

APPENDIX G: VALUE ENGINEERING RECONCILED COST ESTIMATES - MLI & BAFFLE

Package	Alternate	Option	Task	Description	Takeoff Quantity	Other Price	Other Amount	Total Cost/Unit	Total Amount	Grand Total
1				Schoharie Reservoir Options						
	1.1			Shore Line Multi-level Intake Structure Options						
		1.1.1		Site 1.5	1.00 ls		150,587,400	154,036,491.02	154,036,491	363,812,550
		1.1.2		Site 2A	1.00 ls		149,857,920	152,791,670.29	152,791,670	360,872,458
		1.1.3		Site 2E	1.00 ls		119,176,300	121,343,767.17	121,343,767	286,596,929
	1.2			In-Reservoir Multi-level Intake Tower Options						
		1.2.1		Site 1.5	1.00 ls		139,559,420	151,709,015.69	151,709,016	358,315,380
		1.2.2		Site 2A	1.00 ls		111,491,020	123,640,615.69	123,640,616	292,021,763
		1.2.3		Site 2E	1.00 ls		109,851,700	124,020,272.64	124,020,273	292,918,459
	2.1			In-Reservoir Baffle						
		2.1.1		1,200' Floating Baffle	1,200.00 lf		4,320,000	3,600.00	4,320,000	10,203,233
		2.1.2		5,900' Floating Baffle	5,900.00 lf		21,240,000	3,600.00	21,240,000	50,165,896
		2.1.3		12,300' Moored Curtain	12,300.00 lf		44,280,000	3,600.00	44,280,000	104,583,139
	3.1			Intake Modifications						
		3.1.1		Modify Existing Intake			27,940,370		31,460,179	74,304,523

Grand Total Value includes Direct Cost and the Following Mark-ups: Mobilization 5%
 General Conditions 10%
 Overhead & Profit 21%
 Contingency 30%
 Soft Cost 30%

Costs Basis: 2006 Dollars

Item	Description	Takeoff Qty	Unit Cost	Total	
				Amount	
1 Schoharie Reservoir Options					
1.1 Shore Line Multi-level Intake Structure Options					
1.1.1 Site 1.5					
1 Project Start-Up					
----	Road Straightening	13,200.00	lf	70.00 /lf	924,000
----	Road Construction	4,800.00	lf	190.00 /lf	912,000
	1 Project Start-Up				<u>1,836,000</u>
2 Sitework					
4450	Turbidity Control	30.00	mo	10,000.00 /mo	300,000
4450	General Excavation	212,700.00	cy	42.00 /cy	8,933,400
4450	Cofferdam Construction	34,000.00	cy	105.00 /cy	3,570,000
4450	Excavate Building Foundations	56,500.00	cy	42.00 /cy	2,373,000
0100	General Backfill Grading	115,500.00	cy	20.00 /cy	2,310,000
0600	Backfill @ Building	21,100.00	cy	30.00 /cy	633,000
0600	Hauling & Disposal	97,200.00	cy	60.00 /cy	5,832,000
0600	Shoring & Rock Stabilization	1.00	ls	360,000.00 /ls	360,000
0600	Dewatering	15.00	mo	20,000.00 /mo	300,000
0600	Intake Rock Excavation	83,700.00	mo	250.00 /mo	20,925,000
0600	Hauling & Disposal	83,700.00	mo	60.00 /mo	5,022,000
	2 Sitework				<u>50,558,400</u>
	74,057,299.826 Labor hours				
	37,266,612.270 Equipment hours				
3 Intake Structural					
0300	Concrete Shore Line Intake Structure	10,000.00	cy	1,200.00 /cy	12,000,000
0300	Admin Building	5,000.00	sf	250.00 /sf	1,250,000
0300	Misc Metals	1.00	ls	429,000.00 /ls	429,000
	3 Intake Structural				<u>13,679,000</u>
	192,074.304 Labor hours				
	15,365.974 Equipment hours				
4 Mechanical, Electrical & Controls					
0010	Gates	9.00	ea	1,002,757.44 /ea	9,024,817
0010	Actuators for Gates	9.00	ea	52,757.44 /ea	474,817
0010	Trash Rack Equipment	1.00	ls	1,002,757.44 /ls	1,002,757
0010	Flow Metering & Control	1.00	ls	252,757.44 /ls	252,757
0010	Electrical Controls (1% of Structural Costs)	1.00	ls	152,757.44 /ls	152,757
0010	Electrical Controls & Lighting	1.00	ls	2,822,757.44 /ls	2,822,757
0010	General Mechanical	1.00	ls	2,642,757.44 /ls	2,642,757
0010	Instrumentation/SCADA	1.00	ls	1,402,757.44 /ls	1,402,757
	4 Mechanical, Electrical & Controls				<u>17,776,179</u>
	768.00 Labor hours				
	768.00 Equipment hours				
6 Tunnels, Shafts & Connections					
2165	14' Diameter Tunnel	8,850.00	lf	6,361.114 /lf	56,295,856
2165	30' Diameter Access/Metering Shaft	258.00	lf	38,361.114 /lf	9,897,167
2165	20' Diameter Retrieval Shaft	60.00	lf	15,361.114 /lf	921,667
2165	Drift Shaft	200.00	lf	15,361.114 /lf	3,072,223
	6 Tunnels, Shafts & Connections				<u>70,186,912</u>
	6,245.365 Labor hours				

Item	Description	Takeoff Qty	Total	
			Unit Cost	Amount
1.1.1	Site 1.5		154,036,491.020/lb	154,036,491
	1.00 ls			
	74,256,387.494 Labor hours			
	37,282,746.244 Equipment hours			

Item	Description	Takeoff Qty		Total	
				Unit Cost	Amount
<i>1.1.2 Site 2A</i>					
<i>1 Project Start-Up</i>					
----	Road Straightening	18,000.00	lf	70.00 /lf	1,260,000
----	Road Construction	3,400.00	lf	190.00 /lf	646,000
	<i>1 Project Start-Up</i>				<u>1,906,000</u>
<i>2 Sitework</i>					
4450	Turbidity Control	30.00	mo	10,000.00 /mo	300,000
4450	General Excavation	13,200.00	cy	42.00 /cy	554,400
4450	Cofferdam Construction	16,500.00	cy	485.00 /cy	8,002,500
4450	Excavate Building Foundations	50,300.00	cy	42.00 /cy	2,112,600
0100	General Backfill Grading	201,111.00	cy	20.00 /cy	4,022,220
0600	Backfill @ Building	18,300.00	cy	30.00 /cy	549,000
0600	Hauling & Disposal	0.00	cy		
0600	Shoring & Rock Stabilization	1.00	ls	320,000.00 /ls	320,000
0600	Dewatering	15.00	mo	20,000.00 /mo	300,000
0600	Intake Rock Excavation	120,300.00	mo	250.00 /mo	30,075,000
0600	Hauling & Disposal	120,300.00	mo	60.00 /mo	7,218,000
0600	Barge & Crane Rental	24.00	mo	150,000.00 /mo	3,600,000
	<i>2 Sitework</i>				<u>57,053,720</u>
	128,783,530.018 Labor hours				
	64,581,455.273 Equipment hours				
<i>3 Intake Structural</i>					
0300	Concrete Shore Line Intake Structure	10,171.00	cy	1,200.00 /cy	12,205,200
0300	Admin Building	5,000.00	sf	250.00 /sf	1,250,000
0300	Misc Metals	1.00	ls	429,000.00 /ls	429,000
	<i>3 Intake Structural</i>				<u>13,884,200</u>
	194,263.81 Labor hours				
	15,541.135 Equipment hours				
<i>4 Mechanical, Electrical & Controls</i>					
0010	Gates	9.00	ea	1,002,757.44 /ea	9,024,817
0010	Double Stop Shutter	2.00	ea	162,757.44 /ea	325,515
0010	Trash Rack Equipment	1.00	ls	1,002,757.44 /ls	1,002,757
0010	Flow Metering & Control	1.00	ls	252,757.44 /ls	252,757
0010	General Electrical	1.00	ls	2,722,757.44 /ls	2,722,757
0010	General Mechanical	1.00	ls	2,642,757.44 /ls	2,642,757
0010	Instrumentation/SCADA	1.00	ls	1,362,757.44 /ls	1,362,757
	<i>4 Mechanical, Electrical & Controls</i>				<u>17,334,119</u>
	512.00 Labor hours				
	512.00 Equipment hours				
<i>6 Tunnels, Shafts & Connections</i>					
2165	14' Diameter Tunnel	7,360.00	lf	6,361.114 /lf	46,817,796
2165	30' Diameter Access/Metering Shaft	258.00	lf	38,361.114 /lf	9,897,167
2165	20' Diameter Retrieval Shaft	184.00	lf	15,361.114 /lf	2,826,445
2165	Drift Shaft	200.00	lf	15,361.114 /lf	3,072,223
	<i>6 Tunnels, Shafts & Connections</i>				<u>62,613,631</u>
	5,334.693 Labor hours				
<i>1.1.2 Site 2A</i>				<i>152,791,670.290/ls</i>	<i>152,791,670</i>
	<i>1.00 ls</i>				
	128,983,640.517 Labor hours				
	64,597,508.408 Equipment hours				

Item	Description	Takeoff Qty		Total	
				Unit Cost	Amount
1.1.3 Site 2E					
1 Project Start-Up					
----	Road Straightening	8,500.00	lf	70.00 /lf	595,000
----	Road Construction	1,500.00	lf	190.00 /lf	285,000
	1 Project Start-Up				<u>880,000</u>
2 Sitework					
4450	Turbidity Control	30.00	mo	10,000.00 /mo	300,000
4450	General Excavation	64,600.00	cy	42.00 /cy	2,713,200
4450	Cofferdam Construction	68,300.00	cy	105.00 /cy	7,171,500
4450	Excavate Building Foundations	50,300.00	cy	42.00 /cy	2,112,600
0100	General Backfill Grading	79,600.00	cy	20.00 /cy	1,592,000
0600	Backfill @ Building	18,300.00	cy	30.00 /cy	549,000
0600	Hauling & Disposal	0.00	cy		
0600	Shoring & Rock Stabilization	1.00	ls	320,000.00 /ls	320,000
0600	Dewatering	15.00	mo	20,000.00 /mo	300,000
0600	Intake Rock Excavation	73,000.00	mo	250.00 /mo	18,250,000
0600	Hauling & Disposal	73,000.00	mo	60.00 /mo	4,380,000
	2 Sitework				<u>37,688,300</u>
	51,025,319.284 Labor hours				
	25,650,691.302 Equipment hours				
3 Intake Structural					
0300	Concrete Shore Line Intake Structure	10,000.00	cy	1,200.00 /cy	12,000,000
0300	Admin Building	5,000.00	sf	250.00 /sf	1,250,000
0300	Misc Metals	1.00	ls	429,000.00 /ls	429,000
	3 Intake Structural				<u>13,679,000</u>
	192,074.304 Labor hours				
	15,365.974 Equipment hours				
4 Mechanical, Electrical & Controls					
0010	Gates	9.00	ea	1,002,757.44 /ea	9,024,817
0010	Actuators for Gates	2.00	ea	162,757.44 /ea	325,515
0010	Trash Rack Equipment	1.00	ls	1,002,757.44 /ls	1,002,757
0010	Flow Metering & Control	1.00	ls	252,757.44 /ls	252,757
0010	Electrical Controls & Lighting	1.00	ls	2,642,757.44 /ls	2,642,757
0010	General Mechanical	1.00	ls	2,722,757.44 /ls	2,722,757
0010	Instrumentation/SCADA	1.00	ls	1,362,757.44 /ls	1,362,757
	4 Mechanical, Electrical & Controls				<u>17,334,119</u>
	512.00 Labor hours				
	512.00 Equipment hours				
6 Tunnels, Shafts & Connections					
2165	14' Diameter Tunnel	5,220.00	lf	6,361.114 /lf	33,205,013
2165	30' Diameter Access/Metering Shaft	258.00	lf	38,361.114 /lf	9,897,167
2165	20' Diameter Retrieval Shaft	201.00	lf	15,361.114 /lf	3,087,584
2165	Drift Shaft	200.00	lf	15,361.114 /lf	3,072,223
2165	TBM Mob & Demob	1.00	ls	2,500,361.11 /ls	2,500,361
	6 Tunnels, Shafts & Connections				<u>51,762,348</u>
	3,920.02 Labor hours				
1.1.3 Site 2E				121,343,767.170/ls	121,343,767
	1.00 ls				
	51,221,825.607 Labor hours				
	25,666,569.276 Equipment hours				
1.1 Shore Line Multi-level Intake Structure Op					428,171,928
	254,461,853.618 Labor hours				
	127,546,823.928 Equipment hours				

Item	Description	Takeoff Qty	Unit Cost	Total	Amount
1.2 In-Reservoir Multi-level Intake Tower Options					
1.2.1 Site 1.5					
<i>1 Project Start-Up</i>					
0010	Site Clearing/Staging Improvements	4.00 acre	2,000.00 /acre		8,000
----	Road Straightening	13,200.00 lf	70.00 /lf		924,000
----	Road Construction	4,800.00 sf	190.00 /sf		912,000
					<u>1,844,000</u>
	<i>1 Project Start-Up</i>				
	128.00 Labor hours				
	128.00 Equipment hours				
<i>2 Sitework</i>					
0010	Barge & Crane Rental, 24mo	24.00 mo	75,000.00 /mo		1,800,000
0010	Turbidity Control	30.00 ls	10,000.00 /ls		300,000
1100	Dewatering	1.00 ls	1,500,000.00 /ls		1,500,000
----	Cofferdam Sheeting & Wales	16,500.00 sf	525.00 /sf		8,662,500
4450	General Excavation	152,400.00 cy	42.00 /cy		6,400,800
4450	Hauling & Disposal	161,800.00 cy	80.00 /cy		12,944,000
4450	Excavating	6,000.00 cy	300.00 /cy		1,800,000
					<u>33,407,300</u>
	<i>2 Sitework</i>				
	87,127.734 Labor hours				
	87,147.734 Equipment hours				
<i>3 Intake Structural</i>					
0300	Tower Footing	1,800.00 cy	1,786.71 /cy		3,216,069
0300	Tower Wall	1,500.00 cy	1,786.71 /cy		2,680,058
0300	Tower Roof Structure	1,200.00 cy	1,786.71 /cy		2,144,046
0300	Superstructure	2,300.00 cy	1,786.71 /cy		4,109,422
0300	Rock Anchors, 150tn	52.00 ea	6,000.00 /ea		312,000
0300	Diver Work @ Tower	1.00 ls	450,000.00 /ls		450,000
0300	Structural Steel	660.00 ton	8,500.00 /ton		5,610,000
					<u>18,521,596</u>
	<i>3 Intake Structural</i>				
	96,197.203 Labor hours				
	7,695.791 Equipment hours				
<i>4 Mechanical, Electrical & Controls</i>					
0010	96"*96" Roller Gates & Actuators	12.00 ea	1,000,000.00 /ea		12,000,000
0010	SS Trash Rack	1.00 ls	1,500,000.00 /ls		1,500,000
0010	Flow Metering & Control	1.00 ls	250,000.00 /ls		250,000
0010	Misc Mechanical	1.00 ls	3,437,500.00 /ls		3,437,500
0010	Misc Electrical	1.00 ls	3,098,600.00 /ls		3,098,600
0010	Instrumentation/Controls	1.00 ls	1,549,300.00 /ls		1,549,300
					<u>21,835,400</u>
	<i>4 Mechanical, Electrical & Controls</i>				
	544.00 Labor hours				
	544.00 Equipment hours				
<i>5 Access Bridge</i>					
0200	Bridges, precast concrete, complete in place, 150' span	19,564.00 sf	350.00 /sf		6,847,400
					<u>6,847,400</u>
	<i>5 Access Bridge</i>				
	7,555.812 Labor hours				
	1,079.35 Equipment hours				
<i>6 Tunnels, Shafts & Connections</i>					
2165	14' Diameter Tunnel	8,610.00 lf	6,000.00 /lf		51,660,000
2165	30' Diameter Access/Metering Shaft	258.00 lf	37,000.00 /lf		9,546,000
2165	Offshore Intake Shaft	71.00 lf	15,000.00 /lf		1,065,000
2165	Connecting Trift	200.00 lf	15,000.00 /lf		3,000,000
2165	TBM Mob & Demob	1.00 ls	2,500,000.00 /ls		2,500,000

Item	Description	Takeoff Qty	Total	
			Unit Cost	Amount
	<i>6 Tunnels, Shafts & Connections</i>			<u>67,771,000</u>
	6,093.364 Labor hours			
	<i>7 Office/Maintenance</i>			
0010	Office/Admin Building	5,000.00	gsf	<u>1,250,000</u>
	<i>7 Office/Maintenance</i>			<u>1,250,000</u>
	160,000.00 Labor hours			
	160,000.00 Equipment hours			
	<i>9 Final Construction</i>			
0010	Clean-up & Demobilization	3.20	acre	<u>232,320</u>
	<i>9 Final Construction</i>			<u>232,320</u>
	102.40 Labor hours			
	102.40 Equipment hours			
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	1.2.1 Site 1.5			<u>151,709,016</u>
	1.00 Is			
	357,748.514 Labor hours			
	256,697.271 Equipment hours			

Item	Description	Takeoff Qty	Unit Cost	Total	
				Amount	
<i>1.2.2 Site 2A</i>					
<i>1 Project Start-Up</i>					
0010	Site Clearing/Staging Improvements	4.00 acre	2,000.00 /acre		8,000
----	Road Straightening	18,000.00 lf	70.00 /lf		1,260,000
----	Road Construction	3,400.00 sf	190.00 /sf		646,000
	<i>1 Project Start-Up</i>				<u>1,914,000</u>
	128.00 Labor hours				
	128.00 Equipment hours				
<i>2 Sitework</i>					
0010	Barge & Crane Rental, 24mo	24.00 mo	75,000.00 /mo		1,800,000
0010	Turbidity Control	30.00 ls	10,000.00 /ls		300,000
1100	Dewatering	1.00 ls	1,500,000.00 /ls		1,500,000
----	Cofferdam Sheeting & Wales	16,500.00 sf	525.00 /sf		8,662,500
4450	General Excavation	13,200.00 cy	42.00 /cy		554,400
4450	Hauling & Disposal	11,400.00 cy	80.00 /cy		912,000
4450	Excavating	6,000.00 cy	300.00 /cy		1,800,000
	<i>2 Sitework</i>				<u>15,528,900</u>
	9,900.102 Labor hours				
	9,920.102 Equipment hours				
<i>3 Intake Structural</i>					
0300	Tower Footing	1,800.00 cy	1,786.71 /cy		3,216,069
0300	Tower Wall	1,500.00 cy	1,786.71 /cy		2,680,058
0300	Tower Roof Structure	1,200.00 cy	1,786.71 /cy		2,144,046
0300	Superstructure	2,300.00 cy	1,786.71 /cy		4,109,422
0300	Rock Anchors, 150tn	52.00 ea	6,000.00 /ea		312,000
0300	Diver Work @ Tower	1.00 ls	450,000.00 /ls		450,000
0300	Structural Steel	660.00 ton	8,500.00 /ton		5,610,000
	<i>3 Intake Structural</i>				<u>18,521,596</u>
	96,197.203 Labor hours				
	7,695.791 Equipment hours				
<i>4 Mechanical, Electrical & Controls</i>					
0010	96"*96" Roller Gates & Actuators	12.00 ea	1,000,000.00 /ea		12,000,000
0010	SS Trash Rack	1.00 ls	1,500,000.00 /ls		1,500,000
0010	Flow Metering & Control	1.00 ls	250,000.00 /ls		250,000
0010	Misc Mechanical	1.00 ls	3,437,500.00 /ls		3,437,500
0010	Misc Electrical	1.00 ls	3,098,600.00 /ls		3,098,600
0010	Instrumentation/Controls	1.00 ls	1,549,300.00 /ls		1,549,300
	<i>4 Mechanical, Electrical & Controls</i>				<u>21,835,400</u>
	544.00 Labor hours				
	544.00 Equipment hours				
<i>5 Access Bridge</i>					
0200	Bridges, precast concrete, complete in place, 150' span	19,564.00 sf	350.00 /sf		6,847,400
	<i>5 Access Bridge</i>				<u>6,847,400</u>
	7,555.812 Labor hours				
	1,079.35 Equipment hours				
<i>6 Tunnels, Shafts & Connections</i>					
2165	14' Diameter Tunnel	6,900.00 lf	6,000.00 /lf		41,400,000
2165	30' Diameter Access/Metering Shaft	258.00 lf	37,000.00 /lf		9,546,000
2165	Offshore Intake Shaft	71.00 lf	15,000.00 /lf		1,065,000
2165	Connecting Trift	200.00 lf	15,000.00 /lf		3,000,000
2165	TBM Mob & Demob	1.00 ls	2,500,000.00 /ls		2,500,000

Item	Description	Takeoff Qty	Total		
			Unit Cost	Amount	
	<i>6 Tunnels, Shafts & Connections</i>			<u>57,511,000</u>	
	4,953.36 Labor hours				
	<i>7 Office/Maintenance</i>				
0010	Office/Admin Building	5,000.00	gsf	250.00 /gsf	<u>1,250,000</u>
	<i>7 Office/Maintenance</i>				<u>1,250,000</u>
	160,000.00 Labor hours				
	160,000.00 Equipment hours				
	<i>9 Final Construction</i>				
0010	Clean-up & Demobilization	3.20	acre	72,600.00 /acre	<u>232,320</u>
	<i>9 Final Construction</i>				<u>232,320</u>
	102.40 Labor hours				
	102.40 Equipment hours				
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	1.2.2 Site 2A			123,640,615.690/lr	123,640,616
	1.00 ls				
	279,380.88 Labor hours				
	179,469.64 Equipment hours				

Item	Description	Takeoff Qty	Unit Cost	Total	
				Amount	
<i>1.2.3 Site 2E</i>					
<i>1 Project Start-Up</i>					
0010	Site Clearing/Staging Improvements	4.00 acre	2,000.00 /acre		8,000
----	Road Straightening	8,500.00 lf	70.00 /lf		595,000
----	Road Construction	1,500.00 sf	190.00 /sf		285,000
	<i>1 Project Start-Up</i>				<u>888,000</u>
	128.00 Labor hours				
	128.00 Equipment hours				
<i>2 Sitework</i>					
0010	Barge & Crane Rental, 24mo	24.00 mo	75,000.00 /mo		1,800,000
0010	Turbidity Control	30.00 ls	10,000.00 /ls		300,000
1100	Dewatering	1.00 ls	1,500,000.00 /ls		1,500,000
----	Cofferdam Sheeting & Wales	16,500.00 sf	525.00 /sf		8,662,500
4450	General Excavation	84,100.00 cy	42.00 /cy		3,532,200
4450	Hauling & Disposal	93,600.00 cy	80.00 /cy		7,488,000
4450	Excavating	6,000.00 cy	300.00 /cy		1,800,000
	<i>2 Sitework</i>				<u>25,082,700</u>
	50,727.28 Labor hours				
	50,747.28 Equipment hours				
<i>3 Intake Structural</i>					
0300	Tower Footing	1,100.00 cy	1,786.71 /cy		1,965,376
0300	Tower Wall	4,300.00 cy	1,786.71 /cy		7,682,833
0300	Tower Roof Structure	230.00 cy	1,786.71 /cy		410,942
0300	Superstructure	2,300.00 cy	1,786.71 /cy		4,109,422
0300	Rock Anchors, 150tn	52.00 ea	6,000.00 /ea		312,000
0300	Diver Work @ Tower	1.00 ls	450,000.00 /ls		450,000
0300	Structural Steel	660.00 ton	8,500.00 /ton		5,610,000
	<i>3 Intake Structural</i>				<u>20,540,573</u>
	110,665.84 Labor hours				
	8,853.284 Equipment hours				
<i>4 Mechanical, Electrical & Controls</i>					
0010	96"*96" Roller Gates & Actuators	12.00 ea	1,000,000.00 /ea		12,000,000
0010	SS Trash Rack	1.00 ls	1,500,000.00 /ls		1,500,000
0010	Flow Metering & Control	1.00 ls	250,000.00 /ls		250,000
0010	Misc Mechanical	1.00 ls	3,437,500.00 /ls		3,437,500
0010	Misc Electrical	1.00 ls	3,098,600.00 /ls		3,098,600
0010	Instrumentation/Controls	1.00 ls	1,549,300.00 /ls		1,549,300
	<i>4 Mechanical, Electrical & Controls</i>				<u>21,835,400</u>
	544.00 Labor hours				
	544.00 Equipment hours				
<i>5 Access Bridge</i>					
0200	Bridges, precast concrete, complete in place, 150' span	19,564.00 sf	350.00 /sf		6,847,400
	<i>5 Access Bridge</i>				<u>6,847,400</u>
	7,555.812 Labor hours				
	1,079.35 Equipment hours				
<i>6 Tunnels, Shafts & Connections</i>					
2165	14' Diameter Tunnel	5,220.00 lf	6,000.00 /lf		31,320,000
2165	30' Diameter Access/Metering Shaft	258.00 lf	37,000.00 /lf		9,546,000
2165	Offshore Intake Shaft	71.00 lf	15,000.00 /lf		1,065,000
2165	Connecting Trift	200.00 lf	15,000.00 /lf		3,000,000
2165	TBM Mob & Demob	1.00 ls	2,500,000.00 /ls		2,500,000

Item	Description	Takeoff Qty	Total	
			Unit Cost	Amount
	6 Tunnels, Shafts & Connections			47,431,000
	3,833.353 Labor hours			
	7 Office/Maintenance			
0010	Office/Admin Building	5,000.00	250.00 /gsf	1,250,000
	7 Office/Maintenance			1,250,000
	160,000.00 Labor hours			
	160,000.00 Equipment hours			
	9 Final Construction			
0010	Clean-up & Demobilization	2.00	72,600.00 /acre	145,200
	9 Final Construction			145,200
	64.00 Labor hours			
	64.00 Equipment hours			
1.2.3 Site 2E			124,020,272.640/lb	124,020,273
	1.00 lb			
	333,518.280 Labor hours			
	221,415.91 Equipment hours			
1.2 In-Reservoir Multi-level Intake Tower Optic				399,369,904
	970,647.67 Labor hours			
	657,582.82 Equipment hours			

2.1 In-Reservoir Baffle

Item	Description	Takeoff Qty	Unit Cost	Total	Amount
2.1.1	1,200' Floating Baffle				
<i>* unassigned *</i>					
----	Baffle Curtain	1,200.00	lf	3,600.00	/lf
	<i>* unassigned *</i>				<u>4,320,000</u>
	2.1.1 1,200' Floating Baffle			3,600.00	/lf
	1,200.00 lf				<u>4,320,000</u>

Item	Description	Takeoff Qty	Total	
			Unit Cost	Amount
2.1.2	5,900' Floating Baffle			
<i>* unassigned *</i>				
----	Baffle Curtain	5,900.00 lf	3,600.00 /lf	<u>21,240,000</u>
	<i>* unassigned *</i>			<u>21,240,000</u>
2.1.2	5,900' Floating Baffle		3,600.00 /lf	<u>21,240,000</u>
	5,900.00 lf			

Item	Description	Takeoff Qty	Total	
			Unit Cost	Amount
2.1.3	12,300' Moored Curtain			
<i>* unassigned *</i>				
----	Baffle Curtain	12,300.00	lf	3,600.00 /lf
	<i>* unassigned *</i>			<u>44,280,000</u>
	2.1.3 12,300' Moored Curtain			<u>44,280,000</u>
	12,300.00 lf			
	2.1 In-Reservoir Baffle			69,840,000
3.1	Intake Modifications			

Item	Description	Takeoff Qty	Unit Cost	Total	Amount
3.1.1 Modify Existing Intake					
<i>1 Project Start-Up</i>					
0010	Site Clearing/Staging Improvements	1.00 acre	2,000.00 /acre		2,000
----	Road Straightening	8,500.00 lf	70.00 /lf		595,000
<i>1 Project Start-Up</i>					<u>597,000</u>
	32.00 Labor hours				
	32.00 Equipment hours				
<i>2 Sitework</i>					
0010	Barge & Crane Rental, 24mo	24.00 mo	75,000.00 /mo		1,800,000
0010	Turbidity Control	30.00 ls	10,000.00 /ls		300,000
1100	Dewatering	1.00 ls	1,500,000.00 /ls		1,500,000
----	Cofferdam Sheeting & Wales	1,300.00 sf	525.00 /sf		682,500
4450	General Excavation	1,820.00 cy	250.00 /cy		455,000
4450	Hauling & Disposal	9,000.00 cy	60.00 /cy		540,000
4450	Excavating	210.00 cy	300.00 /cy		63,000
4450	Seawall	1.00 ls	750,000.00 /ls		750,000
<i>2 Sitework</i>					<u>6,090,500</u>
	4,681.64 Labor hours				
	4,701.64 Equipment hours				
<i>3 Intake Structural</i>					
0300	Footing	150.00 cy	1,786.71 /cy		268,006
0300	Walls	1,680.00 cy	1,786.71 /cy		3,001,665
0300	Roof	140.00 cy	1,786.71 /cy		250,139
0300	Rock Anchors, 150tn	12.00 ea	6,000.00 /ea		72,000
0300	Diver Work @ Tower	1.00 ls	450,000.00 /ls		450,000
0300	Structural Steel	150.00 ton	8,500.00 /ton		1,275,000
0300	Fascia to match Existing	4,000.00 sf	150.00 /sf		600,000
0300	Demo @ Existing Structure	1.00 ls	2,000,000.00 /ls		2,000,000
<i>3 Intake Structural</i>					<u>7,916,809</u>
	78,540.35 Labor hours				
	6,283.240 Equipment hours				
<i>4 Mechanical, Electrical & Controls</i>					
0010	72"*120" Roller Gates & Actuators	7.00 ea	1,000,000.00 /ea		7,000,000
0010	Double Stop Shutters'	2.00 ea	160,000.00 /ea		320,000
0010	Bypass Pumping	24.00 mo	120,000.00 /mo		2,880,000
0010	Misc Mechanical	1.00 ls	2,800,000.00 /ls		2,800,000
0010	Misc Electrical	1.00 ls	1,748,550.00 /ls		1,748,550
0010	Instrumentation/Controls	1.00 ls	875,000.00 /ls		875,000
0010	Mechanically Cleaned Trash Rack	1.00 ls	1,000,000.00 /ls		1,000,000
<i>4 Mechanical, Electrical & Controls</i>					<u>16,623,550</u>
	1,184.00 Labor hours				
	1,184.00 Equipment hours				
<i>9 Final Construction</i>					
0010	Clean-up & Demobilization	3.20 acre	72,600.00 /acre		232,320
<i>9 Final Construction</i>					<u>232,320</u>
	102.40 Labor hours				
	102.40 Equipment hours				
3.1.1 Modify Existing Intake					31,460,179
	84,540.39 Labor hours				
	12,303.28 Equipment hours				
3.1 Intake Modifications					31,460,179
	84,540.39 Labor hours				
	12,303.28 Equipment hours				

Item	Description	Takeoff Qty	Unit Cost	Total	Amount
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	1 Schoharie Reservoir Options				928,842,012
	255,517,041.674 Labor hours				
	128,216,710.025 Equipment hours				