

## GRAYS HARBOR COUNTY COST ESTIMATES

<b>Map Number:</b>	1	<b>Minimum Structure Height:</b>	14
<b>Structure Type:</b>	Tower	<b>Structure Capacity:</b>	300
<b>Location:</b>	Ocean Shores, WA, Ocean City	<b>Safe Haven Square Footage:</b>	3000
<b>Levels:</b>	1	<b>Columns Required:</b>	9
		<b>Piles per Column:</b>	3
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$31,156
Foundation			\$178,703
Structure			\$164,614
Roofing			\$65,657
Stairs/Ramps/Guardrails			\$50,453
Fire Protection			\$22,681
<b>Total</b>			<b>\$528,522</b>
Design Fees (8%)			\$42,282
General Conditions (10%)			\$52,852
Contractor Fees, O&P (15%)			\$79,278
Construction Contingency (5%)			\$26,426
Estimate/Design Contingency (10%)			\$52,852
<b>Project Total</b>			<b>\$782,212</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling

Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.09	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$284.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	110	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	222	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$3,455.19	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	415	LCY			\$7.64	\$14.10	108.20%	\$9,755.05	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	358	ECY		\$20.00			108.20%	\$7,753.79	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	358	ECY			\$7.64	\$14.10	108.20%	\$8,428.37	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$31,156.49</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?

Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011
Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	329	LF		\$34.50	\$53.00		99.30%	\$28,554.15	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$178,702.85</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>								\$0.00	Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	126	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$20,750.82	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3000	SF		\$3.01	\$2.97		99.30%	\$17,814.42	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3000	SF		\$8.95	\$13.60		99.30%	\$67,176.45	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	219	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,139.40	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3000	SF		\$2.02	\$2.05		97.30%	\$11,880.33	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4200	SF		\$4.59	\$2.62		97.30%	\$29,464.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$48,576.11	%	15.00%					\$7,286.42	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$164,614.22</b>	

<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4200	SF		\$9.50	\$5.80		100.30%	\$64,452.78	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$65,656.78</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	168	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$5,505.34	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	219	LF		\$32.50	\$9.80		95.40%	\$8,841.16	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$50,452.62</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3000	SF		\$4.50	\$3.04		97.00%	\$21,941.40	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$22,681.40</b>	

<b>Map Number:</b>	<b>2</b>	<b>Minimum Structure Height:</b>	<b>14</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>500</b>
<b>Location:</b>	<b>Ocean Shores, WA, Quinault Beach Resort</b>	<b>Safe Haven Square Footage:</b>	<b>5000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$51,409
Foundation			\$304,325
Structure			\$272,143
Roofing			\$108,625
Stairs/Ramps/Guardrails			\$53,025
Fire Protection			\$37,309
<b>Total</b>			<b>\$842,094</b>
Design Fees (8%)			\$67,368
General Conditions (10%)			\$84,209
Contractor Fees, O&P (15%)			\$126,314
Construction Contingency (5%)			\$42,105
Estimate/Design Contingency (10%)			\$84,209
<b>Project Total</b>			<b>\$1,246,299</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.14	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$473.50	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	189	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	370	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$5,758.64	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	699	LCY			\$7.64	\$14.10	108.20%	\$16,434.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	604	ECY		\$20.00			108.20%	\$13,062.92	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	604	ECY			\$7.64	\$14.10	108.20%	\$14,199.39	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$51,408.93</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	566	LF		\$34.50	\$53.00		99.30%	\$49,150.99	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$304,325.11</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									\$0.00
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	224	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$36,890.35	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	5000	SF		\$3.01	\$2.97		99.30%	\$29,690.70	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	5000	SF		\$8.95	\$13.60		99.30%	\$111,960.75	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	283	LF		\$4.85	\$1.95	\$22.00	97.30%	\$7,925.93	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	5000	SF		\$2.02	\$2.05		97.30%	\$19,800.55	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	7000	SF		\$4.59	\$2.62		97.30%	\$49,107.31	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$78,775.12	%	15.00%					\$11,816.27	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$272,143.19</b>	

<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	7000	SF		\$9.50	\$5.80		100.30%	\$107,421.30	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$108,625.30</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	168	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$5,505.34	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	283	LF		\$32.50	\$9.80		95.40%	\$11,413.89	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$53,025.35</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	5000	SF		\$4.50	\$3.04		97.00%	\$36,569.00	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$37,309.00</b>	



<b>Map Number:</b>	<b>3</b>	<b>Minimum Structure Height:</b>	<b>10</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>1700</b>
<b>Location:</b>	<b>Ocean Shores, WA, Downtown Ocean Shores</b>	<b>Safe Haven Square Footage:</b>	<b>17000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>36</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$161,890
Foundation			\$691,192
Structure			\$835,173
Roofing			\$366,436
Stairs/Ramps/Guardrails			\$61,085
Fire Protection			\$125,075
<b>Total</b>			<b>\$2,256,108</b>
Design Fees (8%)			\$180,489
General Conditions (10%)			\$225,611
Contractor Fees, O&P (15%)			\$338,416
Construction Contingency (5%)			\$112,805
Estimate/Design Contingency (10%)			\$225,611
<b>Project Total</b>			<b>\$3,339,039</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure

Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.49	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$1,609.90	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	522	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	1259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$19,579.39	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	2226	LCY			\$7.64	\$14.10	108.20%	\$52,361.35	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	1923	ECY		\$20.00			108.20%	\$41,619.33	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	1923	ECY			\$7.64	\$14.10	108.20%	\$45,240.21	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$161,890.18</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011
Battered Piles, 18" Diameter, 30'-40' Deep	108	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$507,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost

Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	36	EA	\$0.00	\$370.00	\$540.00		99.30%	\$32,530.68	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	1565	LF		\$34.50	\$53.00		99.30%	\$135,944.93	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$691,191.64</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	360	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$59,288.06	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	17000	SF		\$3.01	\$2.97		99.30%	\$100,948.38	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	17000	SF		\$8.95	\$13.60		99.30%	\$380,666.55	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	360	VLF		\$9.85	\$2.62		97.30%	\$4,367.99	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	522	LF		\$4.85	\$1.95	\$22.00	97.30%	\$14,614.70	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	17000	SF		\$2.02	\$2.05		97.30%	\$67,321.87	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	23800	SF		\$4.59	\$2.62		97.30%	\$166,964.85	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$253,269.41	%	15.00%					\$37,990.41	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$835,172.81</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)

Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	23800	SF		\$9.50	\$5.80		100.30%	\$365,232.42	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$366,436.42</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	120	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$3,932.39	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	522	LF		\$32.50	\$9.80		95.40%	\$21,046.18	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$61,084.68</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	17000	SF		\$4.50	\$3.04		97.00%	\$124,334.60	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$125,074.60</b>	

<b>Map Number:</b>	<b>4</b>	<b>Min. Structure Hgt (ft)</b>	<b>10</b>
<b>Structure Type:</b>	<b>Berm</b>	<b>Structure Capacity:</b>	<b>800</b>
<b>Location:</b>	<b>Ocean Shores, WA, North Beach Junior/Senior High School Berm</b>	<b>Safe Haven (sq ft)</b>	<b>8000</b>
<b>Overall Site Square Footage:</b>	<b>24000</b>	<b>Volume of Berm Material:</b>	<b>4444</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$49,814
Excavation-Backfill			\$253,451
Concrete			\$163,368
Landscaping			\$57,521
<b>Construction Totals</b>			<b>\$524,153</b>
Design Fees (8%)			\$41,932
General Conditions (10%)			\$52,415
Contractor Fees, O&P (15%)			\$78,623
Construction Contingency (5%)			\$26,208
Estimate/Design Contingency (10%)			\$52,415
<b>Project Total</b>			<b>\$775,747</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA		\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF				108.20%		<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$10.70	\$2.72	108.20%	\$3,031.76	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY	\$20.00			108.20%	\$259.68	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY		\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY		\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	75	LCY		\$0.50	\$1.05	108.20%	\$125.78	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Drainage</b>								<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY		\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating, Trench
Install & Test, 12" Bituminous Coated	100	LF	\$11.50	\$8.30	\$1.53	108.20%	\$2,307.91	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY	\$20.00			108.20%	\$259.68	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY		\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY		\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	60	LCY		\$0.50	\$1.05	108.20%	\$100.63	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Area Drains/Catch Basins</b>								<b>Assuming 6 Area Drains/Catch Basins on Site</b>
Concrete, Precast, 4' ID riser, 4' deep	6	EA	\$1,425.00	\$1,200.00	\$0.00	108.20%	\$17,041.50	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>								<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator, 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF	\$2.00	\$8.05		108.20%	\$1,087.41	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	40	LCY	\$20.00	\$0.00	\$0.00	108.20%	\$865.60	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	40	LCY		\$7.64	\$14.10	108.20%	\$940.91	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	35	ECY		\$3.05	\$0.34	108.20%	\$128.38	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	44	LCY		\$0.50	\$1.05	108.20%	\$73.79	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA	\$1,250.00	\$1,075.00	\$0.00	108.20%	\$20,125.20	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$49,813.97</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Site Preparation</b>								
Clear & Grub	3	acres		\$320.00	\$525.00	108.20%	\$2,742.87	RSMeans Building Construction Cost Data, 2011, 31 13 13, Selective Clearing
Survey Site	3	acres	\$32.50	\$565.00	\$35.00	108.20%	\$2,053.10	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
Mobilization of Equipment	10	EA		\$69.00	\$116.00	100.00%	\$1,850.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Material Costs</b>								
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	4444	LCY	\$20.00	\$1.75	\$3.44	108.20%	\$121,135.91	Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Haul of Material, 40 MPH, cycle 40 MPH	4444	LCY		\$7.64	\$14.10	108.20%	\$104,545.24	23.20 Hauling
<b>Placement of Material</b>								
Compacting Backfill, 6"to 12" lifts, vibrating roller	4115	ECY		\$0.63	\$1.81	108.20%	\$10,864.53	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	5926	SY	\$1.48	\$0.09	\$0.03	108.20%	\$10,258.96	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
							<b>\$253,450.61</b>	

<b>Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA		\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Tsunami Wave Inundation Concrete Wall</b>	268	LF						Based on square root of the berm safe haven area times three walls

Excavation, 6' deep	1610	SF	\$0.00	\$5.30	\$0.00	108.20%	\$9,232.53	Excavation & Backfill, 6' deep, sand, gravel, or common earth. (Equipment Cost included in Installation)
Walls, Cast in place, 6' deep, pumped, 12" thick,	268	LF	\$46.25	\$81.00	\$0.00	99.30%	\$33,905.74	Place, 10' pumped, 12" thick (Equipment Cost included in Installation)
Subdrainage Piping, 4" diameter, PVC, perforated	268	LF	\$2.04	\$3.77	\$0.00	99.30%	\$1,548.07	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation)
<b>Stepped Concrete Wall 4' high</b>								
5' high wall, pumped, 8" thick	671	LF	\$33.75	\$77.00	\$0.00	99.30%	\$73,773.31	88', 86', 82', 72', 60' length walls, 12" thick, 5' high. Place, 6' pumped, 8" thick. Material costs have been increased 25% for additional reinforcing required for seismic event and tsunami.
Subdrainage Piping, 4" diameter, PVC, perforated	671	LF	\$2.04	\$3.77	\$0.00	108.20%	\$4,217.06	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation)
Sandblast Concrete Heavy Treatment	2683	SF	\$1.46	\$3.31	\$0.52	99.30%	\$14,095.20	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>								
Asphaltic Concrete Paving, 6" stone base, 2" binder course, 1" topping	8000	SF	\$1.85	\$0.20	\$0.24	108.20%	\$19,822.24	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	160	CY		\$7.64	\$14.10	108.20%	\$3,763.63	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
							<b>\$163,367.78</b>	

<b>Landscaping</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Costs</b>	<b>Installation Costs</b>	<b>Equipment Costs</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA		\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Berm Landscaping</b>								
Top Soil	444	LCY	\$33.00	\$24.00	\$0.00	108.20%	\$27,410.67	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Hydro-Seed	2667	SY	\$0.20	\$0.10	\$0.06	108.20%	\$1,038.72	Mechanical Seeding, 44lb/sy
Top Soil at Stepped Concrete Walls	50	LCY	\$33.00	\$24.00	\$0.00	108.20%	\$3,064.61	
Fencing at Top of Berm, chain link, 2" post, 1 5/8" rail, 9 ga. Galv. Wire 5' high	268	LF	\$17.65	\$4.82	\$0.00	95.40%	\$5,751.98	RSMeans Assemblies Cost Data, 2011, G2040 105 Fence & Guardrails (Equipment Costs are included in Installation)
Irrigation System	24000	SF	\$0.32	\$0.46	\$0.00	108.20%	\$20,255.04	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
							<b>\$57,521.02</b>	

<b>Map Number:</b>	<b>5</b>	<b>Minimum Structure Height (ft)</b>	<b>10</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Golf Course</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Overall Site Square Footage:</b>	<b>10500</b>	<b>Volume of Berm Materials (LCY)</b>	<b>1944</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$55,725
Excavation-Backfill			\$121,445
Concrete Retaining Wall Surrounding Berm			\$83,120
Landscaping Concrete			\$51,050
Stairs/Ramps/Guardrails			\$7,764
Landscaping			\$52,711
<b>Construction Totals</b>			<b>\$785,995</b>
Design Fees (8%)			\$62,880
General Conditions (10%)			\$78,600
Contractor Fees, O&P (15%)			\$117,899
Construction Contingency (5%)			\$39,300
Estimate/Design Contingency (10%)			\$78,600
<b>Project Total</b>			<b>\$1,163,273</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$10.70	\$2.72		108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY	\$20.00				108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF	\$10.70	\$5.25	\$0.97		108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY	\$20.00				108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 4 area drains for structure



Concrete, Precast, 4' ID riser, 4' deep	4	EA		\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF							Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF		\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF		\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY		\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY			\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY			\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA		\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY			\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$55,725.29</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	1944	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$52,996.96	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	1800	ECY			\$0.63	\$1.81	108.20%	\$4,753.23	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	1944	LCY			\$7.64	\$14.10	108.20%	\$45,738.54	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	2593	SY		\$1.48	\$0.09	\$0.03	108.20%	\$4,488.30	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	114	CY		\$20.00	\$1.75	\$3.44	108.20%	\$3,095.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	105	LCY			\$19.65	\$0.00	108.20%	\$2,236.15	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	114	LCY			\$7.64	\$14.10	108.20%	\$2,671.91	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$121,445.49</b>	

<b>Concrete Retaining Wall Surrounding Berm</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	1065	SF		\$5.30	\$0.00	\$0.00	108.20%	\$6,106.74	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	177	LF		\$58.75	\$84.50	\$0.00	99.30%	\$25,246.38	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 10' high, 16" thick, pumped concrete	177	LF		\$96.88	\$141.00	\$0.00	99.30%	\$41,923.98	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	177	LF		\$4.05	\$4.04		108.20%	\$1,553.57	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1065	SF		\$1.46	\$3.31	\$0.52	99.30%	\$5,593.86	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$83,119.68</b>	

<b>Landscaping Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	177	LF		\$18.10	\$51.50	\$0.00	99.30%	\$12,266.31	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	177	LF		\$2.04	\$3.77	\$0.00	108.20%	\$1,115.73	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	710	SF		\$1.46	\$3.31	\$0.52	99.30%	\$3,729.24	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone base, 2" binder course, 1" topping	3500	SF		\$1.85	\$0.20	\$0.24	108.20%	\$8,672.23	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	105	CY			\$7.64	\$14.10	108.20%	\$2,469.88	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)

<b>Sidewalks</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$51,049.59</b>	

<b>Stairs/Ramps/Guardrails</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	177	LF		\$32.50	\$9.80		95.40%	\$7,162.16	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$7,764.16</b>	

<b>Landscaping</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Costs	Location Factor	Total Cost	Comments
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MAY	778	SY		\$0.20	\$0.14	\$0.09	108.80%	\$363.88	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	10500	SF		\$0.32	\$0.46	\$0.00	108.20%	\$8,861.58	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$52,710.65</b>	

<b>Map Number:</b>	<b>6</b>	<b>Minimum Structure Height:</b>	<b>10</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Airport</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$181,341
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$49,588
Fire Protection			\$26,338
<b>Total</b>			<b>\$565,275</b>
Design Fees (8%)			\$45,222
General Conditions (10%)			\$56,528
Contractor Fees, O&P (15%)			\$84,791
Construction Contingency (5%)			\$28,264
Estimate/Design Contingency (10%)			\$56,528
<b>Project Total</b>			<b>\$836,607</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$35,361.41</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									\$0.00
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	90	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$14,822.01	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$181,340.66</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF			\$9.50	\$5.80	100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	120	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$3,932.39	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$49,588.05</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>7</b>	<b>Minimum Structure Height (ft)</b>	<b>10</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Ocean Shores Elementary Civic Complex</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Overall Site Square Footage:</b>	<b>10500</b>	<b>Volume of Berm Materials (LCY)</b>	<b>1944</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$55,725
Excavation-Backfill			\$121,445
Concrete Retaining Wall Surrounding Berm			\$83,120
Landscaping Concrete			\$51,050
Stairs/Ramps/Guardrails			\$7,764
Landscaping			\$52,711
<b>Construction Totals</b>			<b>\$785,995</b>
Design Fees (8%)			\$62,880
General Conditions (10%)			\$78,600
Contractor Fees, O&P (15%)			\$117,899
Construction Contingency (5%)			\$39,300
Estimate/Design Contingency (10%)			\$78,600
<b>Project Total</b>			<b>\$1,163,273</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$10.70	\$2.72		108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY	\$20.00				108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF	\$10.70	\$5.25	\$0.97		108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY	\$20.00				108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill



Site Drainage/Area Drains/Catch Basins								Assume 4 area drains for structure
Concrete, Precast, 4' ID riser, 4' deep	4	EA	\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF						Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA	\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY		\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF	\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF	\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY	\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY		\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY		\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA	\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY		\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$55,725.29</b>	

Excavation-Backfill									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	1944	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$52,996.96	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	1800	ECY			\$0.63	\$1.81	108.20%	\$4,753.23	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	1944	LCY			\$7.64	\$14.10	108.20%	\$45,738.54	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	2593	SY		\$1.48	\$0.09	\$0.03	108.20%	\$4,488.30	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	114	CY		\$20.00	\$1.75	\$3.44	108.20%	\$3,095.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	105	LCY			\$19.65	\$0.00	108.20%	\$2,236.15	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	114	LCY			\$7.64	\$14.10	108.20%	\$2,671.91	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
							<b>\$121,445.49</b>		

<b>Concrete Retaining Wall Surrounding Berm</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	1065	SF		\$5.30	\$0.00	\$0.00	108.20%	\$6,106.74	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	177	LF		\$58.75	\$84.50	\$0.00	99.30%	\$25,246.38	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 10' high, 16" thick, pumped concrete	177	LF		\$96.88	\$141.00	\$0.00	99.30%	\$41,923.98	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	177	LF		\$4.05	\$4.04		108.20%	\$1,553.57	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1065	SF		\$1.46	\$3.31	\$0.52	99.30%	\$5,593.86	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$83,119.68</b>	

<b>Landscaping Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	177	LF		\$18.10	\$51.50	\$0.00	99.30%	\$12,266.31	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	177	LF		\$2.04	\$3.77	\$0.00	108.20%	\$1,115.73	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	710	SF		\$1.46	\$3.31	\$0.52	99.30%	\$3,729.24	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone bse, 2" binder course, 1" topping	3500	SF		\$1.85	\$0.20	\$0.24	108.20%	\$8,672.23	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	105	CY			\$7.64	\$14.10	108.20%	\$2,469.88	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)

<b>Sidewalks</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$51,049.59</b>	

<b>Stairs/Ramps/Guardrails</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	177	LF		\$32.50	\$9.80		95.40%	\$7,162.16	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$7,764.16</b>	

<b>Landscaping</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Costs	Location Factor	Total Cost	Comments
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MAY	778	SY		\$0.20	\$0.14	\$0.09	108.80%	\$363.88	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	10500	SF		\$0.32	\$0.46	\$0.00	108.20%	\$8,861.58	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$52,710.65</b>	

<b>Map Number:</b>	<b>8</b>	<b>Minimum Structure Height:</b>	<b>17</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Ocean Shores BLVD &amp; Taurus BLVD SW</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$191,716
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$52,341
Fire Protection			\$26,338
<b>Total</b>			<b>\$578,403</b>
Design Fees (8%)			\$46,272
General Conditions (10%)			\$57,840
Contractor Fees, O&P (15%)			\$86,761
Construction Contingency (5%)			\$28,920
Estimate/Design Contingency (10%)			\$57,840
<b>Project Total</b>			<b>\$856,037</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$35,361.41</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	153	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$25,197.42	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$191,716.07</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF			\$9.50	\$5.80	100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	204	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$6,685.06	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$52,340.72</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>9</b>	<b>Minimum Structure Height (ft)</b>	<b>10</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Blue Wing Loop SE &amp; Duck Lake Drive SW</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Overall Site Square Footage:</b>	<b>10500</b>	<b>Volume of Berm Materials (LCY)</b>	<b>1944</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$55,725
Excavation-Backfill			\$121,445
Concrete Retaining Wall Surrounding Berm			\$83,120
Landscaping Concrete			\$51,050
Stairs/Ramps/Guardrails			\$7,764
Landscaping			\$52,711
<b>Construction Totals</b>			<b>\$785,995</b>
Design Fees (8%)			\$62,880
General Conditions (10%)			\$78,600
Contractor Fees, O&P (15%)			\$117,899
Construction Contingency (5%)			\$39,300
Estimate/Design Contingency (10%)			\$78,600
<b>Project Total</b>			<b>\$1,163,273</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF		\$14.60	\$10.70	\$2.72	108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY		\$20.00			108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF		\$10.70	\$5.25	\$0.97	108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY		\$20.00			108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 4 area drains for structure



Concrete, Precast, 4' ID riser, 4' deep	4	EA		\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF							Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF		\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF		\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY		\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY			\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY			\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA		\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY			\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$55,725.29</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	1944	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$52,996.96	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	1800	ECY			\$0.63	\$1.81	108.20%	\$4,753.23	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	1944	LCY			\$7.64	\$14.10	108.20%	\$45,738.54	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	2593	SY		\$1.48	\$0.09	\$0.03	108.20%	\$4,488.30	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	114	CY		\$20.00	\$1.75	\$3.44	108.20%	\$3,095.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	105	LCY			\$19.65	\$0.00	108.20%	\$2,236.15	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	114	LCY			\$7.64	\$14.10	108.20%	\$2,671.91	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$121,445.49</b>	

<b>Concrete Retaining Wall Surrounding Berm</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	1065	SF		\$5.30	\$0.00	\$0.00	108.20%	\$6,106.74	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	177	LF		\$58.75	\$84.50	\$0.00	99.30%	\$25,246.38	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 10' high, 16" thick, pumped concrete	177	LF		\$96.88	\$141.00	\$0.00	99.30%	\$41,923.98	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	177	LF		\$4.05	\$4.04		108.20%	\$1,553.57	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1065	SF		\$1.46	\$3.31	\$0.52	99.30%	\$5,593.86	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$83,119.68</b>	

<b>Landscaping Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	177	LF		\$18.10	\$51.50	\$0.00	99.30%	\$12,266.31	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	177	LF		\$2.04	\$3.77	\$0.00	108.20%	\$1,115.73	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	710	SF		\$1.46	\$3.31	\$0.52	99.30%	\$3,729.24	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone bse, 2" binder course, 1" topping	3500	SF		\$1.85	\$0.20	\$0.24	108.20%	\$8,672.23	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	105	CY			\$7.64	\$14.10	108.20%	\$2,469.88	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)

<b>Sidewalks</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$51,049.59</b>	

<b>Stairs/Ramps/Guardrails</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	177	LF		\$32.50	\$9.80		95.40%	\$7,162.16	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$7,764.16</b>	

<b>Landscaping</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Costs	Location Factor	Total Cost	Comments
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MSY	778	SY		\$0.20	\$0.14	\$0.09	108.80%	\$363.88	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	10500	SF		\$0.32	\$0.46	\$0.00	108.20%	\$8,861.58	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$52,710.65</b>	

<b>Map Number:</b>	<b>10</b>	<b>Minimum Structure Height:</b>	<b>10</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Cormorant Street</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$181,341
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$49,588
Fire Protection			\$26,338
<b>Total</b>			<b>\$565,275</b>
Design Fees (8%)			\$45,222
General Conditions (10%)			\$56,528
Contractor Fees, O&P (15%)			\$84,791
Construction Contingency (5%)			\$28,264
Estimate/Design Contingency (10%)			\$56,528
<b>Project Total</b>			<b>\$836,607</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>									
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	50	LF							Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 4'-6' deep	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Install & Test PVC, type EB 4 @ 3" diameter	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Wire, 600 volt, copper type THW, solid, #12	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Compacting Bedding In Trench	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill, General Fill By Dozer, No Compaction	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$35,361.41</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									\$0.00
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	90	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$14,822.01	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$181,340.66</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF		\$9.50	\$5.80		100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	120	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$3,932.39	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$49,588.05</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>11</b>	<b>Minimum Structure Height:</b>	<b>14</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Ocean Shores Blvd &amp; Marine View Drive SW</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$187,269
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$51,161
Fire Protection			\$26,338
<b>Total</b>			<b>\$572,777</b>
Design Fees (8%)			\$45,822
General Conditions (10%)			\$57,278
Contractor Fees, O&P (15%)			\$85,917
Construction Contingency (5%)			\$28,639
Estimate/Design Contingency (10%)			\$57,278
<b>Project Total</b>			<b>\$847,710</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling



Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$35,361.41</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?

Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011
Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	Piling needs to 2x the height of the structure which is 23-35'? RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>								\$0.00	Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	126	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$20,750.82	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$187,269.47</b>	

<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF		\$9.50	\$5.80		100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	168	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$5,505.34	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$51,161.01</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>12</b>	<b>Minimum Structure Height:</b>	<b>10</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>500</b>
<b>Location:</b>	<b>Ocean Shores, WA, Emeritus Senior Living</b>	<b>Safe Haven Square Footage:</b>	<b>5000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$51,409
Foundation			\$304,325
Structure			\$261,603
Roofing			\$108,625
Stairs/Ramps/Guardrails			\$51,452
Fire Protection			\$37,309
<b>Total</b>			<b>\$829,981</b>
Design Fees (8%)			\$66,398
General Conditions (10%)			\$82,998
Contractor Fees, O&P (15%)			\$124,497
Construction Contingency (5%)			\$41,499
Estimate/Design Contingency (10%)			\$82,998
<b>Project Total</b>			<b>\$1,228,372</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling

Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.14	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$473.50	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	189	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	370	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$5,758.64	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	699	LCY			\$7.64	\$14.10	108.20%	\$16,434.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	604	ECY		\$20.00			108.20%	\$13,062.92	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	604	ECY			\$7.64	\$14.10	108.20%	\$14,199.39	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$51,408.93</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?

Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011
Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	566	LF		\$34.50	\$53.00		99.30%	\$49,150.99	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	Piling needs to 2x the height of the structure which is 23-35'? RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$304,325.11</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>								\$0.00	Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	160	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$26,350.25	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	5000	SF		\$3.01	\$2.97		99.30%	\$29,690.70	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	5000	SF		\$8.95	\$13.60		99.30%	\$111,960.75	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	283	LF		\$4.85	\$1.95	\$22.00	97.30%	\$7,925.93	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	5000	SF		\$2.02	\$2.05		97.30%	\$19,800.55	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	7000	SF		\$4.59	\$2.62		97.30%	\$49,107.31	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$78,775.12	%	15.00%					\$11,816.27	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$261,603.09</b>	

<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	7000	SF		\$9.50	\$5.80		100.30%	\$107,421.30	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$108,625.30</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	120	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$3,932.39	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	283	LF		\$32.50	\$9.80		95.40%	\$11,413.89	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$51,452.40</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	5000	SF		\$4.50	\$3.04		97.00%	\$36,569.00	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$37,309.00</b>	

<b>Map Number:</b>	<b>13</b>	<b>Minimum Structure Height:</b>	<b>14</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Wowona Ave. SE &amp; Tonquin Ave. SW</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$187,269
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$51,161
Fire Protection			\$26,338
<b>Total</b>			<b>\$572,777</b>
Design Fees (8%)			\$45,822
General Conditions (10%)			\$57,278
Contractor Fees, O&P (15%)			\$85,917
Construction Contingency (5%)			\$28,639
Estimate/Design Contingency (10%)			\$57,278
<b>Project Total</b>			<b>\$847,710</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling



Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$35,361.41</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?

Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011
Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	Piling needs to 2x the height of the structure which is 23-35'? RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>								\$0.00	Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	126	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$20,750.82	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$187,269.47</b>	

<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF		\$9.50	\$5.80		100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	168	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$5,505.34	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$51,161.01</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>14</b>	<b>Minimum Structure Height (ft)</b>	<b>17</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>500</b>
<b>Location:</b>	<b>Ocean Shores, WA, Spinnaker Park</b>	<b>Safe Haven Square Footage:</b>	<b>5000</b>
<b>Overall Site Square Footage</b>	<b>15000</b>	<b>Volume of Berm Materials (LCY)</b>	<b>4722</b>

Scope	Cost
Site Utilities	\$55,725
Excavation-Backfill	\$461,418
Concrete Retaining Wall Surrounding Berm	\$130,987
Landscaping Concrete	\$79,356
Stairs/Ramps/Guardrails	\$9,162
Landscaping	\$56,664
<b>Construction Totals</b>	<b>\$785,995</b>
Design Fees (8%)	\$62,880
General Conditions (10%)	\$78,600
Contractor Fees, O&P (15%)	\$117,899
Construction Contingency (5%)	\$39,300
Estimate/Design Contingency (10%)	\$78,600
<b>Project Total</b>	<b>\$1,163,273</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment	Location Factor	Total Cost	Comments
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$14.60	\$10.70	\$2.72	108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY	\$20.00	\$20.00			108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF	\$10.70	\$10.70	\$5.25	\$0.97	108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY	\$20.00	\$20.00			108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 4 area drains for structure

Concrete, Precast, 4' ID riser, 4' deep	4	EA		\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF							Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF		\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF		\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY		\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY			\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY			\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA		\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY			\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$55,725.29</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	4722	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$128,706.91	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	4372	ECY			\$0.63	\$1.81	108.20%	\$11,543.56	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	4722	LCY			\$7.64	\$14.10	108.20%	\$111,079.32	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	6296	SY		\$1.48	\$0.09	\$0.03	108.20%	\$10,900.15	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	2749	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$74,931.89	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	2546	ECY			\$19.65	\$0.00	108.20%	\$54,122.43	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	2749	LCY			\$7.64	\$14.10	108.20%	\$64,669.28	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$461,418.01</b>	

<b>Concrete Retaining Wall Surrounding Berm</b>	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	1273	SF		\$5.30	\$0.00	\$0.00	108.20%	\$7,298.95	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	212	LF		\$58.75	\$84.50	\$0.00	99.30%	\$30,175.20	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 16' high, 16" thick, pumped concrete	212	LF		\$155.00	\$225.00	\$0.00	99.30%	\$80,045.90	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	212	LF		\$4.05	\$4.04		108.20%	\$1,856.87	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1697	SF		\$1.46	\$3.31	\$0.52	99.30%	\$8,914.59	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$130,986.67</b>	

<b>Landscaping Concrete</b>	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	424	LF		\$18.10	\$51.50	\$0.00	99.30%	\$29,322.08	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	424	LF		\$2.04	\$3.77	\$0.00	108.20%	\$2,667.10	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1697	SF		\$1.46	\$3.31	\$0.52	99.30%	\$8,914.59	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone base, 2" binder course, 1" topping	5000	SF		\$1.85	\$0.20	\$0.24	108.20%	\$12,388.90	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	139	CY			\$7.64	\$14.10	108.20%	\$3,267.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)
<b>Sidewalks</b>									

Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$79,355.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	212	LF		\$32.50	\$9.80		95.40%	\$8,560.42	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$9,162.42</b>	

<b>Landscaping</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Costs</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MSY	1111	SY		\$0.20	\$0.14	\$0.09	108.80%	\$519.82	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	15000	SF		\$0.32	\$0.46	\$0.00	108.20%	\$12,659.40	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$56,664.41</b>	

<b>Map Number:</b>	<b>15</b>	<b>Minimum Structure Height (ft)</b>	<b>14</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Ocean City State Park</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
	<b>Campground</b>		
<b>Overall Site Square Footage</b>	<b>10500</b>	<b>Volume of Berm Materials (LCY)</b>	<b>2722</b>

Scope	Cost
Site Utilities	\$55,725
Excavation-Backfill	\$318,713
Concrete Retaining Wall Surrounding Berm	\$110,032
Landscaping Concrete	\$67,978
Stairs/Ramps/Guardrails	\$7,764
Landscaping	\$52,711
<b>Construction Totals</b>	<b>\$785,995</b>
Design Fees (8%)	\$62,880
General Conditions (10%)	\$78,600
Contractor Fees, O&P (15%)	\$117,899
Construction Contingency (5%)	\$39,300
Estimate/Design Contingency (10%)	\$78,600
<b>Project Total</b>	<b>\$1,163,273</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment	Location Factor	Total Cost	Comments
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF		\$14.60	\$10.70	\$2.72	108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY		\$20.00			108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF		\$10.70	\$5.25	\$0.97	108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY		\$20.00			108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 4 area drains for structure



Concrete, Precast, 4' ID riser, 4' deep	4	EA		\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF							Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF		\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF		\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY		\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY			\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY			\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA		\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY			\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$55,725.29</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	2722	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$74,195.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	2521	ECY			\$0.63	\$1.81	108.20%	\$6,654.52	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	2722	LCY			\$7.64	\$14.10	108.20%	\$64,033.96	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	3630	SY		\$1.48	\$0.09	\$0.03	108.20%	\$6,283.61	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	2300	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$62,692.52	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	2130	ECY			\$19.65	\$0.00	108.20%	\$45,282.08	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	2300	LCY			\$7.64	\$14.10	108.20%	\$54,106.21	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$318,713.11</b>	

<b>Concrete Retaining Wall Surrounding Berm</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	1065	SF		\$5.30	\$0.00	\$0.00	108.20%	\$6,106.74	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	177	LF		\$58.75	\$84.50	\$0.00	99.30%	\$25,246.38	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 16' high, 16" thick, pumped concrete	177	LF		\$155.00	\$225.00	\$0.00	99.30%	\$66,971.21	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	177	LF		\$4.05	\$4.04		108.20%	\$1,553.57	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1420	SF		\$1.46	\$3.31	\$0.52	99.30%	\$7,458.48	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$110,031.53</b>	

<b>Landscaping Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	355	LF		\$18.10	\$51.50	\$0.00	99.30%	\$24,532.61	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	355	LF		\$2.04	\$3.77	\$0.00	108.20%	\$2,231.46	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1420	SF		\$1.46	\$3.31	\$0.52	99.30%	\$7,458.48	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone base, 2" binder course, 1" topping	3500	SF		\$1.85	\$0.20	\$0.24	108.20%	\$8,672.23	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	97	CY			\$7.64	\$14.10	108.20%	\$2,286.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)

<b>Sidewalks</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$67,977.91</b>	

<b>Stairs/Ramps/Guardrails</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	177	LF		\$32.50	\$9.80		95.40%	\$7,162.16	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$7,764.16</b>	

<b>Landscaping</b>									
Description	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Costs	Location Factor	Total Cost	Comments
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MSY	778	SY		\$0.20	\$0.14	\$0.09	108.80%	\$363.88	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	10500	SF		\$0.32	\$0.46	\$0.00	108.20%	\$8,861.58	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$52,710.65</b>	

<b>Map Number:</b>	<b>16</b>	<b>Minimum Structure Height:</b>	<b>10</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Duck Lake Drive</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$181,341
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$49,588
Fire Protection			\$26,338
<b>Total</b>			<b>\$565,275</b>
Design Fees (8%)			\$45,222
General Conditions (10%)			\$56,528
Contractor Fees, O&P (15%)			\$84,791
Construction Contingency (5%)			\$28,264
Estimate/Design Contingency (10%)			\$56,528
<b>Project Total</b>			<b>\$836,607</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill

Site Drainage/Area Drains/Catch Basins									
								Assume 1 area drain for structure	
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

Excavation-Backfill									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$35,361.41</b>	

Foundation									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	90	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$14,822.01	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$181,340.66</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF		\$9.50	\$5.80		100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	120	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$3,932.39	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$49,588.05</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>17</b>	<b>Minimum Structure Height:</b>	<b>10</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Ocean Lake Way &amp; N Port Loop</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$181,341
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$49,588
Fire Protection			\$26,338
<b>Total</b>			<b>\$565,275</b>
Design Fees (8%)			\$45,222
General Conditions (10%)			\$56,528
Contractor Fees, O&P (15%)			\$84,791
Construction Contingency (5%)			\$28,264
Estimate/Design Contingency (10%)			\$56,528
<b>Project Total</b>			<b>\$836,607</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling



Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$35,361.41</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?

Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011
Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	Piling needs to 2x the height of the structure which is 23-35'? RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>								\$0.00	Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	90	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$14,822.01	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$181,340.66</b>	

<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF		\$9.50	\$5.80		100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	120	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$3,932.39	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$49,588.05</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>18</b>	<b>Minimum Structure Height (ft)</b>	<b>17</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, North Razor Clam Drive &amp; Butterclam St. SW</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Overall Site Square Footage</b>	<b>10500</b>	<b>Volume of Berm Materials (LCY)</b>	<b>3306</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$55,725
Excavation-Backfill			\$351,106
Concrete Retaining Wall Surrounding Berm			\$110,032
Landscaping Concrete			\$67,978
Stairs/Ramps/Guardrails			\$7,764
Landscaping			\$52,711
<b>Construction Totals</b>			<b>\$785,995</b>
Design Fees (8%)			\$62,880
General Conditions (10%)			\$78,600
Contractor Fees, O&P (15%)			\$117,899
Construction Contingency (5%)			\$39,300
Estimate/Design Contingency (10%)			\$78,600
<b>Project Total</b>			<b>\$1,163,273</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$10.70	\$2.72		108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY	\$20.00				108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF	\$10.70	\$5.25	\$0.97		108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY	\$20.00				108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill

Site Drainage/Area Drains/Catch Basins								Assume 4 area drains for structure
Concrete, Precast, 4' ID riser, 4' deep	4	EA	\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF						Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA	\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY		\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF	\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF	\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY	\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY		\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY		\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA	\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY		\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$55,725.29</b>	

Excavation-Backfill	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	3306	LCY	\$20.00	\$1.75	\$3.44		108.20%	\$90,094.83	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	3061	ECY		\$0.63	\$1.81		108.20%	\$8,080.49	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	3306	LCY		\$7.64	\$14.10		108.20%	\$77,755.53	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	4407	SY	\$1.48	\$0.09	\$0.03		108.20%	\$7,630.10	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	2300	LCY	\$20.00	\$1.75	\$3.44		108.20%	\$62,692.52	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	2130	ECY		\$19.65	\$0.00		108.20%	\$45,282.08	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	2300	LCY		\$7.64	\$14.10		108.20%	\$54,106.21	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
							<b>\$351,106.22</b>		

<b>Concrete Retaining Wall Surrounding Berm</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	1065	SF		\$5.30	\$0.00	\$0.00	108.20%	\$6,106.74	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	177	LF		\$58.75	\$84.50	\$0.00	99.30%	\$25,246.38	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 16' high, 16" thick, pumped concrete	177	LF		\$155.00	\$225.00	\$0.00	99.30%	\$66,971.21	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	177	LF		\$4.05	\$4.04		108.20%	\$1,553.57	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1420	SF		\$1.46	\$3.31	\$0.52	99.30%	\$7,458.48	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$110,031.53</b>	

<b>Landscaping Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	355	LF		\$18.10	\$51.50	\$0.00	99.30%	\$24,532.61	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	355	LF		\$2.04	\$3.77	\$0.00	108.20%	\$2,231.46	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1420	SF		\$1.46	\$3.31	\$0.52	99.30%	\$7,458.48	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone base, 2" binder course, 1" topping	3500	SF		\$1.85	\$0.20	\$0.24	108.20%	\$8,672.23	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	97	CY			\$7.64	\$14.10	108.20%	\$2,286.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)

<b>Sidewalks</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$67,977.91</b>	

<b>Stairs/Ramps/Guardrails</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	177	LF		\$32.50	\$9.80		95.40%	\$7,162.16	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$7,764.16</b>	

<b>Landscaping</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Costs	Location Factor	Total Cost	Comments
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MSY	778	SY		\$0.20	\$0.14	\$0.09	108.80%	\$363.88	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	10500	SF		\$0.32	\$0.46	\$0.00	108.20%	\$8,861.58	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$52,710.65</b>	

<b>Map Number:</b>	<b>19</b>	<b>Minimum Structure Height (ft)</b>	<b>10</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, North Razor Clam Drive &amp; Butterclam St. SW</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Overall Site Square Footage</b>	<b>10500</b>	<b>Volume of Berm Materials (LCY)</b>	<b>1944</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$55,725
Excavation-Backfill			\$275,522
Concrete Retaining Wall Surrounding Berm			\$110,032
Landscaping Concrete			\$67,978
Stairs/Ramps/Guardrails			\$7,764
Landscaping			\$52,711
<b>Construction Totals</b>			<b>\$785,995</b>
Design Fees (8%)			\$62,880
General Conditions (10%)			\$78,600
Contractor Fees, O&P (15%)			\$117,899
Construction Contingency (5%)			\$39,300
Estimate/Design Contingency (10%)			\$78,600
<b>Project Total</b>			<b>\$1,163,273</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60		\$10.70	\$2.72	108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY	\$20.00				108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF	\$10.70		\$5.25	\$0.97	108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY	\$20.00				108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 4 area drains for structure



Concrete, Precast, 4' ID riser, 4' deep	4	EA		\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF							Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF		\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF		\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY		\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY			\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY			\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA		\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY			\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$55,725.29</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	1944	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$52,996.96	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	1800	ECY			\$0.63	\$1.81	108.20%	\$4,753.23	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	1944	LCY			\$7.64	\$14.10	108.20%	\$45,738.54	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	2593	SY		\$1.48	\$0.09	\$0.03	108.20%	\$4,488.30	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	2300	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$62,692.52	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	2130	ECY			\$19.65	\$0.00	108.20%	\$45,282.08	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	2300	LCY			\$7.64	\$14.10	108.20%	\$54,106.21	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$275,522.30</b>	

<b>Concrete Retaining Wall Surrounding Berm</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	1065	SF		\$5.30	\$0.00	\$0.00	108.20%	\$6,106.74	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	177	LF		\$58.75	\$84.50	\$0.00	99.30%	\$25,246.38	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 16' high, 16" thick, pumped concrete	177	LF		\$155.00	\$225.00	\$0.00	99.30%	\$66,971.21	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	177	LF		\$4.05	\$4.04		108.20%	\$1,553.57	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1420	SF		\$1.46	\$3.31	\$0.52	99.30%	\$7,458.48	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$110,031.53</b>	

<b>Landscaping Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	355	LF		\$18.10	\$51.50	\$0.00	99.30%	\$24,532.61	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	355	LF		\$2.04	\$3.77	\$0.00	108.20%	\$2,231.46	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1420	SF		\$1.46	\$3.31	\$0.52	99.30%	\$7,458.48	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone base, 2" binder course, 1" topping	3500	SF		\$1.85	\$0.20	\$0.24	108.20%	\$8,672.23	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	97	CY			\$7.64	\$14.10	108.20%	\$2,286.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)

<b>Sidewalks</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$67,977.91</b>	

<b>Stairs/Ramps/Guardrails</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	177	LF		\$32.50	\$9.80		95.40%	\$7,162.16	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$7,764.16</b>	

<b>Landscaping</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Costs	Location Factor	Total Cost	Comments
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MSY	778	SY		\$0.20	\$0.14	\$0.09	108.80%	\$363.88	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	10500	SF		\$0.32	\$0.46	\$0.00	108.20%	\$8,861.58	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$52,710.65</b>	

<b>Map Number:</b>	<b>20</b>	<b>Minimum Structure Height:</b>	<b>10</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>350</b>
<b>Location:</b>	<b>Ocean Shores, WA, Mt. Olympus</b>	<b>Safe Haven Square Footage:</b>	<b>3500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$35,361
Foundation			\$180,991
Structure			\$181,341
Roofing			\$76,399
Stairs/Ramps/Guardrails			\$49,588
Fire Protection			\$26,338
<b>Total</b>			<b>\$565,275</b>
Design Fees (8%)			\$45,222
General Conditions (10%)			\$56,528
Contractor Fees, O&P (15%)			\$84,791
Construction Contingency (5%)			\$28,264
Estimate/Design Contingency (10%)			\$56,528
<b>Project Total</b>			<b>\$836,607</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill

Site Drainage/Area Drains/Catch Basins									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
									<b>\$15,257.23</b>

Excavation-Backfill									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.10	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$331.45	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	118	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	259	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$4,031.05	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	472	LCY			\$7.64	\$14.10	108.20%	\$11,102.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	408	ECY		\$20.00			108.20%	\$8,824.52	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	408	ECY			\$7.64	\$14.10	108.20%	\$9,592.25	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
									<b>\$35,361.41</b>

Foundation									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	355	LF		\$34.50	\$53.00		99.30%	\$30,842.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$180,990.71</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									\$0.00
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	90	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$14,822.01	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	3500	SF		\$3.01	\$2.97		99.30%	\$20,783.49	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	3500	SF		\$8.95	\$13.60		99.30%	\$78,372.53	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	237	LF		\$4.85	\$1.95	\$22.00	97.30%	\$6,631.31	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	3500	SF		\$2.02	\$2.05		97.30%	\$13,860.39	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	4900	SF		\$4.59	\$2.62		97.30%	\$34,375.12	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$55,958.81	%	15.00%					\$8,393.82	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$181,340.66</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	4900	SF			\$9.50	\$5.80	100.30%	\$75,194.91	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$76,398.91</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	120	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$3,932.39	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	237	LF		\$32.50	\$9.80		95.40%	\$9,549.55	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$49,588.05</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	3500	SF		\$4.50	\$3.04		97.00%	\$25,598.30	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$26,338.30</b>	

<b>Map Number:</b>	<b>1</b>	<b>Minimum Structure Height:</b>	<b>17</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>1500</b>
<b>Location:</b>	<b>Westport, WA, Marina</b>	<b>Safe Haven Square Footage:</b>	<b>15000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>25</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$138,958
Foundation			\$496,622
Structure			\$754,965
Roofing			\$323,468
Stairs/Ramps/Guardrails			\$62,561
Fire Protection			\$110,447
<b>Total</b>			<b>\$1,902,278</b>
Design Fees (8%)			\$152,182
General Conditions (10%)			\$190,228
Contractor Fees, O&P (15%)			\$285,342
Construction Contingency (5%)			\$95,114
Estimate/Design Contingency (10%)			\$190,228
<b>Project Total</b>			<b>\$2,815,371</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill



Site Drainage/Area Drains/Catch Basins									
								Assume 1 area drain for structure	
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

Excavation-Backfill									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.43	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$1,420.50	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	408	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	1111	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$17,275.93	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	1899	LCY			\$7.64	\$14.10	108.20%	\$44,674.26	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	1641	ECY		\$20.00			108.20%	\$35,509.25	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	1641	ECY			\$7.64	\$14.10	108.20%	\$38,598.56	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$138,958.50</b>	

Foundation									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	75	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$352,500.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	25	EA	\$0.00	\$370.00	\$540.00		99.30%	\$22,590.75	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	1225	LF		\$34.50	\$53.00		99.30%	\$106,415.02	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$496,621.80</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
									\$0.00
<b>Concrete Structure</b>									
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	425	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$69,992.85	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	15000	SF		\$3.01	\$2.97		99.30%	\$89,072.10	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	15000	SF		\$8.95	\$13.60		99.30%	\$335,882.25	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	250	VLF		\$9.85	\$2.62		97.30%	\$3,033.33	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	490	LF		\$4.85	\$1.95	\$22.00	97.30%	\$13,728.12	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	15000	SF		\$2.02	\$2.05		97.30%	\$59,401.65	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	21000	SF		\$4.59	\$2.62		97.30%	\$147,321.93	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$223,485.02	%	15.00%					\$33,522.75	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$754,964.97</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	21000	SF			\$9.50	\$5.80	100.30%	\$322,263.90	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$323,467.90</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	204	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$6,685.06	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	490	LF		\$32.50	\$9.80		95.40%	\$19,769.44	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$62,560.62</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	15000	SF		\$4.50	\$3.04		97.00%	\$109,707.00	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$110,447.00</b>	

<b>Map Number:</b>	<b>2</b>	<b>Minimum Structure Height:</b>	<b>17</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>1000</b>
<b>Location:</b>	<b>Westport, WA, Adams &amp; Washington</b>	<b>Safe Haven Square Footage:</b>	<b>10000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$92,702
Foundation			\$324,684
Structure			\$504,719
Roofing			\$216,047
Stairs/Ramps/Guardrails			\$58,933
Fire Protection			\$73,878
<b>Total</b>			<b>\$1,286,220</b>
Design Fees (8%)			\$102,898
General Conditions (10%)			\$128,622
Contractor Fees, O&P (15%)			\$192,933
Construction Contingency (5%)			\$64,311
Estimate/Design Contingency (10%)			\$128,622
<b>Project Total</b>			<b>\$1,903,606</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill

Site Drainage/Area Drains/Catch Basins									
								Assume 1 area drain for structure	
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

Excavation-Backfill									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.29	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$947.00	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	267	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	741	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$11,517.29	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	1259	LCY			\$7.64	\$14.10	108.20%	\$29,621.15	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	1088	ECY		\$20.00			108.20%	\$23,544.32	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	1088	ECY			\$7.64	\$14.10	108.20%	\$25,592.68	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$92,702.44</b>	

Foundation									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	800	LF		\$34.50	\$53.00		99.30%	\$69,510.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$324,684.11</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	272	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$44,795.42	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	10000	SF		\$3.01	\$2.97		99.30%	\$59,381.40	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	10000	SF		\$8.95	\$13.60		99.30%	\$223,921.50	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	400	LF		\$4.85	\$1.95	\$22.00	97.30%	\$11,208.96	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	10000	SF		\$2.02	\$2.05		97.30%	\$39,601.10	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	14000	SF		\$4.59	\$2.62		97.30%	\$98,214.62	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$150,966.01	%	15.00%					\$22,644.90	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$504,719.23</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	14000	SF			\$9.50	\$5.80	100.30%	\$214,842.60	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$216,046.60</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	204	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$6,685.06	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	400	LF		\$32.50	\$9.80		95.40%	\$16,141.68	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$58,932.86</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	10000	SF		\$4.50	\$3.04		97.00%	\$73,138.00	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$73,878.00</b>	

<b>Map Number:</b>	<b>3</b>	<b>Minimum Structure Height:</b>	<b>14</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>900</b>
<b>Location:</b>	<b>Westport, WA, Forrest &amp; Newell</b>	<b>Safe Haven Square Footage:</b>	<b>9000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$84,595
Foundation			\$321,117
Structure			\$451,974
Roofing			\$194,562
Stairs/Ramps/Guardrails			\$56,925
Fire Protection			\$66,564
<b>Total</b>			<b>\$1,190,994</b>
Design Fees (8%)			\$95,280
General Conditions (10%)			\$119,099
Contractor Fees, O&P (15%)			\$178,649
Construction Contingency (5%)			\$59,550
Estimate/Design Contingency (10%)			\$119,099
<b>Project Total</b>			<b>\$1,762,672</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill



Site Drainage/Area Drains/Catch Basins									
								Assume 1 area drain for structure	
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

Excavation-Backfill									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.26	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$852.30	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	253	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	667	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$10,365.56	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	1150	LCY			\$7.64	\$14.10	108.20%	\$27,040.76	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	993	ECY		\$20.00			108.20%	\$21,493.30	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	993	ECY			\$7.64	\$14.10	108.20%	\$23,363.21	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$84,595.13</b>	

Foundation									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	759	LF		\$34.50	\$53.00		99.30%	\$65,942.98	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$321,117.09</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	224	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$36,890.35	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	9000	SF		\$3.01	\$2.97		99.30%	\$53,443.26	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	9000	SF		\$8.95	\$13.60		99.30%	\$201,529.35	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									Wood structure, hip roof to support galvanized steel panels
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	379	LF		\$4.85	\$1.95	\$22.00	97.30%	\$10,633.75	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	9000	SF		\$2.02	\$2.05		97.30%	\$35,640.99	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	12600	SF		\$4.59	\$2.62		97.30%	\$88,393.16	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$136,609.23	%	15.00%					\$20,491.38	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$451,973.57</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	12600	SF			\$9.50	\$5.80	100.30%	\$193,358.34	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$194,562.34</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	168	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$5,505.34	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	379	LF		\$32.50	\$9.80		95.40%	\$15,313.34	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$56,924.80</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	9000	SF		\$4.50	\$3.04		97.00%	\$65,824.20	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$66,564.20</b>	

<b>Map Number:</b>	<b>4</b>	<b>Minimum Structure Height:</b>	<b>17</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>900</b>
<b>Location:</b>	<b>Westport, WA, Surf &amp; Ocean</b>	<b>Safe Haven Square Footage:</b>	<b>9000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$84,595
Foundation			\$321,117
Structure			\$459,879
Roofing			\$194,562
Stairs/Ramps/Guardrails			\$58,105
Fire Protection			\$66,564
<b>Total</b>			<b>\$1,200,079</b>
Design Fees (8%)			\$96,006
General Conditions (10%)			\$120,008
Contractor Fees, O&P (15%)			\$180,012
Construction Contingency (5%)			\$60,004
Estimate/Design Contingency (10%)			\$120,008
<b>Project Total</b>			<b>\$1,776,117</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.26	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$852.30	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	253	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	667	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$10,365.56	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	1150	LCY			\$7.64	\$14.10	108.20%	\$27,040.76	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	993	ECY		\$20.00			108.20%	\$21,493.30	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	993	ECY			\$7.64	\$14.10	108.20%	\$23,363.21	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$84,595.13</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	759	LF		\$34.50	\$53.00		99.30%	\$65,942.98	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$321,117.09</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
								\$0.00	Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
<b>Concrete Structure</b>									
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	272	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$44,795.42	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	9000	SF		\$3.01	\$2.97		99.30%	\$53,443.26	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	9000	SF		\$8.95	\$13.60		99.30%	\$201,529.35	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	379	LF		\$4.85	\$1.95	\$22.00	97.30%	\$10,633.75	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	9000	SF		\$2.02	\$2.05		97.30%	\$35,640.99	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	12600	SF		\$4.59	\$2.62		97.30%	\$88,393.16	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$136,609.23	%	15.00%					\$20,491.38	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$459,878.65</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	12600	SF			\$9.50	\$5.80	100.30%	\$193,358.34	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$194,562.34</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	204	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$6,685.06	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	379	LF		\$32.50	\$9.80		95.40%	\$15,313.34	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$58,104.52</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	9000	SF		\$4.50	\$3.04		97.00%	\$65,824.20	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$66,564.20</b>	

<b>Map Number:</b>	<b>5</b>	<b>Minimum Structure Height:</b>	<b>11</b>
<b>Structure Type:</b>	<b>Berm</b>	<b>Structure Capacity:</b>	<b>1500</b>
<b>Location:</b>	<b>Westport, WA, Ocosta School</b>	<b>Safe Haven Square Footage:</b>	<b>15000</b>
<b>Overall Site Square Footage:</b>	<b>45000</b>	<b>Volume of Berm Material:</b>	<b>9167</b>
<b>Scope</b>		<b>Cost</b>	
Site Utilities		\$49,814	
Excavation-Backfill		\$515,681	
Concrete		\$247,125	
Landscaping		\$103,813	
<b>Construction Totals</b>		<b>\$916,433</b>	
Design Fees (8%)		\$73,315	
General Conditions (10%)		\$91,643	
Contractor Fees, O&P (15%)		\$137,465	
Construction Contingency (5%)		\$45,822	
Estimate/Design Contingency (10%)		\$91,643	
<b>Project Total</b>		<b>\$1,356,321</b>	

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA		\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF				108.20%		<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$10.70	\$2.72	108.20%	\$3,031.76	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY	\$20.00			108.20%	\$259.68	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY		\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY		\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	75	LCY		\$0.50	\$1.05	108.20%	\$125.78	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Drainage</b>								<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY		\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating, Trench
Install & Test, 12" Bituminous Coated	100	LF	\$11.50	\$8.30	\$1.53	108.20%	\$2,307.91	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY	\$20.00			108.20%	\$259.68	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY		\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY		\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	60	LCY		\$0.50	\$1.05	108.20%	\$100.63	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Area Drains/Catch Basins</b>								<b>Assuming 6 Area Drains/Catch Basins on Site</b>



Concrete, Precast, 4' ID riser, 4' deep	6	EA	\$1,425.00	\$1,200.00	\$0.00	108.20%	\$17,041.50	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>								<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator, 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF	\$2.00	\$8.05		108.20%	\$1,087.41	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	40	LCY	\$20.00	\$0.00	\$0.00	108.20%	\$865.60	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	40	LCY		\$7.64	\$14.10	108.20%	\$940.91	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	35	ECY		\$3.05	\$0.34	108.20%	\$128.38	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	44	LCY		\$0.50	\$1.05	108.20%	\$73.79	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA	\$1,250.00	\$1,075.00	\$0.00	108.20%	\$20,125.20	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$49,813.97</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Site Preparation</b>								
Clear & Grub	3	acres		\$320.00	\$525.00	108.20%	\$2,742.87	RSMeans Building Construction Cost Data, 2011, 31 13 13, Selective Clearing
Survey Site	3	acres	\$32.50	\$565.00	\$35.00	108.20%	\$2,053.10	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
Mobilization of Equipment	10	EA		\$69.00	\$116.00	100.00%	\$1,850.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Material Costs</b>								
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	9167	LCY	\$20.00	\$1.75	\$3.44	108.20%	\$249,842.82	Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Haul of Material, 40 MPH, cycle 40 MPH	9167	LCY		\$7.64	\$14.10	108.20%	\$215,624.57	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Placement of Material</b>								
Compacting Backfill, 6"to 12" lifts, vibrating roller	8488	ECY		\$0.63	\$1.81	108.20%	\$22,408.09	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	12222	SY	\$1.48	\$0.09	\$0.03	108.20%	\$21,159.11	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
							<b>\$515,680.55</b>	

<b>Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA		\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Tsunami Wave Inundation Concrete Wall</b>								
Excavation, 6' deep	2205	SF	\$0.00	\$5.30	\$0.00	108.20%	\$12,642.16	Based on square root of the berm safe haven area times three walls Excavation & Backfill, 6' deep, sand, gravel, or common earth. (Equipment Cost included in Installation)

Walls, Cast in place, 6' deep, pumped, 12" thick,	367	LF	\$46.25	\$81.00	\$0.00	99.30%	\$46,427.35	Place, 10' pumped, 12" thick (Equipment Cost included in Installation)
Subdrainage Piping, 4" diameter, PVC, perforated	367	LF	\$2.04	\$3.77	\$0.00	99.30%	\$2,119.79	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation)
<b>Stepped Concrete Wall 4' high</b>								88', 86', 82', 72', 60' length walls, 12" thick, 5' high.
5' high wall, pumped, 8" thick	1010	LF	\$33.75	\$77.00	\$0.00	99.30%	\$111,120.08	Place, 6' pumped, 8" thick. Material costs have been increased 25% for additional reinforcing required for seismic event and tsunami.
Subdrainage Piping, 4" diameter, PVC, perforated	1010	LF	\$2.04	\$3.77	\$0.00	108.20%	\$6,351.89	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation)
Sandblast Concrete Heavy Treatment	4042	SF	\$1.46	\$3.31	\$0.52	99.30%	\$21,230.71	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>								
Asphaltic Concrete Paving, 6" stone bse, 2" binder course, 1" topping	15000	SF	\$1.85	\$0.20	\$0.24	108.20%	\$37,166.70	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	300	CY		\$7.64	\$14.10	108.20%	\$7,056.80	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
							<b>\$247,125.49</b>	

<b>Landscaping</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Costs</b>	<b>Installation Costs</b>	<b>Equipment Costs</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA		\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Berm Landscaping</b>								
Top Soil	833	LCY	\$33.00	\$24.00	\$0.00	108.20%	\$51,395.00	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Hydro-Seed	5000	SY	\$0.20	\$0.10	\$0.06	108.20%	\$1,947.60	Mechanical Seeding, 44lb/sy
Top Soil at Stepped Concrete Walls	75	LCY	\$33.00	\$24.00	\$0.00	108.20%	\$4,616.02	
Fencing at Top of Berm, chain link, 2" post, 1 5/8" rail, 9 ga. Galv. Wire 5' high	367	LF	\$17.65	\$4.82	\$0.00	95.40%	\$7,876.23	RSMeans Assemblies Cost Data, 2011, G2040 105 Fence & Guardrails (Equipment Costs are included in Installation)
Irrigation System	45000	SF	\$0.32	\$0.46	\$0.00	108.20%	\$37,978.20	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
							<b>\$103,813.05</b>	

<b>Map Number:</b>	<b>6</b>	<b>Minimum Structure Height:</b>	<b>14</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>900</b>
<b>Location:</b>	<b>Westport, WA, HWY 105 &amp; W Bonge</b>	<b>Safe Haven Square Footage:</b>	<b>9000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$84,595
Foundation			\$321,117
Structure			\$451,974
Roofing			\$194,562
Stairs/Ramps/Guardrails			\$56,925
Fire Protection			\$66,564
<b>Total</b>			<b>\$1,190,994</b>
Design Fees (8%)			\$95,280
General Conditions (10%)			\$119,099
Contractor Fees, O&P (15%)			\$178,649
Construction Contingency (5%)			\$59,550
Estimate/Design Contingency (10%)			\$119,099
<b>Project Total</b>			<b>\$1,762,672</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill

Site Drainage/Area Drains/Catch Basins									
								Assume 1 area drain for structure	
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

Excavation-Backfill									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.26	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$852.30	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	253	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	667	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$10,365.56	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	1150	LCY			\$7.64	\$14.10	108.20%	\$27,040.76	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	993	ECY		\$20.00			108.20%	\$21,493.30	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	993	ECY			\$7.64	\$14.10	108.20%	\$23,363.21	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$84,595.13</b>	

Foundation									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	759	LF		\$34.50	\$53.00		99.30%	\$65,942.98	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$321,117.09</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									\$0.00
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	224	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$36,890.35	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	9000	SF		\$3.01	\$2.97		99.30%	\$53,443.26	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	9000	SF		\$8.95	\$13.60		99.30%	\$201,529.35	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	379	LF		\$4.85	\$1.95	\$22.00	97.30%	\$10,633.75	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	9000	SF		\$2.02	\$2.05		97.30%	\$35,640.99	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	12600	SF		\$4.59	\$2.62		97.30%	\$88,393.16	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$136,609.23	%	15.00%					\$20,491.38	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$451,973.57</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	12600	SF			\$9.50	\$5.80	100.30%	\$193,358.34	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$194,562.34</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	168	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$5,505.34	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	379	LF		\$32.50	\$9.80		95.40%	\$15,313.34	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$56,924.80</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	9000	SF		\$4.50	\$3.04		97.00%	\$65,824.20	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$66,564.20</b>	

<b>Map Number:</b>	<b>7</b>	<b>Minimum Structure Height:</b>	<b>14</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>550</b>
<b>Location:</b>	<b>Grayland, WA</b>	<b>Safe Haven Square Footage:</b>	<b>5500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$55,647
Foundation			\$306,724
Structure			\$294,678
Roofing			\$119,367
Stairs/Ramps/Guardrails			\$53,582
Fire Protection			\$40,966
<b>Total</b>			<b>\$886,222</b>
Design Fees (8%)			\$70,898
General Conditions (10%)			\$88,622
Contractor Fees, O&P (15%)			\$132,933
Construction Contingency (5%)			\$44,311
Estimate/Design Contingency (10%)			\$88,622
<b>Project Total</b>			<b>\$1,311,608</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	38	LCY		\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>								Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA	\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF						Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA	\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY		\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF	\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF	\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY	\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY		\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY		\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY		\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.16	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$520.85	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	198	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	407	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$6,334.51	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	756	LCY			\$7.64	\$14.10	108.20%	\$17,794.10	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	654	ECY	\$20.00				108.20%	\$14,143.61	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	654	ECY			\$7.64	\$14.10	108.20%	\$15,374.11	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
							<b>\$55,647.18</b>		

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011



Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	593	LF		\$34.50	\$53.00		99.30%	\$51,550.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$306,724.11</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									\$0.00
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	224	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$36,890.35	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	5500	SF		\$3.01	\$2.97		99.30%	\$32,659.77	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	5500	SF		\$8.95	\$13.60		99.30%	\$123,156.83	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	297	LF		\$4.85	\$1.95	\$22.00	97.30%	\$8,312.79	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	5500	SF		\$2.02	\$2.05		97.30%	\$21,780.61	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	7700	SF		\$4.59	\$2.62		97.30%	\$54,018.04	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$86,052.76	%	15.00%					\$12,907.91	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$294,677.62</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
---------	----------	------	---------------	---------------	-------------------	----------------	-----------------	------------	----------

Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	7700	SF		\$9.50	\$5.80		100.30%	\$118,163.43	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$119,367.43</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	168	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$5,505.34	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	297	LF		\$32.50	\$9.80		95.40%	\$11,970.99	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$53,582.45</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	5500	SF		\$4.50	\$3.04		97.00%	\$40,225.90	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$40,965.90</b>	

<b>Map Number:</b>	<b>8</b>	<b>Minimum Structure Height:</b>	<b>17</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>550</b>
<b>Location:</b>	<b>Grayland, WA, HWY 105</b>	<b>Safe Haven Square Footage:</b>	<b>5500</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>16</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$55,647
Foundation			\$306,724
Structure			\$302,583
Roofing			\$119,367
Stairs/Ramps/Guardrails			\$54,762
Fire Protection			\$40,966
<b>Total</b>			<b>\$895,307</b>
Design Fees (8%)			\$71,625
General Conditions (10%)			\$89,531
Contractor Fees, O&P (15%)			\$134,296
Construction Contingency (5%)			\$44,765
Estimate/Design Contingency (10%)			\$89,531
<b>Project Total</b>			<b>\$1,325,054</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street

Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY		\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF	\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY	\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY		\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY		\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY		\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>								Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA	\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF						Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA	\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY		\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF	\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF	\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY	\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY		\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY		\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY		\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.16	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$520.85	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	198	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	407	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$6,334.51	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	756	LCY			\$7.64	\$14.10	108.20%	\$17,794.10	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	654	ECY	\$20.00				108.20%	\$14,143.61	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011

Haul of Material, 40 MPH, cycle 40 MPH	654	ECY			\$7.64	\$14.10	108.20%	\$15,374.11	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$55,647.18</b>	

Foundation	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011
Battered Piles, 18" Diameter, 30'-40' Deep	48	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$225,600.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	16	EA	\$0.00	\$370.00	\$540.00		99.30%	\$14,458.08	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	593	LF		\$34.50	\$53.00		99.30%	\$51,550.00	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	Piling needs to 2x the height of the structure which is 23-35'?
								<b>\$306,724.11</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
									\$0.00
<b>Concrete Structure</b>									
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	272	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$44,795.42	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	5500	SF		\$3.01	\$2.97		99.30%	\$32,659.77	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	5500	SF		\$8.95	\$13.60		99.30%	\$123,156.83	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	160	VLF		\$9.85	\$2.62		97.30%	\$1,941.33	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	297	LF		\$4.85	\$1.95	\$22.00	97.30%	\$8,312.79	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued-Laminated Beams 06 18 13.20

2x10 Wood Joist w/ 1/2" CDX, 12" OC	5500	SF		\$2.02	\$2.05		97.30%	\$21,780.61	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	7700	SF		\$4.59	\$2.62		97.30%	\$54,018.04	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$86,052.76	%	15.00%					\$12,907.91	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$302,582.69</b>	

<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost)
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	7700	SF		\$9.50	\$5.80		100.30%	\$118,163.43	RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$119,367.43</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	204	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$6,685.06	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	297	LF		\$32.50	\$9.80		95.40%	\$11,970.99	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$54,762.17</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									

Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	5500	SF		\$4.50	\$3.04		97.00%	\$40,225.90	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$40,965.90</b>	

<b>Map Number:</b>	<b>9</b>	<b>Minimum Structure Height (ft)</b>	<b>10</b>
<b>Structure Type:</b>	<b>Building/Fire Station</b>	<b>Structure Capacity:</b>	<b>550</b>
<b>Location:</b>	<b>Grayland, McDermonnt Lane</b>	<b>Safe Haven Square Footage:</b>	<b>5500</b>
<b>Overall Site Square Footage</b>			
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$36,509
Excavation-Backfill			\$26,578
Foundation			\$254,012
Structure			\$188,273
Exterior Walls			\$96,042
Roofing			\$14,094
Stairs			\$54,727
Interior Finishes			\$36,786
Mechanical			\$74,647
Electrical			\$35,482
Plumbing			\$44,934
Fire Protection			\$19,155
Landscaping			\$53,903
<b>Total</b>			<b>\$935,144</b>
Design Fees (8%)			\$74,811
General Conditions (10%)			\$93,514
Contractor Fees, O&P (15%)			\$140,272
Construction Contingency (5%)			\$46,757
Estimate/Design Contingency (10%)			\$93,514
<b>Project Total</b>			<b>1,384,013</b>

Site Utilities	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment	Location Factor	Total Cost	Comments
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	70	BCY			\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF		\$14.60	\$10.70	\$2.72	108.20%	\$3,031.76	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY		\$20.00			108.80%	\$261.12	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY			\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	75	LCY			\$0.50	\$1.05	108.20%	\$125.78	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Fire Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	70	BCY			\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF		\$14.60	\$10.70	\$2.72	108.20%	\$3,031.76	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY		\$20.00			108.80%	\$261.12	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY			\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	75	LCY			\$0.50	\$1.05	108.20%	\$125.78	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Sewage</b>									Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	120	BCY			\$2.88	\$2.85	108.20%	\$743.98	RSMeans, Building Construction Cost data, 2011, 31 23 16.13 Excavating Trench
Install & Test, 8" SDR 35, B&S	100	LF		\$7.60	\$2.75		108.20%	\$1,119.87	RSMeans, Building Construction Cost Data, 2011, 33 31 Sanitary Utility Sewerage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY		\$20.00			108.80%	\$261.12	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY			\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	138	LCY			\$0.50	\$1.05	108.20%	\$231.44	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	120	BCY			\$2.88	\$2.85	108.20%	\$743.98	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	100	LF		\$10.70	\$5.25	\$0.97	108.20%	\$1,830.74	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY		\$20.00			108.80%	\$261.12	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011



Haul of Material, 40 MPH, cycle 40 MPH	12	LCY		\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY		\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	138	LCY		\$0.50	\$1.05	108.20%	\$231.44	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage</b>								Perimeter of the building + 25%
Excavate, 3/4 CY Excavator, 6'-10' deep	140	BCY		\$2.88	\$2.85	108.20%	\$867.98	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating, Trench
Install & Test, 8" Bituminous Coated	224	LF	\$10.70	\$5.25	\$0.97	108.20%	\$4,100.87	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY	\$20.00			108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY		\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	20	ECY		\$3.05	\$0.34	108.20%	\$73.36	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	150	LCY		\$0.50	\$1.05	108.20%	\$251.57	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Electrical</b>								Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA	\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF	\$2.00	\$8.05		108.20%	\$1,087.41	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF	\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	38	LCY	\$20.00			108.80%	\$826.88	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	38	LCY		\$7.64	\$14.10	108.20%	\$893.86	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	35	ECY		\$3.05	\$0.34	108.20%	\$128.38	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	44	LCY		\$0.50	\$1.05	108.20%	\$73.79	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Natural Gas</b>								Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator, 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install and test 60 PSI 40' joints with coupling, 3" diameter SDR 11	100	LF	\$5.35	\$4.19	\$1.06	108.20%	\$1,146.92	RSMeans, Building Construction Cost Data, 2011, 33 51 13.10 Piping, Gas Service and Distribution
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	38	LCY	\$20.00			108.80%	\$826.88	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	38	LCY		\$7.64	\$14.10	108.20%	\$893.86	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	35	ECY		\$3.05	\$0.34	108.20%	\$128.38	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	44	LCY		\$0.50	\$1.05	108.20%	\$73.79	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$36,509.16</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	4	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.53	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$1,749.05	Assumed site area to be 4X building pad, RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	0	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%		Included in grade beam foundation price Grade Beams, 3' wide, 3' deep, 568 lf. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	250	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$3,887.09	3360 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Haul of Spoils, 40 MPH, cycle 40 MPH	311	LCY			\$7.64	\$14.10	108.20%	\$7,315.55	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Fill Material for Capillary Break	270	BCY		\$20.00			108.80%	\$5,875.20	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Compacting Backfill, 6"to 12" lifts, vibrating roller	250	ECY			\$0.63	\$1.81	108.20%	\$660.02	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	270	CY			\$7.64	\$14.10	108.20%	\$6,351.12	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$26,578.04</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									
Piles, 18" Diameter, 30'-40' Deep	1680	LF	\$0.00	\$55.00	\$15.00	\$0.00	100.00%	\$117,600.00	Driven pipe piles 40' long, 16"x.5", Condon Johnson Quote, Equipment Included in Material/Labor Cost (Equipment Cost included in Installation Cost)
Pile Caps, 3 Piles Per Cap, 6'-6" x 3'-6" x 37"	6	EA	\$0.00	\$370.00	\$540.00		99.90%	\$5,454.54	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Cost included in Installation Cost)
Pile Caps, 2 Piles Per Cap, 6'-6" x 3'-6" x 37"	12	EA	\$0.00	\$375.00	\$540.00		99.90%	\$10,969.02	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Cost included in Installation Cost)
Mobilization for Piling	1	EA	\$35,000.00					\$35,000.00	Condon Johnson Quote
<b>Foundation/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.90%	\$3,134.86	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost included in Installation Cost)
Grade Beams 40' span, 40" deep, 12" wide, 2 KLF load	416	LF		\$29.50	\$56.00		99.90%	\$35,532.43	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost included in Installation Cost)
Ground Floor Slab, 8" thick, Heavy Industrial, Reinforced	3360	SF		\$5.70	\$8.10		99.90%	\$46,321.63	RSMeans Assemblies Cost Data, 2011, A 1030 120, Slab On Grade (Equipment Cost included in Installation Cost)
								<b>\$254,012.49</b>	

<b>Structure</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Costs</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization

Sheer Walls, Assume Cast In Place Concrete Wall, 12" thick, 5000 psi, plainer finish.	2368	SF		\$7.25	16.25		99.90%	\$55,592.35	Four walls identified, 2 @ 24'x16', 2 @ 40'x20', RSMeans Assemblies Cost Data, 2011, B2010 101, Cast In Place Concrete (Equipment Cost included in Installation Cost)
Steel Columns, 500K load, 20' high, 12" diameter	360	VLF		\$158.00	7.85	0	95.40%	\$56,959.52	RSMeans Assemblies Cost Data, 2011, B1010 Steel Columns (Equipment Cost included in Installation Cost)
Bay Size (ft) 20x25, Beam x Gird, Superimposed Load (PSF) 200, to take on anticipated seismic event and safe haven platform	2560	SF		\$13.95	4.48		95.40%	\$45,010.48	RSMeans Assemblies Cost Data, 2011, B1010 241 W 3500 Shape Beams & Girders (Equipment Cost included in Installation Cost)
Bay Size (ft) 20x25, Beam x Gird, Superimposed Load (PSF) 40 for roof above office space/attic/common area	960	SF		\$5.35	2.19		95.40%	\$6,905.43	RSMeans Assemblies Cost Data, 2011, B1010 241 W 2900 Shape Beams & Girders (Equipment Cost included in Installation Cost)
Wood framed floor for attic space above offices/common area, 2x12 joists at 12" OC	960	SF		\$2.32	2.07		97.30%	\$4,100.61	RSMeans Assemblies Cost Data, 2011, B1010 261, Wood Joists, included 1/2" CDX floor (Equipment Cost included in Installation Cost)
Roof Concrete Floor, at safe haven platform includes pan decking, concrete, wire mesh, finish floor, 8' deck span, 200 superimposed load, PSF, 4" thick	3520	SF		\$2.60	2.49		99.90%	\$17,898.88	RSMeans Assemblies Cost Data, 2011, B1010 258 Metal Deck/Concrete Fill (Equipment Cost included in Installation Cost)
								<b>\$188,273.29</b>	

Exterior Walls	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Split Block Exterior Facing, Regular Weight, No Core Fill, 8x8x16, Un-Reinforced	2912	SF		\$4.16	8.35		109.20%	\$39,780.60	RSMeans Assemblies Cost Data, 2011, B2010 117, Split Face Block Wall, Regular Weight, Entire enclosure surrounding bays that store the fire trucks (20' high) and half the height of the common area (8' high). Remove the SF of the garage doors. (Equipment Cost included in Installation Cost)
Wood Siding, 3-5/8" metal studs, 16 GA. 24" OC insulation wall, 1"x6" cedar drop siding	864	SF		\$7.20	5.5		97.30%	\$10,676.53	RSMeans Assemblies Cost Data, 2011, B2010 148, Panel Shingle & Lap Siding, Upper 8' of Common Area portion of building (Equipment Cost included in Installation Cost)
Exterior Doors	960	SF	\$4.25				101.80%	\$4,153.44	RSMeans Square Foot Costs, 2011, Exterior Enclosure, 2030 Exterior Doors, includes common area only (Material, Installation and Equipment Cost included in Cost per Unit)
Exterior Windows	960	SF	\$1.92				101.80%	\$1,876.38	RSMeans Square Foot Costs, 2011, Exterior Enclosure, 2020 Exterior Windows, includes common area only (Material, Installation and Equipment Cost included in Cost per Unit)
Garage Doors, Steel 24 Ga. Overhead, Sectional, Electric Operation, 12'x18'	8	EA		\$3,561.00	\$1,296.00		101.80%	\$39,555.41	Cost of door based on 12'x12' garage door RSMeans, Assemblies Cost Data, 2011, B2030 220, Exterior Doors, 8 doors total, front and rear loading (Equipment Cost included in Installation Cost). Cost per square foot for the materials of a 12'x12' door was used for a 12'x18' door. \$6 a square foot was used for installation.
								<b>\$96,042.36</b>	

Roofing	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Built-Up Roof Covering, Asphalt base sheets & 3 plies #15 asphalt felt, mopped	3520	SF		\$0.91	\$1.66		100.30%	\$9,073.54	RSMeans Assemblies Cost Data, 2011, B3010 105, Built Up Roofing (Equipment Cost included in Installation Cost)
Roof Opening, skylights, roof hatches	3520	SF		\$0.14			101.80%	\$501.67	RSMeans Square Foot Costs, 2011, M.220, Fire Station, B30 Roofing (Equipment Cost included in Installation Cost)
Guardrail, fence, chain link, 2" post, 1 5/8" rail, 9 ga. Galve wire, 5' high	208	LF		\$17.95	\$4.82		95.40%	\$4,518.30	RSMeans Assemblies Cost Data, 2011, G2040 105, Fence & Guardrails, surrounding the safe haven area. (Equipment Cost included in Installation Cost)
								<b>\$14,093.51</b>	

Stairs/Ramps	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Interior Stairs, 2 flights, 16 risers, with landing, steel, grate type w/nosing & rails	1	Each		\$7,875.00	\$1,975.00	\$0.00	95.40%	\$9,396.90	RSMeans Assemblies Cost Data, 2011, C2010 110, Stairs
Exterior Ramp, Rises 20', 6' wide									Beam and Column sizes are not determined and estimate takes in "best guess" to assume sizes for this project.
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	240	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$7,864.78	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	900	SF		\$11.70	\$3.82	\$1.50	95.40%	\$14,613.37	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	900	SF		\$2.38	\$2.38		99.30%	\$4,254.01	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
Ladders/Stairs For Post-Tsunami Escape									
Steel ladder attached to exterior 20" wide bolted to concrete without cage	20	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$1,841.22	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
								<b>\$54,727.29</b>	

Interior Finishes	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
Interior Walls	1920	SF	\$8.84				103.40%	\$17,549.88	RSMeans Square Foot Costs, 2011M.230 Fire Station, Interiors, Common Space and Upstairs Only (Materials, Installation and Equipment Cost included in Cost per Unit)
Painting	1920	SF	\$3.26				93.30%	\$5,839.83	RSMeans Square Foot Costs, 2011M.230 Fire Station, Interiors (Materials, Installation and Equipment Cost included in Cost per unit)
Flooring	1920	SF	\$2.25				106.40%	\$4,596.48	RSMeans Square Foot Costs, 2011M.230 Fire Station, Interiors (Materials, Installation and Equipment Cost included in Cost per Unit)

Ceiling Finishes	1920	SF	\$2.20				103.30%	\$4,363.39	RSMeans Square Foot Costs, 2011M.230 Fire Station, Interiors (Materials, Installation and Equipment Cost included in Cost per Unit)
Interior Doors	1920	SF	\$2.27				101.80%	\$4,436.85	RSMeans Square Foot Costs, 2011M.230 Fire Station, Interiors (Materials, Installation and Equipment Cost included in Cost per Unit)
								<b>\$36,786.43</b>	

<b>Mechanical</b>	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Mechanical</b>	3520	SF	\$21.84				97.10%	\$74,647.37	RSMeans Square Foot Costs, 2011, M.220, D30, HVAC (Material, Installation and Equipment Cost included in Cost per Unit)
HVAC Equipment								Included	
Rough-In								Included	
Finish Trim								Included	
Testing/Commissioning								Included	
								<b>\$74,647.37</b>	

<b>Electrical</b>	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Electrical</b>		SF							
Electrical Service/Distribution, 400 amp service, panel board and feeders	3520	SF	\$1.44				100.50%	\$5,094.14	RSMeans Square Foot Costs, 2011, M.220, Fire Station, D50, Electrical (Material, Installation and Equipment Cost included in Cost per Unit)
Lighting & Branch Wiring	3520	SF	\$6.46				100.50%	\$22,852.90	RSMeans Square Foot Costs, 2011, M.220, Fire Station, D50, Electrical (Material, Installation and Equipment Cost included in Cost per Unit)
Communications & Security	3520	SF	\$1.88				100.50%	\$6,650.69	RSMeans Square Foot Costs, 2011, M.220, Fire Station, D50, Electrical (Material, Installation and Equipment Cost included in Cost per Unit)
Emergency generator, 15 kW	3520	SF	\$0.25				100.50%	\$884.40	RSMeans Square Foot Costs, 2011, M.230, Fire Station, D50, Electrical (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$35,482.13</b>	

<b>Plumbing</b>	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Plumbing</b>									
Plumbing Fixtures	3520	SF	\$9.33				97.00%	\$31,856.35	RSMeans Square Foot Costs, 2011, M.220 Fire Station, D20 Plumbing (Material, Installation and Equipment Cost included in Cost per Unit)
Gas fired water heater	3520	SF	\$2.65				97.00%	\$9,048.16	RSMeans Square Foot Costs, 2011, M.220 Fire Station, D20 Plumbing (Material, Installation and Equipment Cost included in Cost per Unit)
Roof Drain System	3520	SF	\$1.18				97.00%	\$4,028.99	RSMeans Square Foot Costs, 2011, M.220 Fire Station, D20 Plumbing (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$44,933.50</b>	

<b>Fire Protection</b>	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Cost	Location Factor	Total Cost	Comments
<b>Fire Protection</b>									

Sprinklers	3520	SF	\$4.38				97.00%	\$14,955.07	RSMeans Square Foot Costs, 2011, M.230 Fire Station, Fire Protection (Material, Installation and Equipment Cost included in Cost per Unit)
Standpipes, wet, class III	3520	SF	\$1.23				97.00%	\$4,199.71	RSMeans Square Foot Costs, 2011, M.230 Fire Station, Fire Protection (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$19,154.78</b>	

<b>Landscaping</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Costs</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	4	EA	\$0.00	\$0.00	\$69.00	\$116.00	108.20%	\$800.68	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
<b>Site Paving</b>		SF					108.20%		
Flagpoles, on grade, aluminum, tapered, 20' high	1	EA		\$970.00	\$585.00		108.20%	\$1,682.51	RSMeans Assemblies Cost Data, 2011, G2040, 810, Flagpoles, (Equipment Cost included in Installation Cost)
Driveways, 8" thick, 24' wide, bituminous conc. Paving	200	LF		\$138.00	\$63.00		108.20%	\$43,496.40	RSMeans Assemblies Cost Data, 2011, G2010 210 Roadway Pavement (Equipment Cost included in Installation Cost)
Concrete Sidewalks, 4" thick, 4" gravel base, 4' wide	150	LF		\$8.45	\$13.25		108.20%	\$3,521.91	RSMeans Assemblies Cost Data, 2011, G2030 120, Concrete Sidewalk (Equipment Cost included in Installation Cost)
<b>Planting</b>		SF							
Irrigation, residential system, custom, 1" supply	3000	SF		\$0.32	\$0.46		108.20%	\$2,531.88	RSMeans Building Construction Cost Data, 2011, 32 84 23.10, Sprinkler Irrigation System
Furnish and place, truck dumped, screened, 4" deep	333	SY		\$4.13	\$0.38	\$0.25	108.20%	\$1,715.06	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Topsoil Placement and Grading
Mechanical Seeding, 44 lb/MAY	333	SY		\$0.20	\$0.14	\$0.09	108.20%	\$154.93	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
								<b>\$53,903.37</b>	

<b>Map Number:</b>	<b>1</b>	<b>Minimum Structure Height (ft)</b>	<b>16</b>
<b>Structure Type:</b>	<b>Berm w/ RC Wall</b>	<b>Structure Capacity:</b>	<b>300</b>
<b>Location:</b>	<b>Taholah, Senior Apartments</b>	<b>Safe Haven Square Footage:</b>	<b>3000</b>
<b>Overall Site Square Footage</b>	<b>9000</b>	<b>Volume of Berm Materials (LCY)</b>	<b>2667</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$55,725
Excavation-Backfill			\$303,605
Concrete Retaining Wall Surrounding Berm			\$102,069
Landscaping Concrete			\$63,874
Stairs/Ramps/Guardrails			\$7,233
Landscaping			\$51,393
<b>Construction Totals</b>			<b>\$785,995</b>
Design Fees (8%)			\$62,880
General Conditions (10%)			\$78,600
Contractor Fees, O&P (15%)			\$117,899
Construction Contingency (5%)			\$39,300
Estimate/Design Contingency (10%)			\$78,600
<b>Project Total</b>			<b>\$1,163,273</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF							Assuming 100' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$14.60	\$10.70	\$2.72	108.80%	\$3,048.58	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	11	LCY	\$20.00	\$20.00			108.80%	\$239.36	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	11	LCY			\$7.64	\$14.10	108.20%	\$258.75	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY			\$3.05	\$0.34	108.80%	\$36.88	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	94	LCY			\$0.50	\$1.05	108.80%	\$158.52	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 200' of storm piping needed
Excavate, 3/4 CY Excavator, 6'-10' deep	250	BCY			\$2.88	\$2.85	108.80%	\$1,558.56	RSMeans, Building Construction Cost Data, 201, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	200	LF	\$10.70	\$10.70	\$5.25	\$0.97	108.80%	\$3,681.79	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	25	LCY	\$20.00	\$20.00			108.80%	\$544.00	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011.
Haul of Material, 40 MPH, cycle 40 MPH	25	LCY			\$7.64	\$14.10	108.20%	\$588.07	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	23	ECY			\$3.05	\$0.34	108.80%	\$84.83	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	284	LCY			\$0.50	\$1.05	108.80%	\$478.94	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 4 area drains for structure

Concrete, Precast, 4' ID riser, 4' deep	4	EA		\$1,425.00	\$1,200.00	0.00%	108.80%	\$11,424.00	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>	100	LF							Assuming 100' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	85	BCY			\$2.16	\$2.13	108.80%	\$396.74	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF		\$2.00	\$8.05		108.80%	\$1,093.44	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	100	CLF		\$11.95	\$36.50	0	100.50%	\$4,869.23	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	46	LCY		\$20.00			108.80%	\$1,000.96	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	46	LCY			\$7.64	\$14.10	108.20%	\$1,082.04	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	43	ECY			\$3.05	\$0.34	108.80%	\$158.60	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA		\$1,250.00	\$1,075.00	\$0.00	108.80%	\$20,236.80	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Backfill, General Fill By Dozer, No Compaction	54	LCY			\$0.50	\$1.05	108.80%	\$91.07	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$55,725.29</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	1	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$3,300.10	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Survey Site	1	ACRE		\$32.50	\$565.00	\$35.00	108.20%	\$684.37	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
<b>Fill Material for Berm</b>									
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	2667	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$72,681.55	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, 6"to 12" lifts, vibrating roller	2469	ECY			\$0.63	\$1.81	108.20%	\$6,518.72	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	2667	LCY			\$7.64	\$14.10	108.20%	\$62,727.15	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	3556	SY		\$1.48	\$0.09	\$0.03	108.20%	\$6,155.38	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
<b>Fill Material at Landscape Walls</b>									
Fill Material, Top Soil	2130	LCY		\$20.00	\$1.75	\$3.44	108.20%	\$58,041.99	RSMeans Building Construction Cost Data, 2011, 31 05 16, Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Compacting Backfill, by hand, no compaction, light soil	1972	ECY			\$19.65	\$0.00	108.20%	\$41,923.06	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Haul of Material, 40 MPH, cycle 40 MPH	2130	LCY			\$7.64	\$14.10	108.20%	\$50,092.61	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$303,604.91</b>	



<b>Concrete Retaining Wall Surrounding Berm</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	8	EA			\$116.00	\$185.00	100.00%	\$2,408.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Reinforced Concrete Wall</b>									Built in two sections. First section under grade, 6' high, second section built on top of that, 16' high. Length of wall 270'.
Mobilization of Equipment	1	EA			\$116.00	\$185.00	95.40%	\$287.15	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
Excavation 6 deep', common earth, 4000 SF	986	SF		\$5.30	\$0.00	\$0.00	108.20%	\$5,653.75	RSMeans Assemblies Cost Data, 2011, A 2010 110 Building Excavation & Backfill
Concrete Wall, below grade section, 6' high, 16" thick, pumped concrete	164	LF		\$58.75	\$84.50	\$0.00	99.30%	\$23,373.61	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Concrete Wall, above grade section, 16' high, 16" thick, pumped concrete	164	LF		\$155.00	\$225.00	\$0.00	99.30%	\$62,003.29	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place, add 25% to material cost to include for additional reinforcing (Equipment included in installation cost)
Drainage piping, 6" diameter, PVC, perforated,	164	LF		\$4.05	\$4.04		108.20%	\$1,438.33	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment included in installation cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1315	SF		\$1.46	\$3.31	\$0.52	99.30%	\$6,905.21	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
								<b>\$102,069.33</b>	

<b>Landscaping Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Stepped Concrete Wall 4' high</b>									Length of walls 330' and 320'
4' high walls, cast-in-place, 8" thick, pumped concrete	329	LF		\$18.10	\$51.50	\$0.00	99.30%	\$22,712.78	RSMeans Assemblies Cost Data, 2011, A 2020 110, Walls, Cast-in-Place (Equipment included in installation cost)
Subdrainage Piping, 4" diameter, PVC, perforated	329	LF		\$2.04	\$3.77	\$0.00	108.20%	\$2,065.93	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation Cost)
<b>Aesthetic Treatments for Exposed Concrete</b>									
Sandblast Concrete Heavy Treatment	1315	SF		\$1.46	\$3.31	\$0.52	99.30%	\$6,905.21	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>									
Asphaltic Concrete Paving, 6" stone bse, 2" binder course, 1" topping	3000	SF		\$1.85	\$0.20	\$0.24	108.20%	\$7,433.34	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	83	CY			\$7.64	\$14.10	108.20%	\$1,960.22	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Landscaping Stairs Up Berm</b>									
Stairs 10' wide, cast on ground, 24 steps	240	LF Nose		\$4.28	\$16.30	\$0.18	95.40%	\$4,712.00	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Landing, cast on ground	200	SF		\$3.29	\$4.29	\$0.05	95.40%	\$1,446.26	RSMeans Building Construction Cost Data 2011, 03 30 53.40, Concrete in Place
Stair Handrail, 1 1/4" diameter, galvanized	60	LF		\$57.20	\$14.89	\$1.04	95.40%	\$4,126.15	RSMeans Building Construction Cost Data 2011, 05 52 13.50 Railings, Pipe (add 30% to price for stair handrail)

<b>Sidewalks</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Flatwork in front of ground floor of tower, 6" thick with wire mesh	3500	SF	\$3.60	\$0.00		\$0.00	99.30%	\$12,511.80	Unit SF price only, per RSMeans Square Foot Costs, Residential Modifications/Adjustments/Alternatives, Sidewalks, 3000 PSI with mesh (Material, Installation and Equipment Cost included in Cost per Unit)
								<b>\$63,873.69</b>	

<b>Stairs/Ramps/Guardrails</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Cost	Location Factor	Total Cost	Comments
Mobilization of Equipment	2	EA			\$116.00	\$185.00	100.00%	\$602.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Platform Perimeters Railing (Top wall at Berm)</b>									
Hand Rail/Guard Rail, Galvanized, 2 rail, 1 1/2" diameter	164	LF		\$32.50	\$9.80		95.40%	\$6,630.87	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$7,232.87</b>	

<b>Landscaping</b>									
	Quantity	Unit	Cost per Unit	Material Cost	Installation Costs	Equipment Costs	Location Factor	Total Cost	Comments
<b>Treated Wood Trellis Walkway 60' x 12'</b>									
Cedar Wood, 2" thick, 40 PSF load at Maximum Span	720	SF		\$5.65	\$3.02	\$0.00	97.30%	\$6,073.86	RSMeans Assemblies Cost Data, 2011, B1010 266 Wood Deck (Equipment Cost included in Installation Cost)
Post & Beams	720	SF		\$9.10	\$4.17	\$0.00	97.30%	\$9,296.43	RSMeans Assemblies Cost Data, 2011, B1010 264 Wood Beam & Joist (Equipment Cost included in Installation Cost)
<b>Berm/Site Landscaping</b>									
Top Soil	330	LCY		\$33.00	\$24.00	\$0.00	108.20%	\$20,352.42	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Haul of Material, 40 MPH, cycle 40 MPH	330	LCY			\$7.64	\$14.10	108.20%	\$7,762.48	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Mechanical Seeding, 44 lb/MAY	667	SY		\$0.20	\$0.14	\$0.09	108.80%	\$311.89	RSMeans Building Construction Cost Data, 2011, 32 92 19.13 Mechanical Seeding
Irrigation System	9000	SF		\$0.32	\$0.46	\$0.00	108.20%	\$7,595.64	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
								<b>\$51,392.72</b>	

<b>Map Number:</b>	<b>2</b>	<b>Min. Structure Hgt (ft)</b>	<b>16</b>
<b>Structure Type:</b>	<b>Berm</b>	<b>Structure Capacity:</b>	<b>400</b>
<b>Location:</b>	<b>Taholah, WA, Elementary School</b>	<b>Safe Haven(sq ft)</b>	<b>4000</b>
<b>Overall Site Square Footage:</b>	<b>12000</b>	<b>Volume of Berm Material:</b>	<b>3556</b>
<b>Scope</b>		<b>Cost</b>	
Site Utilities		\$49,814	
Excavation-Backfill		\$204,090	
Concrete		\$150,584	
Landscaping		\$31,887	
<b>Construction Totals</b>		<b>\$436,374</b>	
Design Fees (8%)		\$34,910	
General Conditions (10%)		\$43,637	
Contractor Fees, O&P (15%)		\$65,456	
Construction Contingency (5%)		\$21,819	
Estimate/Design Contingency (10%)		\$43,637	
<b>Project Total</b>		<b>\$645,834</b>	

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA		\$116.00	\$185.00	100.00%	\$1,806.00	Mobilization
<b>Domestic Water, Ductile Iron Class 250, MJ, 6" diameter</b>	100	LF				108.20%		<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 6" Ductile Iron Piping, MJ	100	LF	\$14.60	\$10.70	\$2.72	108.20%	\$3,031.76	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY	\$20.00			108.20%	\$259.68	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY		\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY		\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	75	LCY		\$0.50	\$1.05	108.20%	\$125.78	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Drainage</b>								<b>Assuming 100' distance from service at street</b>
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY		\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating, Trench
Install & Test, 12" Bituminous Coated	100	LF	\$11.50	\$8.30	\$1.53	108.20%	\$2,307.91	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	12	LCY	\$20.00			108.20%	\$259.68	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	12	LCY		\$7.64	\$14.10	108.20%	\$282.27	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	10	ECY		\$3.05	\$0.34	108.20%	\$36.68	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	60	LCY		\$0.50	\$1.05	108.20%	\$100.63	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill

<b>Area Drains/Catch Basins</b>							<b>Assuming 6 Area Drains/Catch Basins on Site</b>	
Concrete, Precast, 4' ID riser, 4' deep	6	EA	\$1,425.00	\$1,200.00	\$0.00	108.20%	\$17,041.50	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins (Equipment Cost included in Installation Cost)
<b>Electrical</b>							<b>Assuming 100' distance from service at street</b>	
Excavate, 3/4 CY Excavator, 4'-6' deep	70	BCY		\$2.16	\$2.13	108.20%	\$324.92	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	100	LF	\$2.00	\$8.05		108.20%	\$1,087.41	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	40	LCY	\$20.00	\$0.00	\$0.00	108.20%	\$865.60	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	40	LCY		\$7.64	\$14.10	108.20%	\$940.91	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	35	ECY		\$3.05	\$0.34	108.20%	\$128.38	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	44	LCY		\$0.50	\$1.05	108.20%	\$73.79	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
Light Pole, Aluminum, 20' high, 1 arm bracket	8	EA	\$1,250.00	\$1,075.00	\$0.00	108.20%	\$20,125.20	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
							<b>\$49,813.97</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Site Preparation</b>								
Clear & Grub	3	acres		\$320.00	\$525.00	108.20%	\$2,742.87	RSMeans Building Construction Cost Data, 2011, 31 13 13, Selective Clearing
Survey Site	3	acres	\$32.50	\$565.00	\$35.00	108.20%	\$2,053.10	RSMeans Building Construction Cost Data, 2011, 02 21 13 Site Surveys
Mobilization of Equipment	10	EA		\$69.00	\$116.00	100.00%	\$1,850.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Material Costs</b>								
Fill Material, Select Structural Fill, 1 1/2" minus aggregate	3556	LCY	\$20.00	\$1.75	\$3.44	108.20%	\$96,908.73	Aggregates for Earthwork, Select Structural Fill & Material Cost from Quigg Bros., Aberdeen, WA
Haul of Material, 40 MPH, cycle 40 MPH	3556	LCY		\$7.64	\$14.10	108.20%	\$83,636.20	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
<b>Placement of Material</b>								
Compacting Backfill, 6"to 12" lifts, vibrating roller	3292	ECY		\$0.63	\$1.81	108.20%	\$8,691.62	RSMeans Building Construction Data, 2011, 31 23 23.13 Backfill
Stabilization Fabric, Polypropylene, 6oz/SY, 18" lifts, 5082 SF per lift	4741	SY	\$1.48	\$0.09	\$0.03	108.20%	\$8,207.17	RSMeans Building Construction Cost Data, 2011, 32 11 23 Aggregate Base Courses
							<b>\$204,089.68</b>	

<b>Concrete</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA		\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization

<b>Tsunami Wave Inundation Concrete Wall</b>	190	LF						Based on square root of the berm safe haven area times three walls
Excavation, 6' deep	1138	SF	\$0.00	\$5.30	\$0.00	108.20%	\$6,528.38	Excavation & Backfill, 6' deep, sand, gravel, or common earth. (Equipment Cost included in Installation)
Walls, Cast in place, 6' deep, pumped, 12" thick,	190	LF	\$46.25	\$81.00	\$0.00	99.30%	\$23,974.98	Place, 10' pumped, 12" thick (Equipment Cost included in Installation)
Subdrainage Piping, 4" diameter, PVC, perforated	190	LF	\$2.04	\$3.77	\$0.00	99.30%	\$1,094.65	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation)
<b>Stepped Concrete Wall 4' high</b>								88', 86', 82', 72', 60' length walls, 12" thick, 5' high.
5' high wall, pumped, 8" thick	759	LF	\$33.75	\$77.00	\$0.00	99.30%	\$83,464.97	Place, 6' pumped, 8" thick. Material costs have been increased 25% for additional reinforcing required for seismic event and tsunami.
Subdrainage Piping, 4" diameter, PVC, perforated	759	LF	\$2.04	\$3.77	\$0.00	108.20%	\$4,771.06	RSMeans Assemblies Cost Data, 2011, A 2020 220, Subdrainage Piping (Equipment Cost included in Installation)
Sandblast Concrete Heavy Treatment	3036	SF	\$1.46	\$3.31	\$0.52	99.30%	\$15,946.90	RSMeans Building Construction Cost Data, 2011, 03 35 29.60
<b>Concrete or Gravel Platform</b>								
Asphaltic Concrete Paving, 6" stone bse, 2" binder course, 1" topping	4000	SF	\$1.85	\$0.20	\$0.24	108.20%	\$9,911.12	RSMeans Building Construction Cost Data, 2011, 32 12 16.14 Asphaltic Concrete Paving
Haul of Material, 40 MPH, cycle 40 MPH	80	CY		\$7.64	\$14.10	108.20%	\$1,881.81	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
							<b>\$150,583.87</b>	

<b>Landscaping</b>	<b>Quantity</b>	<b>Unit</b>	<b>Material Costs</b>	<b>Installation Costs</b>	<b>Equipment Costs</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA		\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Berm Landscaping</b>								
Top Soil	222	LCY	\$33.00	\$24.00	\$0.00	108.20%	\$13,705.33	RSMeans Building Construction Cost Data, 2011, 32 91 19.13 Top Dress by hand, 1 CY for 600 SF
Hydro-Seed	1333	SY	\$0.20	\$0.10	\$0.06	108.20%	\$519.36	Mechanical Seeding, 44lb/sy
Top Soil at Stepped Concrete Walls	56	LCY	\$33.00	\$24.00	\$0.00	108.20%	\$3,467.21	
Fencing at Top of Berm, chain link, 2" post, 1 5/8" rail, 9 ga. Galv. Wire 5' high	190	LF	\$17.65	\$4.82	\$0.00	95.40%	\$4,067.27	RSMeans Assemblies Cost Data, 2011, G2040 105 Fence & Guardrails (Equipment Costs are included in Installation)
Irrigation System	12000	SF	\$0.32	\$0.46	\$0.00	108.20%	\$10,127.52	RSMeans Building Construction Costs, 2011, 32 84 23.10, sprinkler irrigation system
							<b>\$31,886.69</b>	

<b>Map Number:</b>	<b>3</b>	<b>Minimum Structure Height:</b>	<b>16</b>
<b>Structure Type:</b>	<b>Tower</b>	<b>Structure Capacity:</b>	<b>200</b>
<b>Location:</b>	<b>Taholah, WA, Park Place</b>	<b>Safe Haven Square Footage:</b>	<b>2000</b>
<b>Levels</b>	<b>1</b>	<b>Columns Required:</b>	<b>9</b>
		<b>Piles per Column:</b>	<b>3</b>
<b>Scope</b>			<b>Cost</b>
Site Utilities			\$15,257
Excavation-Backfill			\$22,547
Foundation			\$173,463
Structure			\$122,104
Roofing			\$44,173
Stairs/Ramps/Guardrails			\$49,617
Fire Protection			\$15,368
<b>Total</b>			<b>\$442,529</b>
Design Fees (8%)			\$35,402
General Conditions (10%)			\$44,253
Contractor Fees, O&P (15%)			\$66,379
Construction Contingency (5%)			\$22,126
Estimate/Design Contingency (10%)			\$44,253
<b>Project Total</b>			<b>\$654,942</b>

<b>Site Utilities</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Fire Water, Ductile Iron Class 250, MJ, 4" diameter</b>	50	LF		\$16.05					Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13, Excavating Trench
Install & Test, 4" Ductile Iron Piping, MJ	50	LF		\$12.50	\$8.55	\$2.17	108.20%	\$1,256.20	RSMeans, Building Construction Cost Data, 2011, 33 11 Water Utility Distribution Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Storm Service</b>									Assuming 50' distance from service at street
Excavate, 3/4 CY Excavator, 6'-10' deep	60	BCY			\$2.88	\$2.85	108.20%	\$371.99	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test, 8" Bituminous Coated	50	LF		\$10.70	\$5.25	\$0.97	108.20%	\$915.37	RSMeans, Building Construction Cost Data, 2011, 33 41 Storm Utility Drainage Piping
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	6	LCY		\$20.00			108.20%	\$129.84	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	6	LCY			\$7.64	\$14.10	108.20%	\$141.14	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	5	ECY			\$3.05	\$0.34	108.20%	\$18.34	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding

Backfill, General Fill By Dozer, No Compaction	38	LCY			\$0.50	\$1.05	108.20%	\$63.73	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
<b>Site Drainage/Area Drains/Catch Basins</b>									Assume 1 area drain for structure
Concrete, Precast, 4' ID riser, 4' deep	1	EA		\$1,425.00	\$1,200.00	0.00%	108.20%	\$2,840.25	RSMeans Assemblies Cost Data, 2011, G3030 210, Manholes & Catch Basins
<b>Electrical</b>	50	LF							Assuming 50' distance from service at street
Electrical Service, includes service installation, breakers, metering, 20' conduit & wire, 3 phase, 4 wire, 120/208 volts, 60 A	1	EA		\$960.00	\$920.00		100.50%	\$1,889.40	RSMeans Assemblies Cost Data, 2011, D 5010 120, Electric Service, 3 Phase - 4 Wire, equipment included in installation cost
Excavate, 3/4 CY Excavator, 4'-6' deep	35	BCY			\$2.16	\$2.13	108.20%	\$162.46	RSMeans, Building Construction Cost Data, 2011, 31 23 16.13 Excavating Trench
Install & Test PVC, type EB 4 @ 3" diameter	50	LF		\$2.00	\$8.05		108.20%	\$543.71	RSMeans, Building Construction Cost Data, 2011, 33 71 19 Electrical Underground Ducts and Manholes
Wire, 600 volt, copper type THW, solid, #12	50	CLF		\$11.95	\$36.50	0	100.50%	\$2,434.61	RSMeans, Building Construction Cost Data, 2011, 26 05 19.90 Wire
Utility Bedding, For Pipe & Conduit, Not Incl. Compaction	19	LCY		\$20.00			108.20%	\$411.16	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	19	LCY			\$7.64	\$14.10	108.20%	\$446.93	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Compacting Bedding In Trench	19	ECY			\$3.05	\$0.34	108.20%	\$69.69	RSMeans, Building Construction Cost Data, 2011, 31 23 23.16 Fill By Borrow & Utility Bedding
Backfill, General Fill By Dozer, No Compaction	22	LCY			\$0.50	\$1.05	108.20%	\$36.90	RSMeans, Building Construction Cost Data, 2011, 31 23 23.17 General Fill
								<b>\$15,257.23</b>	

<b>Excavation-Backfill</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization	8	EA	\$0.00	\$0.00	\$69.00	\$116.00	100.00%	\$1,480.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
Clear and Grub Site	0.06	ACRE	\$0.00	\$0.00	\$1,750.00	\$1,300.00	108.20%	\$189.40	Is clear and grub needed for structure in urban setting? RSMeans Building Construction Cost Data, 2011, 31 11 10.10 Clear and Grub Site
Excavation for Grade Beams	89	BCY	\$0.00	\$0.00	\$0.00	\$0.00	108.20%	\$0.00	Grade Beams, 3' wide, 3' deep.. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket, (Price Included in grade beam foundation price)
Excavation for slab, subgrade and capillary break	148	BCY	\$0.00	\$0.00	\$7.20	\$7.17	108.20%	\$2,303.46	1225 SF mat, 2' deep. RSMeans Building Construction Cost Data, 2011, 31 23 16.16 3/4 CY bucket
Removal of Foundation Spoils, Haul of Material, 40 MPH, cycle 40 MPH	297	LCY			\$7.64	\$14.10	108.20%	\$6,985.97	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
Backfill Slab, subgrade, capillary break	257	ECY		\$20.00			108.20%	\$5,552.78	Quote per Quigg Bros, Aberdeen, WA, phone conversation on June 29th, 2011
Haul of Material, 40 MPH, cycle 40 MPH	257	ECY			\$7.64	\$14.10	108.20%	\$6,035.88	RSMeans Building Construction Cost Data, 2011, 31 05 16, 31 23 23.20 Hauling
								<b>\$22,547.48</b>	

<b>Foundation</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Piling</b>									Piling needs to 2x the height of the structure which is 23-35'?
Mobilization for piling	1	EA	\$12,000.00	\$0.00	\$0.00	\$0.00	100.00%	\$12,000.00	Per phone conversation with Quigg Bros, Aberdeen, WA on June 29th, 2011

Battered Piles, 18" Diameter, 30'-40' Deep	27	EA	\$0.00	\$3,500.00	\$1,200.00	\$0.00	100.00%	\$126,900.00	Driven pipe piles 40' long, 18"x.5", per phone conversation with Quigg Bros, Aberdeen, WA on June 29th,2011. Equipment Included in Material/Labor Cost
Pile Caps, Cap Size 6'-6" x 3'-6" x 37"	9	EA	\$0.00	\$370.00	\$540.00		99.30%	\$8,132.67	RSMeans Assemblies Cost Data 2011, A1010 250 Pile Caps (Equipment Costs are included in Installation Cost)
<b>Foundation Cast-In-Place/Tower</b>									
Grade Beams 30' span, 28" deep, 14" wide, 2 KLF load	268	LF		\$34.50	\$53.00		99.30%	\$23,314.36	RSMeans Assemblies Cost Data 2011, A 1020 210 Grade Beams (Equipment Cost is included in Installation Cost)
<b>Foundation Cast-In-Place/ Footings for Ramp</b>									
Spread Footings, load 75K, soil capacity 6 KSF, 4'-0" sq x 12" deep	12	EA	\$0.00	\$94.50	\$167.00	\$0.00	99.30%	\$3,116.03	RSMeans Assemblies Cost Data, 2011, A1010 210, Spread Footings (Equipment Cost is included in Installation Cost)
								<b>\$173,463.07</b>	

Structure	Quantity	Unit	Cost per Unit	Material Cost	Installation Cost	Equipment Costs	Location Factor	Total Cost	Comments
Mobilization of Equipment	10	EA			\$116.00	\$185.00	100.00%	\$3,010.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Concrete Structure</b>									\$0.00
Concrete Columns, rated for 1000 K load, 26" round, concrete strength, 6000 PSI	144	VLF		\$158.00	\$7.85	\$0.00	99.30%	\$23,715.22	RSMeans Assemblies Cost Data, 2011, B1010 201, CIP Column, Round Tied (Equipment Cost included in Installation Cost)
Slab-On-Grade, 6" thick, non-industrial, reinforced, Ground Floor	2000	SF		\$3.01	\$2.97		99.30%	\$11,876.28	RSMeans Assemblies Cost Data, 2011, A1030 120, Slab on Grade, Plain & Reinforced
Cast-In-Place Beam and Slab, Two Way, 30x30, 351 PSF, 9" thick slab, 2nd Floor (evacuation level)	2000	SF		\$8.95	\$13.60		99.30%	\$44,784.30	RSMeans Assemblies Cost Data, 2011, B1010 229 Precast Plank with No Topping (Equipment Cost included in Installation Cost)
<b>Wood Structure</b>									
Wood Columns 12"x12", 10' High, Select Structural	90	VLF		\$9.85	\$2.62		97.30%	\$1,092.00	Wood structure, hip roof to support galvanized steel panels Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Perimeter Joists, 3 1/8"x12", GLM 30' span	179	LF		\$4.85	\$1.95	\$22.00	97.30%	\$5,012.80	Supply quote from Levee Lumber, Hoquiam, WA, RSMeans Building Construction Cost Data 2011, Glued Laminated Beams 06 18 13.20
2x10 Wood Joist w/ 1/2" CDX, 12" OC	2000	SF		\$2.02	\$2.05		97.30%	\$7,920.22	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Roof, wood/pitched, 3"x12" 12" OC w/ sheathing plywood on roof, 5/16" CDX	2800	SF		\$4.59	\$2.62		97.30%	\$19,642.92	RSMeans Assemblies Cost Data, 2011, B1020 102, Roof Construction, Wood/Flat or Pitched (Equipment Cost included in Installation Cost)
Weather Proofing/Coatings add 15% (Premium for PTS Wood)	\$33,667.94	%	15.00%					\$5,050.19	Assumed that PTS wood is 15% more compared on price difference shown in means
								<b>\$122,103.94</b>	



<b>Roofing</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	4	EA			\$116.00	\$185.00	100.00%	\$1,204.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Roofing/Hip and Ridge Roof Steel Panels</b>									
Flat Roof Steel Panels, Flat Seam, Copper, 1/4" min. slope, 20 oz, 1.2 PSF	2800	SF		\$9.50	\$5.80		100.30%	\$42,968.52	Hip and ridge style roof, peak of roof 15'. (Equipment Cost is included in Installation Cost) RSMeans Assemblies Cost Data, 2011, B3010 135, Formed Metal (Equipment Cost is included in Installation Cost)
								<b>\$44,172.52</b>	

<b>Stairs/Ramps/Guardrails</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Cost</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
Mobilization of Equipment	6	EA			\$116.00	\$185.00	100.00%	\$1,806.00	RSMeans, Building Construction Cost Data, 2011, 01 54 36.50 Mobilization
<b>Exterior Ramp, Rises 20', 5' wide</b>									
Steel Columns, 20' high, Wide Flanged, 6", 12 locations	192	VLF		\$26.50	\$7.85	\$0.00	95.40%	\$6,291.82	RSMeans Assemblies Cost Data, 2011, B1010, 208 Steel Columns (Equipment Cost is included in Installation Cost)
W Shape Beams and Girders, bay size 15X20,, Total Load 263 PSF.	800	SF		\$11.70	\$3.82	\$1.50	95.40%	\$12,989.66	RSMeans Building Construction Cost Data, 2011, Structural Steel Framing, 05 12 23.17
Floor Construction, Metal Deck/Concrete Fill, Deck Span 6 ft, 150 PSF Superimposed Load	800	SF		\$2.38	\$2.38		95.40%	\$3,632.83	RSMeans Assemblies Cost Data, 2011, B1010 258, Metal Deck/Concrete Fill (Equipment Cost is included in Installation Cost)
Weather Proofing/Coatings (Galvanized)	7.5	Tons	\$400.00	\$0.00	0	0	95.40%	\$2,862.00	RSMeans Building Construction Cost Data, 2011, 05 05 13.50, Paints and Protective Coatings
Hand Rail/Guard Rail	270	LF		\$32.50	\$9.80		95.40%	\$10,895.63	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
<b>Ladders/Stairs</b>									
Steel ladder to attic space 20" wide bolted to concrete without cage	10	VLF		\$65.00	\$31.50	\$2.18	95.40%	\$920.61	RSMeans Building Construction Cost Data 2011, 05 51 33 - Vertical Metal Ladders
Accordion Ladder for Escape after Tsunami, Disappearing Stairs, Heavy duty, 16'-0" ceiling	2	ea		\$1,400.00	\$172.00		95.40%	\$2,999.38	RSMeans Building Construction Cost Data 2011, 11 33 10.10, Disappearing Stairway
<b>Platform Perimeters Railing (120 LF for each platform, 2 locations)</b>									
Hand Rail/Guard Rail	179	LF		\$32.50	\$9.80		95.40%	\$7,218.78	Galvanized, 2 Rail, 1 1/2" diameter, RSMeans Building Construction Cost Date 2011, 05 52 Metal Railings
								<b>\$49,616.72</b>	

<b>Fire Protection</b>	<b>Quantity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b>Material Cost</b>	<b>Installation Costs</b>	<b>Equipment Cost</b>	<b>Location Factor</b>	<b>Total Cost</b>	<b>Comments</b>
<b>Fire Protection, Wet Pipe System</b>									
Mobilization	4	EA		\$69.00	\$116.00		100.00%	\$740.00	RSMeans Building Construction Cost Data, 2011, 01 54 36 - Equipment Mobilization
First Floor, 2000 SF, Light Hazard	2000	SF		\$4.50	\$3.04		97.00%	\$14,627.60	RSMeans Square Foot Costs, 2011, D4010 410, Wet Pipe Sprinkler Systems (Equipment Cost included in Installation Cost)
								<b>\$15,367.60</b>	