

## Every Day Counts - Case Study 5

<b>Project name</b>	Conventional Alt. CS 5 Fla.
<b>Labor rate table</b>	Labor 2011
<b>Equipment rate table</b>	Equip 2011
<b>Notes</b>	<ol style="list-style-type: none"><li>1. Pricing is 2011 \$.</li><li>2. Construction Schedule of 42 mos.</li><li>3. Rates reflect majority of work performed on and over water.</li><li>4. 2 Bridges.</li><li>5. Labor Cost/Unit - This reflects the cost of Labor to put one unit of measure of work in place. This is comprised of a typical crew with associated productivity required to perform the activity. Labor is priced up to include base rate, fringes, taxes, insurance, etc.</li><li>6. Material Cost/Unit - This cost represents the final installed cost for all the materials associated with the item of work.</li><li>7. Sub Contract Cost/Unit - this represents the Sub Contract all in Cost to put one unit of work in place. This cost includes all costs necessary to reflect a total installed cost (incls. Labor, equipment and material).</li><li>8. Equipment Cost/Unit - This represents the cost of Construction Equipment necessary to put one unit of work in place. This cost includes equipment ownership and maintenance and operational costs.</li><li>9. Other Cost/Unit - This cost represents all other costs necessary to perform the item of work and not covered by the abovementioned costs.</li><li>10. Total cost/unit - This is the summation of all unit costs to arrive at a total cost per unit to put one one item of work in place.</li><li>11. Total Amount - Total cost to put the quantity of units specified in place.</li></ol>
<b>Report format</b>	Sorted by 'LOCATION/Pay Item/Group phase/Phase' 'Detail' summary Allocate addons Print sort level notes

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
<b>Additional Cost Additional Cost</b>									
<b>110-3 Structure Removal of Existing</b>									
<i>01-54-26.00 Marine Equipment</i>									
<i>01-54-33.80 Marine equipment</i>									
Marine equipment rental;barge,400 ton,30'wide x 90'long	300.00 day	1,942.26	-	-	870.28	-	2,812.54	843,762	
Marine equipment rental;tugboat,diesel,250 HP	150.00 day	1,294.84	-	-	746.16	-	2,041.00	306,150	
<i>Marine equipment</i>								1,149,912	
<i>Marine Equipment</i>								1,149,912	
<i>02-41-16.00 Structure Demolition</i>									
<i>02-41-16.33 Bridge Demolition</i>									
Bridge demolition	187,950.00 sf	15.31	-	-	9.18	-	24.49	4,603,666	
<i>Bridge Demolition</i>								4,603,666	
<i>Structure Demolition</i>								4,603,666	
<b>110-3 Structure Removal of Existing</b>								<b>5,753,578</b>	
<b>* unassigned *</b>									
<i>35-59-00.00 Marine Specialties</i>									
<i>35-59-33.50 Jetties, Dock Accessories</i>									
Fender System and Navigational Lights	1.00 ls			-	-	1,793,657.25	1,793,657.25	1,793,657	
<i>Jetties, Dock Accessories</i>								1,793,657	
<i>Marine Specialties</i>								1,793,657	
<b>* unassigned *</b>								<b>1,793,657</b>	
<b>Additional Cost</b>								<b>7,547,235</b>	
<b>Additional Cost</b>									
<b>Approach Slab Approach Slab</b>									
<b>400-2-10 Concrete Class II</b>									
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Approach Slab	131.30 cy	142.65	173.39	-	20.87	-	336.90	44,234	
Approach Slab	131.30 cy	142.65	173.39	-	20.87	-	336.90	44,234	
<i>Concrete In Place</i>								88,469	
<i>Cast-In-Place Concrete</i>								88,469	
<b>400-2-10 Concrete Class II</b>								<b>88,469</b>	
<b>415-1-9 Reinforcing Steel</b>									
<i>03-21-05.00 Reinforcing Steel Accessories</i>									
<i>03-21-10.60 Reinforcing In Place</i>									
Reinforcing Steel Approach Slabs	26,916.00 lb	0.37	0.06	-	0.08	-	0.51	13,611	
Reinforcing Steel Approach Slabs	26,916.00 lb	0.37	0.06	-	0.08	-	0.51	13,611	
<i>Reinforcing In Place</i>								27,222	
<i>Reinforcing Steel</i>								27,222	
<i>Accessories</i>									
<b>415-1-9 Reinforcing Steel</b>								<b>27,222</b>	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
								<b>115,691</b>	
<b>Approach Slab</b>									
<b>Approach Slab</b>									
<b>General Conditions General Conditions</b>									
<b>* unassigned *</b>									
<i>01-31-00.00 Project Management And Coordination</i>									
<i>01-31-13.20 Field Personnel</i>									
Field Personnel, clerk, average	150.00 week	717.46	-	-	-	-	717.46	107,619	
Field engineer	720.00 week	2,032.81	-	-	-	-	2,032.81	1,463,624	
Field Personnel, general purpose laborer, average	300.00 week	1,434.93	-	-	-	-	1,434.93	430,478	
Field Personnel, project manager	180.00 week	2,989.43	-	-	-	-	2,989.43	538,097	
Field Personnel, superintendent	360.00 week	2,032.81	-	-	-	-	2,032.81	731,812	
Field Personnel, timekeeper, average	150.00 week	1,201.75	-	-	-	-	1,201.75	180,263	
								<u>3,451,893</u>	
								3,451,893	
<i>01-32-33.00 Photographic Documentation</i>									
<i>01-32-33.50 Photographs</i>									
Construction Photographs	180.00 set	-	567.99	-	-	-	567.99	102,238	
								<u>102,238</u>	
								102,238	
<i>01-45-00.00 Quality Control</i>									
<i>01-45-23.50 Testing</i>									
Field Testing	1.00 prjc	-	-	-	-	298,942.87	298,942.87	298,943	
								<u>298,943</u>	
								298,943	
<i>01-52-13.00 Field Offices And Sheds</i>									
<i>01-52-13.20 Office And Storage Space</i>									
Office Trailer, furnished, rent per month, 32' x 8', excl. hookups	84.00 ea	-	288.18	-	-	-	288.18	24,207	
Storage Boxes, rent per month, 20' x 8'	168.00 ea	-	87.89	-	-	-	87.89	14,765	
								<u>38,973</u>	
<i>01-52-13.40 Field Office Expense</i>									
Field Office Expense, office equipment rental, average	84.00 mo	-	179.37	-	-	-	179.37	15,067	
Field Office Expense, office supplies, average	84.00 mo	-	113.60	-	-	-	113.60	9,542	
Field Office Expense, telephone bill; avg. bill/month, incl. long dist.	84.00 mo	-	251.11	-	-	-	251.11	21,093	
Field Office Expense, field office lights & HVAC	84.00 mo	-	131.54	-	-	-	131.54	11,049	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
Field Office Expense								56,751	
Field Offices And Sheds								95,724	
01-54-09.00 Protection Equipment									
01-54-09.60 Safety Nets									
Safety Nets	300,000.00 sf	-	1.38	-	-	-	1.38	412,541	
Safety Nets								412,541	
Protection Equipment								412,541	
01-54-26.00 Marine Equipment									
01-54-33.80 Marine equipment									
Marine equipment	450.00 day	1,942.26	-	-	870.28	-	2,812.54	1,265,643	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	450.00 day	1,942.26	-	-	870.28	-	2,812.54	1,265,643	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	450.00 day		-	-	870.28	-	870.28	391,627	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	450.00 day		-	-	870.28	-	870.28	391,627	
rental;barge,400 ton,30'wide x 90'long									
Marine equipment	450.00 day	1,294.84	-	-	746.16	-	2,041.00	918,450	
rental;tugboat,diesel,250 HP									
Marine equipment	450.00 day	1,294.84	-	-	746.16	-	2,041.00	918,450	
rental;tugboat,diesel,250 HP									
Marine equipment								5,151,440	
Marine Equipment								5,151,440	
01-56-26.00 Temporary Fencing									
01-56-26.50 Temporary Fencing									
Temporary Fencing, chain link, 6' high, 11 ga	1,000.00 lf	3.17	8.37	-	-	-	11.54	11,539	
Temporary Fencing								11,539	
Temporary Fencing								11,539	
01-58-00.00 Project Identification									
01-58-13.50 Signs									
Project Signs	400.00 sf	-	21.40	-	-	-	21.40	8,562	
Signs								8,562	
Project Identification								8,562	
01-71-23.00 Field Engineering									
01-71-23.13 Construction Layout									
Survey Crew	450.00 day	1,898.45	-	-	90.63	-	1,989.08	895,087	
Construction Layout								895,087	
Field Engineering								895,087	
* unassigned *								10,427,967	
<b>General Conditions</b>								<b>10,427,967</b>	
<b>General Conditions</b>									

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
<b>400-4-5 Concrete Class IV (Substructure)</b>									
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Concrete Class IV	133.50 cy	285.29	197.30	-	41.73	-	524.32	69,997	
Concrete Class IV	133.50 cy	285.29	197.30	-	41.73	-	524.32	69,997	
								<u>139,994</u>	
<i>Concrete In Place</i>									
<i>Cast-In-Place Concrete</i>									
								<u>139,994</u>	
								<b>139,994</b>	
<b>400-4-5 Concrete Class IV (Substructure)</b>									
<b>415-1-5 Reinforcing Steel Substructure</b>									
<i>03-21-05.00 Reinforcing Steel Accessories</i>									
<i>03-21-10.60 Reinforcing In Place</i>									
Reinforcing Steel	18,023.00 lb	0.49	0.50	-	0.11	-	1.09	19,659	
Reinforcing Steel	18,023.00 lb	0.49	0.50	-	0.11	-	1.09	19,659	
								<u>39,318</u>	
<i>Reinforcing In Place</i>									
<i>Reinforcing Steel</i>									
								<u>39,318</u>	
<i>Accessories</i>									
								<b>39,318</b>	
<b>415-1-5 Reinforcing Steel Substructure</b>									
<b>455-143-5 Test Piles</b>									
<i>31-62-00.00 Driven Piles</i>									
<i>31-62-13.23 Prestressed Concrete Piles</i>									
Prestressed concrete piles, 24" square, Test Pile	181.00 vlf	29.69	65.77	-	18.54	-	114.00	20,634	
Prestressed concrete piles, 24" square, Test Pile	181.00 vlf	29.69	65.77	-	18.54	-	114.00	20,634	
								<u>41,267</u>	
<i>Prestressed Concrete Piles</i>									
<i>Driven Piles</i>									
								<u>41,267</u>	
								<b>41,267</b>	
<b>455-143-5 Test Piles</b>									
<b>455-34-5 Concrete Piling Prestressed</b>									
<i>31-62-00.00 Driven Piles</i>									
<i>31-62-13.23 Prestressed Concrete Piles</i>									
Prestressed concrete piles, 24" square,	1,034.00 vlf	10.80	65.77	-	6.74	-	83.31	86,138	
Prestressed concrete piles, 24" square,	1,034.00 vlf	10.80	65.77	-	6.74	-	83.31	86,138	
								<u>172,277</u>	
<i>Prestressed Concrete Piles</i>									
<i>Driven Piles</i>									
								<u>172,277</u>	
								<b>172,277</b>	
<b>455-34-5 Concrete Piling Prestressed</b>									
								<b>392,856</b>	
<b>Substructure-End</b>									
<b>Substructure-End</b>									
<b>Bents</b>									
<b>Substructure-Piers Substructure-Piers</b>									
<b>400-3-20 Concrete Class III (Seal)</b>									
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Concrete Class III (Seal)	798.00 cy	309.15	197.30	-	41.73	-	548.18	437,447	
Concrete Class III (Seal)	798.00 cy	309.15	197.30	-	41.73	-	548.18	437,447	

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
Concrete In Place								874,894	
Cast-In-Place Concrete								874,894	
<b>400-3-20 Concrete Class III (Seal)</b>								<b>874,894</b>	
<b>400-4-5 Concrete Class IV (Substructure)</b>									
03-30-00.00 Cast-In-Place Concrete									
03-30-53.40 Concrete In Place									
Mass Concrete Class IV (Substructure)	7,713.10 cy	176.66	179.37	-	23.85	-	379.87	2,929,951	
Mass Concrete Class IV (Substructure)	7,713.10 cy	176.66	179.37	-	23.85	-	379.87	2,929,951	
Concrete Class IV (Substructure) CIP Column Concrete	739.60 cy	412.20	203.28	-	55.64	-	671.12	496,358	
Concrete Class IV (Substructure) CIP Column Concrete	739.60 cy	412.20	203.28	-	55.64	-	671.12	496,358	
CIP Column Cap	1,267.00 cy	494.64	358.73	-	66.77	-	920.13	1,165,810	Labor, Material and Equipment costs represent the cost of placing concrete and erecting and dismantling associated formwork. This work takes place in a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
CIP Column Cap	1,267.00 cy	494.64	358.73	-	66.77	-	920.13	1,165,810	Labor, Material and Equipment costs represent the cost of placing concrete and erecting and dismantling associated formwork. This work takes place in a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
CIP Column Cap Girder Seats	68.10 cy	494.64	358.73	-	66.77	-	920.13	62,661	Labor, Material and Equipment costs represent the cost of placing concrete and erecting and dismantling associated formwork. This work takes place in a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
CIP Column Cap Girder Seats	68.10 cy	494.64	358.73	-	66.77	-	920.14	62,661	Labor, Material and Equipment costs represent the cost of placing concrete and

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
03-30-53.40 Concrete In Place CIP Column Cap Girder Seats	68.10 cy	494.64	358.73	-	66.77	-	920.14	62,661	erecting and dismantling associated formwork. This work takes place in a marine working environment (working off barges). These costs reflect productivity associated with this type of construction and include increased insurance cost for marine work vs. construction on land. Costs for tug and barges to support these activities are contained in the General Conditions.
Concrete In Place								9,309,560	
Cast-In-Place Concrete								9,309,560	
<b>400-4-5 Concrete Class IV (Substructure)</b>								<b>9,309,560</b>	
<b>415-1-5 Reinforcing Steel Substructure</b>									
03-21-05.00 Reinforcing Steel Accessories									
03-21-10.60 Reinforcing In Place									
Reinforcing Steel	1,567,094.00 lb	0.53	0.50	-	0.11	-	1.13	1,773,128	
Reinforcing Steel	1,567,094.00 lb	0.53	0.50	-	0.11	-	1.13	1,773,128	
Reinforcing In Place								3,546,255	
Reinforcing Steel								3,546,255	
Accessories									
<b>415-1-5 Reinforcing Steel Substructure</b>								<b>3,546,255</b>	
<b>455-143-6 Test Piles (30")</b>									
31-62-00.00 Driven Piles									
31-62-13.23 Prestressed Concrete Piles									
Prestressed concrete piles, 30" square, Test Pile	2,915.00 vlf	42.90	102.84	-	24.72	-	170.46	496,878	
Prestressed concrete piles, 30" square, Test Pile	2,915.00 vlf	42.90	102.84	-	24.72	-	170.46	496,878	
Prestressed Concrete Piles Driven Piles								993,755	
<b>455-143-6 Test Piles (30")</b>								<b>993,755</b>	
<b>455-34-6 Concrete Piling Prestressed (30")</b>									
31-62-00.00 Driven Piles									
31-62-13.23 Prestressed Concrete Piles									
Prestressed concrete piles, 30" square,	26,975.00 vlf	18.39	102.84	-	10.59	-	131.82	3,555,735	
Prestressed concrete piles, 30" square,	26,975.00 vlf	18.39	102.84	-	10.59	-	131.82	3,555,735	
Prestressed Concrete Piles Driven Piles								7,111,470	
<b>455-34-6 Concrete Piling Prestressed (30")</b>								<b>7,111,470</b>	

\* unassigned \*

01-54-23.00 Temporary Scaffolding And Platforms  
01-54-23.70 Scaffolding

Spreadsheet Level	Takeoff Quantity	Labor Cost/Unit	Material Cost/Unit	Sub Cost/Unit	Equip Cost/Unit	Other Cost/Unit	Total Cost/Unit	Total Amount	Notes
<i>01-54-23.70 Scaffolding</i>									
Scaffolding, steel tubular, regular, labor only to erect & dismantle	2,200.00 ccf	16.21	-	-	-	-	16.21	35,671	
Scaffolding, steel tubular, regular, labor only to erect & dismantle	2,200.00 ccf	16.21	-	-	-	-	16.21	35,671	
Scaffolding, steel tubular, regular, rent/month only for complete system for face of walls, 6' -4" x 5' frames, excl. planks	440.00 csf	-	41.25	-	-	-	41.25	18,152	
Scaffolding, steel tubular, regular, rent/month only for complete system for face of walls, 6' -4" x 5' frames, excl. planks	440.00 csf	-	41.25	-	-	-	41.25	18,152	
								<u>107,645</u>	
<i>Scaffolding</i>								107,645	
<i>Temporary Scaffolding And Platforms</i>									
<i>31-52-00.00 Cofferdams</i>									
<i>31-52-16.10 Cofferdams</i>									
Cofferdams, barge driven	89,560.00 sf	9.36	17.58	-	7.73	-	34.67	3,105,309	
Cofferdams, barge driven	89,560.00 sf	9.36	17.58	-	7.73	-	34.67	<u>3,105,309</u>	
<i>Cofferdams</i>								6,210,618	
<i>Cofferdams</i>								6,210,618	
<i>* unassigned *</i>								6,318,263	
<b>Substructure-Piers</b>								<b>28,154,198</b>	
<b>Substructure-Piers</b>									
<b>Superstructure Superstructure</b>									
<b>400-147 Composite Neoprene Pads</b>									
<i>05-05-23.00 Metal Fastenings</i>									
<i>05-05-23.80 Vibration &amp; Bearing Pads</i>									
Bearing Pads	273.00 cf	78.49	717.46	-	-	-	795.95	217,294	
Bearing Pads	273.00 cf	78.49	717.46	-	-	-	795.95	<u>217,294</u>	
<i>Vibration &amp; Bearing Pads</i>								434,589	
<i>Metal Fastenings</i>								434,589	
<b>400-147 Composite Neoprene Pads</b>								<b>434,589</b>	
<b>400-4-4 Concrete Class IV (Superstructure - Deck &amp; Dia)</b>									
<i>03-30-00.00 Cast-In-Place Concrete</i>									
<i>03-30-53.40 Concrete In Place</i>									
Concrete Class IV Superstructure	8,078.00 cy	184.06	239.15	-	26.92	-	450.13	3,636,183	
Concrete Class IV Superstructure	8,078.00 cy	184.06	239.15	-	26.92	-	450.13	3,636,183	
<i>Concrete In Place</i>								<u>7,272,367</u>	
<i>Cast-In-Place Concrete</i>								7,272,367	





## Estimate Totals

Description	Amount	Cuts/Adds	Net Amount	Totals	Hours	Cost Basis	Percent of Total
Labor	27,775,261		27,775,261		149,593.796 ch		37.72%
Material	34,520,818		34,520,818				46.89%
Subcontract							
Equipment	9,238,855		9,238,855		54,328.679 ch		12.55%
Other	2,092,600		2,092,600				2.84%
	<b>73,627,534</b>			<b>73,627,534</b>			<b>100.00</b>
<b>Total</b>				<b>73,627,534</b>			<b>100.00%</b>