



**pennsylvania**

DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Mining Programs

# **2014 Bond Rate Guidelines for the Calculation of Land Reclamation Bonds on Coal Mining Operations**

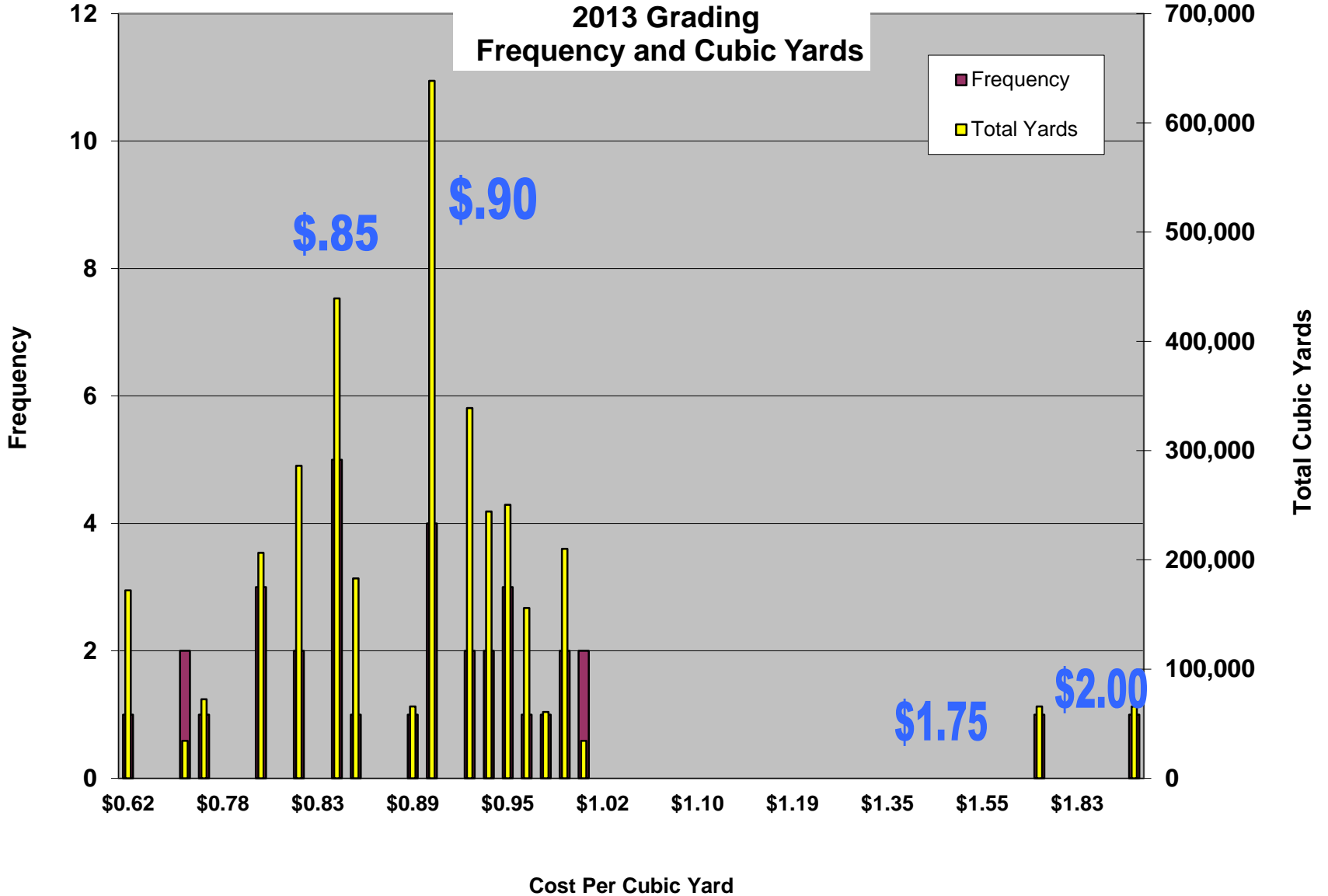
MRAB Meeting

July 11, 2013

## 2013 AML Reclamation Grading Costs - 3 Lowest Project Bids

	DESCRIPTION	QUANTITIES	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL	UNIT PRICE	TOTAL		
Reclamation Project	Task	Cubic Yards	Cost per CY	Low Project Bid	Cost per CY	2nd Project Bid	Cost per CY	3rd Project Bid		
OSM 16(0886,3316)101.1	Grading	183,000	\$0.85	\$155,550.00	\$0.92	\$168,360.00	\$0.86	\$157,380.00		
OSM 54(3101)104.1	Grading									
	A) Grading Area A	31,150	\$0.74	\$23,051.00	\$0.80	\$24,920.00	\$1.00	\$31,150.00		
	B) Grading Area A to B	65,750	\$0.89	\$58,517.50	\$1.75	\$115,062.50	\$2.00	\$131,500.00		
	C) Grading Area B	3,250	\$0.74	\$2,405.00	\$0.80	\$2,600.00	\$1.00	\$3,250.00		
OSM 56(5035)101.1	Grading	72,300	\$0.94	\$67,962.00	\$0.85	\$61,455.00	\$0.75	\$54,225.00		
OSM 17(7162)101.1	Grading	172,000	\$0.94	\$161,680.00	\$0.64	\$110,080.00	\$0.80	\$137,600.00		
OSM 32(2436)104.1	Grading	60,850	\$0.90	\$54,765.00	\$0.95	\$57,807.50	\$0.98	\$59,633.00		
OSM 03(6340)101.1	Grading									
	A. Site A	221,000	\$0.90	\$198,900.00	\$0.82	\$181,220.00	\$0.90	\$198,900.00		
	B. Site B	65,000	\$0.85	\$55,250.00	\$0.85	\$55,250.00	\$0.82	\$53,300.00		
OSM 16(2841)101.1	Grading	135,600	\$0.90	\$122,040.00	\$0.90	\$122,040.00	\$0.95	\$128,820.00		
OSM 65(0896)101.1	A. Grading	54,000	\$0.85	\$45,900.00	\$0.95	\$51,300.00	\$0.99	\$53,460.00		
OSM 10(0753)102.1	Grading	156,000	\$0.99	\$154,440.00	\$0.92	\$143,520.00	\$0.96	\$149,760.00		
<b>9</b>		<b>1,219,900</b>	<b>\$0.90</b>	\$1,100,460.50	<b>\$0.90</b>	\$1,093,615.00	<b>\$0.95</b>	\$1,158,978.00	<b>\$0.92</b>	\$1,117,684.50

### 2013 Grading Frequency and Cubic Yards

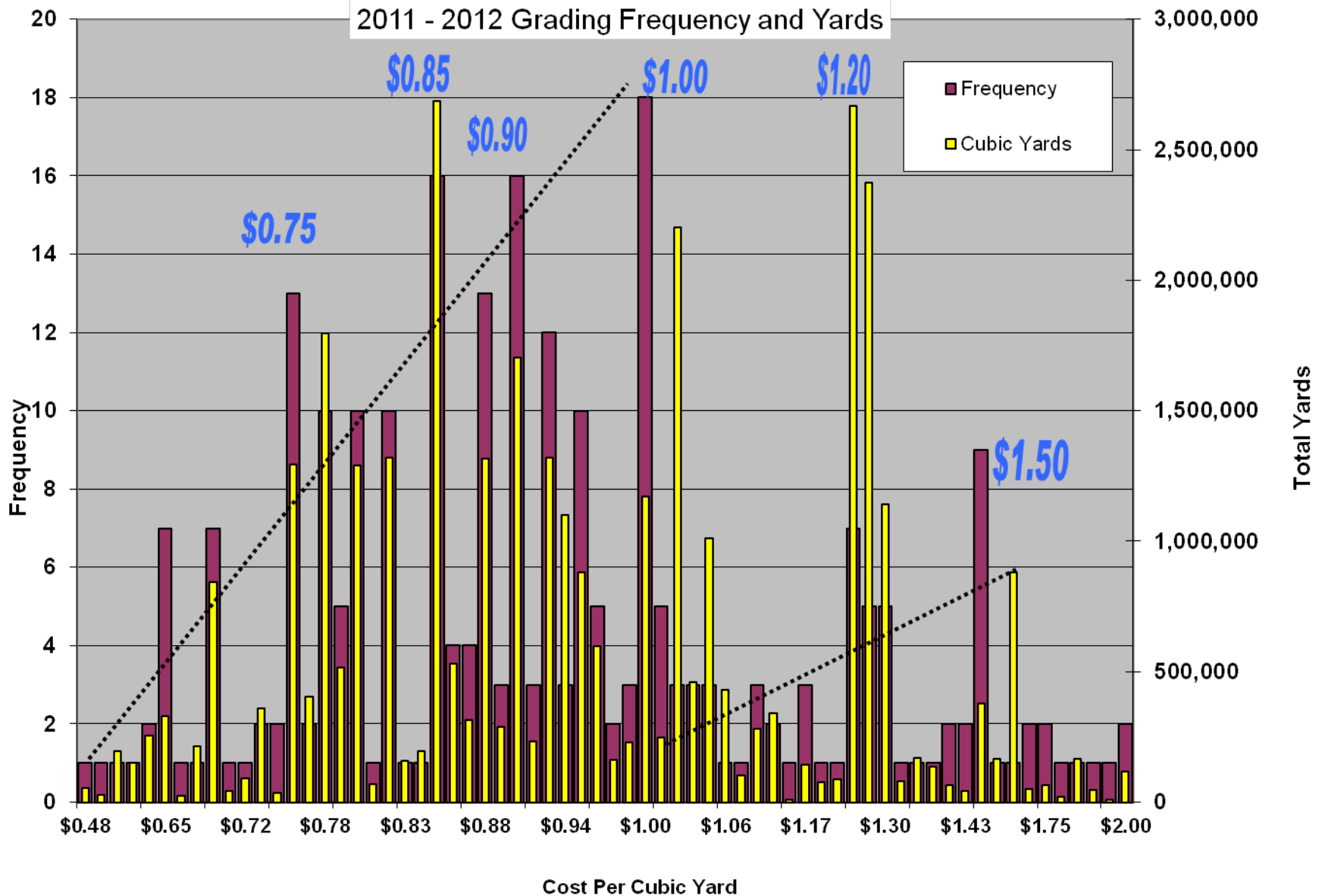


### Total Grading Costs for 2011 - 2013

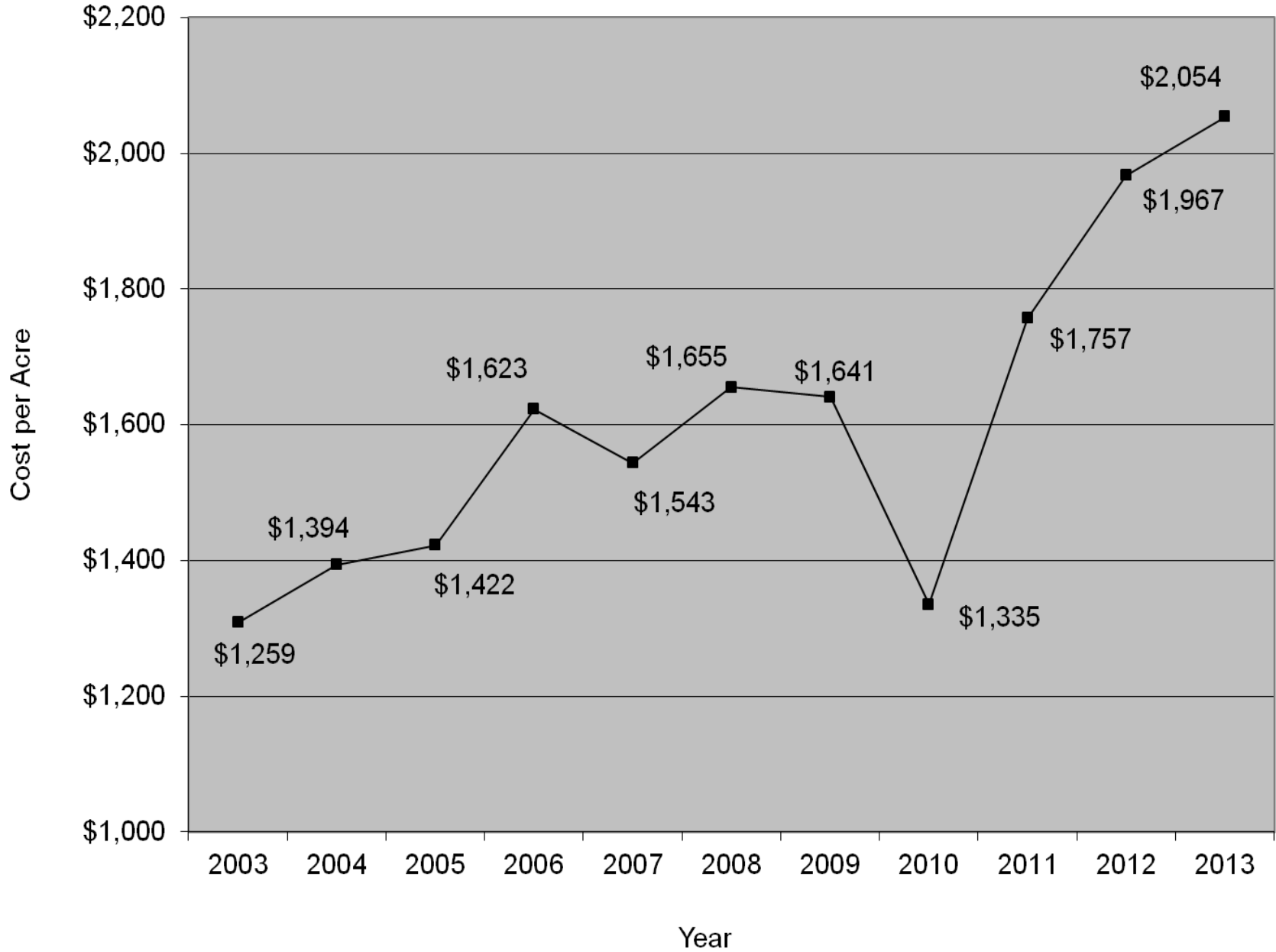
Unit Cost	2011 Total CY	2011 Freq	2012 Total CY	2012 Freq	2013 Total CY	2013 Freq	Combined Total CY	Combined Freq				
\$0.48			53,900	1			53,900	1		\$25,872		
\$0.55	29,370	1					29,370	1		\$16,154		
\$0.58	193,705	1					193,705	1		\$112,349		
\$0.60	152,000	1					152,000	1		\$91,200		
\$0.62			81,900	1	172,000	1	253,900	2		\$157,418		
\$0.65	328,170	7					328,170	7		\$213,311		
\$0.66	23,750	1					23,750	1		\$15,675		
\$0.69	215,000	1					215,000	1		\$148,350		
\$0.70	400,152	4	443,715	3			843,867	7		\$590,707		
\$0.71	44,291	1					44,291	1		\$31,447		
\$0.72	91,500	1					91,500	1		\$65,880		
\$0.73	142,101	1	218,000	1			360,101	2		\$262,874		
\$0.74					34,400	2	34,400	2		\$25,456		
\$0.75	1,216,520	11	3,800	1	72,300	1	1,292,620	13		\$969,465		
\$0.77	405,053	2					405,053	2		\$311,891		
\$0.78	340,335	5	1,454,726	5			1,795,061	10		\$1,400,148		
\$0.79	91,627	2	424,182	3			515,809	5		\$407,489		
\$0.80	572,260	4	511,596	3	206,400	3	1,290,256	10		\$1,032,205		
\$0.81			70,000	1			70,000	1		\$56,700		
\$0.82	976,495	6	57,339	2	286,000	2	1,319,834	10		\$1,082,264		
\$0.83			156,950	1			156,950	1		\$162,712		
\$0.84	193,705	1					193,705	1		\$2,280,020		
\$0.85	608,075	5	1,638,161	6	439,300	5	2,685,536	16		\$2,280,020		
\$0.86	218,370	2	129,000	1	183,000	1	530,370	4		\$456,118		
\$0.87	195,500	2	117,782	2			313,282	4		\$272,555		
\$0.88	558,636	5	757,222	8			1,315,858	13		\$1,157,955		
\$0.89	162,000	1	59,458	1	65,750	1	287,208	3		\$255,615		
\$0.90	763,500	8	301,600	4	638,450	4	1,703,550	16		\$1,531,491		
\$0.91			231,307	3			231,307	3		\$210,489		
\$0.92	520,550	7	461,300	3	339,000	2	1,320,850	12		\$1,215,182		
\$0.94			857,000	1	244,300	2	1,101,300	3		\$1,035,222		
\$0.95	332,010	4	298,500	3	250,450	3	880,960	10		\$836,912		
\$0.96	158,500	3	282,523	1	156,000	1	597,023	5		\$573,142		
\$0.98			102,800	1	60,850	1	163,650	2		\$160,377		
\$0.99	17,500	1			210,000	2	227,500	3		\$225,225		
\$1.00	696,070	11	440,550	5	34,400	2	1,171,020	18		\$1,171,020	22,192,656	\$0.94

\$1.02	182,260	4	66,000	1		248,260	5	\$253,225			
\$1.03	23,760	1	2,179,600	2		2,203,360	3	\$2,269,461			
\$1.04	101,650	1	358,840	2		460,490	3	\$478,910			
\$1.05	66,000	1	946,600	2		1,012,600	3	\$1,063,230			
\$1.06	429,000	1				429,000	1	\$454,740			
\$1.08			104,000	1		104,000	1	\$112,320			
\$1.10			282,565	3		282,565	3	\$310,822			
\$1.11			341,560	2		341,560	2	\$379,132			
\$1.15			11,100	1		11,100	1	\$12,765			
\$1.17			145,090	3		145,090	3	\$169,755			
\$1.18			77,700	1		77,700	1	\$91,686			
\$1.19			89,400	1		89,400	1	\$106,386			
\$1.20			2,668,500	7		2,668,500	7	\$3,202,200			
\$1.25			2,373,250	5		2,373,250	5	\$2,966,563			
\$1.30			1,139,670	5		1,139,670	5	\$1,481,571			
\$1.31			81,900	1		81,900	1	\$107,289			
\$1.35			169,500	1		169,500	1	\$228,825			
\$1.37			135,400	1		135,400	1	\$185,498			
\$1.40			63,760	2		63,760	2	\$89,264			
\$1.43			42,650	2		42,650	2	\$60,990			
\$1.50	66,000	1	313,090	8		379,090	9	\$568,635	12,458,845	\$1.17	
\$1.55			165,900	1		165,900	1	\$257,145			
\$1.62			880,600	1		880,600	1	\$1,426,572	13,505,345	\$1.21	
\$1.70			51,660	2		51,660	2	\$87,822			
\$1.75	440	1			65,750	1	66,190	2	\$115,833		
\$1.80			21,600	1		21,600	1	\$38,880			
\$1.83			165,900	1		165,900	1	\$303,597			
\$1.85			45,750	1		45,750	1	\$84,638			
\$1.95			7,600	1		7,600	1	\$14,820			
\$2.00			50,260	1	65,750	1	116,010	2	\$232,020	13,980,055	\$1.23
\$2.24			6,300	1		6,300	1	\$14,112			
\$2.50			26,450	2		26,450	2	\$66,125			
\$2.72			213,100	2		213,100	2	\$579,632			
\$2.75			18,300	2		18,300	2	\$50,325			
\$2.95			7,600	1		7,600	1	\$22,420			
\$3.00			7,600	1		7,600	1	\$22,800			
\$3.50			59,400	2		59,400	2	\$207,900			
\$3.59			47,150	2		47,150	2	\$169,269			
\$6.00			47,150	2		47,150	2	\$282,900	14,413,105	\$1.29	

2011 - 2012 Grading Frequency and Yards



# Revegetation Trend



### Summary of Calculated Bond Rates by Task

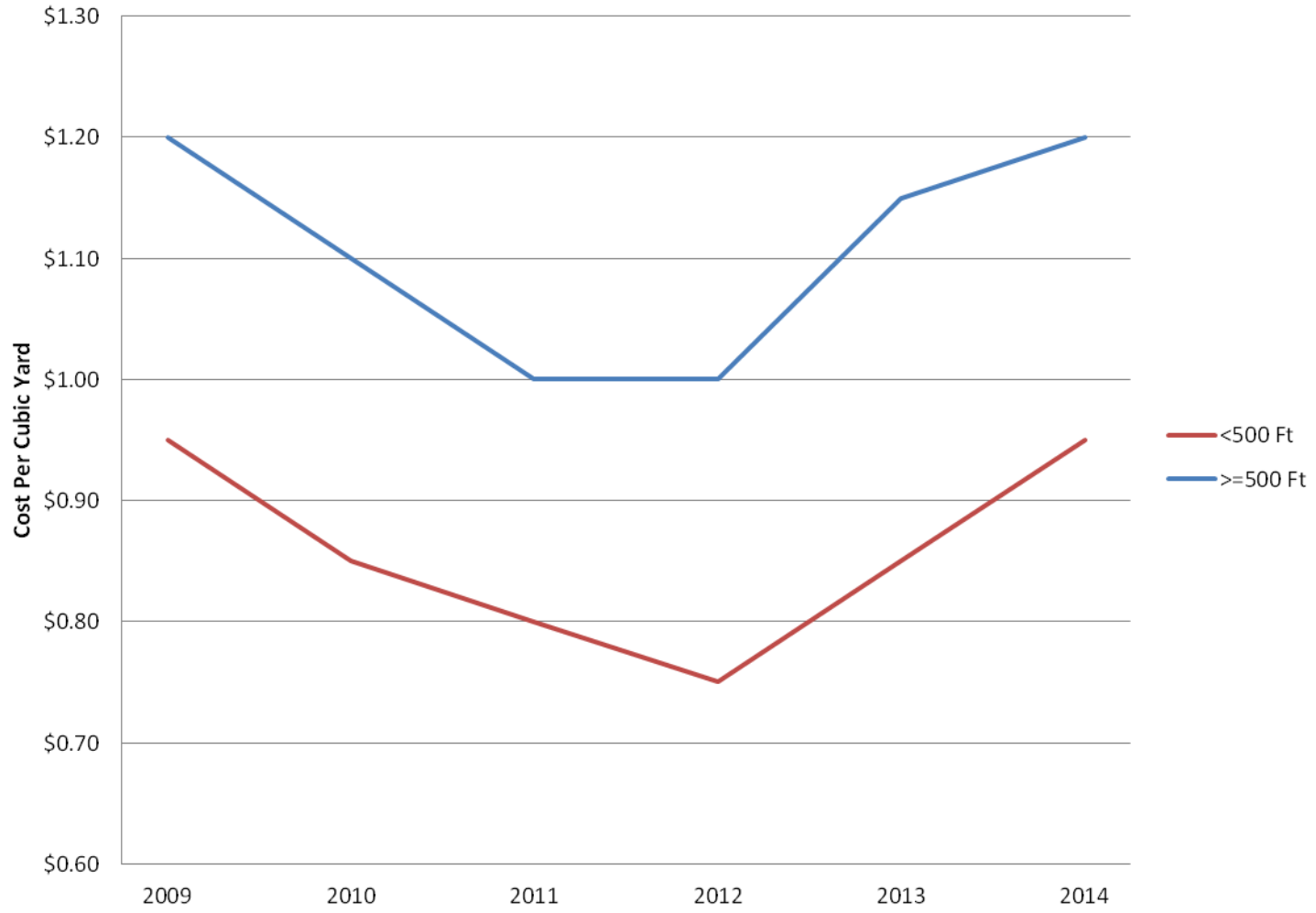
Proposed Rates

	Unit	2011 wgt ave	2011 amt	2012 wgt ave	2012 amt	2013 wgt ave	2013 amt	11-13 Weighted	2012	2013	2014
Grading1	Yd	\$0.82	3,452,835	\$1.10	7,345,802.0	\$0.92	1,219,900	\$1.00	\$0.75	\$0.85	\$0.95
Grading2	Yd								\$1.00	\$1.15	\$1.20
Select Grading	Acre	\$1,545.00	11.7						\$1,075.00	\$1,075.00	\$1,075.00
Reveg	Acre	\$1,757.21	328.6	\$1,967.28	296.6	\$2,053.62	119.3	\$1,888.40	\$1,500.00	\$1,600.00	\$1,800.00
Trees	each	\$2.27	55,190.0	\$2.29	77,090.0						
Ditch Ex	Yd	\$6.96	6,125.0	\$7.17	82,660.0	\$5.75	1,930	\$7.13	\$5.00	\$6.80	\$7.00
Jute	sq yd	\$2.95	1,305.0	\$4.18	5,510.0	\$4.84	1,293	\$4.09	\$3.50	\$3.80	\$4.00
HV Erosion	sq yd	\$3.94	1,835.0	\$4.13	31,920.0	\$2.10	6,600	\$3.79	\$3.00	\$3.70	\$3.70
AASHTO No. 1	Ton	\$30.18	1,470.0	\$27.27	850.0	\$29.39	31,542	\$29.37	\$30.00	\$28.00	\$29.00
AASHTO No. 57	Ton	\$25.99	24.0	\$30.50	559.0	\$21.89	24	\$29.98	\$25.00	\$30.00	\$30.00
R3	Ton	\$25.83	55.0	\$37.10	130.0			\$33.75	\$26.00	\$32.00	\$33.00
R4	Ton	\$27.63	1,500.0	\$28.70	413.0			\$25.47	\$21.00	\$25.00	\$25.00
R5	Ton	\$34.33	95.0	\$41.42	186.0			\$25.14	\$23.00	\$25.00	\$25.00
Geotex	sq yd	\$3.03	2,760.0	\$2.61	3,295.0	\$2.32	300	\$2.78	\$3.00	\$2.80	\$2.80
PVC lining	sq yd	\$12.18	1,200.0					\$12.18	\$12.00	\$12.00	\$12.00
Lime	Ton	\$44.96	1,756.7	\$43.91	655.0	\$45.44	839	\$44.87			
Subdrain	foot	\$22.07	1,050.0	\$17.09	3,215.0	\$19.82	5360	\$19.16	\$16.00	\$16.30	\$19.00
Mulch	Acre	\$779.15	337.8	\$763.38	265.7	\$827.71	139.8	\$782.65			
Seed Bed Prep	Acre	\$213.05	356.6	\$216.83	274.2	\$217.58	139.8	\$215.21			
Seed	Acre	\$300.27	467.2	\$267.74	369.9	\$238.81	139.8	\$279.16			

	2012	2012	2013	2013	2014	2014
Reveg Tot	\$1,500.00	\$1,500.00	\$1,600.00	\$1,600.00	\$1,800.00	\$1,800.00
Mulch	\$665.00	\$665.00	\$700.00	\$700.00	\$800.00	\$800.00
Seed Bed	\$195.00	\$195.00	\$200.00	\$200.00	\$215.00	\$215.00
Seed	\$220.00		\$260.00		\$280.00	
	\$420.00	\$640.00	\$440.00	\$700.00	\$505.00	\$785.00
	Pasture	w/seed	Pasture	w/seed	Pasture	w/seed



## 5-Year Trend in Grading Costs





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