

Clearing Report
 Sunriver to Mt. Bachelor
 Contract No. DTFH70-06-C-00007
 OR PFH 244-1(1)



Stations 13+320 to 18+780

Station	Sq. Meters
13 320	
13 340	458
13 360	462
13 380	461
13 400	460
13 420	458
13 440	454
13 460	457
13 480	467
13 500	474
13 520	486
13 540	497
13 560	507
13 580	527
13 600	530
13 620	526
13 640	532
13 660	537
13 680	527
13 700	495
13 720	473
13 740	468
13 760	464
13 780	448
13 800	469
13 820	412
13 840	338
13 860	385
13 880	412
13 900	403
13 920	400
13 940	398
13 960	431
13 980	459
14 000	425
14 020	397
14 040	390
14 060	391
14 080	383
14 100	387
14 120	419
14 140	472
14 160	525
14 180	540
14 200	649
14 220	643
14 240	554
14 260	563
14 280	531
14 300	526
14 320	546
14 340	577
14 360	593
14 380	598
14 400	594
14 420	615
14 440	661
14 460	563
14 480	426
14 500	385
Total	28628

Station	Sq. Meters
17 580	
17 600	484
17 620	442
17 640	399
17 660	380
17 680	360
17 700	354
17 720	379
17 740	414
17 760	434
17 780	438
17 800	386
17 820	405
17 840	512
17 860	521
17 880	444
17 900	390
17 920	425
17 940	506
17 960	511
17 980	471
18 000	466
18 020	482
18 040	510
18 060	503
18 080	468
18 100	453
18 120	439
Total	11976

Station	Sq. Meters
18 440	
18 460	533
18 480	541
18 500	554
18 520	567
18 540	537
18 560	519
18 580	550
18 600	615
18 620	625
18 640	576
18 660	557
18 680	502
18 700	448
18 720	425
18 740	431
18 760	400
18 780	375
Total	8755

These support pages should be checked and signed by FHWA

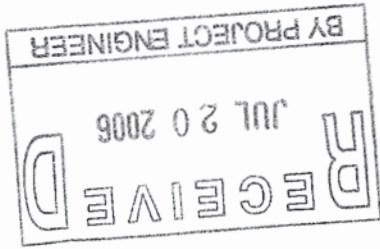
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5-13-1-2

STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA m2	SUBTOTAL m2	AREAS ES
13+240.00 R 1	9.273	9.967	0.000	391		
13+260.00 R 1	12.882	13.631	0.000	458		
13+280.00 R 1	11.567	9.745	0.000	479		
13+300.00 R 1	11.843	10.420	0.000	436		
13+320.00 R 1	12.073	10.653	0.000	450		
13+340.00 R 1	12.230	10.777	0.000	458		
13+360.00 R 1	12.291	10.815	0.000	462		
13+380.00 R 1	11.620	11.279	0.000	461		
13+400.00 R 1	11.489	11.514	0.000	460		
13+420.00 R 1	11.209	11.546	0.000	458		
13+440.00 R 1	10.907	11.651	0.000	454		
13+460.00 R 1	11.100	11.968	0.000	457		
13+480.00 R 1	11.532	12.081	0.000	467		
13+500.00 R 1	11.942	11.787	0.000	474		
13+520.00 R 1	12.076	12.753	0.000	486		
13+540.00 R 1	11.915	12.874	0.000	497		
				10912	1.0	(ACCUM m2 294813.0000)

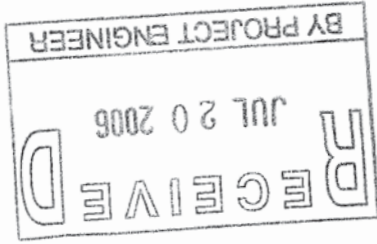
START



STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA m2	SUBTOTAL m2	AREAS ES
13+560.00 R 1	12.331	13.511	0.000	507		
13+580.00 R 1	12.878	13.917	0.000	527		
13+600.00 R 1	12.617	13.570	0.000	530		
13+620.00 R 1	12.985	13.412	0.000	526		
13+640.00 R 1	13.397	13.348	0.000	532		
13+660.00 R 1	13.903	12.981	0.000	537		
13+680.00 R 1	13.588	12.165	0.000	527		
13+700.00 R 1	13.215	10.499	0.000	495		
13+720.00 R 1	13.028	10.509	0.000	473		
13+740.00 R 1	12.922	10.308	0.000	468		
13+760.00 R 1	12.251	10.887	0.000	464		
13+780.00 R 1	11.498	10.109	0.000	448		
13+800.00 R 1	10.369	14.855	0.000	469		
13+820.00 R 1	7.089	8.822	0.000	412		
13+840.00 R 1	9.323	8.477	0.000	338		
13+860.00 R 1	12.549	8.137	0.000	385		

7638 m²

SUNRIVER TO MT. BACHELOR
 PROJ OR PFH 244-1(1)
 MAINLINE
 CLEARING REPORT



STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA m2	SUBTOTAL m2	AREAS ES
13+880.00 R 1	13.011	7.446	0.000	412		
13+900.00 R 1	12.833	6.951	0.000	403		
13+920.00 R 1	12.725	7.440	0.000	400		
13+940.00 R 1	12.846	6.744	0.000	398		
13+960.00 R 1	13.132	10.335	0.000	431		
13+980.00 R 1	12.369	10.020	0.000	459		
14+000.00 R 1	10.387	9.669	0.000	425		
14+020.00 R 1	9.719	9.881	0.000	397	11549	1.1549 (ACCUM m2 306362.0000)
14+040.00 R 1	9.079	10.266	0.000	390		
14+060.00 R 1	9.148	10.510	0.000	391		
14+080.00 R 1	6.661	11.971	0.000	383		
14+100.00 R 1	6.313	13.732	0.000	387		
14+120.00 R 1	6.513	15.251	0.000	419		
14+140.00 R 1	9.359	16.072	0.000	472		
14+160.00 R 1	11.017	15.999	0.000	525		
14+180.00 R 1	10.501	16.418	0.000	540		

Handwritten notes

STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA m2	SUBTOTAL m2	AREAS ES
14+200.00 R 1	13.855	24.066	0.000	649		
14+220.00 R 1	11.103	15.178	0.000	643		
14+240.00 R 1	12.138	16.921	0.000	554		
14+260.00 R 1	10.462	16.707	0.000	563		
14+280.00 R 1	10.456	15.385	0.000	531		
14+300.00 R 1	10.650	16.024	0.000	526		
14+320.00 R 1	11.113	16.776	0.000	546		
14+340.00 R 1	11.917	17.811	0.000	577		
14+360.00 R 1	12.710	16.770	0.000	593		
14+380.00 R 1	12.185	18.083	0.000	598		
14+400.00 R 1	11.802	17.318	0.000	594		
14+420.00 R 1	12.943	19.385	0.000	615		
14+440.00 R 1	20.437	13.276	0.000	661		
14+460.00 R 1	10.209	12.343	0.000	563		
14+480.00 R 1	10.430	9.610	0.000	426		
14+500.00 R 1	9.520	8.872	0.000	385		
				12928	1.2928	(ACCUM m2 319290.0000)

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9624 m²

Sta	Sta	SF	
375+00.00	376+50.00	7,876.00	1 acre = 43560 square feet
376+50.00	383+61.10	33,298.00	
383+61.10	389+00.00	25,048.00	
389+00.00	394+50.00	34,852.00	
394+50.00	398+00.00	19,164.00	
398+00.00	400+00.00	15,103.00	
		135,341.00 Total	3.107 acre

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 CAMP GRISDALE ROAD
 Mainline
 CLEARING REPORT

STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA SF	SUBTOTAL SF	AREAS ACRES
369+00.00 R 2	36.62	34.60	24.00	2443		
369+50.00 R 2	39.33	35.10	24.00	2442		
370+00.00 R 2	42.05	33.79	24.00	2558		
370+50.00 R 2	56.18	34.75	24.00	2970		
371+00.00 R 2	43.60	33.06	24.00	2990		
371+50.00 R 2	41.32	34.92	24.00	2623		
372+00.00 R 2	43.74	22.39	24.00	2360		
372+50.00 R 2	39.22	25.20	24.00	2064		
373+00.00 R 2	38.87	23.11	24.00	1960		
373+50.00 R 2	44.79	36.14	24.00	2373		
374+00.00 R 2	49.50	45.90	24.00	3209		
374+50.00 R 2	48.94	26.36	24.00	3068		
375+00.00 R 2	48.49	30.41	24.00	2655		
375+50.00 R 2	42.98	32.22	24.00	2653		
376+00.00 R 2	48.76	27.95	24.00	2599		
376+50.00 R 2	52.08	24.14	24.00	2624		

Σ 7876 SF

← put in MS Excel spreadsheet

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CAMP GRISDALE ROAD
Mainline
CLEARING REPORT

STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA SF	SUBTOTAL SF	AREAS ACRES
377+00.00 R 2	46.56	23.45	24.00	2456		
377+50.00 R 2	44.93	22.38	24.00	2234		
378+00.00 R 2	39.81	22.33	24.00	2037		
378+50.00 R 2	35.30	32.18	24.00	2041		
379+00.00 R 2	24.06	54.41	24.00	2449		
379+50.00 R 2	30.87	50.61	24.00	2799		
380+00.00 R 2	31.04	42.22	24.00	2669		
380+50.00 R 2	30.87	41.81	24.00	2449		
381+00.00 R 2	29.48	40.39	24.00	2364		
381+50.00 R 2	29.77	41.71	24.00	2334		
382+00.00 R 2	28.54	36.00	24.00	2201		
382+50.00 R 2	27.33	26.09	24.00	1750		
383+00.00 R 2	36.05	30.55	24.00	1801		
383+10.60 R 2	41.81	48.02	24.00	575		
383+50.00 R 2	35.85	49.34	24.00	2503		
383+61.10 R 2	28.95	48.41	24.00	636		

Σ 33,298 SF

← put in MS Excel spreadsheet

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CAMP GRISDALE ROAD
Mainline
CLEARING REPORT

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STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA SF	SUBTOTAL SF	AREAS ACRES
384+00.00 R 2	28.67	32.86	24.00	1768		
384+50.00 R 2	32.86	46.92	24.00	2333		
384+61.10 R 2	28.55	29.00	24.00	496		
385+00.00 R 2	27.07	29.00	24.00	1277		
385+20.00 R 2	28.70	29.00	24.00	658		
385+47.01 R 2	31.89	29.00	24.00	954		
385+50.00 R 2	32.07	50.98	24.00	144		
385+80.39 R 2	33.82	28.89	24.00	1486		
386+00.00 R 2	35.50	40.57	24.00	891		
386+50.00 R 2	35.44	60.24	24.00	3094		
387+00.00 R 2	31.94	49.31	24.00	3224		
387+50.00 R 2	27.54	37.90	24.00	2468		
388+00.00 R 2	43.27	27.95	24.00	2217		
388+50.00 R 2	40.00	27.51	24.00	2269		
388+92.00 R 2	19.10	34.31	24.00	1532		
389+00.00 R 2	19.10	34.67	24.00	237		

Σ 25,048 SF

STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA SF	SUBTOTAL SF	AREAS ACRES
389+50.00 R 2	43.42	38.92	24.00	2203		
390+00.00 R 2	44.10	40.42	24.00	2972		
390+50.00 R 2	48.32	47.12	24.00	3300		
391+00.00 R 2	49.15	38.33	24.00	3374	141934	3.2584 (ACCUM SF 1956814.0000)
391+50.00 R 2	45.42	45.43	24.00	3259		
392+00.00 R 2	43.46	41.75	24.00	3202		
392+50.00 R 2	46.72	45.43	24.00	3235		
392+95.00 R 2	43.68	44.21	24.00	2971		
393+00.00 R 2	43.19	45.59	24.00	322		
393+50.00 R 2	42.31	56.21	24.00	3483		
393+55.00 R 2	42.00	56.95	24.00	374		
393+72.00 R 2	39.57	56.70	24.00	1252		
393+75.00 R 2	39.08	55.44	24.00	215		
393+87.50 R 2	39.66	51.10	24.00	859		
394+00.00 R 2	37.19	46.35	24.00	790		
394+50.00 R 2	40.05	46.02	24.00	3041		

2734952 SF

WA PFH 208-1(1)
CAMP GRISDALE ROAD
Mainline
CLEARING REPORT

STATION	CLEARING LT	DISTANCE RT	EXCEPTION WIDTH	AREA SF	SUBTOTAL SF	AREAS ACRES
395+00.00 R 2	22.65	65.96	24.00	3168		
395+50.00 R 2	22.28	25.98	24.00	2222		
396+00.00 R 2	34.40	32.91	24.00	1690		
396+12.50 R 2	33.69	48.38	24.00	634		
396+25.00 R 2	33.76	52.02	24.00	750		
396+28.00 R 2	33.88	54.65	24.00	190		
396+41.00 R 2	32.91	57.29	24.00	850		
396+45.00 R 2	33.19	54.33	24.00	260		
396+50.00 R 2	33.54	54.01	24.00	318		
397+00.00 R 2	46.15	47.35	24.00	3327		
397+05.00 R 2	46.85	46.56	24.00	348		
397+41.00 R 2	31.00	45.60	24.00	2197		
397+50.00 R 2	31.00	45.82	24.00	475		
397+68.00 R 2	31.00	46.19	24.00	955		
397+95.00 R 2	31.00	47.08	24.00	1449		
398+00.00 R 2	54.78	47.27	24.00	331		

Σ 19,164 SF

M 57

0+500

$\Delta = 20^\circ 46' 05''$ (LT)
R = 46.900 m
T = 8.594 m
L = 17.000 m

$\Delta = 17^\circ 40' 41''$ (LT)
R = 246.300 m
T = 38.301 m
L = 75.994 m

PLAN

$\Delta = 1$
R = 4
T = 4
L = 9

PT 0+504.616
PC 0+495.222

N 25° 12' 10.60" W
Edge of existing pavement

PC 0+537.285

PCC 0+554.285

Edge of pavement

0+600

PT 0+630.279

oad
55.61" W

Line to be staked and constructed

19.86m

DRK
13(4)
ROAD
LDER WIDENING

Checked By: *[Signature]*
Date: 11/18/09

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BY PROJECT MANAGER

9/5/08

Item
 Project No. 20401

By T. Erickson
M. Clark

SHOT	BST	HT	FS	Elev.
STA 105+380 Hub	1.16			95.98
			<u>97.14</u>	
STA 105+366 Back			<u>1.55</u>	<u>95.59</u>
STA 105+366 Crest			<u>1.77</u>	<u>95.37</u>
STA 105+366 Toe			<u>4.70</u>	<u>92.44</u>
STA 105+370 Back			<u>1.21</u>	<u>95.93</u>
STA 105+370 Crest			<u>1.42</u>	<u>95.72</u>
STA 105+370 Toe			<u>4.62</u>	<u>92.52</u>
STA 105+375 Back			<u>1.10</u>	<u>96.04</u>
STA 105+375 Crest			<u>1.10</u>	<u>96.04</u>
STA 105+375 Toe			<u>4.53</u>	<u>92.61</u>
STA 105+380 Back			<u>1.28</u>	<u>95.86</u>
STA 105+380 Crest			<u>1.35</u>	<u>95.79</u>
STA 105+380 Toe			<u>4.43</u>	<u>92.71</u>

✓ John Steuby
 9/10/08

Project	Bear Tooth Highway
Detail	STA 105+366 → 381.5 Left, Sliver Excavation

Sheet	2
of	6

9/5/08

It_{no}
Project No. 20401

By T. Erickson T
M. Clark Q

SITOT	BST	HT	FS-	Elev
		<u>97.14</u> ✓		
STA 105+381.5 Back.			<u>1.61</u> ✓	<u>95.53</u> ✓
STA 105+381.5 Crest			<u>1.94</u> ✓	<u>95.20</u> ✓
STA 105+381.5 Toe			<u>4.35</u> ✓	<u>92.79</u> ✓

✓ John H. Steuby
9/10/08

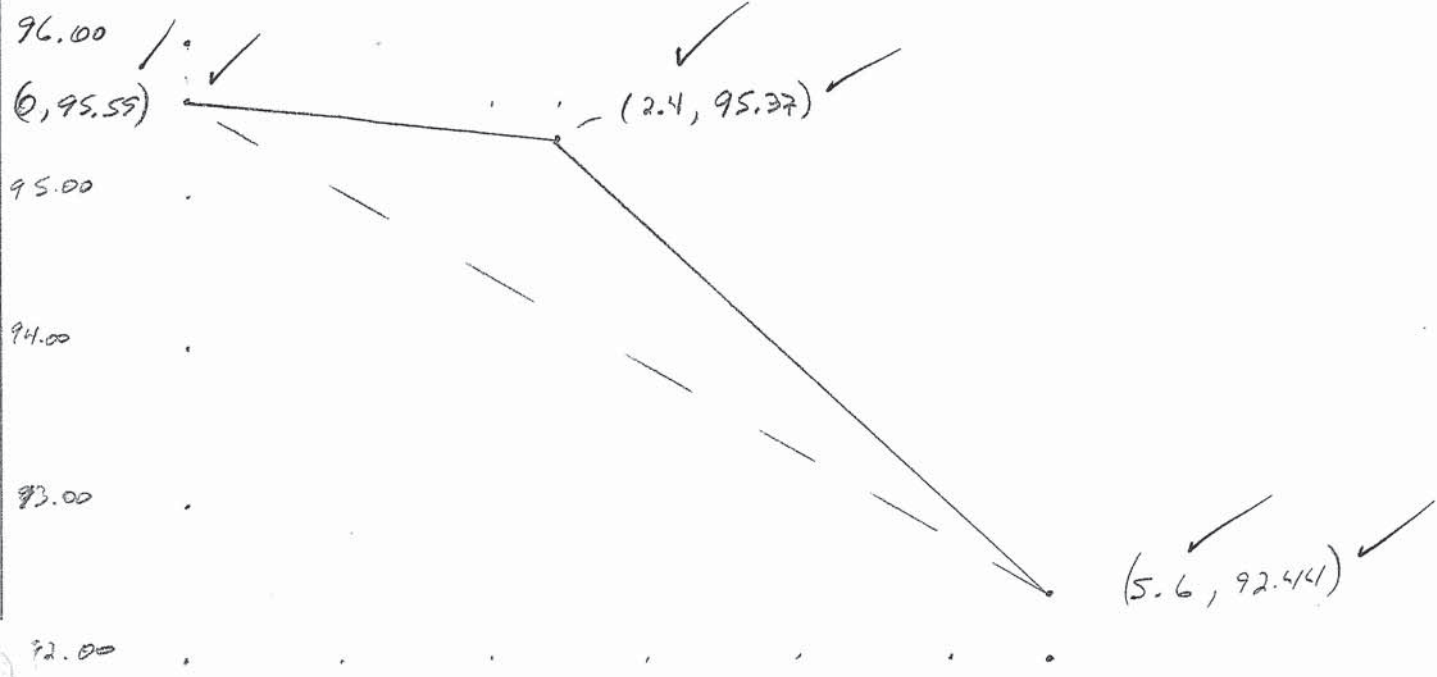
9/5/08

Item
Project No. 20401

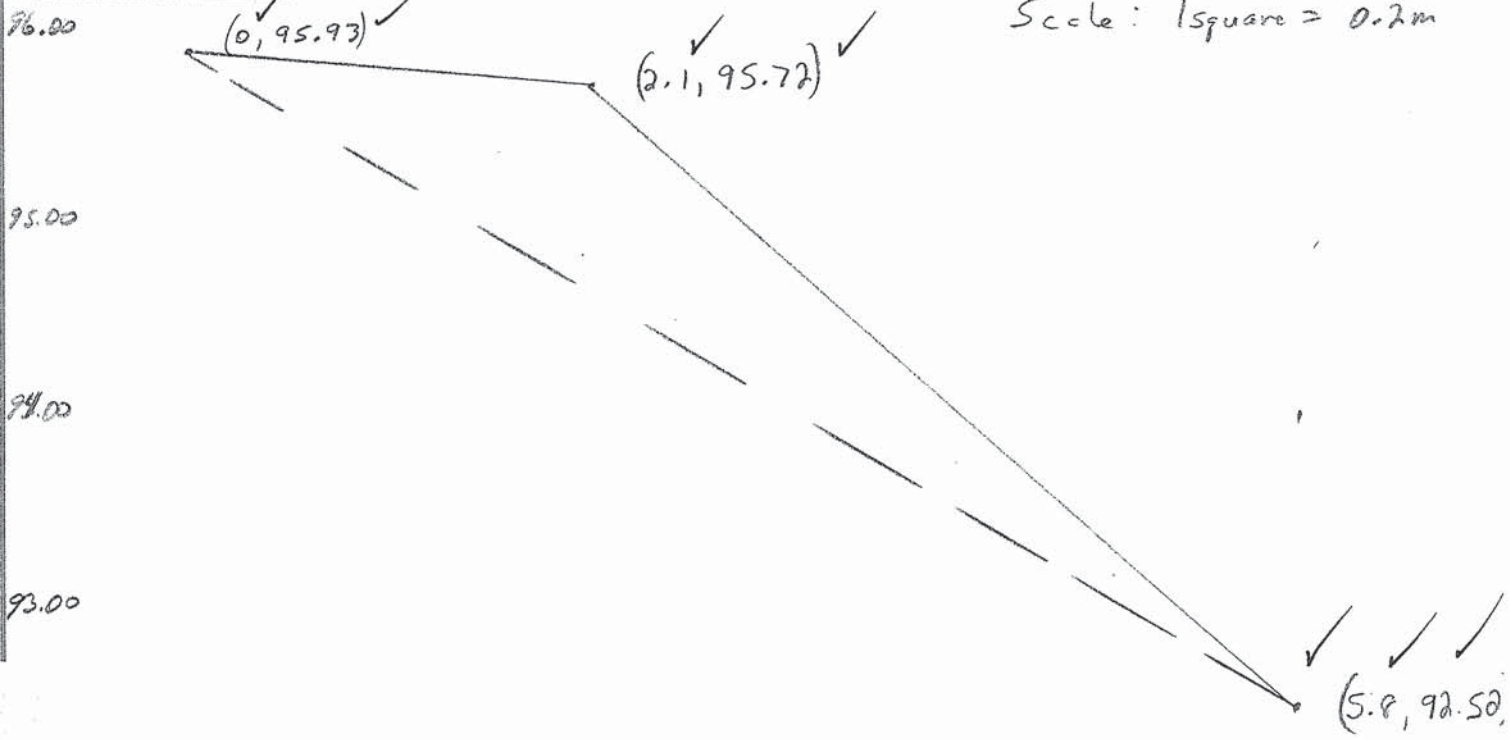
By T. Erickson

Scale: 1 square = 0.25m

STA 105+366



STA 105+370



Scale: 1 square = 0.2m

✓ John H. Steuby
9/18/08

Project

Bear Tooth Highway

Sheet

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of 6

Detail

STA 105+366 → 381.5 left, Sliver Excavation

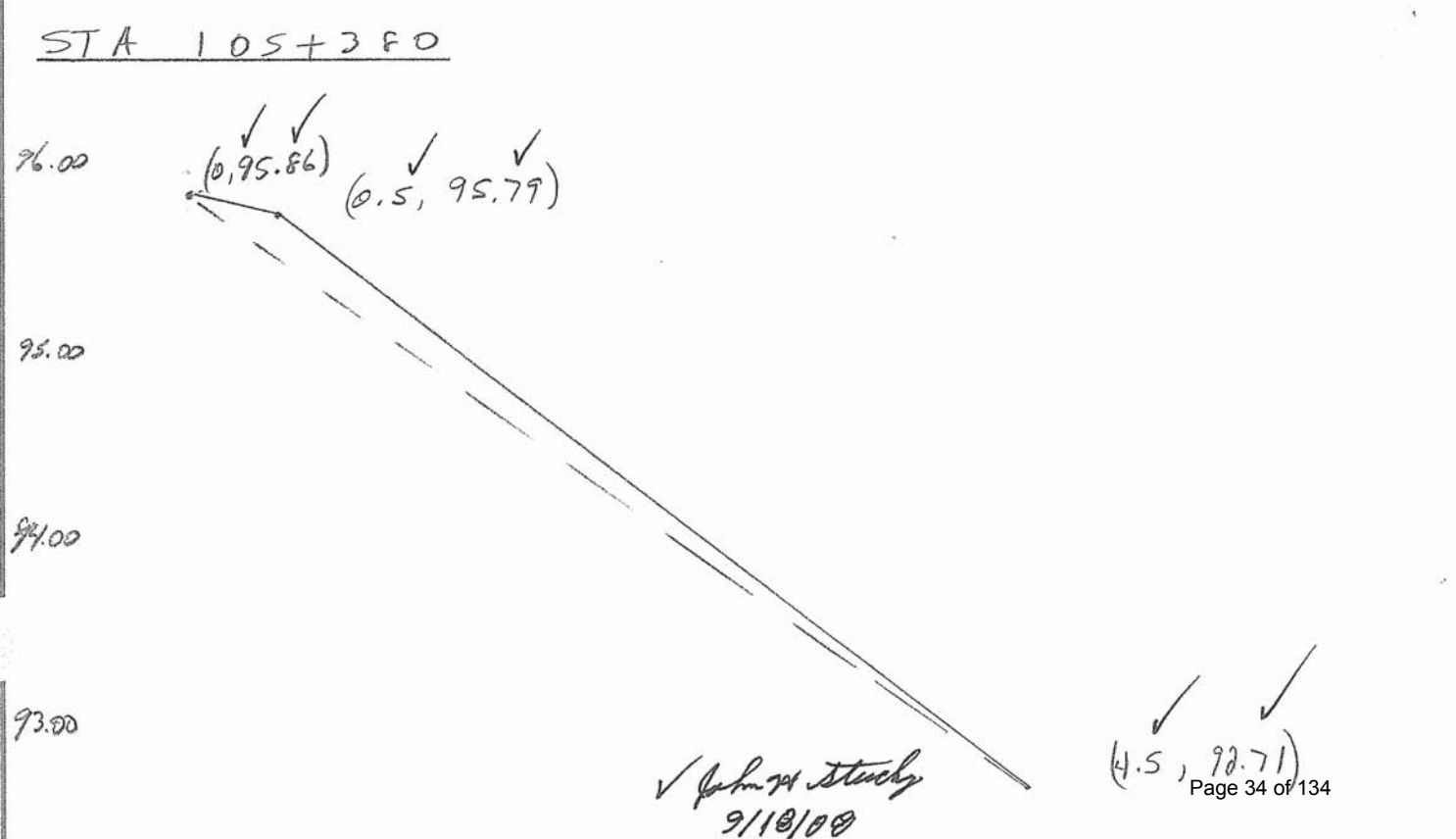
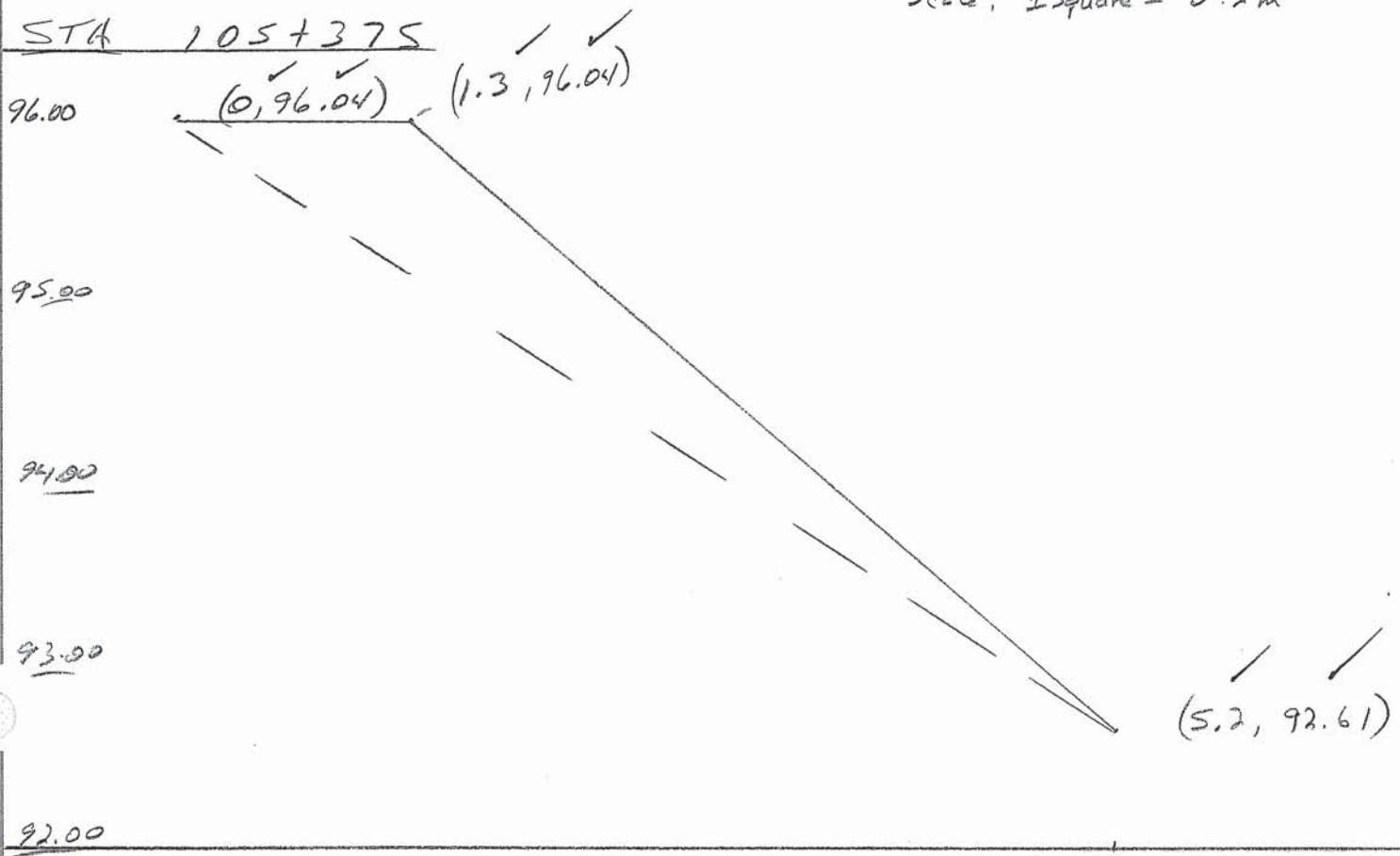
9/5/08

Item

Project No. 20401

By T. Erickson

Scale: 1 Square = 0.2 m



✓ John M. Steady
9/10/08

✓ (4.5, 92.71)

Project

Beartooth Highway

Sheet

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of 6

Detail

STA 105+366 → 381.5 Left, Sliver Excavation

9/5/08

Tom

Project No. *20401*

By *T. Erickson*

STA 105+381.5

96.00

✓ ✓
(0, 95.53)

95.00

✓ ✓
- (0.6, 95.20)

94.00

93.00

✓ ✓
(4, 92.79)

92.00

✓ *John H. Sturdy*
9/10/08

Project

Beartooth Highway

Sheet

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of 6

Detail

STA 105+366 → 381.5 left, Sliver Excavation

9/5/08

Eten
Project No. 20401

By T. Erickson

<u>STATION</u>	<u>DIST (m)</u>	<u>Area (m²)</u>	<u>Aug. Area m²</u>	<u>Volume m³</u>
105+366 ✓		3.16 ✓		
	4 ✓		3.07 ✓	12.28 ✓
105+370 ✓		2.97 ✓		
	5 ✓		2.60 ✓	13.00 ✓
105+375 ✓		2.23 ✓		
	5 ✓		1.43 ✓	7.15 ✓
105+380 ✓		0.63 ✓		
	1.5 ✓		0.40 ✓	0.60 ✓
105+381.5 ✓		0.16 ✓		
				TOTAL VOLUME = 33.03 ✓

✓ John H. Stucky
9/10/08

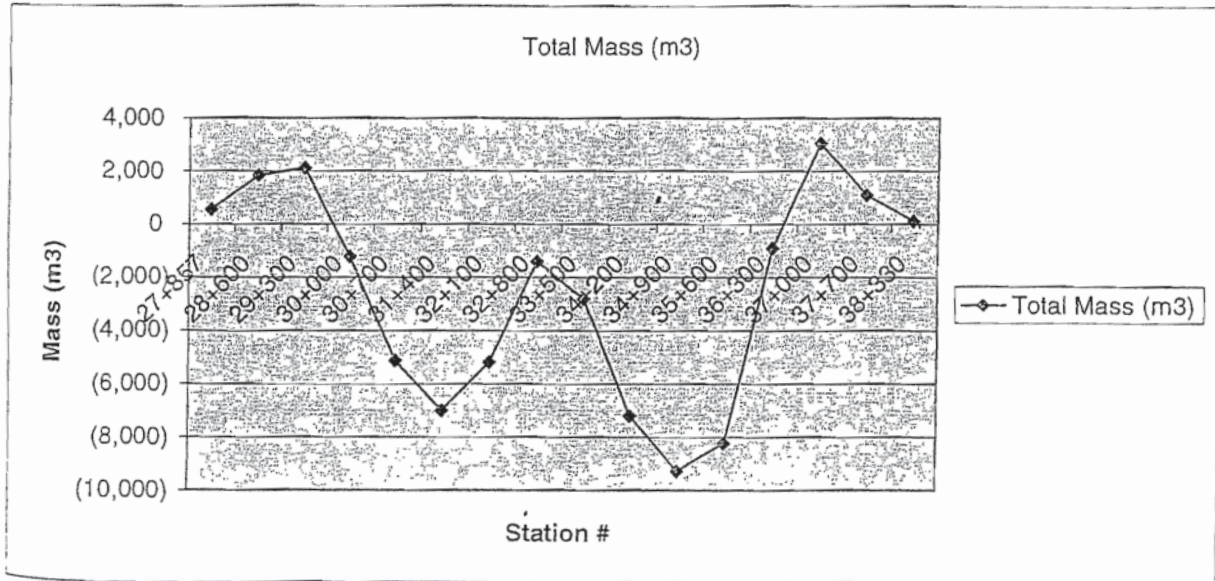
Contractor Generated Notes

Grand Teton Park North Park Road Phase II

Station	Total Excavation (m3)	Top Soil Ex	Unusable Mat Ex	Embankment (m3)	Mass @ Station (m3)	Total Mass (m3)
27-857	1,186	252		388	546	546
28-600	2,364	250	250	572	1,292	1,838
29+300	1,879	216	287	1,108	268	2,106
30+000	1,006	287	181	3,860	(3,322)	(1,216)
30+700	1,095	448		4,559	(3,912)	(5,128)
31+400	1,418	493		2,805	(1,880)	(7,008)
32+100	2,799	580		409	1,810	(5,198)
32+800	5,529	203	1,340	188	3,798	(1,400)
33+500	6,929	762	6,167	1,405	(1,405)	(2,805)
34+200	1,627	617	1,010	4,397	(4,397)	(7,202)
34+900	6,530	613	5,917	2,078	(2,078)	(9,280)
35+600	9,432	639	7,532	211	1,050	(8,230)
36+300	8,140	464	100	245	7,331	(899)
37+000	5,047	524	31	546	3,946	3,047
37+700	1,813	521		3,248	(1,956)	1,091
38+330	303	189		1,077	(963)	128

Station	Total Mass (m3)
27+857	546
28+600	1,838
29+300	2,106
30+000	(1,216)
30+700	(5,128)
31+400	(7,008)
32+100	(5,198)
32+800	(1,400)
33+500	(2,805)
34+200	(7,202)
34+900	(9,280)
35+600	(8,230)
36+300	(899)
37+000	3,047
37+700	1,091
38+330	128

FHWA project staff should provide a note to reflect that calculations are accurate and reflect the original design or adjusted quantities



Checked By: *John W. [Signature]*
Date: 11/19/09

APPENDIX 'A'

Guidelines for percentage payments for partially complete work

<u>Description</u>	<u>Allowance (Cumulative)</u>
Clearing and Grubbing	
• Felled and slashed	35
• Bucked and piled (slashings, brush and logs)	60
• Grubbed	75
• Burned or chipped and removed	98
• Substantially complete including cleanup	100
Excavation and Embankment	
• Pioneered	5
• Drilled	20
• Blasted	35
• <u>Roughed out to grade</u>	85
• Roadbed finished to grade	90
• Slopes seeded	98
• Substantially complete including cleanup	100
Structural Excavation	
• Excavation complete	85
• Backfill complete	98
• Substantially complete including cleanup	100
Aggregate Courses	
• Crushed and stockpiled onsite	50
• Placed on roadway	80
• Spread, compacted and tested	98
• Substantially complete including cleanup	100
Asphalt Pavements	
• Aggregates crushed and stockpiled onsite	50
• Placed, compacted and tested	98
• Substantially complete including cleanup	100

A - 2

Checked By: *J. N. Stucky*
Date: 11/19/09

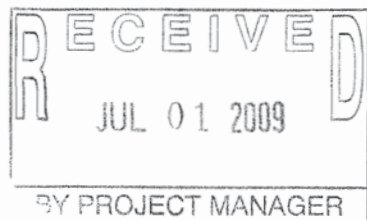


COMPUTATIONS		Project #: <u>20402</u>
Client Name: _____		Sheet <u>1</u> of <u>1</u>
Prepared by: <u>T. Erickson</u>	Date: <u>6/29/09</u>	Checked by: _____ Date: _____

Project Name: Type I Sub-Ex STA 101+440 - 101+680

<u>STA</u>	<u>DIST</u>	<u>Area (m²)</u> ✓	<u>Avg Area (m²)</u>	<u>Volume (m³)</u>
<u>101+440</u>	<u>20 m</u>	<u>14.86</u>	<u>12.79</u>	<u>255.8</u>
<u>101+460</u>	<u>20</u>	<u>10.72</u>	<u>10.52</u>	<u>210.4</u>
<u>101+480</u>	<u>20</u>	<u>10.31</u>	<u>10.77</u>	<u>215.4</u>
<u>101+500</u>	<u>20</u>	<u>11.22</u>	<u>11.09</u>	<u>221.8</u>
<u>101+520</u>	<u>20</u>	<u>10.96</u>	<u>10.37</u>	<u>207.4</u>
<u>101+540</u>	<u>20</u>	<u>9.78</u>	<u>9.33</u>	<u>186.6</u>
<u>+560</u>	<u>20</u>	<u>8.88</u>	<u>9.48</u>	<u>189.6</u>
<u>101+580</u>	<u>20</u>	<u>10.08</u>	<u>10.66</u>	<u>213.2</u>
<u>101+600</u>	<u>20</u>	<u>11.23</u>	<u>11.49</u>	<u>229.8</u>
<u>101+620</u>	<u>20</u>	<u>11.75</u>	<u>11.85</u>	<u>237</u>
<u>101+640</u>	<u>20</u>	<u>11.94</u>	<u>11.17</u>	<u>223.4</u>
<u>101+660</u>	<u>20</u>	<u>10.40</u>	<u>12.45</u>	<u>249</u>
<u>101+680</u>		<u>14.50</u>		

TOTAL = 2639.4 m³



✓
MFT

CROSS-SECTION END AREAS REPORT

Project: MT PFH 59-1(2) NE Entrance Road
 Description: Sub cut *Type 1*

Station: 1014+40.00

101440

(-)Left Elevation(m) (+)Right
 Offset Distance(m)

TEMPLATE LINE *52.21 line* *51.83 line*

53.080	52.080	52.010 ✓	51.950	51.920
-7.900	-7.900	0.000	6.690	8.000

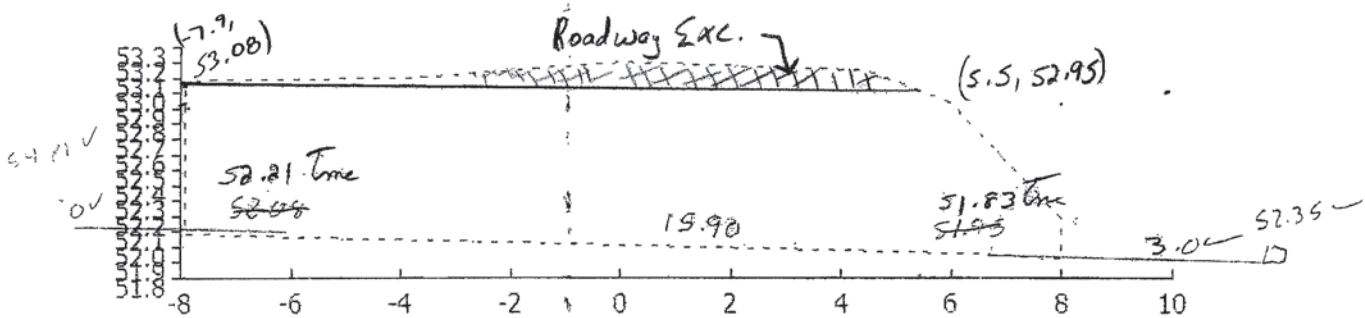
GROUND LINE

53.080	53.100	53.200	53.150	52.940	52.180	51.920
-7.900	-3.830	0.000	4.430	5.970	8.000	8.000

CATCHES AND ZERO-ZEROS

53.080
-7.900

Cut Area (sq. m): ~~16.656~~ ✓ *14.86* Fill Area (sq. m): 0.000



Template Line	Ground Line
Fill/Excavation Area	

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Irregular Polygon Area Calculator - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.analyzemath.com/Geometry_calculators/irregular_polygon_area.html

Google

SEARCH THIS SITE

Web www.analyzemath.com

How to use the calculator

Enter the number of points n that form the irregular polygon and the coordinates x and y of the vertices and press "enter". The vertices coordinates must be input in order, either clockwise or anticlockwise. The output is the area of the irregular polygon. In case you have a polygon with more than 10 vertices, divide it into smaller polygons find the area of each polygon and add them to obtain the total area.

$n =$	y
6	53.08
	52.21
	51.83
	52.18
	52.94
	52.95

x
-7.9
-7.9
8
8
5.97
5.5

Area = 14.86395 ✓

More [Online Geometry Calculators and Solvers](#).

Done Internet

CROSS-SECTION END AREAS REPORT

Project: MT PFH 59-1(2) NE Entrance Road
 Description: Sub cut *type 1*

Station: 1014+60.00

101460

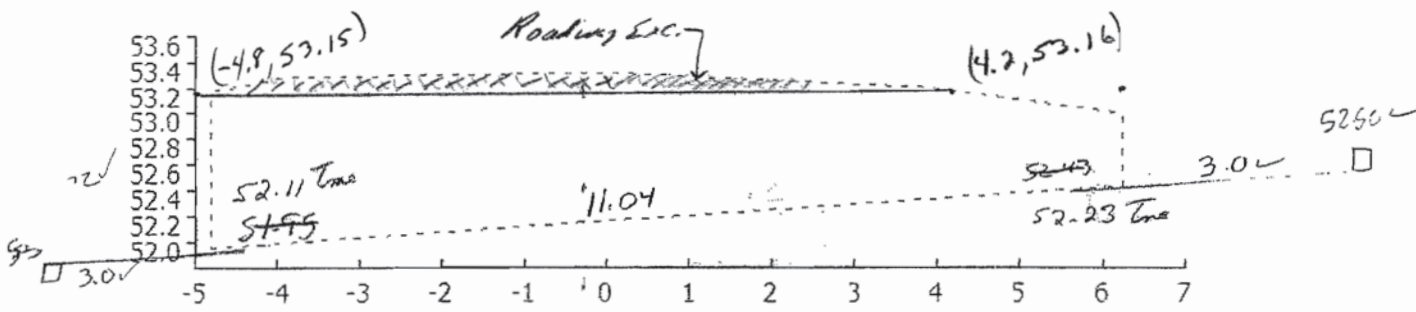
(-)Left Elevation(m) (+)Right
 Offset Distance(m)

TEMPLATE LINE <i>52.11 Line</i>		<i>52.23 Line</i>		
53.170	51.950	52.160 ✓	52.430	53.000
-4.800	-4.800	0.000	6.240	6.240

GROUND LINE				
53.170	53.280	53.310	53.200	53.000
-4.800	-3.880	0.000	3.830	6.240

CATCHES AND ZERO-ZEROS	
53.170 ✓	
-4.800 ✓	

Cut Area (sq. m): ~~11.504~~ ✓ *10.72* Fill Area (sq. m): 0.000

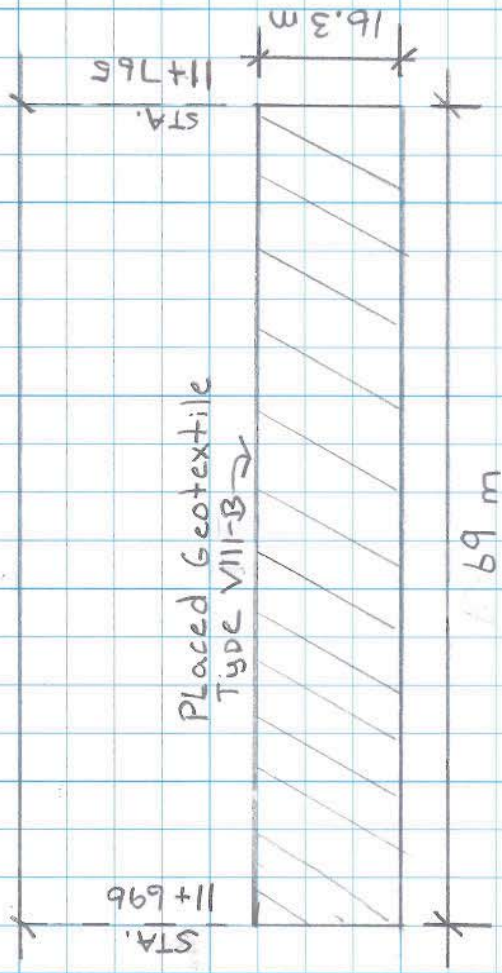


Template Line	—	Ground Line	—
Fill/Excavation Area	[Hatched Area]		

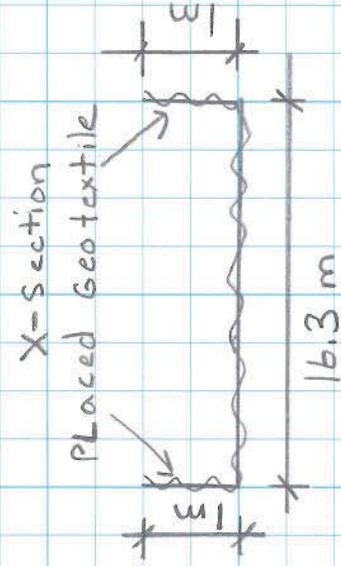


U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

PROJECT _____ DATE _____
SUBJECT ITEM 20701, Qty Calc. SHEET NO. _____



Bottom: $(69\text{ m} \times 16.3\text{ m}) = 1,124.7\text{ m}^2$



Sidewalls: $(69\text{ m} \times 2\text{ m}) = 138\text{ m}^2$

$\star 1,124.7\text{ m}^2 + 138\text{ m}^2 = \text{TOTAL } 1,262.7\text{ m}^2$

Checked by:

Designed by: 03-NOV-2006 11:12 AM

F:\CAD_Services\Geotech\GRID.dgn [US.Intl]

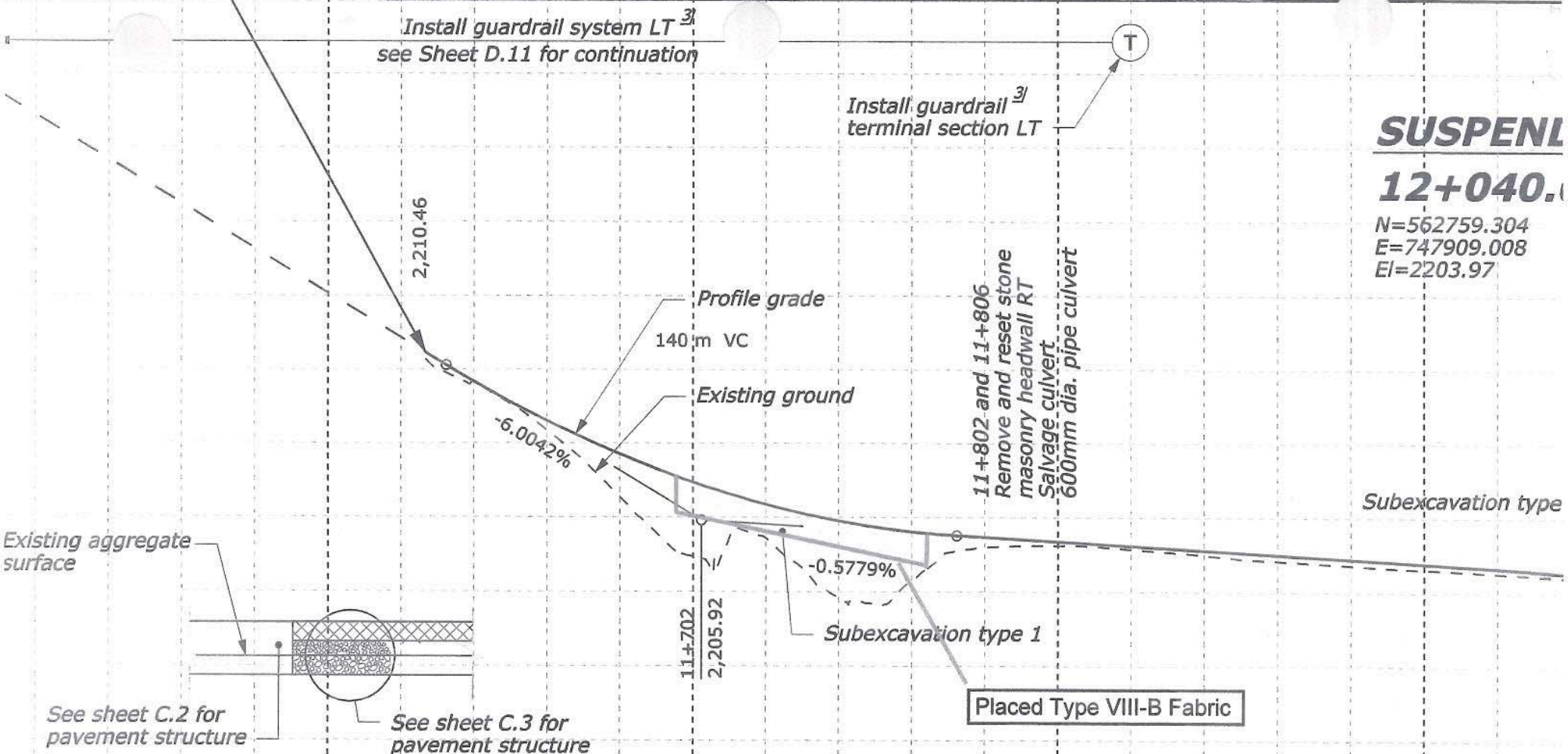
Install guardrail system LT ^{3/1}
see Sheet D.11 for continuation

Install guardrail ^{3/1}
terminal section LT

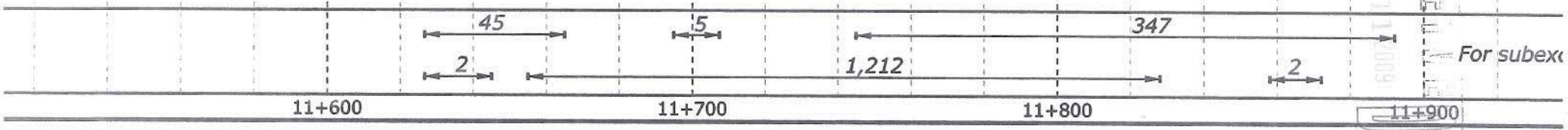
SUSPENL

12+040.

N=562759.304
E=747909.008
EI=2203.97



**SOUTH CONNECTION DETAIL
TO EXISTING ROADWAY**

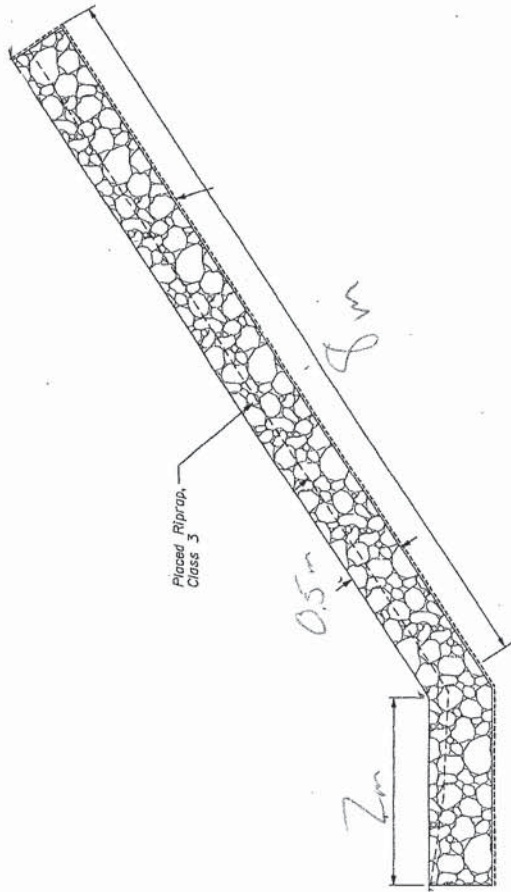


STATE	PROJECT
OR.	PH 244-111

Station 19+320 @ 20' left of center line

Sta 19+320

V = 12.5 m³



PLACED RIPRAP,
CLASS 3

2.5 m wide

Butcher

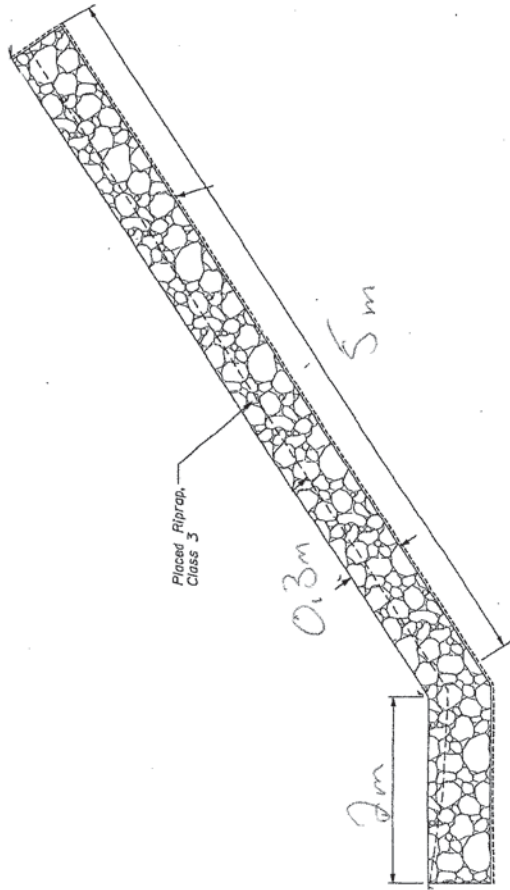
PLACED RIPRAP, CLASS 3

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BY PROJECT ENGINEER

STATE	PROJECT
OR	PFI 244-110

Station 20+140 @ 24' right of center line

Sta 20+140
 $V = 4.2 m^3$



PLACED RIPRAP,
 CLASS 3

Width 2m

PLACED RIPRAP, CLASS 3

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Date 8/29/08

Project No. 25101A

By T. Erickson

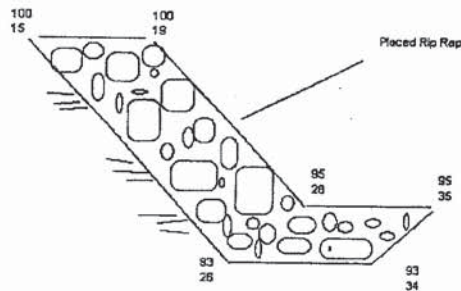
STA	DIST (m)	SLOPE LENGTH (m)	Average SLOPE LENGTH (m)	DEPTH (m)	Volume (m ³)
104+300		6.6 m ✓			
	10 ✓		12 ✓	1 ✓	120 ✓
104+310		17.4 m ✓			
	10 ✓		21 ✓	2 ✓	210 ✓
104+320		24.6 ✓			
	20 ✓		23.3 ✓	1 ✓	466 ✓
104+340		22 ✓			
	20 ✓		20.6 ✓	1 ✓	412 ✓
104+360		19.2 ✓			
	20 ✓		20.6 ✓	1 ✓	412 ✓
104+380		22 ✓			
	21 ✓		18.2 ✓	1 ✓	382.2 ✓
104+401		14.4 ✓			
	20 ✓		12.95 ✓	1 ✓	259 ✓
104+421 (Klusters Driveway)		11.5 ✓			
	20 m ✓		10 ✓	1 ✓	200 ✓
104+441 (Klusters Driveway)		8.5 ✓			
	6 m ✓		7 ✓	1 ✓	42 ✓
104+447 (Klusters Driveway)		5.5 ✓			
					2503.2 m ³ ✓

In order to check the As-Builts when the project is complete, these quantities should also have a reference to center line.

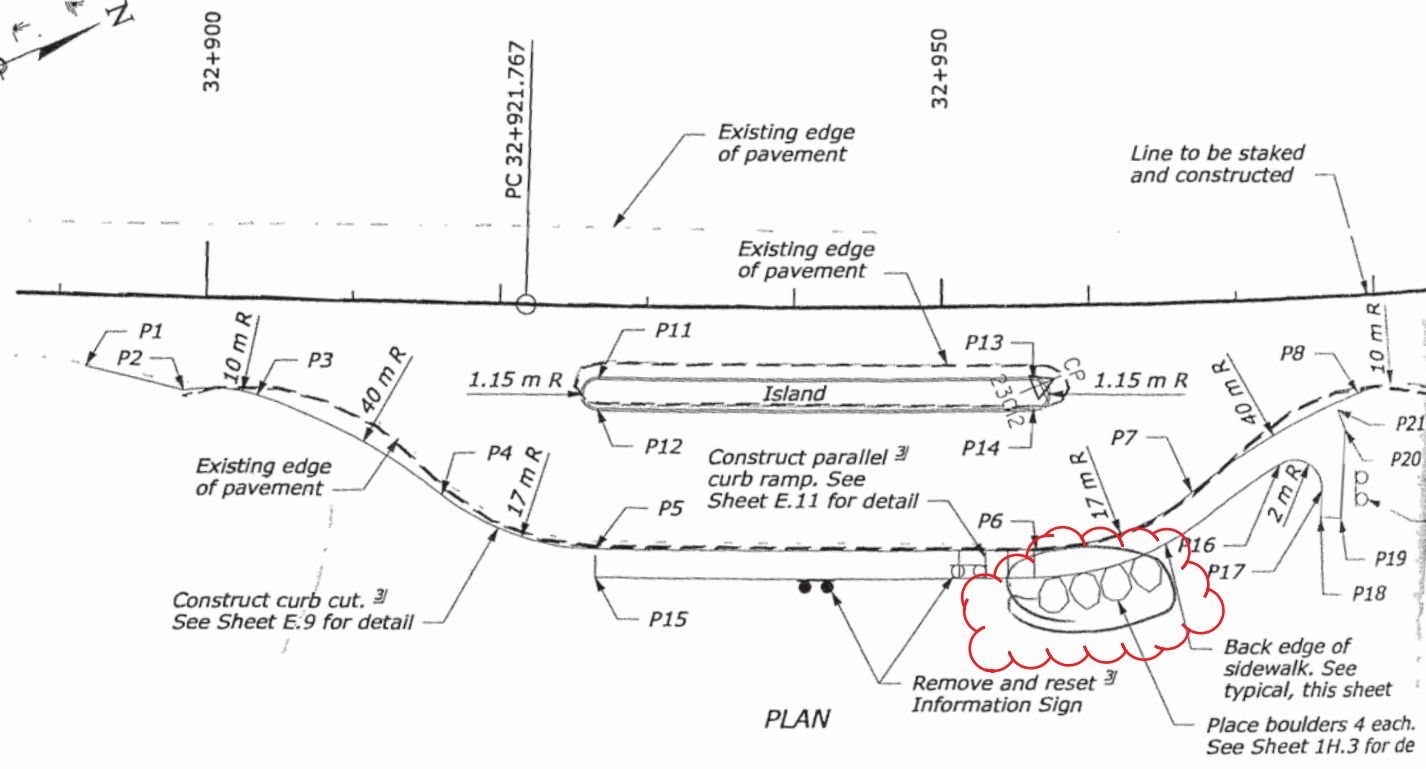
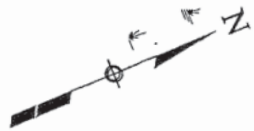
John W. Hickey
 9/2/08

Criss-Cross average end area method using elevations and distance

Station									Area	Volume
1005	0.0 End section								0.0	215.0
	0.0									
1015	100.0	100.0	95.0	95.0	93.0	93.0	100.0	100.0	43.0	729.3
	15.0	19.0	28.0	35.0	34.0	26.0	15.0	19.0		
			1300.0	1520.0	570.0	-837.0	-1767.0	-700.0		
									54.2	789.3
1030	98.9	99.0	94.0	93.8	91.7	91.5	98.9	99.0	54.2	789.3
	15.0	19.0	29.0	34.8	33.5	25.0	15.0	19.0		
			1386.0	1485.2	422.1	-898.7	-1692.8	-593.4		
									51.0	695.3
1045	100.0	100.0	95.0	95.0	93.0	93.0	100.0	100.0	51.0	695.3
	15.5	20.0	28.0	36.0	35.0	24.5	15.5	20.0		
			1250.0	1520.0	665.0	-1069.5	-1813.5	-450.0		
									41.7	208.5
1060	101.3	101.7	96.2	96.2	94.5	94.5	101.3	101.7	41.7	208.5
	15.0	19.0	28.0	35.0	34.0	26.0	15.0	19.0		
			1322.1	1539.2	577.2	-850.5	-1795.5	-709.1		
									0.0	0.0
1070	0.0 End section								0.0	0.0
	0.0									
									Total	2637.4 cubic meters



66711111
[Handwritten signature]



PLAN

LAYOUT INFORMATION

POINT	LOCATION	NOTE	POINT	LOCATION	NOTE	POINT	LOCATION	NOTE	POINT	LOCATION
P1	Sta. = 32+891.877 Offset = 4.900	Begin widening for turnout	P6	Sta. = 32+956.152 Offset = 16.800	Begin radius	P11	Sta. = 32+926.717 Offset = 4.900	Begin radius	P16	Sta. = 32+972.722 Offset = 11.370
P2	Sta. = 32+898.568 Offset = 6.434	Begin radius	P7	Sta. = 32+966.649 Offset = 13.109	Begin radius	P12	Sta. = 32+926.718 Offset = 7.200	End radius	P17	Sta. = 32+975.634 Offset = 13.297
P3	Sta. = 32+903.584 Offset = 6.652	Begin radius	P8	Sta. = 32+978.536 Offset = 6.729	Begin radius	P13	Sta. = 32+956.147 Offset = 4.900	Begin radius	P18	Sta. = 32+975.473 Offset = 15.155
P4	Sta. = 32+916.325 Offset = 13.241	Begin radius	P9	Sta. = 32+985.027 Offset = 6.904	End radius	P14	Sta. = 32+956.146 Offset = 7.200	End radius	P19	Sta. = 32+976.943 Offset = 15.273
P5	Sta. = 32+926.720 Offset = 16.800	End radius	P10	Sta. = 32+990.156 Offset = 4.900	End widening for turnout	P15	Sta. = 32+926.714 Offset = 18.750	Begin sidewalk	P20	Sta. = 32+977.485 Offset = 9.160
									P21	Sta. = 32+976.965 Offset = 7.755

25-FEB-2008 9:35AM J. Aguirre Checked by:

ing limits



HKM Engineering Inc.

1015 S. Montana St.
P.O. Box 3588
Butte, MT 59701

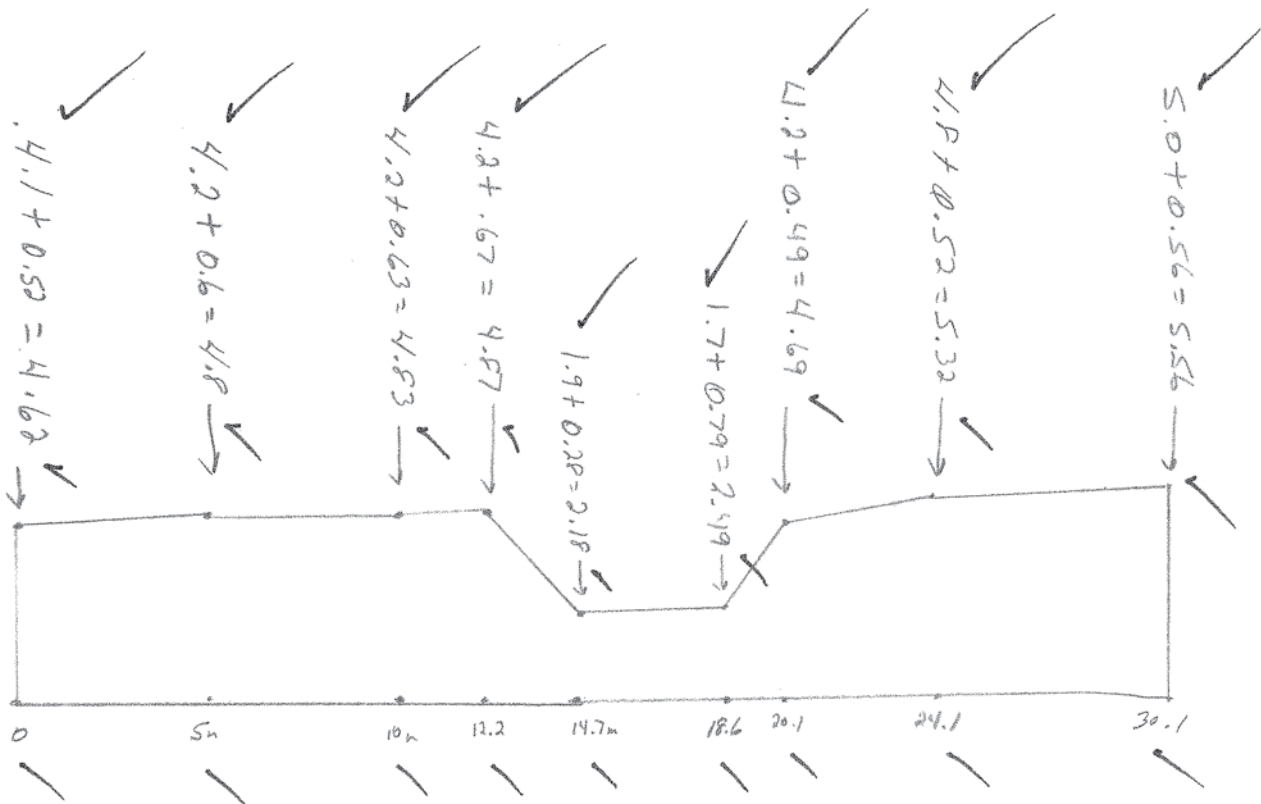
Project	Beartooth Highway
Detail	Rockery Wall Square Footage

Sheet	7
of	1

Date 7/31/08

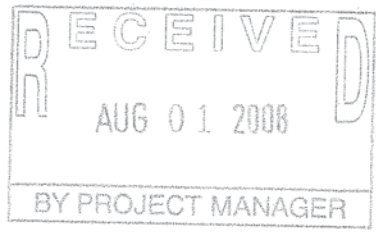
Project No. 26201

By T. Erickson



Area = 134.27 m²
Rounds to

Area = 134.3 m²



John H. Steuby
8/1/08

NOTE! ADDS TO MEASUREMENT
ACCOUNTS FOR PORTION
OF WALL THAT IS BURIED.

John H. Steuby
8/1/08

9/11/08
 ✓
 William Steinhilber

Rockery Wall
 West Area to 0 to 14.7 Meters

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ADDRESS http://www.analyzemath.com/geometry_calculators/irregular_polygon_area.html

Web www.analyzemath.com

Google Search

x	y
0	0
5	0
10	0
12.2	0
14.7	0
14.7	2.18
12.2	4.87
10	4.83
5	4.8
0	4.62

Area = 67.1075

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Updated: 25 November 2007 (A Dendane)

http://www.analyzemath.com/geometry.html

Internet

8/11/08
 [Signature]
 [Signature]

Rockery Wall
 East Area to 14.7 to 30.1 Meters

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Google Search

x	y
14.7	0
18.6	0
20.1	0
24.1	0
30.1	0
30.1	5.56
24.1	5.32
20.1	4.69
18.6	2.49
14.7	2.18

h = 10

Enter

Area = 67.1515

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