6.90		7.33		9.64
24		5.25		5.18		5.21		5.34		5.89		8.26
27		5.14		5.12		5.03		5.13		5.17		7.30
30		5.14		5.08		5.08		5.08		5.10		6.39
33		5.15		5.05		5.04		5.05		5.07		5.49
36				5.08		5.07		5.05		5.10		5.39
39				5.03		5.05		5.08		5.10		5.37
42				4.96		5.05		5.11		5.14		5.32
45				5.58		5.06		5.08		5.15		5.35
48				5.64		5.20		5.26		5.42		5.38
51				5.18		6.04		6.08		6.29		5.76
54				6.74		6.60		6.61		6.72		6.31
57						6.07		7.09		7.42		6.14
60						5.38		7.25		7.23		6.08
63						6.07		6.38		6.49		5.99
66						6.98		5.79		5.56		5.85
69												6.31
72												5.54
75												4.13

Start at line #1

Temporary RM on stump - start = 1.720
 start of line # 4 = 1.720
 " " " # 6 = 1.720
 " " " # 8 = 1.720
 " " " # 10 = 1.722
 " " " # 12 = 1.720
 End of #14 = 1.722

No. of Points = 261
 Total Rod Reading = 1742.14
 AVE. Rod Reading = 6.675

No. Pts	(10)	(11)	(21)	(21)	(21)	(23)	(24)
Total	62.24	104.45	131.68	135.72	137.43	151.39	160.01
Average							

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Benchmark:

H.I.
Elev.

Experimental Area: H.J.A.
Basin Location: WS #1

Date: 6-29-73
Party: Level
Rod
Notes

Station*	Transects (Designated in ft. starting at crest of dam)													
	8		9		10		11		12		13		14	
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
03														
06														
09		5.17		4.62		4.55		4.41						
12		9.92		9.07		9.03		4.76		4.42				
15		10.12		9.98		10.00		9.49		8.18				
18		9.79		9.94		10.17		10.46		8.32				
21		9.59		9.91		9.98		9.94		7.60				
24		9.22		9.16		10.12		9.51		7.64				
27		8.90		9.80		9.55		9.66		7.18				
30		7.84		8.69		9.34		9.42		4.98				4.68
33		6.82		8.18		8.53		8.80		5.31		4.94		6.21
36		5.86		6.83		7.54		8.13		5.26		6.54		6.80
39		5.39		5.45		5.97		6.75		6.63		7.02		6.64
42		5.34		5.39		5.98		6.09		7.09		6.84		7.23
45		5.39		5.36		5.78		6.16		7.20		7.42		7.66
48		5.37		5.35		5.35		5.40		7.24		6.97		6.94
51		5.51		5.50		5.41		5.19		6.83		6.79		5.13
54		5.65		5.59		5.64		5.68		6.73		7.26		
57		5.93		5.60		5.58		5.99		6.73		5.14		
60		6.20		6.02		5.90		6.36		6.97				
63		6.56		6.60		6.82		7.02		4.88				
66		5.99		6.85		7.05		6.86						
69		6.29		6.19		6.58		4.74						
72		6.08		6.18		4.85								
75		4.35		4.64										

BM End of Line# =

Line of Sight is equal to assumed elevation
of 100.00 feet. plus elevation of Auxiliary spike (12.640) plus
Average Rod Reading on BM at time of survey
 $100.00 + 12.640 + 1.720 = 114.360$

Aux BM on stump = 1.722 0.212
Back site 0.423
Foresite 12.745
Back site 0.272
Foresite 12.620

Backset 3.940

Total Pts 261

No. Pts	(23)	(23)	(22)	(21)	(18)	(9)	(8)
Total	157.28	161.70	159.72	151.12	119.19	58.92	51.29
Average						Total 1742.14	

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI.- NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Date: 6-28-29-73
Party: Level G.P.
Rod Rm
Notes IM

Benchmark:

H.I.

Elev.

Experimental Area:

Basin Location:

H.T.H.

WV #2

Transects (Designated in ft. starting at crest of dam)

Station#	1		2		3		4		5		6		7	
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
00														
03		3.85		4.38		4.60		4.93		5.31		5.73		5.40
06		4.70		5.40		5.63		4.93		6.65		6.54		7.07
09		4.58		6.28		7.30		7.62		7.94		8.24		8.20
12		4.50		6.55		8.11		8.25		8.54		8.65		8.67
15		4.15		7.41		8.58		8.65		8.71		8.85		8.80
18		4.99		8.12		8.65		8.81		8.79		8.94		8.89
21		6.77		8.64		8.85		8.82		8.83		8.90		8.88
24		7.12		8.54		8.84		8.74		8.82		8.88		8.83
27		8.07		8.78		8.78		8.74		8.72		8.75		8.71
30		7.70		8.66		8.74		8.73		8.67		8.68		8.76
33		7.78		8.50		8.72		8.71		8.74		8.78		8.73
36		6.72		8.49		8.55		8.68		8.81		8.78		8.72
39		5.28		8.16		8.49		8.75		8.77		8.74		8.58
42		5.99		7.90		8.45		8.82		8.67		8.57		8.31
45		6.14		7.58		8.16		8.30		8.28		7.71		7.47
48		4.98		6.78		7.71		7.65		7.70		7.32		7.08
51		4.24		5.89		6.65		7.00		6.87		7.00		6.52
54		3.96		5.50		6.32		5.00		6.14		4.81		5.60
57				4.25		4.98		4.35		4.60		4.07		4.35
60														

start at line #1

Permanent BM on Tree at Start = 8.117	End 8.117	start 8.122	End 8.122
Aux BM at start line #1 5.250	AVE BM Reading = 8.119		
#3 5.250			
#5 5.250			
#7 5.250			
End 1st Day = #8 5.250	No Points = 275		
start 2nd Day = #9 5.250	Total Reading = 1971.33		
#11 5.250	AVE Rod Reading = 7.168		
#13 5.250			
#15 5.250	Line of Sight = 108.119		
#16 5.250			
End line #18 5.250			
Center of spillway = 5.96			

No. Pts	(18)	(19)	(19)	(19)	(19)	(19)
Total	112.77	135.81	146.01	145.48	149.56	147.94
Average						

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

FORM RI-2

Benchmark:

H. I.

Elev.

Experimental Area: H. J. A.
Basin Location: WS #2

Date: 6-28 & 29-73

Party: Level

Rod

Notes

[illegible]

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

FORM RI-2

Date: 6-28 & 29-73
Party: Level
Rod
Notes

Benchmark:

H.I.
Elev.

Experimental Area: H.T.A.
Basin Location: US #2

[illegible]

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Benchmark:

H.I.

Elev.

Experimental Area: H.T.A.
Basin Location: WS # 3

Date: 6-28-73
Party: Level R.M.
Rod G.P.
Notes J.M.

Station*	Transects (Designated in ft. starting at crest of dam)											
	1R		1A		1		2		3		4	
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
00												
02.5						9.52		10.32		10.39		10.44
04						10.28		10.32		10.33		10.34
06						10.41		10.43		10.43		10.31
08						10.39		10.39		10.24		10.25
10						10.32		10.23		10.14		10.14
12						10.29		10.26		10.10		10.17
14						10.31		10.23		10.17		10.15
16						10.22		10.19		10.17		10.15
18						10.23		10.16		10.06		10.15
20						10.16		10.10		10.06		10.12
22						10.09		10.02		10.04		10.10
24						9.74		9.87		9.98		10.03
26						9.49		9.62		9.86		9.96
28						8.60		8.70		9.46		9.86
30						8.40		8.32		8.72		9.22
32		3.48		4.50		7.93		8.06		7.92		8.09
34		3.65		5.30		7.14		7.55		7.35		7.44
36		4.16		5.87		6.56		6.80		6.62		6.62
38		4.72		5.52		5.62		6.25		5.96		6.00
40		4.87		5.41		5.44		5.53		5.20		5.46
42		5.17		5.35		5.20		5.31		5.22		5.16
44		4.83		5.21		5.25		5.30		5.42		5.21
46		4.66		4.98		5.01		5.14		5.21		5.30
48		4.65		4.63		4.96		5.08		5.12		5.06

Start Survey at Line 12

Permanent BM - Foresight = 0.170 0.339 Temporary BM at start = 5.665
 Backsight = 12.781 12.933
 Foresight = 1.110 1.110
 Temporary BM Backsight = 5.671 5.671
 17.172 17.155
 Ave 17.163
 Total NO. Pts = 225
 Total Rod Reading = 1954.26
 AVE. Rod Reading = 8.686
 Line of Sight = 105.645'
 End of Survey BM = 5.660
 Ave = 5.662

No. Pts	(9)	(9)	(24)	(24)	(24)	(24)	(24)
Total	40.19	46.77	201.62	204.18	204.17	205.72	202.63
Average							

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI¹⁰⁰ NW
SOIL STABILIZATION
Watersheds
Benchmark:
H. I.
Elev.

Experimental Area: H. J. A.
Basin Location: WS # 3

Date:	Party:	Level	Rod	Notes
6-28-13				

Station*	Transects (Designated in ft. starting at crest of dam)						
	6	7	8	9	10	11	12
	H.I. Elev.	H.I. Elev.	H.I. Elev.	H.I. Elev.	H.I. Elev.	H.I. Elev.	H.I. Elev.
00							
02.5	10.30	10.27	10.14	10.11	10.15	9.58	9.53
04	10.28	10.21	10.12	10.18	10.26	10.20	10.18
06	10.29	10.25	10.15	10.17	10.28	10.26	10.18
08	10.19	10.14	10.10	10.09	10.19	10.23	10.20
10	10.12	10.06	10.03	10.11	10.16	10.22	10.18
12	10.14	10.09	10.10	10.11	10.14	10.21	10.13
14	10.20	10.13	10.12	10.05	10.12	10.18	
16	10.22	10.08	10.07	10.10	10.08	10.12	
18	10.09	10.08	10.05	10.01	10.04	10.08	
20	10.09	10.07	9.90	9.95	10.02		
22	9.99	10.01	9.84	10.18	10.01		
24	9.93	9.94	9.82	9.95			
26	9.76	9.75	9.67				
28	9.64	9.73					
30	9.47	9.53					
32	8.72						
34	4.12						
36	5.17						
38	5.49						
40	5.19						
42	4.90						
Line of Sight Equals $99.983 + 5.662 = 105.645$							

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.