

Appendix G

BMP Cost Estimates

Table G1

Preliminary Cost Estimate - Residentail Rainwater Gardens

Cost Estimate - Lake Holiday Watershed Rainwater Gardens

	Unit	Estimated Quantity	Average Unit Price	Total Cost
Mobilization (10%)	L.S.	1	\$7,005	\$7,010
Garden Construction	L.S.	30	\$2,335	\$70,050
Subtotal				\$77,060
Contingencies (10%)				\$7,710
Engineering and Administration (30%) (One Time Cost)				\$23,120
Total				\$107,890

Cost Estimate - Wing Lake Watershed Rainwater Gardens

	Unit	Estimated Quantity	Average Unit Price	Total Cost
Mobilization (10%)	L.S.	1	\$7,005	\$7,010
Garden Construction	L.S.	30	\$2,335	\$70,050
Subtotal				\$77,060
Contingencies (10%)				\$7,710
Engineering and Administration (30%) (One Time Cost)				\$23,120
Total				\$107,890

Cost Estimate - Lake Rose Watershed Rainwater Gardens

	Unit	Estimated Quantity	Average Unit Price	Total Cost
Mobilization (10%)	L.S.	1	\$3,503	\$3,510
Garden Construction	L.S.	15	\$2,335	\$35,025
Subtotal				\$38,535
Contingencies (10%)				\$3,860
Engineering and Administration (30%) (One Time Cost)				\$11,570
Total				\$53,965

	Total Cost
Total Cost (Holiday, Wing, and Rose Waterhsheds)	\$269,745

Table G-2

Preliminary Cost Estimate for Chemical Treatment of Aquatic Vegetation in Lake Holiday**Cost Estimate - Endothall Treatments in Lake Holiday**

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Treatment Inspection	L.S.	1	\$500	\$500	\$2,000
Mobilization	L.S.	1	\$1,000	\$1,000	\$4,000
Endothall Application	Gal.	19	\$110	\$2,090	\$8,360
Subtotal				\$2,590	\$10,360
Contingencies (10%)				\$260	\$1,040
Engineering and Administration (30%)				\$780	\$3,120
Total				\$3,630	\$14,520

Cost Estimate - Obtain MDNR Treatment Permit and Letter of Variance and Letters of Permission to Treat Within 150 Feet of Riparian Property Boundaries

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Prepare Lake Vegetation Management Plan (One Time Cost)	L.S.	1	\$1,500	\$1,500	
Obtain Letter of Variance	L.S.	1	\$500	\$500	\$2,000
Obtain Permit for Endothall Treatment	L.S.	1	\$1,000	\$1,000	\$4,000
Obtain Permission Letters from Riparian Owners	L.S.	1	\$250	\$250	\$1,000
Total				\$3,250	\$7,000

Cost Estimate - Monitoring, Analysis, and Reporting of Aquatic Plants, Biomass, Turion, and Herbicide Residue

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Aquatic Plant, Biomass, and Turion Monitoring	L.S.	1	\$11,000	\$11,000	\$44,000
Biomass Analysis and Herbarium Mounts	L.S.	1	\$2,500	\$2,500	\$10,000
Herbicide Residue Monitoring & Analysis	L.S.	1	\$2,500	\$2,500	\$10,000
Pre-Treatment Water Temperature Measurements	L.S.	1	\$1,000	\$1,000	\$4,000
Post-Treatment Secchi Disc & WQ Monitoring	L.S.	1	\$5,000	\$5,000	\$20,000
Data Analysis and Reporting to DNR	L.S.	1	\$5,000	\$5,000	\$20,000
Subtotal				\$27,000	\$108,000
Contingencies (15%)				\$4,050	\$16,200
Total				\$31,050	\$124,200

	Cost Per Year	Cost for 4 More Years	Total 5 Year Cost
Total Cost (Treatment, Permitting, and Monitoring)	\$37,930	\$145,720	\$183,650

Table G-3

Preliminary Cost Estimate for Chemical Treatment of Aquatic Vegetation in Wing Lake

Cost Estimate - Endothall Treatments in Wing Lake

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Treatment Inspection	L.S.	1	\$500	\$500	\$2,000
Mobilization	L.S.	1	\$1,000	\$1,000	\$4,000
Endothall Application	Gal.	34	\$110	\$3,740	\$14,960
Subtotal				\$4,240	\$16,960
Contingencies (10%)				\$430	\$1,720
Engineering and Administration (30%)				\$1,280	\$5,120
Total				\$5,950	\$23,800

Cost Estimate - Obtain MDNR Treatment Permit and Letter of Variance and Letters of Permission to Treat Within 150 Feet of Riparian Property Boundaries

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Prepare Lake Vegetation Management Plan (One Time Cost)	L.S.	1	\$1,500	\$1,500	
Obtain Letter of Variance	L.S.	1	\$500	\$500	\$2,000
Obtain Permit for Endothall Treatment	L.S.	1	\$1,000	\$1,000	\$4,000
Obtain Permission Letters from Riparian Owners	L.S.	1	\$250	\$250	\$1,000
Total				\$3,250	\$7,000

Cost Estimate - Monitoring, Analysis, and Reporting of Aquatic Plants, Biomss, Turion, and Herbicide Residue

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Aquatic Plant, Biomass, and Turion Monitoring	L.S.	1	\$11,000	\$11,000	\$44,000
Biomass Analysis and Herbarium Mounts	L.S.	1	\$2,500	\$2,500	\$10,000
Herbicide Residue Monitoring & Analysis	L.S.	1	\$2,500	\$2,500	\$10,000
Pre-Treatment Water Temperature Measurements	L.S.	1	\$1,000	\$1,000	\$4,000
Post-Treatment Secchi Disc & WQ Monitoring	L.S.	1	\$5,000	\$5,000	\$20,000
Data Analysis and Reporting to DNR	L.S.	1	\$5,000	\$5,000	\$20,000
Subtotal				\$27,000	\$108,000
Contingencies (15%)				\$4,050	\$16,200
Total				\$31,050	\$124,200

	Cost Per Year	Cost for 4 More Years	Total 5 Year Cost
Total Cost (Treatment, Permitting, and Monitoring)	\$40,250	\$155,000	\$195,250

Table G-4

Preliminary Cost Estimate for Chemical Treatment of Aquatic Vegetation in Lake Rose

Cost Estimate - Endothall Treatments in Lake Rose

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Treatment Inspection	L.S.	1	\$500	\$500	\$2,000
Mobilization	L.S.	1	\$1,000	\$1,000	\$4,000
Endothall Application	Gal.	67	\$110	\$7,370	\$29,480
Subtotal				\$7,870	\$31,480
Contingencies (10%)				\$790	\$3,160
Engineering and Administration (30%)				\$2,370	\$9,480
Total				\$11,030	\$44,120

Cost Estimate - Obtain MDNR Treatment Permit and Letter of Variance and Letters of Permission to Treat Within 150 Feet of Riparian Property Boundaries

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Prepare Lake Vegetation Management Plan (One Time Cost)	L.S.	1	\$1,500	\$1,500	
Obtain Letter of Variance	L.S.	1	\$500	\$500	\$2,000
Obtain Permit for Endothall Treatment	L.S.	1	\$1,000	\$1,000	\$4,000
Obtain Permission Letters from Riparian Owners	L.S.	1	\$250	\$250	\$1,000
Total				\$3,250	\$7,000

Cost Estimate - Monitoring, Analysis, and Reporting of Aquatic Plants, Biomass, Turion, and Herbicide Residue

	Unit	Estimated Quantity	Unit Price	Cost Per Year	Cost for 4 More Years
Aquatic Plant, Biomass, and Turion Monitoring	L.S.	1	\$11,000	\$11,000	\$44,000
Biomass Analysis and Herbarium Mounts	L.S.	1	\$2,500	\$2,500	\$10,000
Herbicide Residue Monitoring & Analysis	L.S.	1	\$2,500	\$2,500	\$10,000
Pre-Treatment Water Temperature Measurements	L.S.	1	\$1,000	\$1,000	\$4,000
Post-Treatment Secchi Disc & WQ Monitoring	L.S.	1	\$5,000	\$5,000	\$20,000
Data Analysis and Reporting to DNR	L.S.	1	\$5,000	\$5,000	\$20,000
Subtotal				\$27,000	\$108,000
Contingencies (15%)				\$4,050	\$16,200
Total				\$31,050	\$124,200

	Cost Per Year	Cost for 4 More Years	Total 5 Year Cost
Total Cost (Treatment, Permitting, and Monitoring)	\$45,330	\$175,320	\$220,650

Table G-5

Preliminary Cost Estimate for Alum Treatment in Holiday-Wing-Rose Lakes

Cost Estimate - Lake Holiday In-Lake Alum Treatment

Item	Unit	Estimated Quantity	Unit Price	Cost
Mobilization	L.S.	1	\$6,000	\$6,000
Alum Treatment Cost ¹	L.S.	1	\$17,600	\$17,600
Total				\$23,600

1 - Based on results of 2008 sediment core analysis and calculated Alum Dose for North Lake Cornelia, including both sodium aluminate (buffer) and alum

Cost Estimate - Wing Lake In-Lake Alum Treatment

Item	Unit	Estimated Quantity	Unit Price	Cost
Mobilization	L.S.	1	\$6,000	\$6,000
Alum Treatment Cost ¹	L.S.	1	\$19,100	\$19,100
Total				\$25,100

1 - Based on results of 2008 sediment core analysis and calculated Alum Dose for North Lake Cornelia, including both sodium aluminate (buffer) and alum

Cost Estimate - Lake Rose In-Lake Alum Treatment

Item	Unit	Estimated Quantity	Unit Price	Cost
Mobilization	L.S.	1	\$6,000	\$6,000
Alum Treatment Cost ¹	L.S.	1	\$98,100	\$98,100
Total				\$104,100

1 - Based on results of 2008 sediment core analysis and calculated Alum Dose for North Lake Cornelia, including both sodium aluminate (buffer) and alum

	Total Cost
Total Cost (In-Lake Treatment of All Lakes)	\$152,800

Table G-6

Preliminary Cost Estimate for Iron-Enhanced Sand Filter

Item	Unit	Estimated Quantity	Unit Price	Cost
Construction Costs ¹	L.S.	1	\$ 523,000.00	\$523,000
Subtotal				\$523,000
Engineering & Design (25%)				\$130,750
Contingencies (25%)				\$130,750
Total				\$784,500

1 - Costs based on Kohlman basin iron-enhanced sand filter bid tab information from Ramsey Washington Metro Watershed District, adjust to 2010 \$ using the Engineering News Record Construction Cost Index