



Appendix F

Guidance on Preparation of Construction and Maintenance Costs

Northwest Area (NWA) Inver Grove Heights Stormwater Manual

Guidance on Preparation of Construction and Maintenance Costs

Appendix F

Key Topics: cost estimates for select BMPs

Contents

I. Bioretention Cost Estimate.....	3
II. Infiltration Basin Cost Estimate.....	4
III. Stormwater Pond Cost Estimate.....	5
IV. Stormwater Wetland Cost Estimate.....	6
V. Surface Sand Filter Cost Estimate.....	7

**BIORETENTION DEVICE
COST ESTIMATE WORKSHEET
2005 Prices**

Project Title _____
 Owner _____
 Location _____
 Project Number _____
 Date _____

Description	Units	Quantity	Unit Cost	Total Estimated Price
Site Preparation				
Tree removal - up to 12" diameter	each	.....	\$350.00	\$0.00
Clear and grub brush	square yard	.....	\$1.50	\$0.00
Tree protection - temp. fence	lineal foot	.....	\$3.00	\$0.00
Topsoil - salvage	square yard	.....	\$4.50	\$0.00
Site Formation				
Excavation - 4' average depth	square yard	.....	\$10.00	\$0.00
Grading	square yard	.....	\$1.50	\$0.00
Hauling off-site	square yard	.....	\$6.50	\$0.00
Structural Components				
Underdrain - with pea gravel and geotextile	lineal foot	.....	\$30.00	\$0.00
Inlet structure	each	.....	\$1,500.00	\$0.00
Outlet structure	each	.....	\$2,500.00	\$0.00
Site Restoration				
Filter strip	square yard	.....		\$0.00
Soil preparation	square yard	.....	\$30.00	\$0.00
Seeding - above outlet elevation	square yard	.....	\$0.50	\$0.00
Planting - below outlet elevation	square yard	.....	\$30.00	\$0.00
Mulch	square yard	.....	\$5.00	\$0.00
Subtotal				\$0.00
10% Contingencies				\$0.00
Subtotal				\$0.00
Apply MN Location Factor				
TOTAL CONSTRUCTION COST				\$0.00

Annual Operation and Maintenance				
Debris removal	per visit	.....	\$50.00	\$0.00
Weed control	per visit	.....	\$50.00	\$0.00
Sediment removal	per year	.....	\$500.00	\$0.00
Replace planting media	square yard	.....	\$12.00	\$0.00
Replace plants	per plant	.....	\$5.00	\$0.00
Mow filter strips	per visit	.....	\$50.00	\$0.00
Erosion repair	square yard	.....	\$75.00	\$0.00
Inspection	per visit	.....	\$125.00	\$0.00
Subtotal				\$0.00
Apply MN Location Factor				
TOTAL ANNUAL O&M COST				\$0.00

Minnesota Location Factors	
Bemidji	0.963
Brainerd	1.003
Detroit Lakes	0.962
Duluth	0.991
Mankato	0.990
Minneapolis	1.035
Rochester	0.983
St. Paul	1.000
St. Cloud	1.002
Thief River Falls	1.042
Willmar	0.961
Windom	0.935

Note: Suggested unit costs are based on RSMeans prices for Spring, 2005, then factored into an area basis based on typical design features for Bioretention BMPs. To be used for preliminary cost estimation.



**INFILTRATION BASIN
COST ESTIMATE WORKSHEET
2005 Prices**

Project Title _____
 Owner _____
 Location _____
 Project Number _____
 Date _____

Description	Units	Quantity	Unit Cost	Total Estimated Price	
Site Preparation					
Tree removal - up to 12" diameter	each	.....	\$350.00	\$0.00
Clear and grub brush	square yard	.....	\$1.50	\$0.00
Tree protection - temp. fence	lineal foot	.....	\$3.00	\$0.00
Infiltration area protection - silt fence	lineal foot	.....	\$2.00	\$0.00
Topsoil - 6" depth, salvage on site	square yard	.....	\$4.50	\$0.00
Site Formation					
Excavation - 6' depth	square yard	.....	\$8.00	\$0.00
Grading	square yard	.....	\$1.50	\$0.00
Hauling off-site - 6' depth	square yard	.....	\$10.00	\$0.00
Structural Components					
Inlet structure	each	.....	\$1,500.00	\$0.00
Multi-stage outlet structure	each	.....	\$2,500.00	\$0.00
Site Restoration					
Sod filter strip	lineal foot	.....	\$1.50	\$0.00
Soil preparation	square yard	.....	\$5.00	\$0.00
Seeding	square yard	.....	\$0.50	\$0.00
Planting - below outlet elevation	square yard	.....	\$30.00	\$0.00
Mulch	square yard	.....	\$2.00	\$0.00
				Subtotal	\$0.00
				10% Contingencies	\$0.00
				Subtotal	\$0.00
				Apply MN Location Factor	
				TOTAL CONSTRUCTION COST	\$0.00

Annual Operation and Maintenance					
Replace planting media	square yard	.....	\$12.00	\$0.00
Debris removal	per visit	.....	\$50.00	\$0.00
Mow filter strips	per visit	.....	\$50.00	\$0.00
Sediment removal	per year	.....	\$500.00	\$0.00
Replace plants	per plant	.....	\$5.00	\$0.00
Erosion repair	square yard	.....	\$75.00	\$0.00
Gate / valve operation	per visit	.....	\$125.00	\$0.00
Inspection	per visit	.....	\$125.00	\$0.00
				Subtotal	\$0.00
				Apply MN Location Factor	
				TOTAL ANNUAL O&M COST	\$0.00

Minnesota Location Factors	
Bemidji	0.963
Brainerd	1.003
Detroit Lakes	0.962
Duluth	0.991
Mankato	0.990
Minneapolis	1.035
Rochester	0.983
St. Paul	1.000
St. Cloud	1.002
Thief River Falls	1.042
Willmar	0.961
Windom	0.935

Note: Suggested unit costs are based on RSMeans prices for Spring, 2005, then factored into an area basis based on typical design features for Infiltration Basin BMPs. To be used for preliminary cost estimation.

**STORMWATER POND
COST ESTIMATE WORKSHEET
2005 Prices**

Project Title _____
 Owner _____
 Location _____
 Project Number _____
 Date _____

Description	Units	Quantity	Unit Cost	Total Estimated Price	
Site Preparation					
Tree removal - up to 12" diameter	each	.....	\$350.00	\$0.00
Clear and grub brush	square yard	.....	\$1.50	\$0.00
Tree protection - temp. fence	lineal foot	.....	\$3.00	\$0.00
Topsoil - 6" depth, salvage on site	square yard	.....	\$4.50	\$0.00
Site Formation					
Excavation - 8' depth	square yard	.....	\$10.00	\$0.00
Grading	square yard	.....	\$1.50	\$0.00
Hauling off-site - 8' depth	square yard	.....	\$10.00	\$0.00
Structural Components					
Inlet structure	each	.....	\$2,000.00	\$0.00
Overflow structure	each	.....	\$3,500.00	\$0.00
Site Restoration					
Sod - above vegetative bench	square yard	.....	\$4.50	\$0.00
Soil preparation	square yard	.....	\$5.00	\$0.00
Seeding - vegetative bench	square yard	.....	\$0.50	\$0.00
Mulch	square yard	.....	\$1.00	\$0.00
				Subtotal	\$0.00
				10% Contingencies	\$0.00
				Subtotal	\$0.00
				Apply MN Location Factor	
TOTAL CONSTRUCTION COST					\$0.00

Annual Operation and Maintenance					
Debris removal	per visit	.....	\$100.00	\$0.00
Remove invasive plants	per visit	.....	\$500.00	\$0.00
Replant wetland vegetation	per plant	.....	\$10.00	\$0.00
Repair erosion	square yard	.....	\$75.00	\$0.00
Sediment removal and disposal	cubic yard	.....	\$10.00	\$0.00
Mow	per visit	.....	\$150.00	\$0.00
Gate / valve operation	per visit	.....	\$125.00	\$0.00
Inspection	per visit	.....	\$125.00	\$0.00
				Subtotal	\$0.00
				Apply MN Location Factor	
TOTAL ANNUAL O&M COST					\$0.00

Minnesota Location Factors	
Bemidji	0.963
Brainerd	1.003
Detroit Lakes	0.962
Duluth	0.991
Mankato	0.990
Minneapolis	1.035
Rochester	0.983
St. Paul	1.000
St. Cloud	1.002
Thief River Falls	1.042
Willmar	0.961
Windom	0.935

Note: Suggested unit costs are based on RSMeans prices for Spring, 2005, then factored into an area basis based on typical design features for Stormwater Ponds BMPs. To be used for preliminary cost estimation.



**STORMWATER WETLAND
COST ESTIMATE WORKSHEET
2005 Prices**

Project Title _____
 Owner _____
 Location _____
 Project Number _____
 Date _____

Description	Units	Quantity	Unit Cost	Total Estimated Price	
Site Preparation					
Tree removal - up to 12" diameter	each	-----	\$350.00	\$0.00	
Clear and grub brush	square yard	-----	\$1.50	\$0.00	
Tree protection - temp. fence	lineal foot	-----	\$3.00	\$0.00	
Topsoil - 6" depth, salvage on site	square yard	-----	\$4.50	\$0.00	
Site Formation					
Excavation - deepwater zone - 4' average depth	square yard	-----	\$5.00	\$0.00	
Excavation - marsh zone - 1' average depth	square yard	-----	\$1.00	\$0.00	
Grading	square yard	-----	\$1.50	\$0.00	
Hauling off-site - 5' depth	square yard	-----	\$5.00	\$0.00	
Structural Components					
Inlet structure	each	-----	\$2,000.00	\$0.00	
Outlet structure	each	-----	\$3,500.00	\$0.00	
Site Restoration					
Sod - above vegetative bench	square yard	-----	\$4.50	\$0.00	
Soil preparation	square yard	-----	\$25.00	\$0.00	
Seeding - vegetative bench	square yard	-----	\$0.50	\$0.00	
Planting	square yard	-----	\$30.00	\$0.00	
				Subtotal	\$0.00
				10% Contingencies	\$0.00
				Subtotal	\$0.00
				Apply MN Location Factor	
TOTAL CONSTRUCTION COST					\$0.00

Annual Operation and Maintenance					
Debris removal	per visit	-----	\$100.00	\$0.00	
Remove invasive plants	per visit	-----	\$500.00	\$0.00	
Replant wetland vegetation	per plant	-----	\$10.00	\$0.00	
Repair erosion	square yard	-----	\$75.00	\$0.00	
Sediment removal and disposal	cubic yard	-----	\$10.00	\$0.00	
Mow	per visit	-----	\$150.00	\$0.00	
Gate / valve operation	per visit	-----	\$125.00	\$0.00	
Inspection	per visit	-----	\$125.00	\$0.00	
				Subtotal	\$0.00
				Apply MN Location Factor	
TOTAL ANNUAL O&M COST					\$0.00

Minnesota Location Factors	
Bemidji	0.963
Brainerd	1.003
Detroit Lakes	0.962
Duluth	0.991
Mankato	0.990
Minneapolis	1.035
Rochester	0.983
St. Paul	1.000
St. Cloud	1.002
Thief River Falls	1.042
Willmar	0.961
Windom	0.935

Note: Suggested unit costs are based on RSMeans prices for Spring, 2005, then factored into an area basis based on typical design features for Constructed Wetlands BMPs. To be used for preliminary cost estimation.

**SURFACE SAND FILTER
COST ESTIMATE WORKSHEET
2005 Prices**

Project Title _____
 Owner _____
 Location _____
 Project Number _____
 Date _____

Description	Units	Quantity	Unit Cost	Total Estimated Price	
Site Preparation					
Tree removal - up to 12" diameter	each	-----	\$350.00	\$0.00	
Clear and grub brush	square yard	-----	\$1.50	\$0.00	
Tree protection - temp. fence	lineal foot	-----	\$3.00	\$0.00	
Topsoil - 6" depth, salvage on site	square yard	-----	\$4.50	\$0.00	
Site Formation					
Excavation - 6' depth	square yard	-----	\$8.00	\$0.00	
Grading	square yard	-----	\$1.50	\$0.00	
Hauling off-site - 6' depth	square yard	-----	\$10.00	\$0.00	
Structural Components					
Underdrain - with pea gravel and geotextile	square yard	-----	\$400.00	\$0.00	
Inlet structure	each	-----	\$1,500.00	\$0.00	
Sand filter media - 18" depth	square yard	-----	\$15.00	\$0.00	
Outlet structure	each	-----	\$3,000.00	\$0.00	
Site Restoration					
Sod filter strip	lineal foot	-----	\$1.50	\$0.00	
Soil preparation	square yard	-----	\$5.00	\$0.00	
Seeding	square yard	-----	\$0.50	\$0.00	
				Subtotal	\$0.00
				10% Contingencies	\$0.00
				Subtotal	\$0.00
				Apply MN Location Factor	
				TOTAL CONSTRUCTION COST	\$0.00

Annual Operation and Maintenance					
Debris removal	per visit	-----	\$50.00	\$0.00	
Mowing	per visit	-----	\$150.00	\$0.00	
Sediment removal	per year	-----	\$500.00	\$0.00	
Gate / valve operation	per visit	-----	\$125.00	\$0.00	
Erosion repair	square yard	-----	\$75.00	\$0.00	
Inspection	per visit	-----	\$125.00	\$0.00	
				Subtotal	\$0.00
				Apply MN Location Factor	
				TOTAL ANNUAL O&M COST	\$0.00

Minnesota Location Factors	
Bemidji	0.963
Brainerd	1.003
Detroit Lakes	0.962
Duluth	0.991
Mankato	0.990
Minneapolis	1.035
Rochester	0.983
St. Paul	1.000
St. Cloud	1.002
Thief River Falls	1.042
Willmar	0.961
Windom	0.935

Note: Suggested unit costs are based on RSMMeans prices for Spring, 2005, then factored into an area basis based on typical design features for Media Filtration BMPs. To be used for preliminary cost estimation.

