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June 3, 2021

SENT VIA E-MAIL ([SabrinaBaglieri@miamibeachfl.gov](mailto:SabrinaBaglieri@miamibeachfl.gov) & [JorgeRodriguez@miamibeachfl.gov](mailto:JorgeRodriguez@miamibeachfl.gov))

Ms. Sabrina Baglieri  
 Jorge L. Rodriguez, P.E.  
**City of Miami Beach – Capital Improvement Projects Office**  
 1700 Convention Center Drive  
 Miami Beach, FL 33139

Re: West Avenue North  
 Review of RMCF Change Order Request dated 4/21/2021 – Revised 5/11/2021  
 CMA Project No. 099.006

Dear Ms. Baglieri and Mr. Rodriguez:

Chen Moore and Associates (CMA) has prepared this letter as requested by the City of Miami Beach (CMB) Capital Improvement Projects Office (CIP) to summarize our review of the proposed Change Order from Ric-Man Construction Florida (RMCF) for the West Avenue North project, dated April 21, 2021, revised May 11, 2021, with storm piping updated May 27, 2021.

This review compares the budget estimate and time extension Change Order dated November 19, 2020 prepared by RMCF to the submitted Change Order dated April 21, 2021, update May 27, 2021. CMA evaluated the following documents from RMCF pertaining to this comparison:

- Budget Estimate Change Order (11/19/20)
- 30% Design Submittal (November 2020)
- Submitted Change Order (4/21/21, Revised 5/11/21)
- 60% Design Submittal (April 2021)
- Updated Drainage Pipe Pricing (5/27/21)

Below is a table summarizing this comparison.

ITEM	DESCRIPTION	Budget Estimate dated 11/19/2020	Submitted Change Order dated 5/11/2021 (Revised 5/27/21)	Difference
<b>1.0</b>	<b>CONSTRUCTION</b>			
1.1	<i>Water Quality Construction</i>	\$ 9,177,000	\$ 11,180,539	\$ 2,003,539
1.2.0	10-Year Storm Piping and Structures & WTS Relocation			
1.2.1	10-Year Storm Piping and Structures	\$ 1,788,000	\$ 2,841,157	\$ 1,053,157
1.2.2	Option 3A WTS - 1671 West Ave (Contingency draw)	\$ 137,500	\$ -	\$ N/A
1.2.3	Option 3A WTS - 1671 West Ave	\$ 2,827,054	\$ -	\$ N/A
1.2.4	WTS Relocation	\$ 2,964,554	\$ 3,290,898	\$ 326,344
1.2.0	<b>WTS Relocation and 10-Year Storm Piping Subtotal</b>	\$ 4,752,554	\$ 6,132,055	\$ 1,379,501
1.0	<b>CONSTRUCTION TOTAL (pre-escalation)</b>	\$ 13,929,554	\$ 17,312,594	\$ 3,383,040
<b>2.0</b>	<b>ESCALATION</b>			
2.1	Commodity and Subcontractor Escalation	\$ -	\$ 1,486,952	\$ 1,486,952
2.2	RMCF Labor Escalation	\$ -	\$ 416,765	\$ 416,765
2.0	<b>Escalation Subtotal</b>	\$ -	\$ 1,903,717	\$ 1,903,717
<b>3.0</b>	<b>GRAND TOTAL (CONSTRUCTION + ESCALATION)</b>	\$ 13,929,554	\$ 19,216,311	\$ 5,286,757

The 5/11/21 revisions address CMA and CMB comments from 4/28/21 and addresses other errors by RMCF. RMCF also noted the further developed water quality system design allowed for reductions in rebar and concrete.

In reviewing these items, CMA offers the following analysis identifying explanations for the price differences between the budget estimate Change Order (11/19/2020) to the submitted Change Order (5/11/2021).

### **1.1 Water Quality**

This cost represents the added water quality wells, consisting of settling tanks, wet wells, pump equipment, stormwater disposal wells, and ancillary equipment. In CMA's review, the additional 21% cost above the budget appears to be a result of multiple factors, including:

- Increased cost of 25-horsepower pump materials associated with water quality wells (approximately \$59,000 additional per pump and panel)
- Increased cost of 60-horsepower pump materials associated with water quality wells (approximately \$450,000 additional per pump and panel)
- Increased cost of mechanical piping (approximately \$384,000)
- Unaccounted for interconnect piping (approximately \$275,000)
- Unforeseen Utility Relocation/Removal (approximately \$208,000)

These additional costs are partially offset by well credits, which is indicated in the RMCF detailed breakdown. CMA performed a detailed cost analysis of the submitted change order, which is attached to this letter.

CMA researched the FDOT Historical Cost Index and compared the unit prices for 16 items which are representative of the type of work associated with this project, identifying the Annual Statewide Average for 2019 and 2020 and the Current 6-Month Statewide Average (From October 2020 to March 2021). As indicated in the attached table, the median price increase for these representative items is 23% higher compared to 2019 and 14% higher compared to 2020.

The 21% cost increase for the water quality appears appropriate given the combination of material price increases since the November 2020 budget and the further detailed design which resulted in larger/deeper wells, interconnect piping, and utility relocation/removal.

#### **1.2.1 10-year Storm Piping**

This cost represents the pipe size increase as a result of now designing for the 10-year storm. Compared to the November 2020 budget amount, the price has increased 58%.

CMA did not receive the backup documentation from the original pricing from August 7, 2019. In reviewing the 5/27/21 updated 10-year storm piping pricing, the price appears to accurately represent the upsized piping and structures and applies appropriate credits for the smaller piping and structures. In the attached email correspondence with RMCF, the lower unit price for credit is explained is due to material price increases and additional labor and material associated with the pipe installation.



CMA has attached our detailed cost analysis for the 10-year Storm Piping. Based on the provided materials, labor, equipment, and markup, the proposed change order price for the 10 Year Storm Piping and Structures appears appropriate.

The 58% higher change order price is largely due to the increased price and quantity for the large diameter (72") pipe, accounting for over \$1M of added cost. The credit for 72" RCP is almost \$100 per linear foot less than the proposed cost and there is over 2,400 linear feet of 72" RCP.

#### **1.2.4 WTS Relocation**

This cost represents the relocation of the stormwater pump station. In CMA's review, the additional 11% cost above the budget appears to be a result of multiple factors, including:

- Using a single 84-inch PCCP stormwater force main as opposed to the 3-48" DIP (approximately \$361,000 more)
- Custom cast-in-place transition box for pump discharge manifold (approximately \$330,000 more)
- Custom cast-in-place energy dissipater (approximately \$283,000)
- Unforeseen utility removal and relocation that was developed during the 60% design (approximately \$53,000)
- Unanticipated Maintenance of Traffic complications (approximately \$60,000 more)

These additional costs are partially offset by more cost efficient pump station screening, use of the same pump size and credits associated with relocating the pump station.

The 11% cost increase for the pump station relocation appears appropriate given the combination of material price increases since the November 2020 budget and the further detailed design which resulted in custom cast-in-place drainage structures, larger diameter force main, and utility relocation/removal.

#### **2.0 Escalation**

As discussed during the 4/28/21 meeting with CMB, RMCF, and CMA, RMCF is now including escalation pricing to accommodate anticipated material and labor price increases associated with future market conditions throughout the project schedule – from October 2021 thru January 2025. As the current contract language does not have provisions to account for defined escalation, RMCF is proposing to mitigate that risk by using a 3.6% annual escalation, which is substantiated by the reference of historical Producer Price Indexes (PPI) from the U.S. Bureau of Labor Statistics.

CMA further researched this escalation rate to substantiate this amount. Attached is a table comparing the national Consumer Price Index (CPI) dating back to 1997. CMA calculated the monthly and average 3-year change in the CPI as that relates to the estimated construction duration. As shown, the average CPI increase over a 3-year time period is 6.60%. The CPI is a good barometer for the cost of goods and services.

Furthermore, CMA utilized the *National Construction Inflation Report 2021* (attached) which states the average nonresidential building inflation from 2011-2020 is 3.7% and references the Rider Levitt Bucknall nonresidential building index is up 3.5% from 2019.

Therefore, CMA offers no objection to the RMCF 3.6% assigned value for escalation.

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CMB may either accept RMCF's proposal which estimates the 3.6% annual escalation or offer to modify the contract language to use mutually agreeable defined escalation which results in added risk to CMB if escalation is greater than anticipated, or may result in a credit to CMB, should these indices fall. CMA offers no objection to either approach.

### **Time Extension Request**

As requested by CMB, CMA also reviewed the proposed time extension request associated with this Change Order Request. RMCF initially estimated a 1,992 day time extension in the November 20, 2020 letter to CMB. The April 21, 2021 letter revises this time extension request to 1,961 days.

CMA analyzed the summary of additional days submitted by RMCF and verified the duration, as shown in the attached schedule analysis table. CMA notes that the Total Days Requested is equal to the summation of the original contract duration (730 days) and items 1 through 8 subtracted by the original contract duration and the previously approved 30-day extension for Hurricane Irma.

The largest extension items include:

- Item #2 – “Shut down delay #1 – 12/18/17 – 12/20/18- Resiliency ULI” of 368 days,
- Item #3 – “Design & Const. add Jan 2019 CPM Update – CO 3B” of 659 days
- Item #5 – “Shut Down #2 – WTS Relo. And Water Quality- 10/31/19-10/28/20” of 364 days
- Item #7 – “Design Restart New WTS/Water Quality/Complete Design 1/16/21-9/30/21” of 252 days

Item #8 is the “Construction Impacts due to Water Quality Additions” which is shown as 150 days. The RMCF submitted schedule shows a total of 235 days for the water quality improvements. The baseline schedule prepared by RMCF and uploaded to e-Builder on 8/7/17 indicates 16 days for Item C3-1070 which includes pollution control, correlating to the previous water quality device. Therefore, the additional 150 days here appears appropriate for the additional of multiple secant pile pump assisted wells.

In consideration of the above analysis, the RMCF proposed additional 1,961 days for the time extension appears appropriate given the delineated delays and additional design and construction efforts associated with this project.

### **Conclusions**

CMA has reviewed the provided documentation pertaining to this Change Order Request and analyzed the submitted prices. As described in this letter, CMA offers no objections to the proposed pricing by RMCF. The price changes are consistent with the market conditions and reflect the updates to the plan design since the initial November 2020 change order budget.

The added escalation rate is consistent with historical escalation values. As previously discussed with CMB, CMA notes that this escalation amount can either be incorporated as a known value or can be a formula based on market indicators which can vary throughout the duration of the project construction.

## EXHIBIT C

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Should you have any questions, please do not hesitate to contact me at my office at +1 (786) 497-1500, Ext. 1087, my cell phone at +1 (305) 338-7451 or send me an electronic message at [pkaimrajh@chenmoore.com](mailto:pkaimrajh@chenmoore.com).

Respectfully submitted,



Patrick D. Kaimrajh, P.E.  
Senior Engineer

PDK

Cc: Jose L. Acosta, P.E., F. ASCE, Chen Moore and Associates (CMA)  
Jose B. McCray, CMA

Attachments: CMA Detailed Cost Comparison for Water Quality, 10-year Storm, & Pump Station  
RMCF Updated Pricing  
CMA Schedule Analysis  
CMA Analysis of FDOT Historical Cost Index & Consumer Price Index  
National Construction Inflation Report 2021



Date: 6/1/2021  
Project#: 17-099.006

West Avenue North  
Water Quality

Item	Qty	Unit	Subcontractor	Material	Labor					Equipment Cost	Total		
					MH	Rate	Total	Calculated Total*	Difference		New Total	Calculated Total*	Difference
<b>General Conditions</b>													
General Conditions	1	LS		\$ 426,230.00	600.00	\$ 347.13	\$ 208,275.00	\$ 208,278.00	\$ 3.00	\$ 72,000.00	\$ 706,505.00	\$ 706,508.00	\$ 3.00
<b>Settlement Tank (30') (for 15' Wet Wells)</b>													
<b>TEMPLATE</b>													
Excavate and Haul	170	CY	\$ 835.00		140.00	\$ 47.64	\$ 6,670.00	\$ 6,669.60	\$ (0.40)	\$ 9,110.00	\$ 16,615.00	\$ 16,614.60	\$ (0.40)
Concrete Template	115	CY		\$ 16,082.00	151.67	\$ 47.64	\$ 7,226.00	\$ 7,225.56	\$ (0.44)	\$ 9,871.00	\$ 33,179.00	\$ 33,178.56	\$ (0.44)
Forms (sonotube)	120	EA		\$ 7,790.00	840.00	\$ 47.64	\$ 40,019.00	\$ 40,017.60	\$ (1.40)	\$ 54,660.00	\$ 102,469.00	\$ 102,467.60	\$ (1.40)
Forms (exterior)	5	EA		\$ 6,433.00	140.00	\$ 47.64	\$ 6,670.00	\$ 6,669.60	\$ (0.40)	\$ 9,110.00	\$ 22,213.00	\$ 22,212.60	\$ (0.40)
Blocking	5	LS			35.00	\$ 47.63	\$ 1,667.00	\$ 1,667.05	\$ 0.05	\$ 2,277.00	\$ 3,944.00	\$ 3,944.05	\$ 0.05
Survey	1	LS	\$ 9,750.00								\$ 9,750.00	\$ 9,750.00	\$ -
Concrete Pump	1	LS	\$ 3,574.00								\$ 3,574.00	\$ 3,574.00	\$ -
Haul Old Template Debris	1	LS		\$ 6,722.00	70.00	\$ 47.64	\$ 3,335.00	\$ 3,334.80	\$ (0.20)	\$ 4,555.00	\$ 14,612.00	\$ 14,611.80	\$ (0.20)
<b>DRILL AND PLACE GROUT</b>													
Drill and Place Grout					3600.00	\$ 44.54	\$ 160,359.00	\$ 160,344.00	\$ (15.00)	\$ 415,160.00	\$ 575,519.00	\$ 575,504.00	\$ (15.00)
Grout				\$ 116,595.00							\$ 116,595.00	\$ 116,595.00	\$ -
Rebar	119400	LB	\$ 35,910.00	\$ 57,636.36							\$ 93,546.36	\$ 93,546.36	\$ -
Spills Disposal	750	CY	\$ 8,454.00								\$ 8,454.00	\$ 8,454.00	\$ -
Concrete Pump	750	CY	\$ 10,721.00								\$ 10,721.00	\$ 10,721.00	\$ -
<b>MASS EXCAVATION AND TREMIE</b>													
Excavation	740	CY			400.00	\$ 44.19	\$ 17,674.00	\$ 17,676.00	\$ 2.00	\$ 22,775.00	\$ 40,449.00	\$ 40,451.00	\$ 2.00
Excavation (last 4')	110	CY			173.34	\$ 44.18	\$ 7,659.00	\$ 7,658.16	\$ (0.84)	\$ 9,871.00	\$ 17,530.00	\$ 17,529.16	\$ (0.84)
Clean Sides	5	LS			120.00	\$ 44.18	\$ 5,302.00	\$ 5,301.60	\$ (0.40)	\$ 6,832.00	\$ 12,134.00	\$ 12,133.60	\$ (0.40)
Tremie Pour	125	CY		\$ 16,853.00	260.00	\$ 44.18	\$ 11,488.00	\$ 11,486.80	\$ (1.20)	\$ 14,804.00	\$ 43,145.00	\$ 43,143.80	\$ (1.20)
Tremie Rebar/Bottom Slab	10000	LB	\$ 2,992.50	\$ 5,336.63							\$ 8,329.13	\$ 8,329.13	\$ -
Dewater and Seal	5	LS			200.00	\$ 44.19	\$ 8,838.00	\$ 8,838.00	\$ -	\$ 11,387.00	\$ 20,225.00	\$ 20,225.00	\$ -
Leveling Course	50	CY		\$ 6,701.00	198.33	\$ 47.65	\$ 9,450.00	\$ 9,450.42	\$ 0.42	\$ 12,904.00	\$ 29,055.00	\$ 29,055.42	\$ 0.42
Trucking	1	LS	\$ 9,582.00								\$ 9,582.00	\$ 9,582.00	\$ -
Tremie Pump and Leveling Course	1	LS	\$ 3,216.00								\$ 3,216.00	\$ 3,216.00	\$ -
Polytube Injection Seal	1	LS		\$ 8,935.00							\$ 8,935.00	\$ 8,935.00	\$ -
<b>Wet Well Drill 33' (15' Dia)</b>													
<b>TEMPLATE</b>													
Excavate and Haul	170	CY	\$ 835.00		140.00	\$ 47.64	\$ 6,670.00	\$ 6,669.60	\$ (0.40)	\$ 9,110.00	\$ 16,615.00	\$ 16,614.60	\$ (0.40)
Concrete Template	115	CY		\$ 16,082.00	151.67	\$ 47.64	\$ 7,226.00	\$ 7,225.56	\$ (0.44)	\$ 9,871.00	\$ 33,179.00	\$ 33,178.56	\$ (0.44)
Forms (sonotube)	120	EA		\$ 7,790.00	840.00	\$ 47.64	\$ 40,019.00	\$ 40,017.60	\$ (1.40)	\$ 54,660.00	\$ 102,469.00	\$ 102,467.60	\$ (1.40)
Forms (exterior)	5	EA		\$ 6,433.00	140.00	\$ 47.64	\$ 6,670.00	\$ 6,669.60	\$ (0.40)	\$ 9,110.00	\$ 22,213.00	\$ 22,212.60	\$ (0.40)
Blocking	5	LS			35.00	\$ 47.63	\$ 1,667.00	\$ 1,667.05	\$ 0.05	\$ 2,277.00	\$ 3,944.00	\$ 3,944.05	\$ 0.05
Survey	1	LS	\$ 9,750.00								\$ 9,750.00	\$ 9,750.00	\$ -
Concrete Pump	1	LS	\$ 3,574.00								\$ 3,574.00	\$ 3,574.00	\$ -
Haul Old Template Debris	1	LS		\$ 6,722.00	70.00	\$ 47.64	\$ 3,335.00	\$ 3,334.80	\$ (0.20)	\$ 4,555.00	\$ 14,612.00	\$ 14,611.80	\$ (0.20)
<b>DRILL AND PLACE GROUT</b>													
Drill and Place Grout	120	EA			4760.00	\$ 44.54	\$ 212,031.00	\$ 212,010.40	\$ (20.60)	\$ 548,935.00	\$ 760,966.00	\$ 760,945.40	\$ (20.60)
Grout	810	CY		\$ 135,725.00							\$ 135,725.00	\$ 135,725.00	\$ -
Rebar	113400	LB	\$ 34,190.00	\$ 60,987.00							\$ 95,177.00	\$ 95,177.00	\$ -
Spills Disposal	750	CY	\$ 9,394.00								\$ 9,394.00	\$ 9,394.00	\$ -
Concrete Pump	810	CY	\$ 10,721.00								\$ 10,721.00	\$ 10,721.00	\$ -
<b>MASS EXCAVATION AND TREMIE</b>													
Excavation	810	CY			372.00	\$ 44.19	\$ 16,437.00	\$ 16,438.68	\$ 1.68	\$ 21,181.00	\$ 37,618.00	\$ 37,619.68	\$ 1.68
Excavation (last 8')	235	CY			370.31	\$ 44.18	\$ 16,362.00	\$ 16,360.30	\$ (1.70)	\$ 21,085.00	\$ 37,447.00	\$ 37,445.30	\$ (1.70)
Clean Sides	5	LS			146.66	\$ 44.18	\$ 6,480.00	\$ 6,479.44	\$ (0.56)	\$ 8,349.00	\$ 14,828.00	\$ 14,827.44	\$ (0.56)
Tremie Pour	125	CY		\$ 19,363.00	197.92	\$ 44.18	\$ 8,745.00	\$ 8,744.11	\$ (0.89)	\$ 11,269.00	\$ 39,377.00	\$ 39,376.11	\$ (0.89)
Tremie Rebar/Bottom Slab	28000	LB	\$ 3,024.00	\$ 5,393.00							\$ 8,417.00	\$ 8,417.00	\$ -
Dewater and Seal	1	LS			173.34	\$ 44.18	\$ 7,659.00	\$ 7,658.16	\$ (0.84)	\$ 9,871.00	\$ 17,530.00	\$ 17,529.16	\$ (0.84)
Leveling Course	35	CY		\$ 4,691.00	116.67	\$ 47.64	\$ 5,558.00	\$ 5,558.16	\$ 0.16	\$ 7,593.00	\$ 17,842.00	\$ 17,842.16	\$ 0.16
Trucking	1	LS	\$ 9,582.00								\$ 9,582.00	\$ 9,582.00	\$ -
Tremie Pump and Leveling Course	1	LS	\$ 3,216.00								\$ 3,216.00	\$ 3,216.00	\$ -
Polytube Injection Seal	1	LS		\$ 8,350.00							\$ 8,350.00	\$ 8,350.00	\$ -
<b>Mechanical Work</b>													
Baffle Skimmer	5	EA		\$ 53,500.00	100.00	\$ 48.64	\$ 4,864.00	\$ 4,864.00	\$ -	\$ 5,850.00	\$ 64,214.00	\$ 64,214.00	\$ -
25 HP Flygt pump	5	EA		\$ 693,997.00	600.00	\$ 46.66	\$ 27,996.00	\$ 27,996.00	\$ -	\$ 29,250.00	\$ 751,243.00	\$ 751,243.00	\$ -
12" DIP Discharge	550	LF		\$ 17,770.00	146.66	\$ 48.64	\$ 7,133.00	\$ 7,133.54	\$ 0.54	\$ 8,579.00	\$ 33,482.00	\$ 33,482.54	\$ 0.54
12" Check Valve	5	EA		\$ 31,828.00	45.00	\$ 48.64	\$ 2,189.00	\$ 2,188.80	\$ (0.20)	\$ 2,632.00	\$ 36,649.00	\$ 36,648.80	\$ (0.20)
NBG Sets/Flanges	100	EA		\$ 46,331.00	300.00	\$ 48.64	\$ 14,592.00	\$ 14,592.00	\$ -	\$ 17,550.00	\$ 78,473.00	\$ 78,473.00	\$ -
24" x 12" Cross w/ Cap	5	EA		\$ 11,140.00	40.00	\$ 48.65	\$ 1,946.00	\$ 1,946.00	\$ -	\$ 2,340.00	\$ 15,426.00	\$ 15,426.00	\$ -
24" Well	500	LF	\$ 375,000.00	\$ 9,095.00	25.00	\$ 48.68	\$ 1,217.00	\$ 1,217.00	\$ -	\$ 1,462.00	\$ 886,774.00	\$ 886,774.00	\$ -
36" x 78" HS 20 Hatch & Frame	5	EA			25.00	\$ 48.64	\$ 1,217.00	\$ 1,216.00	\$ (1.00)	\$ 1,462.00	\$ 2,679.00	\$ 2,678.00	\$ (1.00)
56" x 60" HS 20 Hatch & Frame	5	EA			25.00	\$ 48.64	\$ 1,217.00	\$ 1,216.00	\$ (1.00)	\$ 1,462.00	\$ 2,679.00	\$ 2,678.00	\$ (1.00)
56" x 112" HS 20 Hatch & Frame	5	EA			40.00	\$ 48.65	\$ 1,946.00	\$ 1,946.00	\$ -	\$ 2,340.00	\$ 4,286.00	\$ 4,286.00	\$ -
11'-8" x 8' x 7' Vault	5	EA		\$ 48,150.00	250.00	\$ 48.64	\$ 12,160.00	\$ 12,160.00	\$ -	\$ 14,625.00	\$ 74,935.00	\$ 74,935.00	\$ -
Concrete Cover (15' Dia.)	5	EA		\$ 56,175.00	60.00	\$ 48.63	\$ 2,918.00	\$ 2,917.80	\$ (0.20)	\$ 3,510.00	\$ 62,603.00	\$ 62,602.80	\$ (0.20)
Platform (8.44 NAVD)	5	EA	\$ 40,000.00		30.00	\$ 48.63	\$ 1,459.00	\$ 1,458.90	\$ (0.10)	\$ 1,755.00	\$ 43,214.00	\$ 43,213.90	\$ (0.10)
Landscaping Screening	5	LS	\$ 37,500.00								\$ 37,500.00	\$ 37,500.00	\$ -
Grout / Seal / Coatings	5	LS		\$ 26,750.00	225.00	\$ 48.64	\$ 10,944.00	\$ 10,944.00	\$ -	\$ 13,162.00	\$ 50,856.00	\$ 50,856.00	\$ -
Start up / Commissioning	5	EA		\$ 1,605.00	50.00	\$ 48.64	\$ 2,432.00	\$ 2,432.00	\$ -	\$ 2,925.00	\$ 6,962.00	\$ 6,962.00	\$ -
Warranty Allowance	1	LS		\$ 10,700.00	100.00	\$ 48.64	\$ 4,864.00	\$ 4,864.00	\$ -	\$ 5,850.00	\$ 21,414.00	\$ 21,414.00	\$ -
24" Well Credit	1	LS	\$ (201,251.00)								\$ (201,251.00)	\$ (201,251.00)	\$ -
<b>Electrical / I&amp;C</b>													
Control Panels w/ Floats	5	EA	\$ 170,000.00								\$ 170,000.00	\$ 170,000.00	\$ -
Ductbank - Civil	1650	LF		\$ 26,322.00	2227.00	\$ 46.67	\$ 103,936.00	\$ 103,934.09	\$ (1.91)	\$ 108,589.00	\$ 238,847.00	\$ 238,845.09	\$ (1.91)
<b>Settlement Tank Drill 30'</b>													
<b>Template</b>													
Excavate and Haul	98	CY			84.00	\$ 47.64	\$ 4,002.00	\$ 4,001.76	\$ (0.24)	\$ 5,466.00	\$ 9,468.00	\$ 9,467.76	\$ (0.24)
Concrete Template	78	CY		\$ 13,375.00	98.00	\$ 47.64	\$ 4,669.00	\$ 4,668.72	\$ (0.28)	\$ 6,377.00	\$ 24,421.00	\$ 24,420.72	\$ (0.28)
Forms (Sonotube)	64	EA		\$ 4,109.00	448.00	\$ 47.64	\$ 21,344.00	\$ 21,342.72	\$ (1.28)	\$ 29,152.00	\$ 54,603.00	\$ 54,603.72	\$ (1.28)
Forms (Exterior)	2	EA		\$ 5,350.00	56.00	\$ 47.64	\$ 2,668.00	\$ 2,667.84	\$ (0.16)	\$ 3,644.00	\$ 11,662.00	\$ 11,661.84	\$ (0.16)
Blocking	2	EA		\$ 1,070.00	42.00	\$ 42.00	\$ 2,001.00	\$ 1,764.00	\$ (237.00)	\$ 2,733.00	\$ 5,804.00	\$ 5,567.00	\$ (237.00)
Survey	2	EA	\$ 7,800.00								\$ 7,800.00	\$ 7,800.00	\$ -
Concrete Pump	2	EA	\$ 2,333.00								\$ 2,333.00	\$ 2,333.00	\$ -
Haul Old Template Debris	2	EA		\$ 800.00	21.00	\$ 47.62	\$ 1,000.00	\$ 1,000.02	\$ 0.02	\$ 1,366.00	\$ 3,		





West Avenue North  
Drainage Pipe & Structures Analysis

Item	Qty	Unit	Subcontractor	Material	Labor					Equipment Cost	Total		
					MH	Rate	Total	Calculated Total*	Difference		New Total	Calculated Total*	Difference
<b>DRAINAGE PIPE</b>													
<b>Lincoln Court</b>													
24" RCP	301	LF		\$ 17,654.00	200.66	\$ 47.06	\$ 9,443.00	\$ 9,443.06	\$ 0.06	\$ 8,341.00	\$ 35,438.00	\$ 35,438.06	
30" RCP	8	LF		\$ 1,644.00	6.40	\$ 47.03	\$ 301.00	\$ 300.99	\$ (0.01)	\$ 266.00	\$ 2,211.00	\$ 2,210.99	
Haul out of Muck	4	CY		\$ 225.00	2.42	\$ 49.17	\$ 119.00	\$ 118.99	\$ (0.01)	\$ 162.00	\$ 506.00	\$ 505.99	
Dewatering	8	LF		\$ 112.00	1.34	\$ 48.51	\$ 65.00	\$ 65.00	\$ 0.00	\$ 31.00	\$ 208.00	\$ 208.00	\$ 0.00
<b>14th Terrace</b>													
24" RCP	372	LF		\$ 21,820.00	248.00	\$ 47.06	\$ 11,671.00	\$ 11,670.88	\$ (0.12)	\$ 10,310.00	\$ 43,801.00	\$ 43,800.88	\$ (0.12)
<b>14th Court</b>													
24" RCP	377	LF		\$ 22,113.00	251.34	\$ 47.06	\$ 11,829.00	\$ 11,828.06	\$ (0.94)	\$ 10,450.00	\$ 44,392.00	\$ 44,391.06	\$ (0.94)
<b>Flamingo Way</b>													
24" RCP	196	LF		\$ 11,499.00	130.66	\$ 47.06	\$ 6,149.00	\$ 6,148.86	\$ (0.14)	\$ 5,431.00	\$ 23,079.00	\$ 23,078.86	\$ (0.14)
<b>15th Street</b>													
24" RCP	505	LF		\$ 29,623.00	336.66	\$ 47.06	\$ 15,844.00	\$ 15,843.22	\$ (0.78)	\$ 13,995.00	\$ 59,462.00	\$ 59,461.22	\$ (0.78)
<b>15th Terrace</b>													
24" RCP	888	LF		\$ 52,089.00	592.00	\$ 47.06	\$ 27,861.00	\$ 27,859.52	\$ (1.48)	\$ 24,611.00	\$ 104,561.00	\$ 104,559.52	\$ (1.48)
36" RCP	357	LF		\$ 66,315.00	285.60	\$ 47.06	\$ 13,441.00	\$ 13,440.34	\$ (0.66)	\$ 11,873.00	\$ 91,629.00	\$ 91,628.34	\$ (0.66)
<b>16th Street</b>													
24" RCP	461	LF		\$ 27,026.00	307.34	\$ 47.06	\$ 14,461.00	\$ 14,463.42	\$ 2.42	\$ 12,778.00	\$ 54,265.00	\$ 54,267.42	\$ 2.42
<b>Lincoln Terrace</b>													
24" RCP	133	LF		\$ 7,803.00	88.66	\$ 47.06	\$ 4,173.00	\$ 4,172.34	\$ (0.66)	\$ 3,685.00	\$ 15,661.00	\$ 15,660.34	\$ (0.66)
<b>Lincoln Road</b>													
24" RCP	510	LF		\$ 29,915.00	340.00	\$ 47.06	\$ 16,001.00	\$ 16,000.40	\$ (0.60)	\$ 14,135.00	\$ 60,051.00	\$ 60,050.40	
36" RCP	149	LF		\$ 27,678.00	119.20	\$ 47.06	\$ 5,610.00	\$ 5,609.55	\$ (0.45)	\$ 4,955.00	\$ 38,243.00	\$ 38,242.55	
48" RCP	188	LF		\$ 40,643.00	136.72	\$ 47.06	\$ 6,434.00	\$ 6,434.04	\$ 0.04	\$ 5,684.00	\$ 52,761.00	\$ 52,761.04	
72" RCP	370	LF		\$ 163,219.00	493.34	\$ 47.06	\$ 23,218.00	\$ 23,216.58	\$ (1.42)	\$ 20,510.00	\$ 206,947.00	\$ 206,945.58	\$ (1.42)
<b>Bay Road (Lincoln Rd to 14th St.)</b>													
24" RCP	818	LF		\$ 47,979.00	545.34	\$ 47.06	\$ 25,665.00	\$ 25,663.70	\$ (1.30)	\$ 22,672.00	\$ 96,316.00	\$ 96,314.70	\$ (1.30)
48" RCP	906	LF		\$ 186,948.00	1132.50	\$ 47.06	\$ 53,298.00	\$ 53,295.45	\$ (2.55)	\$ 47,080.00	\$ 287,326.00	\$ 287,323.45	\$ (2.55)
60" RCP	495	LF		\$ 160,748.00	660.00	\$ 47.06	\$ 31,061.00	\$ 31,059.60	\$ (1.40)	\$ 27,438.00	\$ 219,247.00	\$ 219,245.60	\$ (1.40)
72" RCP	288	LF		\$ 126,543.00	382.66	\$ 47.06	\$ 18,009.00	\$ 18,007.98	\$ (1.02)	\$ 15,907.00	\$ 160,459.00	\$ 160,457.98	\$ (1.02)
<b>West Avenue (North of Lincoln Rd.)</b>													
24" RCP	50	LF		\$ 2,933.00	33.34	\$ 47.06	\$ 1,569.00	\$ 1,568.98	\$ (0.02)	\$ 1,387.00	\$ 5,889.00	\$ 5,888.98	\$ (0.02)
48" RCP	313	LF		\$ 78,778.00	227.63	\$ 47.06	\$ 10,713.00	\$ 10,712.27	\$ (0.73)	\$ 9,462.00	\$ 98,953.00	\$ 98,952.27	\$ (0.73)
96" RCP	435	LF		\$ 256,355.00	1271.25	\$ 50.41	\$ 64,084.00	\$ 64,083.71	\$ (0.29)	\$ 76,895.00	\$ 397,334.00	\$ 397,333.71	\$ (0.29)
Haul out of Muck	359	CY		\$ 4,840.00	162.60	\$ 49.35	\$ 8,025.00	\$ 8,024.31	\$ (0.69)	\$ 10,874.00	\$ 23,739.00	\$ 23,738.31	\$ (0.69)
Dewatering	435	LF		\$ 33,373.00	33.90	\$ 48.29	\$ 1,637.00	\$ 1,637.03	\$ 0.03	\$ 783.00	\$ 35,793.00	\$ 35,793.03	\$ 0.03
<b>West Avenue (Lincoln Rd. to 14th St.)</b>													
24" RCP	224	LF		\$ 13,139.00	149.34	\$ 47.06	\$ 7,028.00	\$ 7,027.94	\$ (0.06)	\$ 6,209.00	\$ 26,376.00	\$ 26,375.94	\$ (0.06)
60" RCP	93	LF		\$ 30,207.00	124.00	\$ 47.06	\$ 5,836.00	\$ 5,835.44	\$ (0.56)	\$ 5,155.00	\$ 41,198.00	\$ 41,197.44	\$ (0.56)
72" RCP	1826	LF		\$ 812,081.00	2434.66	\$ 47.06	\$ 114,580.00	\$ 114,575.10	\$ (4.90)	\$ 101,214.00	\$ 1,027,875.00	\$ 1,027,870.10	\$ (4.90)
<b>Pipe Credit</b>													
24" RCP	865	LF					\$ -	\$ -	\$ -	\$ (118,780.53)	\$ (118,780.53)	\$ -	
36" RCP	28	LF					\$ -	\$ -	\$ -	\$ (3,277.90)	\$ (3,277.90)	\$ -	
48" RCP	3492	LF					\$ -	\$ -	\$ -	\$ (636,760.00)	\$ (636,760.00)	\$ -	
60" RCP	584	LF					\$ -	\$ -	\$ -	\$ (164,078.37)	\$ (164,078.37)	\$ -	
72" RCP	370	LF					\$ -	\$ -	\$ -	\$ (172,606.25)	\$ (172,606.25)	\$ -	
78" RCP	260	LF					\$ -	\$ -	\$ -	\$ (227,282.53)	\$ (227,282.53)	\$ -	
<b>DRAINAGE STRUCTURES</b>													
Structure 4'x2.5' - 4'x5'	87	EA		\$ 218,610.00	3480.00	\$ 47.06	\$ 163,776.00	\$ 163,768.80	\$ (7.20)	\$ 144,672.00	\$ 527,058.00	\$ 527,050.80	\$ (7.20)
Round 3.5' & 4'	7	EA		\$ 23,982.00	280.00	\$ 47.06	\$ 13,177.00	\$ 13,176.80	\$ (0.20)	\$ 11,640.00	\$ 48,799.00	\$ 48,798.80	\$ (0.20)
Structure 4'x8' - 8'x8'	26	EA		\$ 145,539.00	2340.00	\$ 48.76	\$ 114,098.00	\$ 114,098.40	\$ 0.40	\$ 110,232.00	\$ 369,869.00	\$ 369,869.40	\$ 0.40
Round 6'-10"	6	EA		\$ 37,138.00	320.00	\$ 47.06	\$ 15,060.00	\$ 15,059.20	\$ (0.80)	\$ 13,303.00	\$ 65,501.00	\$ 65,500.20	\$ (0.80)
Structure 6'x4'-6'x7'	21	EA		\$ 78,740.00	1680.00	\$ 47.06	\$ 79,065.00	\$ 79,060.80	\$ (4.20)	\$ 69,842.00	\$ 227,647.00	\$ 227,642.80	\$ (4.20)
Structure 7'x4'	8	EA		\$ 34,638.00	720.00	\$ 48.76	\$ 35,107.00	\$ 35,107.20	\$ 0.20	\$ 33,918.00	\$ 103,663.00	\$ 103,663.20	\$ 0.20
Structure 12'	4	EA		\$ 67,735.00	360.00	\$ 48.76	\$ 17,554.00	\$ 17,553.60	\$ (0.40)	\$ 16,959.00	\$ 102,248.00	\$ 102,247.60	\$ (0.40)
<b>Structures Credit</b>													
P-9 Catch Basin	25	EA					\$ -	\$ -	\$ -	\$ (230,236.19)	\$ (230,236.19)	\$ -	
Catch Basin	2	EA					\$ -	\$ -	\$ -	\$ (19,690.05)	\$ (19,690.05)	\$ -	
J-7 Catch Basin	11	EA					\$ -	\$ -	\$ -	\$ (132,329.64)	\$ (132,329.64)	\$ -	
J-9 Catch Basin	13	EA					\$ -	\$ -	\$ -	\$ (155,722.33)	\$ (155,722.33)	\$ -	
J-7 Catch Basin	4	EA					\$ -	\$ -	\$ -	\$ (53,949.23)	\$ (53,949.23)	\$ -	
J-9 Catch Basin	7	EA					\$ -	\$ -	\$ -	\$ (38,490.97)	\$ (38,490.97)	\$ -	
Type P Inlet	9	EA					\$ -	\$ -	\$ -	\$ (52,257.00)	\$ (52,257.00)	\$ -	
MH Round	15	EA					\$ -	\$ -	\$ -	\$ (109,963.47)	\$ (109,963.47)	\$ -	
Manhole	2	EA					\$ -	\$ -	\$ -	\$ (36,878.53)	\$ (36,878.53)	\$ -	
<b>RMCF Totals</b>													
				\$ 2,879,684.00	8138.90		\$ 945,965.00	\$ 945,965.00		\$ 872,859.00	\$ 2,546,205.01	\$ 2,546,205.01	
<b>CMA Calculated Totals*</b>													
				\$ 2,879,684.00	19877.56		\$ 945,962.00	\$ 945,931.57		\$ 872,859.00	\$ 2,546,202.01	\$ 2,546,171.58	
<b>Difference</b>													
					-11738.66		\$ 3.00	\$ 33.43	\$ -30.43		\$ 3.00	\$ 33.43	\$ -329.47
<b>Cost Analysis</b>													
5% Subcontractor markup				\$									-
10% RMCF Markup				\$									254,620.50
1.44% Bond & Insurance				\$									40,331.89
<b>TOTAL</b>				\$									2,841,157.40
5% Subcontractor markup*				\$									-
10% RMCF Markup*				\$									254,617.16
1.44% Bond & Insurance*				\$									40,331.36
<b>TOTAL*</b>				\$									2,841,120.10

\* CMA Calculated based on RMCF provided data.





West Avenue North  
Pump Station Analysis

Item	Qty	Unit	Subcontractor	Material	Labor					Equipment Cost	Total		
					MH	Rate	Total	Calculated Total*	Difference		New Total	Calculated Total*	Difference
<b>Pump Station</b>													
<b>Engineering</b>													
Redesign of Pump Station	1	LS	\$ 152,500.00								\$ 152,500.00	\$ 152,500.00	
Lincoln Road Bulkhead Redesign	1	LS	\$ 44,217.04								\$ 44,217.04	\$ 44,217.04	
17th St. Bulkhead	1	LS	\$ 174,468.32								\$ 174,468.32	\$ 174,468.32	
<b>Sidewalk/Tree Removal/Landscaping/Fencing</b>													
Fence 7' high	420	LF	\$ 8,400.00								\$ 8,400.00	\$ 8,400.00	
Double Gate	1	EA	\$ 10,000.00								\$ 10,000.00	\$ 10,000.00	
Landscaping 17th St. & Parking Area	1	LS	\$ 35,000.00								\$ 35,000.00	\$ 35,000.00	
Irrigation	1	LS	\$ 5,000.00								\$ 5,000.00	\$ 5,000.00	
Sidewalk - 6' wide	3000	SF	\$ 30,000.00								\$ 30,000.00	\$ 30,000.00	
Tree Removal	1	LS	\$ 5,000.00								\$ 5,000.00	\$ 5,000.00	
<b>Utility Relocation</b>													
Utility Relocation	1	LS		\$ 1,200.00	\$ 300.00	\$ 48.68	\$ 14,604.00	\$ 14,604.00		\$ 13,886.00	\$ 29,690.00	\$ 29,690.00	
<b>Utility Removal</b>													
Utility Removal	1	LS		\$ 960.00	\$ 240.00	\$ 48.68	\$ 11,683.00	\$ 11,683.20	\$ (0.20)	\$ 11,109.00	\$ 23,752.00	\$ 23,752.20	
<b>Paving Parking Lot</b>													
Paving Parking Lot	1611	SY	\$ 24,926.00								\$ 24,926.00	\$ 24,926.00	
Existing Asphalt Removal & Stone Base Installation	1000	SY		\$ 5,675.00	\$ 180.00	\$ 48.68	\$ 8,762.00	\$ 8,762.40	\$ (0.40)	\$ 8,331.00	\$ 22,768.00	\$ 22,768.40	
<b>MOT 17th St. &amp; West Ave.</b>													
MOT 17th St. & West Ave.	1	LS	\$ 7,500.00	\$ 10,300.00	\$ 880.00	\$ 39.79	\$ 34,139.00	\$ 35,015.20	\$ (876.20)	\$ 13,200.00	\$ 65,139.00	\$ 66,015.20	
<b>Platform Screening &amp; Support</b>													
Platform Screening & Support	3400	SF		\$ 277,478.00	\$ 1,200.00	\$ 48.68	\$ 58,416.00	\$ 58,416.00		\$ 17,051.00	\$ 352,945.00	\$ 352,945.00	
Curb & Gutter	420	LF	\$ 14,700.00								\$ 14,700.00	\$ 14,700.00	
<b>FPL Vault</b>													
FPL Vault	1	LS		\$ 171,600.00							\$ 171,600.00	\$ 171,600.00	
<b>Transition Box</b>													
Cofferdam 60' x 30'	5400	sf	\$ 170,000.00	\$ 13,375.00	\$ 1,760.00	\$ 48.28	\$ 84,968.00	\$ 84,972.80	\$ (4.80)	\$ 112,915.00	\$ 381,258.00	\$ 381,262.80	
Excavate/Backfill extra at deep section	800	CY		\$ 3,852.00	\$ 300.00	\$ 48.68	\$ 14,604.00	\$ 14,604.00		\$ 13,886.00	\$ 32,342.00	\$ 32,342.00	
Backfill Perimeter	320	TON		\$ 13,136.00	\$ 180.00	\$ 48.68	\$ 8,762.00	\$ 8,762.40		\$ 8,331.00	\$ 30,229.00	\$ 30,229.40	
Dewatering	1	LS		\$ 16,374.00	\$ 200.00	\$ 50.66	\$ 10,131.00	\$ 10,132.00	\$ (1.00)	\$ 4,617.00	\$ 31,122.00	\$ 31,123.00	
<b>Dissipator Receiver Box</b>													
Dissipator Receiver Box	4200	sf	\$ 100,000.00	\$ 13,375.00	\$ 640.00	\$ 48.28	\$ 30,897.00	\$ 30,899.20	\$ (2.20)	\$ 35,857.00	\$ 180,129.00	\$ 180,131.20	
Tremie Seal	200	CY		\$ 2,782.00	\$ 144.00	\$ 48.68	\$ 7,010.00	\$ 7,009.92	\$ 0.08	\$ 7,200.00	\$ 16,992.00	\$ 16,991.92	
Backfill - Stone Base	800	CY		\$ 2,889.00	\$ 300.00	\$ 48.68	\$ 14,604.00	\$ 14,604.00		\$ 13,886.00	\$ 31,379.00	\$ 31,379.00	
Backfill Perimeter	400	ton		\$ 11,670.00	\$ 180.00	\$ 48.68	\$ 8,762.00	\$ 8,762.40	\$ (0.40)	\$ 8,331.00	\$ 28,763.00	\$ 28,763.40	
Dewatering	1	LS		\$ 16,374.00	\$ 126.61	\$ 50.66	\$ 6,414.00	\$ 6,414.06	\$ (0.06)	\$ 2,922.00	\$ 25,710.00	\$ 25,710.06	
<b>17th Sea Wall &amp; Lincoln Rd.</b>													
Credits	1	LS		\$ (19,000.00)	\$ -						\$ (19,000.00)	\$ (19,000.00)	
Sea Wall Removal (17th St.)	80	LF	\$ 3,500.00	\$ 11,000.00	\$ 240.00	\$ 48.68	\$ 11,683.00	\$ 11,683.20	\$ (0.20)	\$ 8,331.00	\$ 34,514.00	\$ 34,514.20	
Pile Cap Replacement	12	CY	\$ 15,600.00	\$ 43,228.00	\$ 640.00	\$ 48.08	\$ 30,769.00	\$ 30,771.20	\$ (2.20)	\$ 21,761.00	\$ 111,358.00	\$ 111,360.20	
Tremie Seal	20	CY		\$ 2,782.00	\$ 144.00	\$ 48.68	\$ 7,010.00	\$ 7,009.92	\$ 0.08	\$ 6,665.00	\$ 16,457.00	\$ 16,456.92	
Dewatering	1	LS		\$ 6,634.00	\$ 50.00	\$ 50.66	\$ 2,533.00	\$ 2,533.00		\$ 1,154.00	\$ 10,321.00	\$ 10,321.00	
<b>84" Hobas Pipe</b>													
84" Hobas Pipe	450	LF		\$ 647,948.00	\$ 1,312.50	\$ 52.50	\$ 68,909.00	\$ 68,906.25	\$ 2.75	\$ 89,892.00	\$ 806,749.00	\$ 806,746.25	
Haul out of Muck	359	CY		\$ 6,475.00	\$ 211.86	\$ 53.57	\$ 11,349.00	\$ 11,349.34	\$ (0.34)	\$ 14,168.00	\$ 31,992.00	\$ 31,992.34	
Dewatering	450	LF		\$ 44,191.00	\$ 45.00	\$ 50.67	\$ 2,280.00	\$ 2,280.15	\$ (0.15)	\$ 1,039.00	\$ 47,510.00	\$ 47,510.15	
<b>Flap Valves</b>													
Credits	4	EA		\$ (10,000.00)							\$ (10,000.00)	\$ (10,000.00)	
<b>8" AV Butterfly Valves</b>													
<b>Hatches</b>													
<b>Platform</b>													
Platform	48	SF			\$ 80.00	\$ 49.54	\$ 3,963.00	\$ 3,963.20	\$ (0.20)	\$ 1,791.00	\$ 5,754.00	\$ 5,754.20	
Restoration West Ave. from Lincoln Rd. to 17th													
Milling Existing Asphalt	3310	SY	\$ 9,930.00								\$ 9,930.00	\$ 9,930.00	
Road Grading	3310	SY		\$ 6,698.00	\$ 132.00	\$ 51.06	\$ 6,740.00	\$ 6,739.92	\$ 0.08	\$ 5,563.00	\$ 19,001.00	\$ 19,000.92	
Paving	3310	SY	\$ 49,650.00								\$ 49,650.00	\$ 49,650.00	
Striping and Signage	1	LS	\$ 12,500.00								\$ 12,500.00	\$ 12,500.00	
<b>Header Pipe System</b>													
Credits	1	LS		\$ (62,534.00)							\$ (62,534.00)	\$ (62,534.00)	
<b>RMCF Totals</b>													
RMCF Totals			\$ 872,891.36	\$ 1,238,462.00	\$ 9,485.97		\$ 458,992.00	\$ 458,992.00		\$ 421,886.00	\$ 2,992,231.36	\$ 2,992,231.36	
<b>CMA Calculated Totals*</b>													
CMA Calculated Totals*			\$ 872,891.36	\$ 1,238,462.00	\$ 9,485.97		\$ 458,992.00	\$ 459,877.76		\$ 421,886.00	\$ 2,992,231.36	\$ 2,993,117.12	
<b>Difference</b>													
Difference								\$ -885.76				\$ -885.76	
<b>Cost Analysis</b>													
5% Subcontractor markup	\$											43,644.57	
10% RMCF Markup	\$											211,934.00	
1.44% Bond & Insurance	\$											43,088.13	
<b>TOTAL</b>	\$											3,290,898.06	
5% Subcontractor markup*	\$											43,644.57	
10% RMCF Markup*	\$											212,022.58	
1.44% Bond & Insurance*	\$											43,100.89	
<b>TOTAL*</b>	\$											3,291,885.15	

\* CMA Calculated based on RMCF provided data.

**Patrick Kaimrajh**

---

**From:** Michael Fischer <mfischer@ric-manfl.com>  
**Sent:** Thursday, May 27, 2021 1:25 PM  
**To:** Patrick Kaimrajh; Tyson DiPetrillo  
**Cc:** Jose Acosta; Jose McCray; Nick Karpathy; Rafael Vega  
**Subject:** RE: West Ave North and South - 10-year Storm Pricing Breakdown Review  
**Attachments:** CMA Documentation Package- West Ave.pdf

CAUTION: External email.

Patrick

We reviewed your comments and offer the following revisions to our submission for your review. We cross checked the spread sheets for the 090/091 Drainage piping and structures and found a formula problem resulting in a variation in the final amounts for each section.

**090**

Submitted \$1,012,454.90  
Revised \$ 987,187.63

**091**

Submitted \$2,801,335.36  
Revised \$ 2,841,157.40

With respect to the piping credits – see attached work sheets ( as a representative example) on the 72” RCP from inception through CO 3B and up to current pricing. As you can see the Rinker pricing of RCP has increased \$125/LF representing 70% of the total delta between the credit offered and new pricing in today’s dollars ( \$ 180.15). The balance of the increase is due to added quantity for dewatering consumables, aggregate, sand and other backfill materials for the 10-year storm elevation changes. This example demonstrates why there is a variance between credits and adds for the same diameter pipe and is typical for all sizes. The credits are provided based on value at time of bid and/or CO 3B execution – see this in the HCSS estimating software sheets attached.

## EXHIBIT C

As to the variances in labor rate on certain items. This is driven by crew make-up and ratio of operators, foreman and laborers, skilled and unskilled depending on our assessment of difficulty of the install. The fluctuation is typical.

Please see attachments and revisions to the spread sheets accordingly and contact me if you need any additional information.

Mike

Michael R. Fischer, COO.



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[MFischer@Ric-manFL.com](mailto:MFischer@Ric-manFL.com)

---

**From:** Patrick Kaimrajh <PKaimrajh@chenmoore.com>

**Sent:** Wednesday, May 26, 2021 5:04 PM

**To:** Michael Fischer <mfischer@ric-manfl.com>; Tyson DiPetrillo <tdipetrillo@Ric-ManFL.com>

**Cc:** Jose Acosta <jacosta@chenmoore.com>; Jose McCray <jmccray@chenmoore.com>; Nick Karpathy <nkarpathy@chenmoore.com>

**Subject:** West Ave North and South - 10-year Storm Pricing Breakdown Review

Good afternoon Mike and Tyson,

We are reviewing the detailed cost breakdowns and noted some discrepancies for the 10-year storm pipe pricing. Please see the attached PDF markups and CMA check spreadsheets.

I see the minor changes in labor rates and rounding for some of the pricing, but I have concerns on the resulting unit price for the pipe credits and discrepancies between the summation of Labor/Materials/Equipment and the 10% markups.

Can you please review and let me know if I'm missing something? Please feel free to call me if you'd like to go over so we can incorporate the appropriate response in our review letter.

## EXHIBIT C

The other detailed breakdowns for water quality and the pump station appear to make sense, it's just these 10-year piping numbers that might be incorrect.

Thanks,

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### CHEN MOORE AND ASSOCIATES

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Civil Engineering | Landscape Architecture | Transportation | Planning

# EXHIBIT C

## Credit Justification 5/27/2021

### 72" RCP - Example Material Analysis

#### Base bid & CO 3B Credit

	Qty	Unit	Base Bid	CO 3B	Total	Unit Price
72" RCP	370	LF	\$ 49,152.00	\$ 20,642.00	\$ 68,886.60	\$ 186.18
Additional Material	370	LF	\$ 3,667.00	\$ 23,104.00	\$ 27,679.00	\$ 74.81
					<u>\$ 96,565.60</u>	<u>\$ 260.99</u>

Notes  
 This is only the cost of the RCP  
 This Includes Aggregates, Sand and Dewatering Material

#### Lincoln Rd. New CO

	Qty	Unit	New CO	Total	Unit Price
72" RCP	370	LF	\$ 115,488.00	\$ 115,206.90	\$ 311.37
Additional Material	370	LF	\$ 47,731.00	\$ 48,013.00	\$ 129.76
				<u>\$ 163,219.90</u>	<u>\$ 441.13</u>

Notes  
 This is only the cost of the RCP  
 This Includes Aggregates, Sand and Dewatering  
 Material quantity increase due to invert elevation  
 variances from 5 year to 10 year drainage study

#### Summary

▲ = \$180.15 / LF	
RCP Material ▲	\$125.19 / LF
Other Material ▲	54.96 / LF



# EXHIBIT C

Ric-Man Construction Florida, Inc.  
05012021 West Ave. 091 N - Drainage Complete 60%

05/27/2021

11:04

## Activity Unit Price Summary

Biditem Activity	Description	Quantity	Unit	Calendar WC	Hrs/Shift	Labor	Perm Material	Constr Matl/Exp	Equip- Ment	Sub- Contract	Total
*** 380	38	<b>Lincoln Road</b>				Takeoff:	1.00 LS		Bid:		1.00 LS
380.30	72" RCP	370.00	LF	F6319A	50 10.00	23,218	161,474	1,745	20,510		206,947
Mh:	493.34	Shifts: 6.2	Mh/Un:	1.3334	Un/Sh: 60.0065	62.75	436.42	4.72	55.43		559.32
*****	<b>Biditem/Category</b>	<b>380</b>	*****			23,218	161,474	1,745	20,510		206,947
Mh:	493.34	Mh/Un:	493.3400			23,217.70	161,473.91	1,745.10	20,510.15		206,946.86
<b>Mh:</b>	<b>493.34</b>	<b>***REPORT TOTALS***</b>				<b>23,218</b>	<b>161,474</b>	<b>1,745</b>	<b>20,510</b>		<b>206,947</b>

N = Activity not adjusted to bid quantity

\$163,219

# EXHIBIT C

Ric-Mar Construction Florida, Inc.  
 2016-091-K-1 West Ave 091 North Deduct

05/27/2021

11:10

### Activity Unit Price Summary

Biditem Activity	Description	Quantity	Unit	Calendar WC	Hrs/Shift	Labor	Perm Material	Constr Matl/Exp	Equip- Ment	Sub- Contract	Total
*** 320	32	72" Drainage Pipe					Takeoff: 1.00 LS		Bid:		1.00 LS
320.1	72" Drainage Pipe	264.00	LF	F6306A	50 10.00	14,542	52,819	2,070	14,633	9,504	93,568
Mh:	352.00	Shifts: 4.4	Mh/Un: 1.3333	Un/Sh: 60.0000		55.08	200.07	7.84	55.43	36.00	354.42
*****	<b>Biditem/Category</b>	<b>320</b>	*****			14,542	52,819	2,070	14,633	9,504	93,568
Mh:	352.00	Mh/Un: 352.0000				14,541.79	52,818.59	2,070.00	14,633.48	9,504.00	93,567.86
<b>Mh:</b>	<b>352.00</b>	<b>***REPORT TOTALS***</b>				<b>14,542</b>	<b>52,819</b>	<b>2,070</b>	<b>14,633</b>	<b>9,504</b>	<b>93,568</b>

N = Activity not adjusted to bid quantity

\$54,889



# EXHIBIT C

Ric-Man Construction Florida, Inc.  
06222018-CO West Ave 091 North Model II-CO

05/27/2021

11:19

## Activity Unit Price Summary

Biditem Activity	Description	Quantity	Unit	Calendar WC	Hrs/Shift	Labor	Perm Material	Constr Matl/Exp	Equip- Ment	Sub- Contract	Total
*** 320	32	<b>72" Drainage Pipe</b>				Takeoff:	1.00 LS		Bid:	1.00 LS	
320.2	72" Drainage Pipe (Addition	106.00	LF	F6306A	50 10.00	13,533	29,136	831	11,750		55,249
Mh:	282.66	Shifts: 3.5	Mh/Un: 2.6666	Un/Sh: 30.0028		127.67	274.87	7.84	110.85		521.22
320.5	Dewatering (Addition Model II	106.00	LF	F6306A	50 10.00	260	13,780		122		14,163
Mh:	5.30	Shifts: 0.1	Mh/Un: 0.0500	Un/Sh: 1,000.0000		2.46	130.00		1.15		133.61
*****Biditem/Category		320	*****			13,793	42,916	831	11,872		69,412
Mh:	287.96	Mh/Un: 287.9600				13,793.10	42,916.01	830.70	11,872.35		69,412.16
<b>Mh:</b>	<b>287.96</b>	<b>***REPORT TOTALS***</b>				<b>13,793</b>	<b>42,916</b>	<b>831</b>	<b>11,872</b>		<b>69,412</b>

N = Activity not adjusted to bid quantity

\$43,747





# Concrete Pipe Division

## Quotation 0021089225

Revision no. 1

**SELLER:** Hydro Conduit Corporation d/b/a Rinker Materials Concrete Pipe Division

**Date:** 12/20/2016

**Sales Office:** Florida

**Offer expires:** 02/20/2017

**Sales Employee:** JOHNNY SANCHEZ

**Terms of Sale:** 1% 15th prox, net 16th

**Delivery Terms:** Delivered

**Customer Job #:**

13100 NW 118 AVE  
 MIAMI, FL 33178  
 786-393-8809  
 305-557-3086 (fax)

**Prepared for:** 0003017106  
 RIC-MAN INTERNATIONAL INC  
 1545 NW 27 AVE  
 POMPANO BEACH FL 33069-1501  
 USA

**Ship To:** 0003017106  
 RIC-MAN INTERNATIONAL INC  
 WEST AVE KB90 AND KB91 MIAMI BEACH  
 MIAMI BEACH FL 33141  
 USA  
**Bill To:** 0003017106  
 RIC-MAN INTERNATIONAL INC  
 1545 NW 27 AVE  
 POMPANO BEACH FL 33069-1501  
 USA

**Project Name:** WEST AVE KB90 AND KB91 MIAMI BEACH

THE PRICES STATED HEREIN ARE BASED ON RINKER'S STANDARD TERMS AND CONDITIONS, WHICH SHALL CONTROL AND TAKE PRECEDENCE OVER ANY TERMS AND CONDITIONS TO THE CONTRARY IN ANY PURCHASE ORDER OR OTHER DOCUMENT. TO REVIEW A COPY OF THE STANDARD TERMS & CONDITIONS, PLEASE VISIT WEBSITE: [www.rinkerpipe.com](http://www.rinkerpipe.com)

**Transmittal Message:**  
 ATTN: ESTIMATING

This quotation is presented without review of the plans and specifications for this project. Products quoted are specified to only meet ASTM C-76 or ASTM C-507 and FDOT Standard Specifications for Road and Bridge Construction. Any required deviation from ASTM C-76 or ASTM C-507 and FDOT Standard Specifications for Road and Bridge Construction after review of plans and specifications will require re-quoting and void this quotation.

LUBRICANT IS \$11.00 A PAIL AS NEEDED

PRODUCT SHIPPED AFTER 1 YEAR FROM DATE OF THIS QUOTATION MAY BE SUBJECT TO A 10% PRICE INCREASE EACH YEAR FORWARD FROM DATE OF THIS QUOTATION.

Item	QTY	Material	Description	Price	Per UOM	Total
10	1,408.000 FT	1211959	24x8' CL3 PF RCP	23.08	1 FT	32,496.64
20	32.000 FT	1211985	36x8' CL3 PF RCP	47.44	1 FT	1,518.08
30	5,888.000 FT	1184266	48x8' CL3 PF RCP	72.45	1 FT	426,585.60
40	584.000 FT	1184270	60x8' CL3 PF RCP	120.87	1 FT	70,588.08
50	240.000 FT	1211964	24x8' CL3 PF SLOTTED RCP	33.74	1 FT	8,097.60
60	264.000 FT	1181468	72x8' CL3 OR RCP	174.00	1 FT	45,936.00
70	53 PAI	1185430	#SA-2 (8LB) SUB-AQUEOUS LUBRICANT	11.00	1 PAI	583.00

$\$174.00 \times 0.07 \text{ (Tax)} = \$186.18 / \text{LF}$



Quotation

<b>Quote # QUO-441534-M4B5W0</b>					
Date	04/01/2021	Account Name	RIC MAN CONSTRUCTION FL INC	Reply-To	
Quote #	QUO-441534-M4B5W0	Contact Name	Rafael Vega	Account Manager	Sofia Ponce
Revision #	4	Contact Phone	(954) 426-1221	Address	13100 NW 118th Avenue, Miami, FL 33178
Project Name	West Ave KB90 and KB91	Contact Fax	(954) 426-1226	Phone	305-822-8191
Project #	602657	Contact Email	RVega@Ric-Manfl.com	Fax	305-557-3086
Project Address	Miami Beach, FL 33141			Email	Sofia.Ponce@Rinkerpipe.com

Rinker Materials' offer to sell the products described in this quotation is expressly conditioned upon Buyer's assent to the Rinker Materials' Standard Terms and Conditions ("Rinker Materials STCs") viewable at [www.rinkerpipe.com](http://www.rinkerpipe.com). A valid tax exemption certificate must be issued to Rinker Materials or sales tax will be added.

Item #	Description	Part #	Quantity	Unit	Extended Unit Price	Unit Total
10	24x8' CL3 PF RCP	1211959	5952.00	FT	\$34.64	\$206,177.28
20	36x8' CL3 PF RCP	1211985	200.00	FT	\$70.19	\$14,038.00
30	48x8' CL3 PF RCP	1184266	2664.00	FT	\$114.86	\$305,987.04
40	60x8' CL3 PF RCP	1184270	2208.00	FT	\$183.23	\$404,571.84
60	72x8' CL3 OR RCP	1181468	2224.00	FT	\$291.71	\$648,763.04
70	#SA-2 SUB-AQUEOUS LUBE 8LB	1185430	632.00	EA	\$11.00	\$6,952.00
90	84x8' CL3 OR RCP	1576838	384.00	FT	\$433.01	\$166,275.84
100	96x8' CL3 C76 OR RCP	1293898	264.00	FT	\$569.75	\$150,414.00
130	30x8' CL3 PF RCP	1211973	208.00	FT	\$51.96	\$10,807.68
140	7' x 7' Precast Box Culvert/10.10ton/PC	1294437	450.00	FT	\$525.00	\$236,250.00
150	48" x 24" cl 3 WYE OR T	1585872	5.00	EA	\$4,020.10	\$20,100.50
160	SCORE HOLE-PER INCH OF DIAMETER - Notes for Quote : EXPOSED STEEL/ WILL MAKE AS UNIFORM AS POSSIBLE/UPON REVIEW AND APPROVAL.	1585872	1.00	EA	\$7.50	\$7.50
					<b>Total</b>	\$2,170,344.72
					(Tax not included)	<b>Net Total</b> \$2,170,344.72

**Standard Notes**

1. Ends are skewed w/exposed box culvert reinforcement steel.  
 Boxes have 2" steel 2'-4' earth cover.  
 Price includes delivery to site, in-joint sealant and primer.  
 Price does not include unloading, joint wrap or walls of any kind.  
 Boxes meet FDOT Index 400-289 & 292.  
 Boxes are 6' long weighing 10.1 tons/pc.  
 Box design and line drawings shall be approved.  
 Any deviation from quoted design will require new pricing.  
 Design quoted assumes moderately aggressive soil.  
 Individual boxes in the box culvert run that are shorter than 6' are priced as though they are 6' long.  
 Mastic gaskets are included in the price of the box pieces.  
 Any strapping or bands will be the responsibility of others and is not included.  
 Offloading boxes at the job site is not included and will be the responsibility of others.  
 A 4 point lifting system utilizing four 8 ton ring clutches (by others) is required to lift Rinker Materials box culverts.  
 Joints are soil tight.  
 Box culvert orders are non-cancellable, non-returnable and non-refundable.  
 Pricing includes delivery based on full truck load quantities as near to the point of use as our trucks can move under their own power. PROUDCT  
 PRICES ARE BASED ON ORDER ACKNOWLEDGEMENT WITH SHIPPING TO BE COMPLETED BY 12/31/23.

$\$291.00 \times 0.07 \text{ (Tax)} = 311.37 / \text{LF}$



West Avenue North - 091

Drainage Pipe & Structures

5/10/2021

5/27/2021 MA

Item	Qty	Unit	Subcontractor	Material	Labor			Equipment	New Total	Original Total	Delta	Notes
					MH	Rate	Total					
<b>Drainage Pipe</b>												
<b>Lincoln Court</b>												
24" RCP	301	LF		\$ 17,654.00	200.66	\$ 47.06	\$ 9,443.00	\$ 8,341.00	\$ 35,438.00		\$ 35,438.00	All material reflects current pricing
30" RCP	8	LF		\$ 1,644.00	6.4	\$ 47.03	\$ 301.00	\$ 266.00	\$ 2,211.00		\$ 2,211.00	All material reflects current pricing
Haul out of Muck	4	CY		\$ 225.00	2.42	\$ 49.17	\$ 119.00	\$ 162.00	\$ 506.00		\$ 506.00	All material reflects current pricing
Dewatering	8	LF		\$ 112.00	1.34	\$ 48.51	\$ 65.00	\$ 31.00	\$ 208.00		\$ 208.00	All material reflects current pricing
<b>14th Terrace</b>												
24" RCP	372	LF		\$ 21,820.00	248	\$ 47.06	\$ 11,671.00	\$ 10,310.00	\$ 43,801.00		\$ 43,801.00	All material reflects current pricing
<b>14th Court</b>												
24" RCP	377	LF		\$ 22,113.00	251.34	\$ 47.06	\$ 11,829.00	\$ 10,450.00	\$ 44,392.00		\$ 44,392.00	All material reflects current pricing
<b>Flamingo Way</b>												
24" RCP	196	LF		\$ 11,499.00	130.66	\$ 47.06	\$ 6,149.00	\$ 5,431.00	\$ 23,079.00		\$ 23,079.00	All material reflects current pricing
<b>15th Street</b>												
24" RCP	505	LF		\$ 29,623.00	336.66	\$ 47.06	\$ 15,844.00	\$ 13,995.00	\$ 59,462.00		\$ 59,462.00	All material reflects current pricing
<b>15th Terrace</b>												
24" RCP	888	LF		\$ 52,089.00	592	\$ 47.06	\$ 27,861.00	\$ 24,611.00	\$ 104,561.00		\$ 104,561.00	All material reflects current pricing
36" RCP	357	LF		\$ 66,315.00	285.6	\$ 47.06	\$ 13,441.00	\$ 11,873.00	\$ 91,629.00		\$ 91,629.00	All material reflects current pricing
<b>16th Street</b>												
24" RCP	461	LF		\$ 27,026.00	307.34	\$ 47.06	\$ 14,464.00	\$ 12,778.00	\$ 54,268.00		\$ 54,268.00	All material reflects current pricing
<b>Lincoln Terrace</b>												
24" RCP	133	LF		\$ 7,803.00	88.66	\$ 47.07	\$ 4,173.00	\$ 3,685.00	\$ 15,661.00		\$ 15,661.00	All material reflects current pricing
<b>Lincoln Road</b>												
24" RCP	510	LF		\$ 29,915.00	340	\$ 47.06	\$ 16,001.00	\$ 14,135.00	\$ 60,051.00		\$ 60,051.00	All material reflects current pricing
36" RCP	149	LF		\$ 27,678.00	119.2	\$ 47.06	\$ 5,610.00	\$ 4,955.00	\$ 38,243.00		\$ 38,243.00	All material reflects current pricing
48" RCP	188	LF		\$ 40,643.00	136.72	\$ 47.06	\$ 6,434.00	\$ 5,684.00	\$ 52,761.00		\$ 52,761.00	All material reflects current pricing
72" RCP	370	LF		\$ 163,219.00	493.34	\$ 47.06	\$ 23,218.00	\$ 20,510.00	\$ 206,947.00		\$ 206,947.00	All material reflects current pricing
<b>Bay Road (Lincoln Rd to 14th St.)</b>												
24" RCP	818	LF		\$ 47,979.00	545.34	\$ 47.06	\$ 25,665.00	\$ 22,672.00	\$ 96,316.00		\$ 96,316.00	All material reflects current pricing
48" RCP	906	LF		\$ 186,948.00	1132.5	\$ 47.06	\$ 53,298.00	\$ 47,080.00	\$ 287,326.00		\$ 287,326.00	All material reflects current pricing
60" RCP	495	LF		\$ 160,748.00	660	\$ 47.06	\$ 31,061.00	\$ 27,438.00	\$ 219,247.00		\$ 219,247.00	All material reflects current pricing
72" RCP	288	LF		\$ 126,543.00	382.66	\$ 47.06	\$ 18,009.00	\$ 15,907.00	\$ 160,459.00		\$ 160,459.00	All material reflects current pricing
<b>West Avenue (North of Lincoln Rd.)</b>												
24" RCP	50	LF		\$ 2,933.00	33.34	\$ 47.06	\$ 1,569.00	\$ 1,387.00	\$ 5,889.00		\$ 5,889.00	All material reflects current pricing
48" RCP	313	LF		\$ 78,778.00	227.63	\$ 47.06	\$ 10,713.00	\$ 9,462.00	\$ 98,953.00		\$ 98,953.00	All material reflects current pricing
96" RCP	435	LF		\$ 256,355.00	1271.25	\$ 50.41	\$ 64,084.00	\$ 76,895.00	\$ 397,334.00		\$ 397,334.00	All material reflects current pricing
Haul out of Muck	359	CY		\$ 4,840.00	162.6	\$ 49.35	\$ 8,025.00	\$ 10,874.00	\$ 23,739.00		\$ 23,739.00	All material reflects current pricing
Dewatering	435	LF		\$ 33,373.00	33.9	\$ 48.29	\$ 1,637.00	\$ 783.00	\$ 35,793.00		\$ 35,793.00	All material reflects current pricing
<b>West Avenue (Lincoln Rd. to 14th St.)</b>												
24" RCP	224	LF		\$ 13,139.00	149.34	\$ 47.06	\$ 7,028.00	\$ 6,209.00	\$ 26,376.00		\$ 26,376.00	All material reflects current pricing
60" RCP	93	LF		\$ 30,207.00	124	\$ 47.06	\$ 5,836.00	\$ 5,155.00	\$ 41,198.00		\$ 41,198.00	All material reflects current pricing
72" RCP	1826	LF		\$ 812,081.00	2434.66	\$ 47.06	\$ 114,580.00	\$ 101,214.00	\$ 1,027,875.00		\$ 1,027,875.00	All material reflects current pricing
<b>Pipe Credit</b>												
24" RCP	865	LF							\$ (118,780.53)		\$ (118,780.53)	Pipe Under Contract (Base Bid & CO 3-B)
36" RCP	28	LF							\$ (3,277.90)		\$ (3,277.90)	Pipe Under Contract (Base Bid & CO 3-B)
48" RCP	3492	LF							\$ (636,760.00)		\$ (636,760.00)	Pipe Under Contract (Base Bid & CO 3-B)
60" RCP	584	LF							\$ (164,078.37)		\$ (164,078.37)	Pipe Under Contract (Base Bid & CO 3-B)
72" RCP	370	LF							\$ (172,606.25)		\$ (172,606.25)	Pipe Under Contract (Base Bid & CO 3-B)
78" RCP	260	LF							\$ (227,282.53)		\$ (227,282.53)	Pipe Under Contract (Base Bid & CO 3-B)
<b>Drainage Structures</b>												
<b>Structures 4'x2.5' - 4'x4' - 4'x5'</b>												
Structures Type 1, 2, 4, 5, 6J, J7, F and V	87	EA		\$ 218,610.00	3480	\$ 47.06	\$ 163,776.00	\$ 144,672.00	\$ 527,058.00		\$ 527,058.00	All material reflects current pricing
<b>Round 3.5' &amp; 4'</b>												
Structures Type 4, 6 and 10	7	EA		\$ 23,982.00	280	\$ 47.06	\$ 13,177.00	\$ 11,640.00	\$ 48,799.00		\$ 48,799.00	All material reflects current pricing
<b>Structures 4'x8' - 8'x6' - 8'x5' - 8'x8'</b>												
Structures Type 5, 6J and J7	26	EA		\$ 145,539.00	2340	\$ 48.76	\$ 114,098.00	\$ 110,232.00	\$ 369,869.00		\$ 369,869.00	All material reflects current pricing
<b>Round 6', 7', 8' &amp; 10'</b>												
Structures Type 5, 6J and J7	6	EA		\$ 37,138.00	320	\$ 47.06	\$ 15,060.00	\$ 13,303.00	\$ 65,501.00		\$ 65,501.00	All material reflects current pricing
<b>Structures 6'x4' - 6'x6' - 6'x7'</b>												
Structures Type 6J, J7 & G	21	EA		\$ 78,740.00	1680	\$ 47.06	\$ 79,065.00	\$ 69,842.00	\$ 227,647.00		\$ 227,647.00	All material reflects current pricing
<b>Structures 7'x4'</b>												
Structures Type 6J, J7 & F	8	EA		\$ 34,638.00	720	\$ 48.76	\$ 35,107.00	\$ 33,918.00	\$ 103,663.00		\$ 103,663.00	All material reflects current pricing
<b>Structures 12'x8' - 12'x12'</b>												
Structures Type J7	4	EA		\$ 67,735.00	360	\$ 48.76	\$ 17,554.00	\$ 16,959.00	\$ 102,248.00		\$ 102,248.00	All material reflects current pricing
<b>Structures Credit</b>												
P-9 Catch Basin	25	EA							\$ (230,236.19)		\$ (230,236.19)	Pipe Under Contract (Base Bid & CO 3-B)
Catch Basin	2	EA							\$ (19,690.05)		\$ (19,690.05)	Pipe Under Contract (Base Bid & CO 3-B)
I-7 Catch Basin	11	EA							\$ (132,329.64)		\$ (132,329.64)	Pipe Under Contract (Base Bid & CO 3-B)
J-9 Catch Basin	13	EA							\$ (155,722.33)		\$ (155,722.33)	Pipe Under Contract (Base Bid & CO 3-B)
I-7 Catch Basin	4	EA							\$ (53,949.23)		\$ (53,949.23)	Pipe Under Contract (Base Bid & CO 3-B)
J-9 Catch Basin	7	EA							\$ (38,490.97)		\$ (38,490.97)	Pipe Under Contract (Base Bid & CO 3-B)
Type P Inlet	9	EA							\$ (52,257.00)		\$ (52,257.00)	Pipe Under Contract (Base Bid & CO 3-B)
MH Round	15	EA							\$ (109,963.47)		\$ (109,963.47)	Pipe Under Contract (Base Bid & CO 3-B)
Manhole	2	EA							\$ (36,878.53)		\$ (36,878.53)	Pipe Under Contract (Base Bid & CO 3-B)
				\$ 2,879,684.00	8138.9		\$ 945,965.00	\$ 872,859.00	\$ 2,546,205.01		\$ 2,546,205.01	
									5% Subcontractor Markup	\$		
									10% Markup	\$	254,620.50	
									1.44% Bond & Insurance	\$	40,331.89	
									<b>TOTAL</b>	\$	<b>2,841,157.40</b>	



Date: 6/3/2021  
 Project#: 17-099.006

West Avenue North - 091  
 Time Extension Request Analysis

Contract Start Date: 7/31/2017  
 Substantial Completion: 1/13/2025

No.	Description	RMCF Totals (Days)	CMA Calculated Totals* (Days)	RMCF Schedule Totals (Days)
	<b>Original Contract Duration</b>	<b>730</b>	<b>730</b>	<b>-</b>
1	Previous CO - Hurricane Irma -	30	30	-
2	Shut down delay #1-12/18/17-12/20/18 - Resiliency ULI	368	368	-
3	Design and Construction add. January 2019 CPM Update - CO 3B	659	659	-
4	10-Year Roadway/drainage changes - 8/3/19 - 10/30/19	89	89	-
5	Shut Down #2 - WTS Relo. and Water Quality - 10/21/19 - 10/28/20	364	364	-
6	Change order Design negotiation 10/28/20 - 1/15/21	79	79	-
7	Design Restart New WTS/Water Quality/Complete Design 1/16/21 - 9/30/21	252	252	-
8	Construction Impacts due to Water Quality additions	150	150	-
	<b>Total Contract Days</b>	<b>2721</b>	<b>2721</b>	<b>2723</b>
	<b>Total Requested Days</b>	<b>1961</b>	<b>1961</b>	<b>-</b>

# EXHIBIT C



FDOT Pay Item	Description	Units	FDOT 2019 Annual Statewide Average	FDOT 2020 Annual Statewide Average	Current 6 Month Statewide Average (Oct 2020-Mar 2021)	% \$ Δ from 2019	% \$ Δ from 2020
0160-4	Type B Stabilization	SY	\$ 3.79	\$ 5.09	\$ 7.30	93%	43%
0285706	Optional Base Group 06	SY	\$ 15.47	\$ 23.76	\$ 27.05	75%	14%
0334 1 13	SuperPave Asphalt (Traffic C)	TN	\$ 94.93	\$ 98.16	\$ 91.20	-4%	-7%
0400 0 11	Con Class NS, Gravity Wall	CY	\$ 627.07	\$ 587.32	\$ 784.88	25%	34%
0415 1 6	Reinf Steel-Miscellaneous	LB	\$ 1.34	\$ 1.79	\$ 4.00	199%	123%
0425 1354	Inlets, Curb, Type P-5, <10'	EA	\$ 4,993.87	\$ 5,082.59	\$ 5,858.53	17%	15%
0425 2 61	Manholes, P-8, <10'	EA	\$ 4,270.80	\$ 4,304.78	\$ 4,855.92	14%	13%
0430175118	Pipe Culv, Opt Matl, Round, 18"	LF	\$ 66.55	\$ 78.38	\$ 94.25	42%	20%
0430175124	Pipe Culv, Opt Matl, Round, 24"	LF	\$ 77.63	\$ 92.03	\$ 107.55	39%	17%
0430175130	Pipe Culv, Opt Matl, Round, 30"	LF	\$ 105.29	\$ 112.08	\$ 127.28	21%	14%
0430175136	Pipe Culv, Opt Matl, Round, 36"	LF	\$ 128.33	\$ 136.64	\$ 142.86	11%	5%
0430175142	Pipe Culv, Opt Matl, Round, 42"	LF	\$ 160.76	\$ 158.78	\$ 181.29	13%	14%
0430175148	Pipe Culv, Opt Matl, Round, 48"	LF	\$ 216.87	\$ 191.72	\$ 190.07	-12%	-1%
0430175154	Pipe Culv, Opt Matl, Round, 54"	LF	\$ 264.94	\$ 428.92	\$ 479.66	81%	12%
0430175160	Pipe Culv, Opt Matl, Round, 60"	LF	\$ 341.80	\$ 352.52	\$ 439.36	29%	25%
0520 1 10	Concrete Curb & Gutter, Type F	LF	\$ 23.72	\$ 24.84	\$ 26.57	12%	7%
<b>Median</b>						<b>23%</b>	<b>14%</b>



## **Construction Inflation Analysis for NATIONAL DATA**

5-20-2021

Prepared by:

Edward R Zarenski

Construction Analytics

**This Construction Analytics 2021 Construction Inflation Report is meant to accompany the complete Construction Analytics 2021 Construction Economic Forecast**

### **PREFACE**

**The level of construction activity has a direct influence on labor and material demand and margins and therefore on construction inflation.**

Only twice in 50 years have we experienced construction cost deflation, 2009 and 2010. That was at a time when business volume was down 33% and jobs were down 30%. In 2020, volume dropped 8% from February to May and we gained half that back by December. Jobs dropped 14%, 1,000,000+ jobs, in two months! Now volume is still down 4% and jobs are down 2% from Feb peak. We gained back 850,000 jobs. But also, we gained back more jobs than volume. That means it now takes more jobs to put-in-place volume of work. That increases inflation.

Typically, when work volume decreases, the bidding environment gets more competitive. We can always expect some margin decline when there are fewer nonresidential projects to bid on, which usually results in sharper pencils (lower bids). However, if materials shortages develop or productivity declines, that could cause inflation to increase. We can expect cost increases due to material prices, labor cost, lost productivity, project time extensions or potential overtime to meet a fixed end-date. But 30 years of data shows rarely has there been any substantial increase in inflation when construction spending is headed down. Downward pressure on spending will temper cost inflation.

### **COST INDICES**

**General construction cost indices and Input price indices that do not track whole building final cost do not capture the full cost of inflation on construction projects.**

Selling Price is whole building actual final cost. Selling price indices track the final cost of construction, which includes, in addition to costs of labor and materials and sales/use taxes, general contractor and sub-contractor margins or overhead and profit.

When construction activity is increasing, total construction costs typically increase more rapidly than the net cost of labor and materials. In active markets overhead and profit margins increase in response to increased demand. These costs are captured only in Selling Price, or final cost indices.

Consumer Price Index (CPI), tracks changes in the prices paid by consumers for a representative basket of goods and services, including food, transportation, medical care, apparel, recreation, housing. This index is not related at all to construction and should not be used to adjust construction pricing.

Producer Price Index (PPI) for Construction Inputs is an example of a commonly referenced construction cost index that does not represent whole building costs. Engineering News Record Building Cost Index (ENRBCI) and RSMeans Cost Index are examples of commonly used indices that do not capture whole building cost.

**Construction Analytics Building Cost Index, Turner Building Cost Index, Rider Levett Bucknall Cost Index and Mortenson Cost Index are all examples of whole building cost indices that measure final selling price (for nonresidential buildings only).**

## HISTORY

**Post Great Recession, 2011-2020, average nonresidential buildings inflation is 3.7%.** In 2020 it dropped to 2.4%, but for the six years 2014-2019 it averaged 4.4%. Residential cost inflation for 2020 reached 5.4%. It has averaged over 5% for the last 8 years. The 30-year average inflation rate for nonresidential buildings is 3.5% and for residential it's 4%.

- Long-term construction cost inflation is normally about double consumer price index (CPI).
- Average long-term (30 years) nonresidential construction cost inflation is 3.5%.
- Average long-term nonres buildings inflation excluding 2009-2010 recession years is 4.0%.
- In times of rapid construction spending growth, nonresidential construction annual inflation averages about 8%. Residential has gone as high as 10%.
- Nonresidential buildings inflation has average 3.7% since the recession bottom in 2011. Six year 2014-2019 average is 4.4%.
- Residential buildings inflation reached a post-recession high of 8.0% in 2013 but dropped to 3.5% in 2015. It has averaged 5.2% for 8 years 2013-2020.
- Although inflation is affected by labor and material costs, a large part of the change in inflation is due to change in contractors/supplier margins.
- When construction volume increases rapidly, margins increase rapidly.

**Nonresidential buildings inflation, after hitting 5.3% in 2018 and 4.8% in 2019, fell to 2.4% in 2020,** lower than the 4.5% average for the previous four years. Nonresidential buildings spending has not kept up with inflation since 2016. Spending needs to grow at a minimum of inflation, otherwise volume is declining. Volume has declined 7% since 2016.

**Nonbuilding Infrastructure inflation, from 2013 to 2017 averaged less than 1%, but then jumped to 5% in 2018 and 2019. 2020 inflation fell to 2.5%.** Spending dropped -5% in 2017 and that has kept volume flat for the past 5 years. Volume has declined -2% since 2015.



**Residential construction** inflation in 2019 was only 3.4%. However, the average inflation for six years from 2013 to 2018 was 5.5%. It peaked at 8% in 2013 but dropped to 4.3% in 2018 and only 3.4% in 2019. Residential construction volume dropped -5.5% in 2019, the largest volume decline in 10 years. Then volume increased 6.4% in 2020.

**Producer Price Index (PPI) Material Inputs (which exclude labor)** to new construction increased +4% in 2018 after a downward trend from +5% in 2011 led to decreased cost of -3% in 2015, the only negative cost for inputs in the past 20 years. Input costs to nonresidential structures in 2017-2018 average +4.3%, the highest in seven years. Infrastructure and industrial inputs were the highest, near 5%.

## 2020 PERFORMANCE

Even though material input costs were up for 2020, nonresidential inflation in 2020 remained low, probably influenced by a reduction in margins due to the decline in new nonresidential buildings construction starts (-22%), which is a decline in new work to bid on. A 22% drop in new nonresidential buildings starts within one year equals a loss of \$100 billion of work that would have occurred over the next 2-4 years. Nonbuilding starts were down 13%, equivalent to a loss of \$45 billion in new work that would likely have been spread over 2-5 years. Residential increased starts in 2020 that added about \$45 billion in new spending.

**Nonresidential buildings inflation for 2020 dropped to 2.4%, the first time in 7 years below 4%. Spending fell only 2.0% but after accounting for inflation, volume decreased -4.4%.**

**Nonbuilding Infrastructure inflation for 2020 dropped to 2.5% after two years at 5%. Average public infrastructure inflation since 2011 is only 2.8%/yr. 2020 spending increased 2.8%. After accounting for inflation, volume increased 0.3%.**

**Residential inflation averaged 5.4% for 2020. Remarkably, spending increased 12.2% and 2020 volume was up 6.4%.**

Volume = spending minus inflation.

Residential business volume dropped 12% from the January 2020 peak to the May bottom, but has since recovered 22% and now stands at a post Great Recession high, 10% above one year ago.

Nonresidential business volume dropped 5% from the February 2020 peak, but that's not the bottom. Volume has since dropped 11 out of 12 months and is now down 12% from the January 2020 peak.

## CURRENT INPUTS

The U.S. Census Single-Family house New Construction Index is up 7% from March 2020 to March 2021. The rate of growth in this index is increasing, up 3.5% for the last 3 months.

[https://www.census.gov/construction/nrs/pdf/price\\_uc.pdf](https://www.census.gov/construction/nrs/pdf/price_uc.pdf)

For the year 2020, Residential Building Materials Inputs are up 6.2%. See PPI charts. By far, sharply higher lumber prices have added more than any other input to the price of an average new single-family home. [https://www.census.gov/construction/nrs/pdf/price\\_uc.pdf](https://www.census.gov/construction/nrs/pdf/price_uc.pdf)

Although residential spending remains near this high level for the next year, volume after inflation begins to drop by midyear. For the year 2020, Residential building materials inputs are up 6.7%. See PPI charts. Sharply higher lumber prices added to inflation. Residential inflation averaged 5.4% for 2020.

The 2020 year-end Producer Price Index tables published by AGC <https://www.agc.org/sites/default/files/PPI%20Tables%20202012.pdf> shows input costs to nonresidential buildings up about 3.5% to 4.5% for 2020, but final costs of contractors and buildings is up only 1% to 2%. This could be an indication that, although input costs are up, final costs are depressed due to lower margins, the effect of fewer projects to bid on creating a tighter new work available environment, which generally leads to a more competitive bidding environment. This could reverse in 2021 as the volume of work to bid on in most markets begins to increase.

**As of March 2021, PPI for materials inputs to construction is up 12% to 14% yoy**, measured to last March before the bottom dropped out. The PPI Buildings Cost Index for final cost to owner is up only 2%. Construction inflation is very different right now for subcontractors vs general contractor/CM.

<https://www.agc.org/learn/construction-data>

The Turner Construction Cost Index for 2020 is up 1.84% from 2019. Q1 2021 is up 0.1% from Q4 2020 but down -1.5% from Q1 2020. <http://turnerconstruction.com/cost-index>

The Rider Levitt Bucknall nonresidential buildings index average index for 2020 is up 3.5% from the average 2019 index. The current Q1 2021 index is up 1% from Q4 2020 and up 1.8% from Q1 2020.

<https://www.rlb.com/america/insight/rlb-construction-cost-report-north-america-q1-2021/>

R.S.Means quarterly cost index of some materials for the 4th quarter 2020 compared to Q1 2020:

Ready-Mix Concrete -1.8%, Brick +10%, Steel Items -1% to -5%, Framing Lumber +32%, Plywood +8%, Roof Membrane +5%, Insulating Glass +12%, Drywall +3%, Metal Studs +23%, Plumbing Pipe and Fixtures +1%, Sheet Metal +20%.

PPI cost index of some materials for April 2021 compared to April 2020: Ready-Mix Concrete +2%, Brick and Block +4.2%, Steel Pipe and Tube +24%, Fabricated Structural Metal +8.3% Lumber and Plywood +85%, Glass +4%, Drywall +12%, Sheet Metal +12% Copper and Brass Mill Shapes +49%, Aluminum Mill Shapes +20%, #2 Diesel Fuel +126%.

Steel Prices at mill in the U.S. are up 60% to 100% in the last 6 months. All prices are 50% to 75% higher than Feb 2020. <http://steelbenchmarker.com/files/history.pdf> . This is mill price of steel which is about 25% of the price of steel installed. What affect might a steel cost increase have on a building project? It will affect the cost of structural shapes, steel joists, reinforcing steel, metal deck, stairs and rails, metal panels, metal ceilings, wall studs, door frames, canopies, steel duct, steel pipe and conduit, pumps, electrical cabinets and furniture, and I'm sure more. Assuming a typical structural steel building with some metal panel exterior, steel pan stairs, metal deck floors, steel doors and frames and steel studs in walls, then all steel material installed represents about 14% to 16% of total building cost. Structural Steel only, installed, is about 9% to 10% of total building cost, but applies to only 60% market share being steel buildings. The other 6% of total steel cost applies to all buildings. <https://www.thefabricator.com/thefabricator/blog/metalsmaterials/steel-prices-reach-levels-not-seen-since-2008> At these prices, if fully passed down to the owner, this adds about 1.5%-2% to building cost inflation.

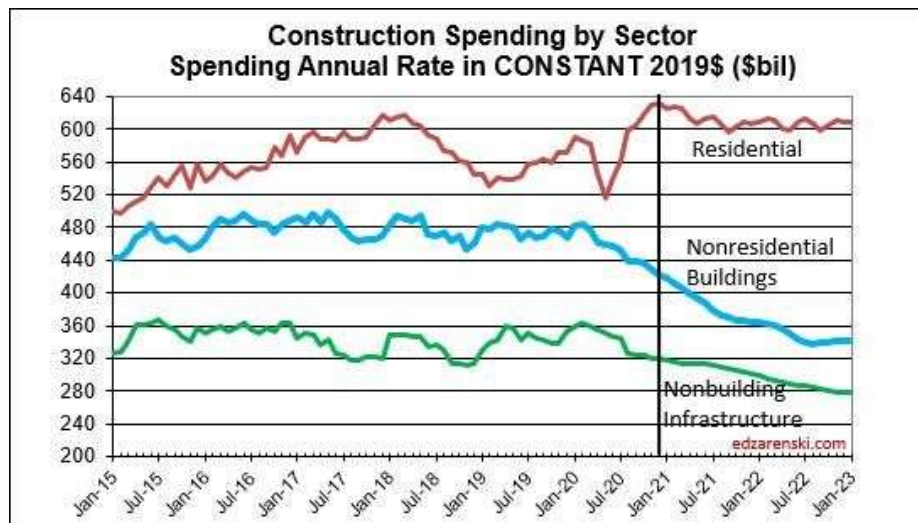
**With demand in decline for nonresidential buildings, I would expect to see some or all these material price increases recede throughout 2021.**

**FUTURE FORECAST**

Almost every construction market has a weaker spending outlook in 2021 than in 2020, because approximately 50% of spending in 2021 is generated from 2020 starts, and 2020 nonresidential starts range down 10% to 25%, several markets down 40%. Nonresidential buildings starts fell 22% in 2020, but will increase 4% in 2021. Nonbuilding starts were down 15%, but will increase 10% in 2021. Residential starts were up 6% in 2020 and will increase 10% in 2021.

Volume drops another 5% in 2021, all nonresidential, and then another 3% in 2022.

**Constant \$ = Spending minus inflation = Volume**



Many projects under construction had been halted for some period of time and many experienced at least short-term disruption. The delays may add either several weeks to perhaps a month or two to the overall schedule, in which case, not only does labor cost go up but also management cost goes up, or it could add overtime costs to meet a fixed end-date. Some of these project costs have yet to occur as most would be expected to add onto the end of the project.

Some projects that were put on hold (nonresidential buildings starts in 2020 dropped 24%) just prior to bidding in 2020 may now re-enter the bidding environment. The rate at which these projects come back on-line could impact the bidding environment. If several months-worth of projects that delayed bidding last year all come onto the market at once, or even in a more compressed time span than normal, the market could be flooded with work and bidding contractors have more choice, can bid more projects than normal and could potentially raise margins in some bids. This would have an inflationary effect.

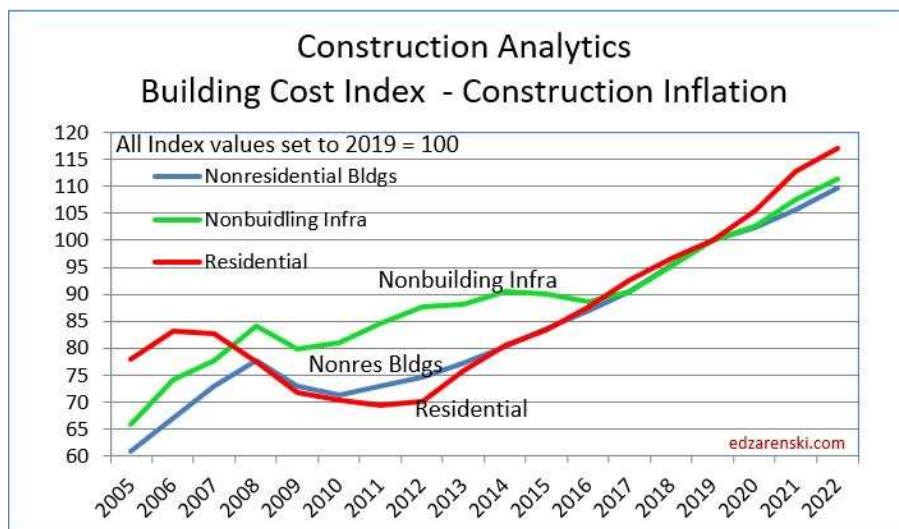
Even with 4% growth in new starts, that comes after a 22% drop in 2020, so remains still 18% below 2019. Total volume of work is declining and new projects available out to bid is still depressed, so pressure on margins still exists.

**I expect non-residential buildings inflation in 2021 to range between 3.2% to 3.5%, with potential to be held lower. Expect residential inflation of 7% to 8% with potential to push slightly higher.**

Nonresidential inflation, after hitting 5% in both 2018 and 2019, and after holding above 4% for the six years 2014-2019, increased only 2.4% in 2020. Forecast is 3.2% for 2021 and increasing to 3.7% for the next few years.

Forecast residential inflation is 7% for 2020 and 3.8% for the several years. It was only 3.4% for 2019 but averaged 5.5%/yr since 2013 and returned to 5.4% in 2020.

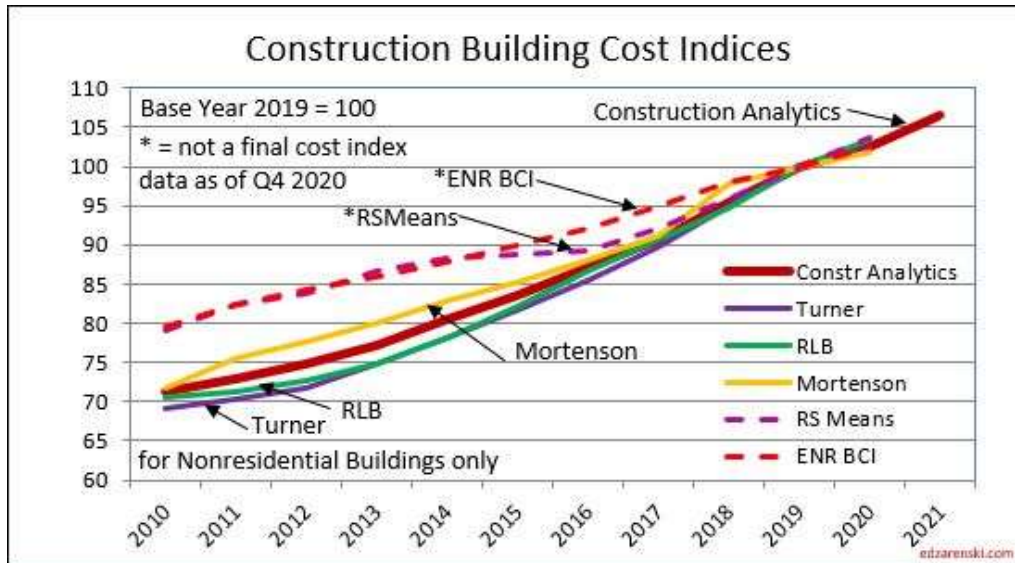
### Construction Analytics Building Cost Index



Subcontractor costs, such as for steel or lumber, could range much higher due to huge material cost increases. All the downward pressure on nonresidential inflation is on margins. There is currently 20% less nonresidential buildings work to bid on than in Q1 2020.

Notice in this next plot how index growth for ENR BCI and RSMeans, both input indices, is much less than for all other selling price final cost indices. From 2010 to 2020, Construction Analytics total final cost inflation is  $103/71 = 1.45 = +45\%$ . Input cost indices total inflation over the same period is only  $103/79 = 1.30 = +30\%$ , missing a big portion of the cost growth over time.

**Nonresidential Buildings Selling Price Indices vs Input Indices**



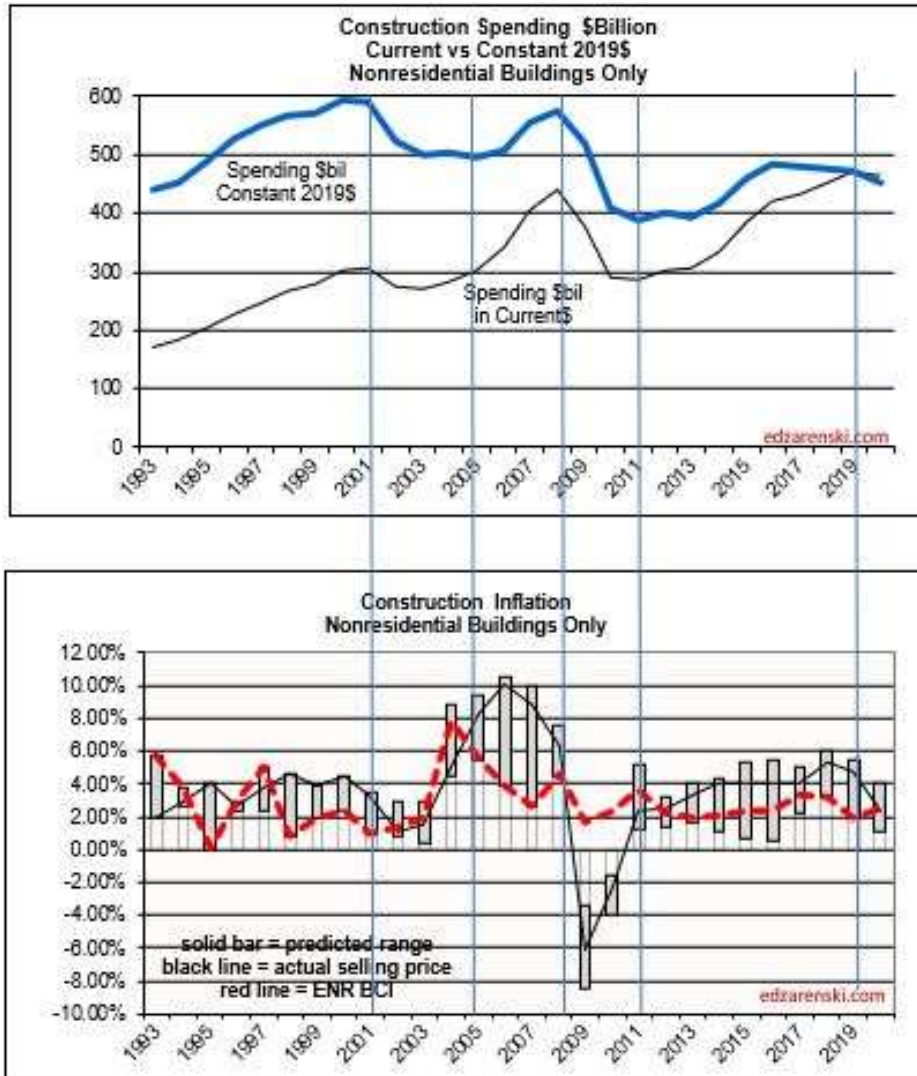
Several Nonresidential Buildings Final Cost Indices averaged over 5%/yr in 2018 and 2019 and over 4%/yr from 2015 to 2019 averaging +25% inflation for 5 years. Input indices that do not track whole building cost averaged only 12% inflation for those five years, much less than final cost growth.

REFERENCE INFLATION INDICES	ANNUAL ESCALATION PERCENT										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
<b>NonRes Bldgs Final Cost National Avg</b>											
Constr Analytics Nonresidential Bldgs	2.36%	2.52%	3.39%	4.01%	4.01%	4.08%	4.07%	5.34%	4.82%	2.43%	
Turner Index actual cost	1.63%	2.22%	4.10%	4.40%	4.57%	4.80%	5.01%	5.61%	5.43%	1.84%	
Rider Levett Bucknall Index Actual Cost	1.20%	1.82%	3.14%	4.23%	5.29%	5.45%	4.58%	4.56%	5.51%	3.53%	
Mortenson avg 6 cities nonres bldg	5.21%	2.97%	2.88%	3.74%	2.70%	3.51%	3.39%	7.38%	2.21%	1.90%	
PPI AVG 4 NONRES BLDGS	2.41%	3.27%	1.70%	3.02%	1.82%	1.16%	2.16%	4.05%	5.04%	1.04%	
PPI AVG 4 TRADES NONRES BLDGS	1.74%	2.21%	1.65%	2.61%	2.17%	1.68%	2.29%	3.96%	4.95%	1.19%	
R S Means + Margin	3.00%	3.01%	4.66%	4.15%	3.60%	3.29%	3.90%	5.69%	5.56%	3.77%	
ENRBCI + Margin	2.38%	3.50%	3.27%	4.40%	5.36%	5.08%	4.16%	4.56%	3.31%	2.48%	
<b>Nonres Bldgs Inputs Indices</b>											
RS Means Index Inputs	4.20%	1.78%	3.39%	1.84%	0.63%	0.53%	3.04%	4.35%	4.17%	3.79%	
ENR BCI Index Inputs	3.58%	2.27%	2.01%	2.08%	2.39%	2.32%	3.29%	3.22%	1.93%	2.50%	
PPI Inputs to NONRES BLDGS	7.90%	1.67%	0.64%	0.82%	-4.58%	-1.69%	3.93%	6.91%	4.20%	3.70%	
<b>Residential Final Cost</b>											
US Cen Bur NEW Homes Lasperyes	-1.31%	1.15%	7.99%	6.34%	3.53%	5.16%	5.75%	4.29%	3.39%	5.41%	
S&P/Case Shiller HomePrice NATIONAL	1.04%	1.03%	6.50%	6.11%	2.52%	5.09%	5.09%	3.49%	3.15%	4.02%	
S&P/Case Shiller HomePrice NATIONAL	-3.75%	1.29%	9.61%	6.58%	4.59%	5.23%	6.43%	5.10%	3.62%	6.80%	

As noted previously, some reliable nonresidential selling price indexes have been over 4% since 2014.

In the following plot, Construction Analytics Building Cost Index annual percent change for nonresidential buildings is plotted as a line against a bar chart of the range of all other nonresidential building inflation indices. Bars represent the predicted range of inflation from various sources with the solid line showing the composite final cost inflation. The low end of the predicted range is almost always established by input costs (ENR BCI is plotted), while the upper end of the range and the actual cost are established by selling price indices. Then inflation indices are compared to a plot of construction spending. Periods of rapid expansion in spending correlate with periods of high inflation.

**Construction Analytics Nonresidential Buildings Cost Index vs Range of Input Indices**



**Non-building infrastructure** indices are so unique to the type of work that individual specific infrastructure indices must be used to adjust cost of work. The FHWA highway index increased 17% from 2010 to 2014, stayed flat from 2015-2017, then increased 15% in 2018-2019. The IHS Pipeline and LNG indices increased 4% in 2019 but are still down 18% since 2014. Coal, gas, and wind power generation indices have gone up only 5% total since 2014. Refineries and petrochemical facilities

dropped 10% from 2014 to 2016 but regained all of that by 2019. BurRec inflation for pumping plants and pipelines has averaged 2.5%/yr since 2011 and 3%/yr the last 3 years.

[This link refers to Infrastructure Indices.](#)

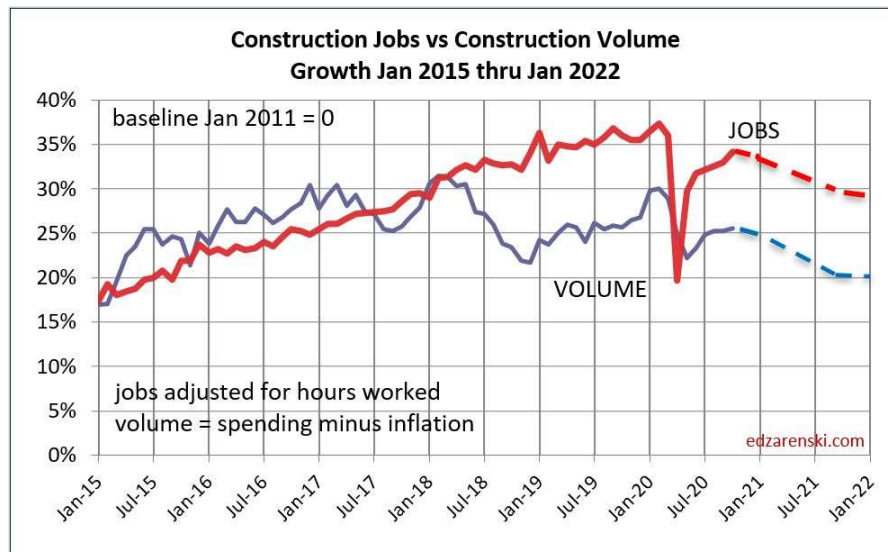
## Volume of Work and Jobs

**To differentiate between Revenue and Volume you must use actual final cost indices, otherwise known as selling price indices, to properly adjust the cost of construction over time.**

When we see spending increasing at less than the rate of inflation, real work volume is declining. For example, with construction inflation at 3% annually, a nonresidential building spending decline of -2% in 2020 would reflect a work volume decline of -5%. The extent of volume declines would impact the jobs situation.

Residential construction volume dropped 12% from the January 2020 peak to the May bottom, but has since recovered 22% and now stands at a post Great Recession high, 10% above one year ago. Although residential spending remains near this high level for the next year, volume begins to drop by midyear.

Nonresidential volume has been slowly declining and is now down 10% from one year ago. By 3rd quarter 2021, nonresidential buildings volume is forecast down another 15% lower than December, or 25% below the Feb 2020 peak. This tracks right in line with the 22% decline in new construction starts in 2020. Most of the spending from those lost starts would have taken place in 2021, now showing up as a major decline in spending and work volume.



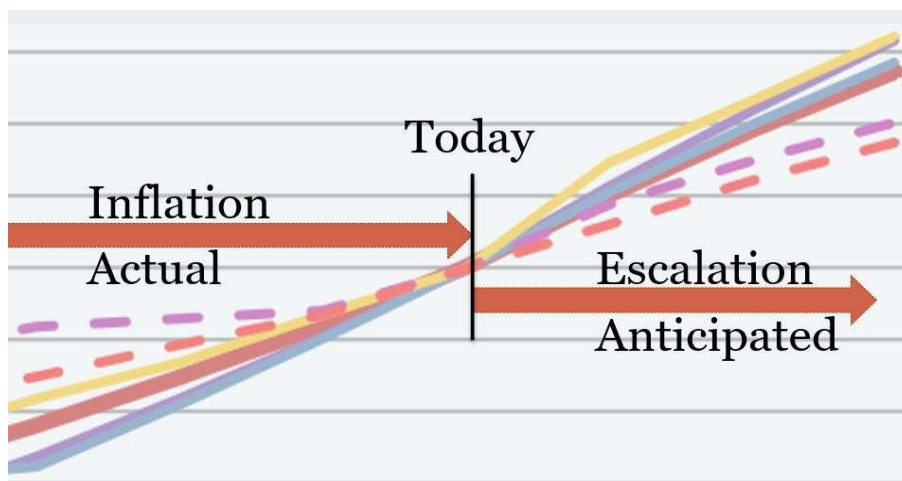
While construction spending in 2021 is forecast up 4.6%, after inflation construction volume is expected to decline 0.7%. Residential construction spending is forecast up 17%, volume up 9%+, but 2021

nonresidential buildings spending is forecast down -7.7% leading to a decline in volume after inflation of -10.5%. Nonbuilding Infrastructure spending in 2021 declines -1.3%, volume drops -5%.

Nonresidential buildings volume declines of 10%+ project to a loss of over 250,000 jobs in 2021 and non-building infrastructure is projected to drop 70,000 jobs, but Residential could experience growth in 2021 of 250,000 jobs.

Jobs are supported by growth in construction volume, spending minus inflation. This time next year, volume will be 5% lower than today, 10% below the Feb 2020 level. **We will not see construction volume return to Feb 2020 level at any time in the next three years.**

A final word about terminology: **Inflation vs Escalation**. These two words, Inflation and Escalation, both refer to the change in cost over time. However, escalation is the term often used in a construction cost estimate to represent anticipated future change, while more often the record of past cost changes is referred to as inflation. This graphic might represent how most owners and estimators reference these two terms.



This link points to comprehensive coverage of the topic inflation and is recommended reading. [Click Here for Link to a 20-year Table of 25 Indices](#)

[Construction Analytics 2021 Construction Economic Forecast is here](#)



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June 3, 2021

SENT VIA E-MAIL ([SabrinaBaglieri@miamibeachfl.gov](mailto:SabrinaBaglieri@miamibeachfl.gov) & [pilarcaurin@miamibeachfl.gov](mailto:pilarcaurin@miamibeachfl.gov) )

Ms. Sabrina Baglieri  
Ms. Pilar Caurin Tortajada  
**City of Miami Beach – Capital Improvement Projects Office**  
1700 Convention Center Drive  
Miami Beach, FL 33139

Re: West Avenue South  
Review of RMCF Change Order Request dated 4/21/2021 – Revised 5/11/2021  
CMA Project No. 099.007 (Master Project #099.006)

Dear Ms. Baglieri and Ms. Caurin:

Chen Moore and Associates (CMA) has prepared this letter to summarize our review of the proposed Change Order from Ric-Man Construction Florida (RMCF) for the West Avenue South project, dated April 21, 2021, updated May 27, 2021.

This review compares the budget estimate and time extension Change Order dated November 19, 2020 prepared by RMCF to the submitted Change Order dated April 21, 2021, updated May 27, 2021. CMA evaluated the following documents from RMCF pertaining to this comparison:

- Budget Estimate Change Order (11/19/20)
- 30% Design Submittal (November 2020)
- Submitted Change Order (4/21/21, revised 5/11/21)
- 60% Design Submittal (April 2021)
- Updated Drainage Pipe Pricing (5/27/21)

Below is a table summarizing this comparison.

ITEM	DESCRIPTION	Budget Estimate dated 11/20/2020	Submitted Change Order dated 5/11/2021 (Rev 5/27/21)	Difference
<b>1.0</b>	<b>CONSTRUCTION</b>			
1.1	<i>Water Quality Construction</i>	\$ 3,028,000	\$ 3,592,652	\$ 564,652
1.2	<i>10-Year Storm Piping Subtotal</i>	\$ 1,070,000	\$ 987,188	\$ (82,812)
<b>1.0</b>	<b>CONSTRUCTION TOTAL (pre-escalation)</b>	\$ 4,098,000	\$ 4,579,840	\$ 481,840
<b>2.0</b>	<b>ESCALATION</b>			
2.1	Commodity and Subcontractor Escalation	\$ -	\$ 347,003	\$ 347,003
2.2	RMCF Labor Escalation	\$ -	\$ 131,072	\$ 131,072
<b>2.0</b>	<b>Escalation Subtotal</b>	\$ -	\$ 478,075	\$ 478,075
<b>3.0</b>	<b>GRAND TOTAL (CONSTRUCTION + ESCALATION)</b>	\$ 4,098,000	\$ 5,057,915	\$ 959,915

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The 5/11/21 revisions address CMA and CMB comments from 4/28/21 and addresses other errors by RMCF. RMCF also noted the further developed water quality system design allowed for reductions in rebar and concrete.

In reviewing these items, CMA offers the following analysis identifying explanations for the price differences between the budget estimate Change Order (11/19/2020) to the submitted Change Order (5/11/2021).

## 1.1 Water Quality

This cost represents the added water quality wells, consisting of settling tanks, wet wells, pump equipment, stormwater disposal wells, and ancillary equipment. In CMA's review, the additional 20% cost above the budget appears to be a result of multiple factors, including:

- Increased cost of installing Secant Pile structures (approximately \$56,000)
- Increased cost of pump materials associated with water quality wells (approximately \$59,000 additional per pump and panel)
- Unaccounted for interconnect piping (approximately \$162,000)
- Unforeseen Utility Relocation/Removal (approximately \$80,000)

These additional costs are partially offset by well credits, which is indicated in the RMCF detailed breakdown. CMA performed a detailed cost analysis of the submitted change order, which is attached to this letter.

CMA researched the FDOT Historical Cost Index and compared the unit prices for 16 items which are representative of the type of work associated with this project, identifying the Annual Statewide Average for 2019 and 2020 and the Current 6-Month Statewide Average (From October 2020 to March 2021). As indicated in the attached table, the median price increase for these representative items is 23% higher compared to 2019 and 14% higher compared to 2020.

The 20% cost increase for the water quality appears appropriate given the combination of material price increases since the November 2020 budget and the further detailed design which resulted in larger/deeper wells, interconnect piping, and utility relocation/removal.

## 1.2 10 Year Storm Piping and Structures

This cost represents the changes in design each segment as a result of now designing for the 10 year storm. As indicated in the table above, this price is approximately 8% lower than previously submitted.

CMA did not receive the backup documentation from the original pricing from August 7, 2019. In reviewing the 5/27/21 updated 10-year storm piping pricing, the price appears to accurately represent the upsized piping and structures and applies appropriate credits for the smaller piping and structures. In the attached email correspondence with RMCF, the lower unit price for credit is explained is due to material price increases and additional labor and material associated with the pipe installation.

CMA has attached our detailed cost analysis for the 10-year Storm Piping. Based on the provided materials, labor, equipment, and markup, the proposed change order price for the 10 Year Storm Piping and Structures appears appropriate.

## **2.0 Escalation**

As discussed during the 4/28/21 meeting with CMB, RMCF, and CMA, RMCF is now including escalation pricing to accommodate anticipated material and labor price increases associated with future market conditions throughout the project schedule – from October 2021 thru January 2025. As the current contract language does not have provisions to account for defined escalation, RMCF is proposing to mitigate that risk by using a 3.6% annual escalation, which is substantiated by the reference of historical Producer Price Indexes (PPI) from the U.S. Bureau of Labor Statistics.

CMA further researched this escalation rate to substantiate this amount. Attached is a table comparing the national Consumer Price Index (CPI) dating back to 1997. CMA calculated the monthly and average 3-year change in the CPI as that relates to the estimated construction duration. As shown, the average CPI increase over a 3-year time period is 6.60%. The CPI is a good barometer for the cost of goods and services.

Furthermore, CMA utilized the *National Construction Inflation Report 2021* (attached) which states the average nonresidential building inflation from 2011-2020 is 3.7% and references the Rider Levitt Bucknall nonresidential building index is up 3.5% from 2019.

Therefore, CMA offers no objection to the RMCF 3.6% assigned value for escalation.

CMB may either accept RMCF's proposal which estimates the 3.6% annual escalation or offer to modify the contract language to use mutually agreeable defined escalation which results in added risk to CMB if escalation is greater than anticipated, or may result in a credit to CMB, should these indices fall. CMA offers no objection to either approach.

## **Time Extension Request**

As requested by CMB, CMA also reviewed the proposed time extension request associated with this Change Order Request. RMCF initially estimated a 1,619 day time extension in the November 20, 2020 letter to CMB. The April 21, 2021 letter revises this time extension request to 1,588 days.

CMA analyzed the summary of additional days submitted by RMCF and verified the duration, as shown in the attached schedule analysis table. CMA notes that the Total Days Requested is equal to the summation of the original contract duration (545 days) and items 1 through 8 subtracted by the original contract duration and the previously approved 30-day extension for Hurricane Irma.

The largest extension items include:

- Item #2 – “Shut down delay #1 – 12/18/17 – 12/20/18- Resiliency ULI” of 368 days,
- Item #3 – “Design & Const. add Jan 2019 CPM Update – CO 3B” of 409 days
- Item #5 – “Shut Down #2 – WTS Relo. And Water Quality- 10/31/19-10/28/20” of 364 days
- Item #7 – “Design Restart New WTS/Water Quality/Complete Design 1/16/21-9/30/21” of 219 days

Item #8 is the “Construction Impacts due to Water Quality Additions” which is shown as 60 days. The RMCF submitted schedule shows a total of 63 days for the water quality improvements. The baseline schedule prepared by RMCF and uploaded to e-Builder on 8/7/17 does not have a specific line item for

2103 Coral Way, Suite 401  
Miami, FL 33145  
Office: +1 (786) 497-1500



water quality as this was to be addressed in the North portion. Therefore, the additional 60 days here appears appropriate for the additional of multiple secant pile pump assisted wells.

In consideration of the above analysis, the RMCF proposed additional 1,588 days for the time extension appears appropriate given the delineated delays and additional design and construction efforts associated with this project.

### **Conclusions**

CMA has reviewed the provided documentation pertaining to this Change Order Request and analyzed the submitted prices. As described in this letter, CMA offers no objections to the proposed pricing by RMCF. The price changes are consistent with the market conditions and reflect the updates to the plan design since the initial November 2020 change order budget.

The added escalation rate is consistent with historical escalation values. As previously discussed with CMB, CMA notes that this escalation amount can either be incorporated as a known value or can be a formula based on market indicators which can vary throughout the duration of the project construction.

Should you have any questions, please do not hesitate to contact me at my office at +1 (786) 497-1500, Ext. 1087, my cell phone at +1 (305) 338-7451 or send me an electronic message at [pkaimrajh@chenmoore.com](mailto:pkaimrajh@chenmoore.com).

Respectfully submitted,

Patrick D. Kaimrajh, P.E.  
Senior Engineer

PDK/jbm

Cc: Jose L. Acosta, P.E., F. ASCE, Chen Moore and Associates (CMA)  
Jose B. McCray, CMA

Attachments: CMA Detailed Cost Comparison for Water Quality & 10-year Storm  
RMCF Updated Pricing  
CMA Schedule Analysis  
CMA Analysis of FDOT Historical Cost Index & Consumer Price Index  
National Construction Inflation Report 2021





West Avenue South  
Drainage Pipe & Structures

Item	Qty	Unit	Subcontractor	Material	Labor					Equipment Cost	Total		
					MH	Rate	Total	Calculated Total*	Difference		New Total	Calculated Total*	Difference
<b>DRAINAGE PIPE</b>													
<b>8th Street</b>													
24" RCP	222	LF		\$ 17,243.00	196.00	\$ 47.06	\$ 9,224.00	\$ 9,223.76	\$ 0.24	\$ 8,148.00	\$ 34,615.00	\$ 34,614.76	\$ (0.24)
<b>9th Street</b>													
24" RCP	252	LF		\$ 14,783.00	168.00	\$ 47.06	\$ 7,906.00	\$ 7,906.08	\$ (0.08)	\$ 6,984.00	\$ 29,673.00	\$ 29,673.08	\$ 0.08
<b>11th Street</b>													
24" RCP	217	LF		\$ 12,728.00	144.66	\$ 47.06	\$ 6,808.00	\$ 6,807.70	\$ 0.30	\$ 6,013.00	\$ 25,549.00	\$ 25,548.70	\$ (0.30)
<b>12th Street</b>													
24" RCP	294	LF		\$ 17,250.00	196.00	\$ 47.06	\$ 9,224.00	\$ 9,223.76	\$ 0.24	\$ 8,148.00	\$ 34,622.00	\$ 34,621.76	\$ (0.24)
<b>13th Street</b>													
24" RCP	345	LF		\$ 20,238.00	230.00	\$ 47.06	\$ 10,824.00	\$ 10,823.80	\$ 0.20	\$ 9,562.00	\$ 40,624.00	\$ 40,623.80	\$ (0.20)
<b>Alton Court</b>													
24" RCP	516	LF		\$ 30,268.00	344.00	\$ 47.06	\$ 16,189.00	\$ 16,188.64	\$ 0.36	\$ 14,301.00	\$ 60,758.00	\$ 60,757.64	\$ (0.36)
<b>West Avenue</b>													
24" RCP	370	LF		\$ 21,703.00	246.66	\$ 47.06	\$ 11,608.00	\$ 11,607.82	\$ 0.18	\$ 10,253.00	\$ 43,564.00	\$ 43,563.82	\$ (0.18)
48" RCP	786	LF		\$ 197,910.00	571.63	\$ 47.06	\$ 26,902.00	\$ 26,900.91	\$ 1.09	\$ 23,763.00	\$ 248,575.00	\$ 248,573.91	\$ (1.09)
60" RCP	1427	LF		\$ 463,496.00	1902.66	\$ 47.06	\$ 89,543.00	\$ 89,539.18	\$ 3.82	\$ 79,097.00	\$ 632,136.00	\$ 632,132.18	\$ (3.82)
<b>Pipe Credit</b>													
24" RCP	796	LF					\$ -	\$ -			\$ (102,337.04)	\$ (102,337.04)	
48" RCP	2396	LF					\$ -	\$ -			\$ (436,774.47)	\$ (436,774.47)	
<b>DRAINAGE STRUCTURES</b>													
Structure 4'x2.5' - 4'x5'	48	EA		\$ 109,914.00	1920.00	\$ 47.06	\$ 90,359.00	\$ 90,355.20	\$ 3.80	\$ 79,819.00	\$ 280,092.00	\$ 280,088.20	\$ (3.80)
Structure 6'x4'	7	EA		\$ 24,606.00	560.00	\$ 47.06	\$ 26,355.00	\$ 26,353.60	\$ 1.40	\$ 23,281.00	\$ 74,242.00	\$ 74,240.60	\$ (1.40)
Structure 7'x4'	11	EA		\$ 57,934.00	990.00	\$ 48.76	\$ 48,272.00	\$ 48,272.40	\$ (0.40)	\$ 46,637.00	\$ 152,843.00	\$ 152,843.40	\$ 0.40
<b>Structure Credit</b>													
P-9 Catch Basin	4	EA					\$ -	\$ -			\$ (19,090.64)	\$ (19,090.64)	
J-9 Catch Basin	4	EA					\$ -	\$ -			\$ (43,549.29)	\$ (43,549.29)	
J-9 Catch Basin	3	EA					\$ -	\$ -			\$ (41,510.97)	\$ (41,510.97)	
MH J-7 Round	6	EA					\$ -	\$ -			\$ (52,349.80)	\$ (52,349.80)	
J-7 Catch Basin	5	EA					\$ -	\$ -			\$ (53,560.57)	\$ (53,560.57)	
J-7 Catch Basin	1	EA					\$ -	\$ -			\$ (11,833.75)	\$ (11,833.75)	
MH J-7 Round	1	EA					\$ -	\$ -			\$ (12,192.98)	\$ (12,192.98)	
<b>RMCF Totals</b>				\$ 988,073.00	3999.61		\$ 353,214.00	\$ 353,214.00		\$ 316,006.00	\$ 884,093.49	\$ 884,093.49	
<b>CMA Calculated Totals*</b>			\$ -	\$ 988,073.00	7469.61		\$ 353,214.00	\$ 353,202.85		\$ 316,006.00	\$ 884,093.49	\$ 884,082.34	\$ (11.15)
<b>Difference</b>					-3470.00			\$ 11.15	\$ 11.15			\$ 11.15	\$ 11.15
<b>Cost Analysis</b>													
5% Subcontractor markup	\$												-
10% RMCF Markup	\$												88,049.36
1.51% Bond & Insurance	\$												14,684.79
<b>TOTAL</b>	\$												987,187.63
5% Subcontractor markup*	\$												-
10% RMCF Markup*	\$												88,408.23
1.51% Bond & Insurance*	\$												14,684.61
<b>TOTAL*</b>	\$												987,175.18

\* CMA Calculated based on RMCF provided data.

**Patrick Kaimrajh**

---

**From:** Michael Fischer <mfischer@ric-manfl.com>  
**Sent:** Thursday, May 27, 2021 1:25 PM  
**To:** Patrick Kaimrajh; Tyson DiPetrillo  
**Cc:** Jose Acosta; Jose McCray; Nick Karpathy; Rafael Vega  
**Subject:** RE: West Ave North and South - 10-year Storm Pricing Breakdown Review  
**Attachments:** CMA Documentation Package- West Ave.pdf

CAUTION: External email.

Patrick

We reviewed your comments and offer the following revisions to our submission for your review. We cross checked the spread sheets for the 090/091 Drainage piping and structures and found a formula problem resulting in a variation in the final amounts for each section.

**090**

Submitted \$1,012,454.90  
Revised \$ 987,187.63

**091**

Submitted \$2,801,335.36  
Revised \$ 2,841,157.40

With respect to the piping credits – see attached work sheets ( as a representative example) on the 72” RCP from inception through CO 3B and up to current pricing. As you can see the Rinker pricing of RCP has increased \$125/LF representing 70% of the total delta between the credit offered and new pricing in today’s dollars ( \$ 180.15). The balance of the increase is due to added quantity for dewatering consumables, aggregate, sand and other backfill materials for the 10-year storm elevation changes. This example demonstrates why there is a variance between credits and adds for the same diameter pipe and is typical for all sizes. The credits are provided based on value at time of bid and/or CO 3B execution – see this in the HCSS estimating software sheets attached.

## EXHIBIT C

As to the variances in labor rate on certain items. This is driven by crew make-up and ratio of operators, foreman and laborers, skilled and unskilled depending on our assessment of difficulty of the install. The fluctuation is typical.

Please see attachments and revisions to the spread sheets accordingly and contact me if you need any additional information.

Mike

Michael R. Fischer, COO.



### [RIC-MAN Construction Florida, Inc.](#)

3100 SW 15th Street, Deerfield Beach, FL 33442

Office: (954) 426-1221 | Fax: (954) 426-1226

Cell: (703) 732-7717

[www.ric-manfl.com](http://www.ric-manfl.com)

[MFischer@Ric-manFL.com](mailto:MFischer@Ric-manFL.com)

---

**From:** Patrick Kaimrajh <PKaimrajh@chenmoore.com>

**Sent:** Wednesday, May 26, 2021 5:04 PM

**To:** Michael Fischer <mfischer@ric-manfl.com>; Tyson DiPetrillo <tdipetrillo@Ric-ManFL.com>

**Cc:** Jose Acosta <jacosta@chenmoore.com>; Jose McCray <jmccray@chenmoore.com>; Nick Karpathy <nkarpathy@chenmoore.com>

**Subject:** West Ave North and South - 10-year Storm Pricing Breakdown Review

Good afternoon Mike and Tyson,

We are reviewing the detailed cost breakdowns and noted some discrepancies for the 10-year storm pipe pricing. Please see the attached PDF markups and CMA check spreadsheets.

I see the minor changes in labor rates and rounding for some of the pricing, but I have concerns on the resulting unit price for the pipe credits and discrepancies between the summation of Labor/Materials/Equipment and the 10% markups.

Can you please review and let me know if I'm missing something? Please feel free to call me if you'd like to go over so we can incorporate the appropriate response in our review letter.



## EXHIBIT C

The other detailed breakdowns for water quality and the pump station appear to make sense, it's just these 10-year piping numbers that might be incorrect.

Thanks,

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### CHEN MOORE AND ASSOCIATES

Patrick D. Kaimrajh, P.E.  
SENIOR ENGINEER

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Civil Engineering | Landscape Architecture | Transportation | Planning

# EXHIBIT C

## Credit Justification 5/27/2021

### 72" RCP - Example Material Analysis

#### Base bid & CO 3B Credit

	Qty	Unit	Base Bid	CO 3B	Total	Unit Price
72" RCP	370	LF	\$ 49,152.00	\$ 20,642.00	\$ 68,886.60	\$ 186.18
Additional Material	370	LF	\$ 3,667.00	\$ 23,104.00	\$ 27,679.00	\$ 74.81
					<u>\$ 96,565.60</u>	<u>\$ 260.99</u>

Notes  
 This is only the cost of the RCP  
 This Includes Aggregates, Sand and Dewatering Material

#### Lincoln Rd. New CO

	Qty	Unit	New CO	Total	Unit Price
72" RCP	370	LF	\$ 115,488.00	\$ 115,206.90	\$ 311.37
Additional Material	370	LF	\$ 47,731.00	\$ 48,013.00	\$ 129.76
				<u>\$ 163,219.90</u>	<u>\$ 441.13</u>

Notes  
 This is only the cost of the RCP  
 This Includes Aggregates, Sand and Dewatering  
 Material quantity increase due to invert elevation  
 variances from 5 year to 10 year drainage study

#### Summary

▲ = \$180.15 / LF	
RCP Material ▲	\$125.19 / LF
Other Material ▲	54.96 / LF



# EXHIBIT C

Ric-Man Construction Florida, Inc.  
05012021 West Ave. 091 N - Drainage Complete 60%

05/27/2021

11:04

## Activity Unit Price Summary

Biditem Activity	Description	Quantity	Unit	Calendar WC	Hrs/Shift	Labor	Perm Material	Constr Matl/Exp	Equip-Ment	Sub-Contract	Total
*** 380	38 Lincoln Road					Takeoff:	1.00 LS		Bid:		1.00 LS
380.30	72" RCP	370.00	LF	F6319A	50 10.00	23,218	161,474	1,745	20,510		206,947
Mh:	493.34	Shifts: 6.2	Mh/Un: 1.3334	Un/Sh: 60.0065		62.75	436.42	4.72	55.43		559.32
*****Biditem/Category	380	*****				23,218	161,474	1,745	20,510		206,947
Mh:	493.34	Mh/Un: 493.3400				23,217.70	161,473.91	1,745.10	20,510.15		206,946.86
Mh:	493.34	***REPORT TOTALS***				23,218	161,474	1,745	20,510		206,947

N = Activity not adjusted to bid quantity

\$163,219

# EXHIBIT C

Ric-Mar Construction Florida, Inc.  
 2016-091-K-1 West Ave 091 North Deduct

05/27/2021

11:10

### Activity Unit Price Summary

Biditem Activity	Description	Quantity	Unit	Calendar WC	Hrs/Shift	Labor	Perm Material	Constr Matl/Exp	Equip- Ment	Sub- Contract	Total
*** 320	32	72"	Drainage Pipe				Takeoff: 1.00 LS		Bid:		1.00 LS
320.1	72" Drainage Pipe	264.00	LF	F6306A	50 10.00	14,542	52,819	2,070	14,633	9,504	93,568
Mh:	352.00	Shifts: 4.4	Mh/Un: 1.3333	Un/Sh: 60.0000		55.08	200.07	7.84	55.43	36.00	354.42
*****Biditem/Category		320	*****			14,542	52,819	2,070	14,633	9,504	93,568
Mh:	352.00	Mh/Un: 352.0000				14,541.79	52,818.59	2,070.00	14,633.48	9,504.00	93,567.86
Mh:	352.00	***REPORT TOTALS***				14,542	52,819	2,070	14,633	9,504	93,568

N = Activity not adjusted to bid quantity

\$54,889

# EXHIBIT C

Ric-Man Construction Florida, Inc.  
06222018-CO West Ave 091 North Model II-CO

05/27/2021

11:19

## Activity Unit Price Summary

Biditem Activity	Description	Quantity	Unit	Calendar WC	Hrs/Shift	Labor	Perm Material	Constr Matl/Exp	Equip- Ment	Sub- Contract	Total
*** 320	32	<b>72" Drainage Pipe</b>				Takeoff:	1.00 LS		Bid:	1.00 LS	
320.2	72" Drainage Pipe (Addition	106.00	LF	F6306A	50 10.00	13,533	29,136	831	11,750		55,249
Mh:	282.66 Shifts: 3.5	Mh/Un: 2.6666	Un/Sh: 30.0028			127.67	274.87	7.84	110.85		521.22
320.5	Dewatering (Addition Model II	106.00	LF	F6306A	50 10.00	260	13,780		122		14,163
Mh:	5.30 Shifts: 0.1	Mh/Un: 0.0500	Un/Sh: 1,000.0000			2.46	130.00		1.15		133.61
*****Biditem/Category		320	*****			13,793	42,916	831	11,872		69,412
Mh:	287.96	Mh/Un: 287.9600				13,793.10	42,916.01	830.70	11,872.35		69,412.16
<b>Mh:</b>	<b>287.96</b>	<b>***REPORT TOTALS***</b>				<b>13,793</b>	<b>42,916</b>	<b>831</b>	<b>11,872</b>		<b>69,412</b>

N = Activity not adjusted to bid quantity

\$43,747



# Concrete Pipe Division

## Quotation 0021089225

Revision no. 1

**SELLER:** Hydro Conduit Corporation d/b/a Rinker Materials Concrete Pipe Division

**Date:** 12/20/2016

**Sales Office:** Florida

**Offer expires:** 02/20/2017

**Sales Employee:** JOHNNY SANCHEZ

**Terms of Sale:** 1% 15th prox, net 16th

**Delivery Terms:** Delivered

**Customer Job #:**

13100 NW 118 AVE  
 MIAMI, FL 33178  
 786-393-8809  
 305-557-3086 (fax)

**Prepared for:** 0003017106  
 RIC-MAN INTERNATIONAL INC  
 1545 NW 27 AVE  
 POMPANO BEACH FL 33069-1501  
 USA

**Ship To:** 0003017106  
 RIC-MAN INTERNATIONAL INC  
 WEST AVE KB90 AND KB91 MIAMI BEACH  
 MIAMI BEACH FL 33141  
 USA  
**Bill To:** 0003017106  
 RIC-MAN INTERNATIONAL INC  
 1545 NW 27 AVE  
 POMPANO BEACH FL 33069-1501  
 USA

**Project Name:** WEST AVE KB90 AND KB91 MIAMI BEACH

THE PRICES STATED HEREIN ARE BASED ON RINKER'S STANDARD TERMS AND CONDITIONS, WHICH SHALL CONTROL AND TAKE PRECEDENCE OVER ANY TERMS AND CONDITIONS TO THE CONTRARY IN ANY PURCHASE ORDER OR OTHER DOCUMENT. TO REVIEW A COPY OF THE STANDARD TERMS & CONDITIONS, PLEASE VISIT WEBSITE: [www.rinkerpipe.com](http://www.rinkerpipe.com)

**Transmittal Message:**  
 ATTN: ESTIMATING

This quotation is presented without review of the plans and specifications for this project. Products quoted are specified to only meet ASTM C-76 or ASTM C-507 and FDOT Standard Specifications for Road and Bridge Construction. Any required deviation from ASTM C-76 or ASTM C-507 and FDOT Standard Specifications for Road and Bridge Construction after review of plans and specifications will require re-quoting and void this quotation.

LUBRICANT IS \$11.00 A PAIL AS NEEDED

PRODUCT SHIPPED AFTER 1 YEAR FROM DATE OF THIS QUOTATION MAY BE SUBJECT TO A 10% PRICE INCREASE EACH YEAR FORWARD FROM DATE OF THIS QUOTATION.

Item	QTY	Material	Description	Price	Per UOM	Total
10	1,408.000 FT	1211959	24x8' CL3 PF RCP	23.08	1 FT	32,496.64
20	32.000 FT	1211985	36x8' CL3 PF RCP	47.44	1 FT	1,518.08
30	5,888.000 FT	1184266	48x8' CL3 PF RCP	72.45	1 FT	426,585.60
40	584.000 FT	1184270	60x8' CL3 PF RCP	120.87	1 FT	70,588.08
50	240.000 FT	1211964	24x8' CL3 PF SLOTTED RCP	33.74	1 FT	8,097.60
60	264.000 FT	1181468	72x8' CL3 OR RCP	174.00	1 FT	45,936.00
70	53 PAI	1185430	#SA-2 (8LB) SUB-AQUEOUS LUBRICANT	11.00	1 PAI	583.00

$\$174.00 \times 0.07 \text{ (Tax)} = \$186.18 / \text{LF}$



Quotation

<b>Quote # QUO-441534-M4B5W0</b>					
Date	04/01/2021	Account Name	RIC MAN CONSTRUCTION FL INC	Reply-To	
Quote #	QUO-441534-M4B5W0	Contact Name	Rafael Vega	Account Manager	Sofia Ponce
Revision #	4	Contact Phone	(954) 426-1221	Address	13100 NW 118th Avenue, Miami, FL 33178
Project Name	West Ave KB90 and KB91	Contact Fax	(954) 426-1226	Phone	305-822-8191
Project #	602657	Contact Email	RVega@Ric-Manfl.com	Fax	305-557-3086
Project Address	Miami Beach, FL 33141			Email	Sofia.Ponce@Rinkerpipe.com

Rinker Materials' offer to sell the products described in this quotation is expressly conditioned upon Buyer's assent to the Rinker Materials' Standard Terms and Conditions ("Rinker Materials STCs") viewable at [www.rinkerpipe.com](http://www.rinkerpipe.com). A valid tax exemption certificate must be issued to Rinker Materials or sales tax will be added.

Item #	Description	Part #	Quantity	Unit	Extended Unit Price	Unit Total
10	24x8' CL3 PF RCP	1211959	5952.00	FT	\$34.64	\$206,177.28
20	36x8' CL3 PF RCP	1211985	200.00	FT	\$70.19	\$14,038.00
30	48x8' CL3 PF RCP	1184266	2664.00	FT	\$114.86	\$305,987.04
40	60x8' CL3 PF RCP	1184270	2208.00	FT	\$183.23	\$404,571.84
60	72x8' CL3 OR RCP	1181468	2224.00	FT	\$291.71	\$648,763.04
70	#SA-2 SUB-AQUEOUS LUBE 8LB	1185430	632.00	EA	\$11.00	\$6,952.00
90	84x8' CL3 OR RCP	1576838	384.00	FT	\$433.01	\$166,275.84
100	96x8' CL3 C76 OR RCP	1293898	264.00	FT	\$569.75	\$150,414.00
130	30x8' CL3 PF RCP	1211973	208.00	FT	\$51.96	\$10,807.68
140	7' x 7' Precast Box Culvert/10.10ton/PC	1294437	450.00	FT	\$525.00	\$236,250.00
150	48" x 24" cl 3 WYE OR T	1585872	5.00	EA	\$4,020.10	\$20,100.50
160	SCORE HOLE-PER INCH OF DIAMETER - Notes for Quote : EXPOSED STEEL/ WILL MAKE AS UNIFORM AS POSSIBLE/UPON REVIEW AND APPROVAL.	1585872	1.00	EA	\$7.50	\$7.50
					<b>Total</b>	\$2,170,344.72
					(Tax not included) <b>Net Total</b>	\$2,170,344.72

**Standard Notes**

1. Ends are skewed w/exposed box culvert reinforcement steel.  
 Boxes have 2" steel 2'-4' earth cover.  
 Price includes delivery to site, in-joint sealant and primer.  
 Price does not include unloading, joint wrap or walls of any kind.  
 Boxes meet FDOT Index 400-289 & 292.  
 Boxes are 6' long weighing 10.1 tons/pc.  
 Box design and line drawings shall be approved.  
 Any deviation from quoted design will require new pricing.  
 Design quoted assumes moderately aggressive soil.  
 Individual boxes in the box culvert run that are shorter than 6' are priced as though they are 6' long.  
 Mastic gaskets are included in the price of the box pieces.  
 Any strapping or bands will be the responsibility of others and is not included.  
 Offloading boxes at the job site is not included and will be the responsibility of others.  
 A 4 point lifting system utilizing four 8 ton ring clutches (by others) is required to lift Rinker Materials box culverts.  
 Joints are soil tight.  
 Box culvert orders are non-cancellable, non-returnable and non-refundable.  
 Pricing includes delivery based on full truck load quantities as near to the point of use as our trucks can move under their own power. **PRODUCT PRICES ARE BASED ON ORDER ACKNOWLEDGEMENT WITH SHIPPING TO BE COMPLETED BY 12/31/23.**

$\$291.00 \times 0.07 \text{ (Tax)} = 311.37 / \text{LF}$



West Avenue South - 090

Drainage Pipe & Structures

5/10/2021

*A*  
5/27/2021

Item	Qty	Unit	Subcontractor	Material	Labor			Equipment	New Total	Original Total	Delta	Notes
					MH	Rate	Total					
<b>Drainage Pipe</b>												
<b>8th Street</b>												
24" RCP	222	LF		\$ 17,243.00	196	\$ 47.06	\$ 9,224.00	\$ 8,148.00	\$ 34,615.00		\$ 34,615.00	All material reflects current pricing
<b>9th Street</b>												
24" RCP	252	LF		\$ 14,783.00	168	\$ 47.06	\$ 7,906.00	\$ 6,984.00	\$ 29,673.00		\$ 29,673.00	All material reflects current pricing
<b>11th Street</b>												
24" RCP	217	LF		\$ 12,728.00	144.66	\$ 47.06	\$ 6,808.00	\$ 6,013.00	\$ 25,549.00		\$ 25,549.00	All material reflects current pricing
<b>12th Street</b>												
24" RCP	294	LF		\$ 17,250.00	196	\$ 47.06	\$ 9,224.00	\$ 8,148.00	\$ 34,622.00		\$ 34,622.00	All material reflects current pricing
<b>13th Street</b>												
24" RCP	345	LF		\$ 20,238.00	230	\$ 47.06	\$ 10,824.00	\$ 9,562.00	\$ 40,624.00		\$ 40,624.00	All material reflects current pricing
<b>Alton Court</b>												
24" RCP	516	LF		\$ 30,268.00	344	\$ 47.06	\$ 16,189.00	\$ 14,301.00	\$ 60,758.00		\$ 60,758.00	All material reflects current pricing All material reflects current pricing
<b>West Avenue</b>												
24" RCP	370	LF		\$ 21,703.00	246.66	\$ 47.06	\$ 11,608.00	\$ 10,253.00	\$ 43,564.00		\$ 43,564.00	All material reflects current pricing
48" RCP	786	LF		\$ 197,910.00	571.63	\$ 47.06	\$ 26,902.00	\$ 23,763.00	\$ 248,575.00		\$ 248,575.00	All material reflects current pricing
60" RCP	1427	LF		\$ 463,496.00	1902.66	\$ 47.06	\$ 89,543.00	\$ 79,097.00	\$ 632,136.00		\$ 632,136.00	All material reflects current pricing
<b>Pipe Credit</b>												
24" RCP	796	LF							\$ (102,337.04)		\$ (102,337.04)	Pipe Under Contract (Base Bid & CO 3-B)
48" RCP	2396	LF							\$ (436,774.47)		\$ (436,774.47)	Pipe Under Contract (Base Bid & CO 3-B)
<b>Drainage Structures</b>												
<b>Structures 4'x2.5' - 4'x4'</b>												
Structures Type 2, 5, 6, J7 and F	48	EA		\$ 109,914.00	1920	\$ 47.06	\$ 90,359.00	\$ 79,819.00	\$ 280,092.00		\$ 280,092.00	All material reflects current pricing
<b>Structures 6'x4'</b>												
Structures Type J7	7	EA		\$ 24,606.00	560	\$ 47.06	\$ 26,355.00	\$ 23,281.00	\$ 74,242.00		\$ 74,242.00	All material reflects current pricing
<b>Structures 7'x4'</b>												
Structures Type 1, 4 and J7	11	EA		\$ 57,934.00	990	\$ 48.76	\$ 48,272.00	\$ 46,637.00	\$ 152,843.00		\$ 152,843.00	All material reflects current pricing
<b>Structures Credit</b>												
P-9 Catch Basin	4	EA							\$ (19,090.64)		\$ (19,090.64)	Pipe Under Contract (Base Bid & CO 3-B)
J-9 Catch Basin	4	EA							\$ (43,549.29)		\$ (43,549.29)	Pipe Under Contract (Base Bid & CO 3-B)
J-9 Catch Basin	3	EA							\$ (41,510.97)		\$ (41,510.97)	Pipe Under Contract (Base Bid & CO 3-B)
MH J-7 Round	6	EA							\$ (52,349.80)		\$ (52,349.80)	Pipe Under Contract (Base Bid & CO 3-B)
J-7 Catch Basin	5	EA							\$ (53,560.57)		\$ (53,560.57)	Pipe Under Contract (Base Bid & CO 3-B)
J-7 Catch Basin	1	EA							\$ (11,833.75)		\$ (11,833.75)	Pipe Under Contract (Base Bid & CO 3-B)
MH J-7 Round	1	EA							\$ (12,192.98)		\$ (12,192.98)	Pipe Under Contract (Base Bid & CO 3-B)
				\$ 988,073.00	3999.61		\$ 353,214.00	\$ 316,006.00	\$ 884,093.49		\$ 884,093.49	
									5% Subcontractor Markup	\$	-	
									10% Markup	\$	88,409.35	
									1.51% Bond & Insurance	\$	14,684.79	
									<b>TOTAL</b>	\$	<b>987,187.63</b>	





Date: 6/3/2021  
 Project#: 17-099.007

West Avenue South - 091  
 Time Extension Request Analysis

Contract Start Date: 7/31/2017  
 Substantial Completion: 7/4/2023

No.	Description	RMCF Totals (Days)	CMA Calculated Totals* (Days)	RMCF Schedule Totals (Days)
	<b>Original Contract Duration</b>	<b>545</b>	<b>545</b>	-
1	Previous CO - Hurricane Irma -	30	30	-
2	Shut down delay #1-12/18/17-12/20/18 - Resiliency ULI	368	368	-
3	Design and Construction add. January 2019 CPM Update	409	409	-
4	10-Year Roadway/drainage changes - 8/3/19 - 10/30/19	89	89	-
5	Shut Down #2 - WTS Relo. and Water Quality - 10/21/19 - 10/28/20	364	364	-
6	Change order Design negotiation 10/28/20 - 1/15/21	79	79	-
7	Design Restart New WTS/Water Quality/Complete Design 1/16/21 - 9/30/21	219	219	-
8	Construction Impacts due to Water Quality additions	60	60	-
	<b>Total Contract Days</b>	<b>2163</b>	<b>2163</b>	<b>2164</b>
	<b>Total Requested Days</b>	<b>1588</b>	<b>1588</b>	-

# EXHIBIT C



FDOT Pay Item	Description	Units	FDOT 2019 Annual Statewide Average	FDOT 2020 Annual Statewide Average	Current 6 Month Statewide Average (Oct 2020-Mar 2021)	% \$ Δ from 2019	% \$ Δ from 2020
0160-4	Type B Stabilization	SY	\$ 3.79	\$ 5.09	\$ 7.30	93%	43%
0285706	Optional Base Group 06	SY	\$ 15.47	\$ 23.76	\$ 27.05	75%	14%
0334 1 13	SuperPave Asphalt (Traffic C)	TN	\$ 94.93	\$ 98.16	\$ 91.20	-4%	-7%
0400 0 11	Con Class NS, Gravity Wall	CY	\$ 627.07	\$ 587.32	\$ 784.88	25%	34%
0415 1 6	Reinf Steel-Miscellaneous	LB	\$ 1.34	\$ 1.79	\$ 4.00	199%	123%
0425 1354	Inlets, Curb, Type P-5, <10'	EA	\$ 4,993.87	\$ 5,082.59	\$ 5,858.53	17%	15%
0425 2 61	Manholes, P-8, <10'	EA	\$ 4,270.80	\$ 4,304.78	\$ 4,855.92	14%	13%
0430175118	Pipe Culv, Opt Matl, Round, 18"	LF	\$ 66.55	\$ 78.38	\$ 94.25	42%	20%
0430175124	Pipe Culv, Opt Matl, Round, 24"	LF	\$ 77.63	\$ 92.03	\$ 107.55	39%	17%
0430175130	Pipe Culv, Opt Matl, Round, 30"	LF	\$ 105.29	\$ 112.08	\$ 127.28	21%	14%
0430175136	Pipe Culv, Opt Matl, Round, 36"	LF	\$ 128.33	\$ 136.64	\$ 142.86	11%	5%
0430175142	Pipe Culv, Opt Matl, Round, 42"	LF	\$ 160.76	\$ 158.78	\$ 181.29	13%	14%
0430175148	Pipe Culv, Opt Matl, Round, 48"	LF	\$ 216.87	\$ 191.72	\$ 190.07	-12%	-1%
0430175154	Pipe Culv, Opt Matl, Round, 54"	LF	\$ 264.94	\$ 428.92	\$ 479.66	81%	12%
0430175160	Pipe Culv, Opt Matl, Round, 60"	LF	\$ 341.80	\$ 352.52	\$ 439.36	29%	25%
0520 1 10	Concrete Curb & Gutter, Type F	LF	\$ 23.72	\$ 24.84	\$ 26.57	12%	7%
<b>Median</b>						<b>23%</b>	<b>14%</b>

**Historical Consumer Price Index Comparison for Escalation  
West Avenue**

Year	Jan	3-Yr Δ	Feb	3-Yr Δ2	Mar	3-Yr Δ3	Apr	3-Yr Δ4	May	3-Yr Δ5	Jun	3-Yr Δ6	Jul	3-Yr Δ7	Aug	3-Yr Δ8	Sep	3-Yr Δ9	Oct	3-Yr Δ10	Nov	3-Yr Δ11	Dec	3-Yr Δ12	Average	3-Yr Δ13
2021	261.58	5.53%	263.01	5.63%	264.88	6.14%	267.05	6.59%		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A
2020	257.97	6.23%	258.68	6.19%	258.12	5.87%	256.39	4.85%	256.39	4.76%	257.80	5.24%	259.10	5.85%	259.92	5.86%	260.28	5.45%	260.39	5.56%	260.23	5.50%	260.47	5.66%	258.81	5.59%
2019	251.71	6.25%	252.78	6.61%	254.20	6.75%	255.55	6.81%	256.09	6.60%	256.14	6.28%	256.57	6.63%	256.56	6.52%	256.76	6.35%	257.35	6.46%	257.21	6.57%	256.97	6.44%	255.66	6.52%
2018	247.87	6.06%	248.99	6.08%	249.55	5.69%	250.55	5.89%	251.59	5.80%	251.99	5.59%	252.01	5.59%	252.15	5.80%	252.44	6.09%	252.89	6.33%	252.04	6.19%	251.23	6.22%	251.11	5.94%
2017	242.84	3.81%	243.60	3.76%	243.80	3.18%	244.52	3.14%	244.73	2.87%	244.96	2.77%	244.79	2.74%	245.52	3.22%	246.82	3.69%	246.66	3.89%	246.67	4.45%	246.52	4.99%	245.12	3.54%
2016	236.92	2.88%	237.11	2.13%	238.13	2.30%	239.26	2.89%	240.23	3.13%	241.02	3.22%	240.63	3.01%	240.85	2.98%	241.43	3.11%	241.73	3.50%	241.35	3.55%	241.43	3.60%	240.01	3.03%
2015	233.71	3.11%	234.72	3.10%	236.12	2.93%	236.60	2.83%	237.81	3.48%	238.64	3.99%	238.65	4.17%	238.32	3.45%	237.95	2.83%	237.84	2.82%	237.34	3.09%	236.53	3.02%	237.02	3.23%
2014	233.92	6.22%	234.78	6.09%	236.29	5.74%	237.07	5.41%	237.90	5.28%	238.34	5.59%	238.25	5.46%	237.85	4.99%	238.03	4.91%	237.43	4.86%	236.15	4.39%	234.81	4.05%	236.74	5.24%
2013	230.28	6.27%	232.17	7.12%	232.77	6.96%	232.53	6.66%	232.95	6.77%	233.50	7.13%	233.60	7.15%	233.88	7.13%	234.15	7.19%	233.55	6.78%	233.07	6.52%	233.05	6.33%	232.96	6.83%
2012	226.67	7.35%	227.66	7.29%	229.39	7.84%	230.09	7.90%	229.82	7.46%	229.48	6.39%	229.10	6.39%	230.38	6.74%	231.41	7.15%	231.32	7.00%	230.22	6.42%	229.60	6.32%	229.59	7.02%
2011	220.22	4.33%	221.31	4.54%	223.47	4.65%	224.91	4.69%	225.96	4.31%	225.72	3.16%	225.92	2.71%	226.55	3.40%	226.89	3.71%	226.42	4.55%	226.23	6.50%	225.67	7.35%	224.94	4.48%
2010	216.69	7.05%	216.74	6.51%	217.63	5.98%	218.01	5.48%	218.18	4.92%	217.97	4.61%	218.01	4.66%	218.31	5.00%	218.44	4.77%	218.71	4.68%	218.80	4.10%	219.18	4.35%	218.06	5.17%
2009	211.14	6.48%	212.19	6.79%	212.71	6.46%	213.24	5.83%	213.86	5.61%	215.69	6.31%	215.35	5.82%	215.83	5.85%	215.97	6.44%	216.18	7.12%	216.33	7.36%	215.95	7.01%	214.54	6.42%
2008	211.08	10.69%	211.69	10.37%	213.53	10.46%	214.82	10.39%	216.63	11.44%	218.82	12.50%	219.96	12.57%	219.09	11.55%	218.78	10.05%	216.57	8.72%	212.43	7.50%	210.23	6.82%	215.30	10.24%
2007	202.42	9.30%	203.50	9.29%	205.35	9.58%	206.69	9.94%	207.95	9.97%	208.35	9.83%	208.30	9.98%	207.92	9.72%	208.49	9.79%	208.94	9.45%	210.18	10.04%	210.04	10.37%	207.34	9.76%
2006	198.30	9.14%	198.70	8.52%	199.80	8.47%	201.50	9.63%	202.50	10.35%	202.90	10.45%	203.50	10.66%	203.90	10.46%	202.90	9.56%	201.80	9.08%	201.50	9.21%	201.80	9.50%	201.60	9.59%
2005	190.70	7.68%	191.80	7.87%	193.30	8.11%	194.60	8.23%	194.40	8.12%	194.50	8.12%	195.40	8.50%	196.40	8.69%	198.80	9.83%	199.20	9.87%	197.60	8.99%	196.80	8.79%	195.30	8.57%
2004	185.20	5.77%	186.20	5.92%	187.40	6.36%	188.00	6.27%	189.10	6.42%	189.70	6.57%	189.40	6.70%	189.50	6.76%	189.90	6.51%	190.90	7.43%	191.00	7.67%	190.30	7.70%	188.90	6.66%
2003	181.70	7.64%	183.10	7.83%	184.20	7.59%	183.80	7.30%	183.50	7.00%	183.70	6.55%	183.90	6.42%	184.60	6.83%	185.20	6.62%	185.00	6.32%	184.50	5.97%	184.30	5.92%	183.96	6.83%
2002	177.10	7.79%	177.80	8.09%	178.80	8.36%	179.80	8.18%	179.80	8.18%	179.90	8.24%	180.10	8.04%	180.70	8.14%	181.00	7.80%	181.30	7.79%	181.30	7.72%	180.90	7.49%	179.88	7.97%
2001	175.10	8.35%	175.80	8.59%	176.20	8.63%	176.90	8.86%	177.70	9.15%	178.00	9.20%	177.50	8.76%	177.50	8.63%	178.30	8.99%	177.70	8.35%	177.40	8.17%	176.70	7.81%	177.10	8.65%
2000	168.80	6.10%	169.80	6.39%	171.20	7.00%	171.30	6.93%	171.50	7.12%	172.40	7.55%	172.80	7.66%	172.80	7.46%	173.70	7.75%	174.00	7.67%	174.10	7.80%	174.00	7.87%	172.20	7.29%
1999	164.30		164.50		165.00		166.20		166.20		166.20		166.70		167.10		167.90		168.20		168.30		168.30		166.60	
1998	161.60		161.90		162.20		162.50		162.80		163.00		163.20		163.40		163.60		164.00		164.00		164.00		163.00	
1997	159.10		159.60		160.00		160.20		160.10		160.30		160.50		160.80		161.20		161.60		161.50		161.30		160.50	
																									<b>Average</b>	<b>6.60%</b>

## **Construction Inflation Analysis for NATIONAL DATA**

5-20-2021

Prepared by:

Edward R Zarenski

Construction Analytics

**This Construction Analytics 2021 Construction Inflation Report is meant to accompany the complete Construction Analytics 2021 Construction Economic Forecast**

### **PREFACE**

**The level of construction activity has a direct influence on labor and material demand and margins and therefore on construction inflation.**

Only twice in 50 years have we experienced construction cost deflation, 2009 and 2010. That was at a time when business volume was down 33% and jobs were down 30%. In 2020, volume dropped 8% from February to May and we gained half that back by December. Jobs dropped 14%, 1,000,000+ jobs, in two months! Now volume is still down 4% and jobs are down 2% from Feb peak. We gained back 850,000 jobs. But also, we gained back more jobs than volume. That means it now takes more jobs to put-in-place volume of work. That increases inflation.

Typically, when work volume decreases, the bidding environment gets more competitive. We can always expect some margin decline when there are fewer nonresidential projects to bid on, which usually results in sharper pencils (lower bids). However, if materials shortages develop or productivity declines, that could cause inflation to increase. We can expect cost increases due to material prices, labor cost, lost productivity, project time extensions or potential overtime to meet a fixed end-date. But 30 years of data shows rarely has there been any substantial increase in inflation when construction spending is headed down. Downward pressure on spending will temper cost inflation.

### **COST INDICES**

**General construction cost indices and Input price indices that do not track whole building final cost do not capture the full cost of inflation on construction projects.**

Selling Price is whole building actual final cost. Selling price indices track the final cost of construction, which includes, in addition to costs of labor and materials and sales/use taxes, general contractor and sub-contractor margins or overhead and profit.

When construction activity is increasing, total construction costs typically increase more rapidly than the net cost of labor and materials. In active markets overhead and profit margins increase in response to increased demand. These costs are captured only in Selling Price, or final cost indices.

Consumer Price Index (CPI), tracks changes in the prices paid by consumers for a representative basket of goods and services, including food, transportation, medical care, apparel, recreation, housing. This index is not related at all to construction and should not be used to adjust construction pricing.

Producer Price Index (PPI) for Construction Inputs is an example of a commonly referenced construction cost index that does not represent whole building costs. Engineering News Record Building Cost Index (ENRBCI) and RSMeans Cost Index are examples of commonly used indices that do not capture whole building cost.

**Construction Analytics Building Cost Index, Turner Building Cost Index, Rider Levett Bucknall Cost Index and Mortenson Cost Index are all examples of whole building cost indices that measure final selling price (for nonresidential buildings only).**

## HISTORY

**Post Great Recession, 2011-2020, average nonresidential buildings inflation is 3.7%.** In 2020 it dropped to 2.4%, but for the six years 2014-2019 it averaged 4.4%. Residential cost inflation for 2020 reached 5.4%. It has averaged over 5% for the last 8 years. The 30-year average inflation rate for nonresidential buildings is 3.5% and for residential it's 4%.

- Long-term construction cost inflation is normally about double consumer price index (CPI).
- Average long-term (30 years) nonresidential construction cost inflation is 3.5%.
- Average long-term nonres buildings inflation excluding 2009-2010 recession years is 4.0%.
- In times of rapid construction spending growth, nonresidential construction annual inflation averages about 8%. Residential has gone as high as 10%.
- Nonresidential buildings inflation has average 3.7% since the recession bottom in 2011. Six year 2014-2019 average is 4.4%.
- Residential buildings inflation reached a post-recession high of 8.0% in 2013 but dropped to 3.5% in 2015. It has averaged 5.2% for 8 years 2013-2020.
- Although inflation is affected by labor and material costs, a large part of the change in inflation is due to change in contractors/supplier margins.
- When construction volume increases rapidly, margins increase rapidly.

**Nonresidential buildings inflation, after hitting 5.3% in 2018 and 4.8% in 2019, fell to 2.4% in 2020,** lower than the 4.5% average for the previous four years. Nonresidential buildings spending has not kept up with inflation since 2016. Spending needs to grow at a minimum of inflation, otherwise volume is declining. Volume has declined 7% since 2016.

**Nonbuilding Infrastructure inflation, from 2013 to 2017 averaged less than 1%, but then jumped to 5% in 2018 and 2019. 2020 inflation fell to 2.5%.** Spending dropped -5% in 2017 and that has kept volume flat for the past 5 years. Volume has declined -2% since 2015.

**Residential construction** inflation in 2019 was only 3.4%. However, the average inflation for six years from 2013 to 2018 was 5.5%. It peaked at 8% in 2013 but dropped to 4.3% in 2018 and only 3.4% in 2019. Residential construction volume dropped -5.5% in 2019, the largest volume decline in 10 years. Then volume increased 6.4% in 2020.

**Producer Price Index (PPI) Material Inputs (which exclude labor)** to new construction increased +4% in 2018 after a downward trend from +5% in 2011 led to decreased cost of -3% in 2015, the only negative cost for inputs in the past 20 years. Input costs to nonresidential structures in 2017-2018 average +4.3%, the highest in seven years. Infrastructure and industrial inputs were the highest, near 5%.

## 2020 PERFORMANCE

Even though material input costs were up for 2020, nonresidential inflation in 2020 remained low, probably influenced by a reduction in margins due to the decline in new nonresidential buildings construction starts (-22%), which is a decline in new work to bid on. A 22% drop in new nonresidential buildings starts within one year equals a loss of \$100 billion of work that would have occurred over the next 2-4 years. Nonbuilding starts were down 13%, equivalent to a loss of \$45 billion in new work that would likely have been spread over 2-5 years. Residential increased starts in 2020 that added about \$45 billion in new spending.

**Nonresidential buildings inflation for 2020 dropped to 2.4%, the first time in 7 years below 4%. Spending fell only 2.0% but after accounting for inflation, volume decreased -4.4%.**

**Nonbuilding Infrastructure inflation for 2020 dropped to 2.5% after two years at 5%. Average public infrastructure inflation since 2011 is only 2.8%/yr. 2020 spending increased 2.8%. After accounting for inflation, volume increased 0.3%.**

**Residential inflation averaged 5.4% for 2020. Remarkably, spending increased 12.2% and 2020 volume was up 6.4%.**

Volume = spending minus inflation.

Residential business volume dropped 12% from the January 2020 peak to the May bottom, but has since recovered 22% and now stands at a post Great Recession high, 10% above one year ago.

Nonresidential business volume dropped 5% from the February 2020 peak, but that's not the bottom. Volume has since dropped 11 out of 12 months and is now down 12% from the January 2020 peak.

## CURRENT INPUTS

The U.S. Census Single-Family house New Construction Index is up 7% from March 2020 to March 2021. The rate of growth in this index is increasing, up 3.5% for the last 3 months.

[https://www.census.gov/construction/nrs/pdf/price\\_uc.pdf](https://www.census.gov/construction/nrs/pdf/price_uc.pdf)

For the year 2020, Residential Building Materials Inputs are up 6.2%. See PPI charts. By far, sharply higher lumber prices have added more than any other input to the price of an average new single-family home. [https://www.census.gov/construction/nrs/pdf/price\\_uc.pdf](https://www.census.gov/construction/nrs/pdf/price_uc.pdf)

Although residential spending remains near this high level for the next year, volume after inflation begins to drop by midyear. For the year 2020, Residential building materials inputs are up 6.7%. See PPI charts. Sharply higher lumber prices added to inflation. Residential inflation averaged 5.4% for 2020.

The 2020 year-end Producer Price Index tables published by AGC <https://www.agc.org/sites/default/files/PPI%20Tables%20202012.pdf> shows input costs to nonresidential buildings up about 3.5% to 4.5% for 2020, but final costs of contractors and buildings is up only 1% to 2%. This could be an indication that, although input costs are up, final costs are depressed due to lower margins, the effect of fewer projects to bid on creating a tighter new work available environment, which generally leads to a more competitive bidding environment. This could reverse in 2021 as the volume of work to bid on in most markets begins to increase.

**As of March 2021, PPI for materials inputs to construction is up 12% to 14% yoy**, measured to last March before the bottom dropped out. The PPI Buildings Cost Index for final cost to owner is up only 2%. Construction inflation is very different right now for subcontractors vs general contractor/CM.

<https://www.agc.org/learn/construction-data>

The Turner Construction Cost Index for 2020 is up 1.84% from 2019. Q1 2021 is up 0.1% from Q4 2020 but down -1.5% from Q1 2020. <http://turnerconstruction.com/cost-index>

The Rider Levitt Bucknall nonresidential buildings index average index for 2020 is up 3.5% from the average 2019 index. The current Q1 2021 index is up 1% from Q4 2020 and up 1.8% from Q1 2020.

<https://www.rlb.com/americas/insight/rlb-construction-cost-report-north-america-q1-2021/>

R.S.Means quarterly cost index of some materials for the 4th quarter 2020 compared to Q1 2020:

Ready-Mix Concrete -1.8%, Brick +10%, Steel Items -1% to -5%, Framing Lumber +32%, Plywood +8%, Roof Membrane +5%, Insulating Glass +12%, Drywall +3%, Metal Studs +23%, Plumbing Pipe and Fixtures +1%, Sheet Metal +20%.

PPI cost index of some materials for April 2021 compared to April 2020: Ready-Mix Concrete +2%, Brick and Block +4.2%, Steel Pipe and Tube +24%, Fabricated Structural Metal +8.3% Lumber and Plywood +85%, Glass +4%, Drywall +12%, Sheet Metal +12% Copper and Brass Mill Shapes +49%, Aluminum Mill Shapes +20%, #2 Diesel Fuel +126%.

Steel Prices at mill in the U.S. are up 60% to 100% in the last 6 months. All prices are 50% to 75% higher than Feb 2020. <http://steelbenchmarker.com/files/history.pdf> . This is mill price of steel which is about 25% of the price of steel installed. What affect might a steel cost increase have on a building project? It will affect the cost of structural shapes, steel joists, reinforcing steel, metal deck, stairs and rails, metal panels, metal ceilings, wall studs, door frames, canopies, steel duct, steel pipe and conduit, pumps, electrical cabinets and furniture, and I'm sure more. Assuming a typical structural steel building with some metal panel exterior, steel pan stairs, metal deck floors, steel doors and frames and steel studs in walls, then all steel material installed represents about 14% to 16% of total building cost. Structural Steel only, installed, is about 9% to 10% of total building cost, but applies to only 60% market share being steel buildings. The other 6% of total steel cost applies to all buildings. <https://www.thefabricator.com/thefabricator/blog/metalsmaterials/steel-prices-reach-levels-not-seen-since-2008> At these prices, if fully passed down to the owner, this adds about 1.5%-2% to building cost inflation.

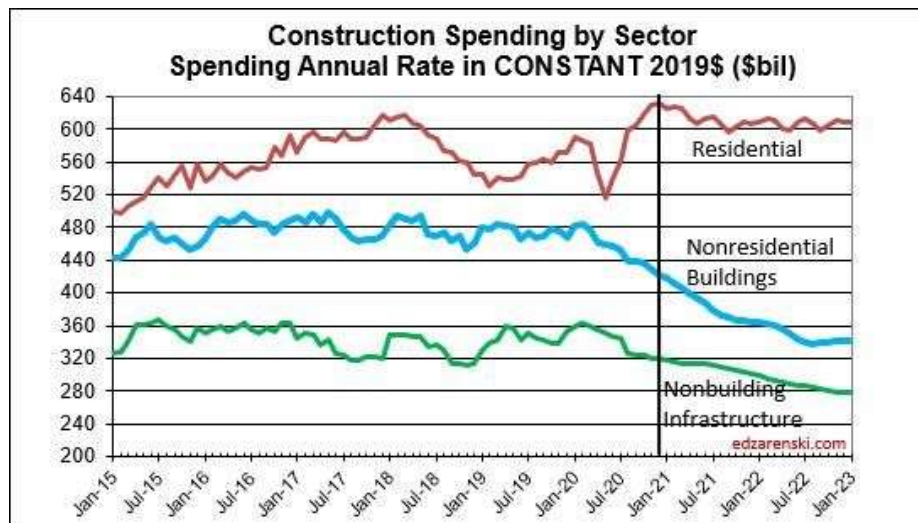
**With demand in decline for nonresidential buildings, I would expect to see some or all these material price increases recede throughout 2021.**

**FUTURE FORECAST**

Almost every construction market has a weaker spending outlook in 2021 than in 2020, because approximately 50% of spending in 2021 is generated from 2020 starts, and 2020 nonresidential starts range down 10% to 25%, several markets down 40%. Nonresidential buildings starts fell 22% in 2020, but will increase 4% in 2021. Nonbuilding starts were down 15%, but will increase 10% in 2021. Residential starts were up 6% in 2020 and will increase 10% in 2021.

Volume drops another 5% in 2021, all nonresidential, and then another 3% in 2022.

**Constant \$ = Spending minus inflation = Volume**





Many projects under construction had been halted for some period of time and many experienced at least short-term disruption. The delays may add either several weeks to perhaps a month or two to the overall schedule, in which case, not only does labor cost go up but also management cost goes up, or it could add overtime costs to meet a fixed end-date. Some of these project costs have yet to occur as most would be expected to add onto the end of the project.

Some projects that were put on hold (nonresidential buildings starts in 2020 dropped 24%) just prior to bidding in 2020 may now re-enter the bidding environment. The rate at which these projects come back on-line could impact the bidding environment. If several months-worth of projects that delayed bidding last year all come onto the market at once, or even in a more compressed time span than normal, the market could be flooded with work and bidding contractors have more choice, can bid more projects than normal and could potentially raise margins in some bids. This would have an inflationary effect.

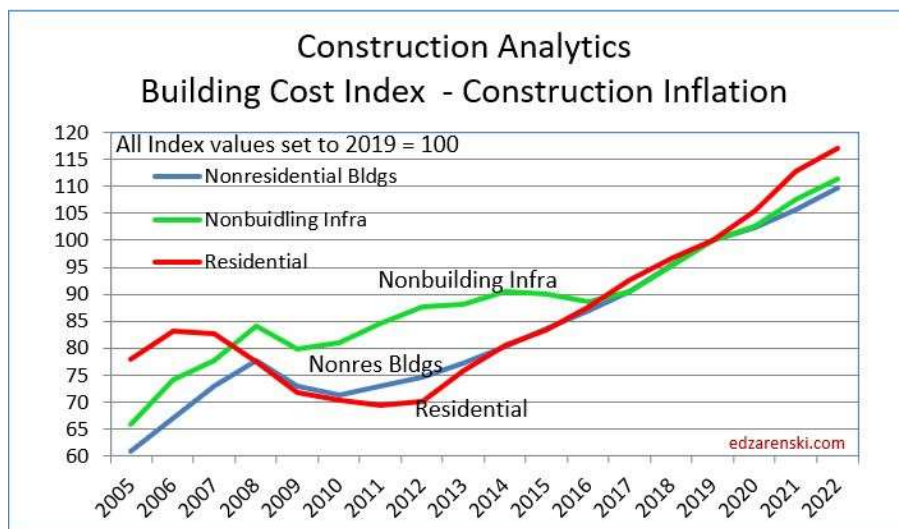
Even with 4% growth in new starts, that comes after a 22% drop in 2020, so remains still 18% below 2019. Total volume of work is declining and new projects available out to bid is still depressed, so pressure on margins still exists.

**I expect non-residential buildings inflation in 2021 to range between 3.2% to 3.5%, with potential to be held lower. Expect residential inflation of 7% to 8% with potential to push slightly higher.**

Nonresidential inflation, after hitting 5% in both 2018 and 2019, and after holding above 4% for the six years 2014-2019, increased only 2.4% in 2020. Forecast is 3.2% for 2021 and increasing to 3.7% for the next few years.

Forecast residential inflation is 7% for 2020 and 3.8% for the several years. It was only 3.4% for 2019 but averaged 5.5%/yr since 2013 and returned to 5.4% in 2020.

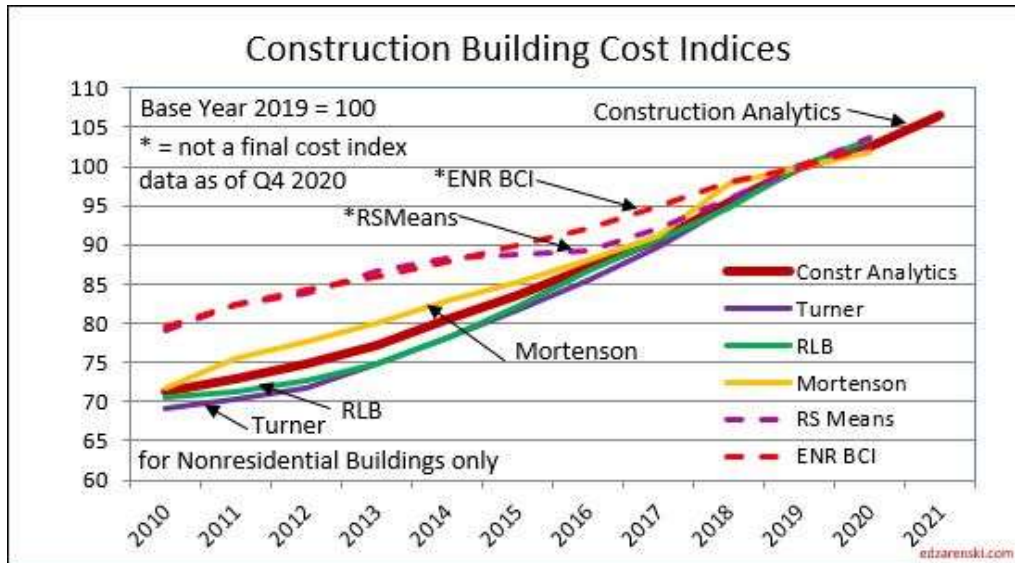
### Construction Analytics Building Cost Index



Subcontractor costs, such as for steel or lumber, could range much higher due to huge material cost increases. All the downward pressure on nonresidential inflation is on margins. There is currently 20% less nonresidential buildings work to bid on than in Q1 2020.

Notice in this next plot how index growth for ENR BCI and RSMeans, both input indices, is much less than for all other selling price final cost indices. From 2010 to 2020, Construction Analytics total final cost inflation is  $103/71 = 1.45 = +45\%$ . Input cost indices total inflation over the same period is only  $103/79 = 1.30 = +30\%$ , missing a big portion of the cost growth over time.

**Nonresidential Buildings Selling Price Indices vs Input Indices**



Several Nonresidential Buildings Final Cost Indices averaged over 5%/yr in 2018 and 2019 and over 4%/yr from 2015 to 2019 averaging +25% inflation for 5 years. Input indices that do not track whole building cost averaged only 12% inflation for those five years, much less than final cost growth.

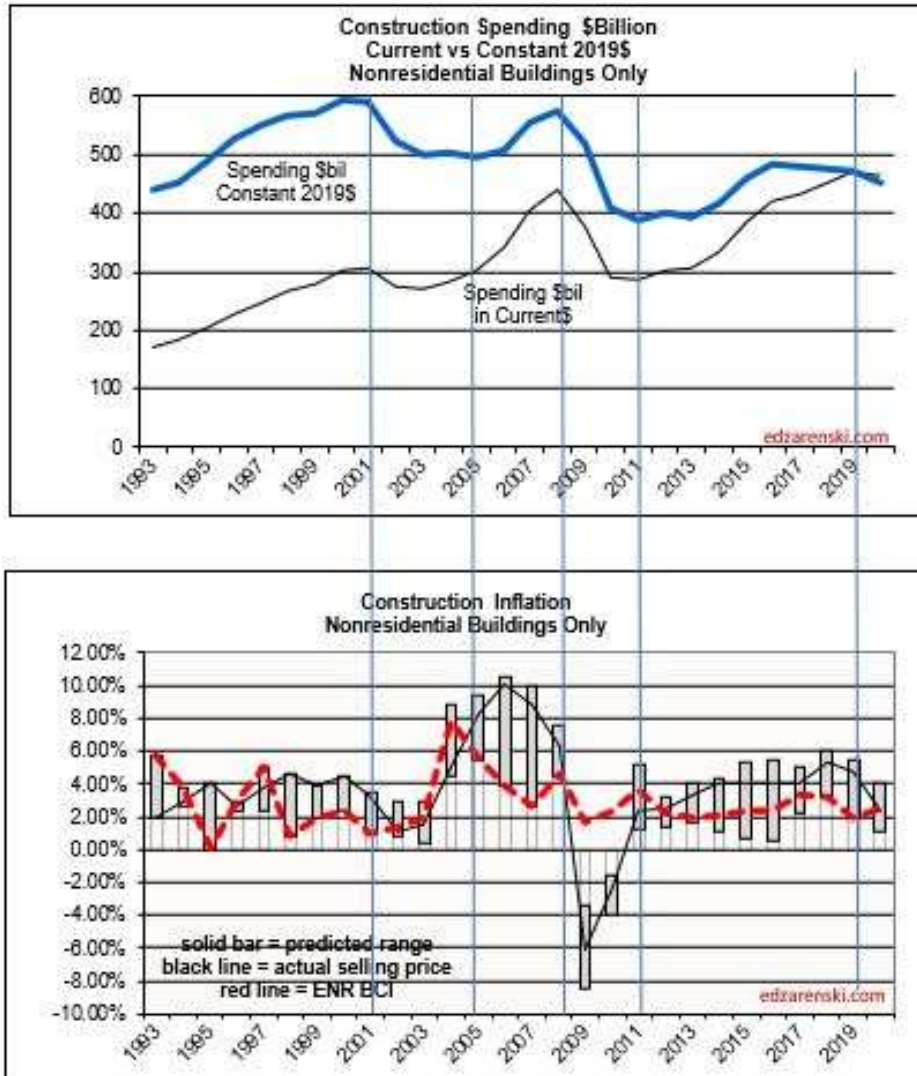
REFERENCE INFLATION INDICES	ANNUAL ESCALATION PERCENT										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
<b>NonRes Bldgs Final Cost National Avg</b>											
Constr Analytics Nonresidential Bldgs	2.36%	2.52%	3.39%	4.01%	4.01%	4.08%	4.07%	5.34%	4.82%	2.43%	
Turner Index actual cost	1.63%	2.22%	4.10%	4.40%	4.57%	4.80%	5.01%	5.61%	5.43%	1.84%	
Rider Levett Bucknall Index Actual Cost	1.20%	1.82%	3.14%	4.23%	5.29%	5.45%	4.58%	4.56%	5.51%	3.53%	
Mortenson avg 6 cities nonres bldg	5.21%	2.97%	2.88%	3.74%	2.70%	3.51%	3.39%	7.38%	2.21%	1.90%	
PPI AVG 4 NONRES BLDGS	2.41%	3.27%	1.70%	3.02%	1.82%	1.16%	2.16%	4.05%	5.04%	1.04%	
PPI AVG 4 TRADES NONRES BLDGS	1.74%	2.21%	1.65%	2.61%	2.17%	1.68%	2.29%	3.96%	4.95%	1.19%	
R S Means + Margin	3.00%	3.01%	4.66%	4.15%	3.60%	3.29%	3.90%	5.69%	5.56%	3.77%	
ENRBCI + Margin	2.38%	3.50%	3.27%	4.40%	5.36%	5.08%	4.16%	4.56%	3.31%	2.48%	
<b>Nonres Bldgs Inputs Indices</b>											
RS Means Index Inputs	4.20%	1.78%	3.39%	1.84%	0.63%	0.53%	3.04%	4.35%	4.17%	3.79%	
ENR BCI Index Inputs	3.58%	2.27%	2.01%	2.08%	2.39%	2.32%	3.29%	3.22%	1.93%	2.50%	
PPI Inputs to NONRES BLDGS	7.90%	1.67%	0.64%	0.82%	-4.58%	-1.69%	3.93%	6.91%	4.20%	3.70%	
<b>Residential Final Cost</b>											
US Cen Bur NEW Homes Lasperyes	-1.31%	1.15%	7.99%	6.34%	3.53%	5.16%	5.75%	4.29%	3.39%	5.41%	
S&P/Case Shiller HomePrice NATIONAL	1.04%	1.03%	6.50%	6.11%	2.52%	5.09%	5.09%	3.49%	3.15%	4.02%	
S&P/Case Shiller HomePrice NATIONAL	-3.75%	1.29%	9.61%	6.58%	4.59%	5.23%	6.43%	5.10%	3.62%	6.80%	

All data updated to Q1'2021 where available

As noted previously, some reliable nonresidential selling price indexes have been over 4% since 2014.

In the following plot, Construction Analytics Building Cost Index annual percent change for nonresidential buildings is plotted as a line against a bar chart of the range of all other nonresidential building inflation indices. Bars represent the predicted range of inflation from various sources with the solid line showing the composite final cost inflation. The low end of the predicted range is almost always established by input costs (ENR BCI is plotted), while the upper end of the range and the actual cost are established by selling price indices. Then inflation indices are compared to a plot of construction spending. Periods of rapid expansion in spending correlate with periods of high inflation.

**Construction Analytics Nonresidential Buildings Cost Index vs Range of Input Indices**



**Non-building infrastructure** indices are so unique to the type of work that individual specific infrastructure indices must be used to adjust cost of work. The FHWA highway index increased 17% from 2010 to 2014, stayed flat from 2015-2017, then increased 15% in 2018-2019. The IHS Pipeline and LNG indices increased 4% in 2019 but are still down 18% since 2014. Coal, gas, and wind power generation indices have gone up only 5% total since 2014. Refineries and petrochemical facilities

dropped 10% from 2014 to 2016 but regained all of that by 2019. BurRec inflation for pumping plants and pipelines has averaged 2.5%/yr since 2011 and 3%/yr the last 3 years.

[This link refers to Infrastructure Indices.](#)

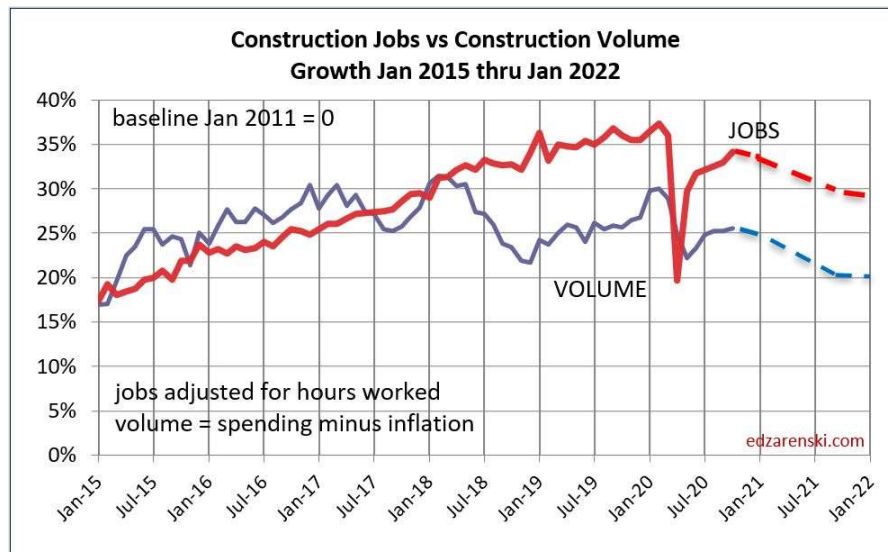
## Volume of Work and Jobs

**To differentiate between Revenue and Volume you must use actual final cost indices, otherwise known as selling price indices, to properly adjust the cost of construction over time.**

When we see spending increasing at less than the rate of inflation, real work volume is declining. For example, with construction inflation at 3% annually, a nonresidential building spending decline of -2% in 2020 would reflect a work volume decline of -5%. The extent of volume declines would impact the jobs situation.

Residential construction volume dropped 12% from the January 2020 peak to the May bottom, but has since recovered 22% and now stands at a post Great Recession high, 10% above one year ago. Although residential spending remains near this high level for the next year, volume begins to drop by midyear.

Nonresidential volume has been slowly declining and is now down 10% from one year ago. By 3rd quarter 2021, nonresidential buildings volume is forecast down another 15% lower than December, or 25% below the Feb 2020 peak. This tracks right in line with the 22% decline in new construction starts in 2020. Most of the spending from those lost starts would have taken place in 2021, now showing up as a major decline in spending and work volume.



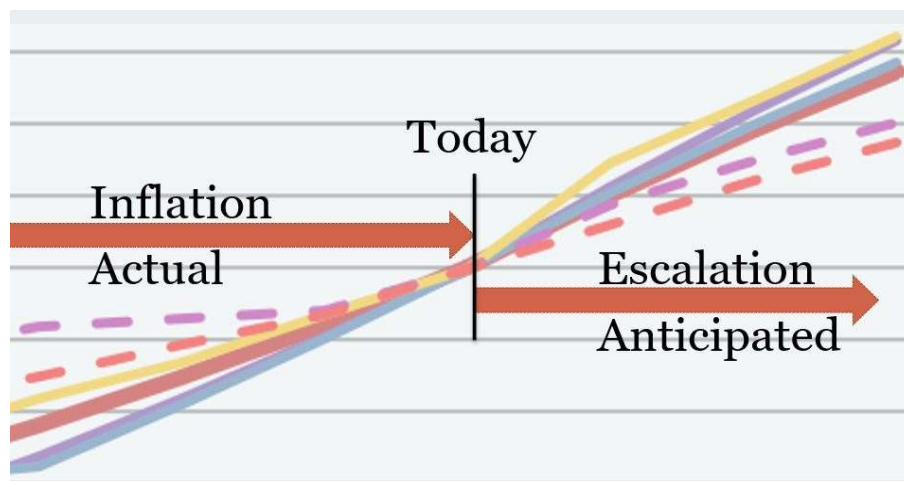
While construction spending in 2021 is forecast up 4.6%, after inflation construction volume is expected to decline 0.7%. Residential construction spending is forecast up 17%, volume up 9%+, but 2021

nonresidential buildings spending is forecast down -7.7% leading to a decline in volume after inflation of -10.5%. Nonbuilding Infrastructure spending in 2021 declines -1.3%, volume drops -5%.

Nonresidential buildings volume declines of 10%+ project to a loss of over 250,000 jobs in 2021 and non-building infrastructure is projected to drop 70,000 jobs, but Residential could experience growth in 2021 of 250,000 jobs.

Jobs are supported by growth in construction volume, spending minus inflation. This time next year, volume will be 5% lower than today, 10% below the Feb 2020 level. **We will not see construction volume return to Feb 2020 level at any time in the next three years.**

A final word about terminology: **Inflation vs Escalation**. These two words, Inflation and Escalation, both refer to the change in cost over time. However, escalation is the term often used in a construction cost estimate to represent anticipated future change, while more often the record of past cost changes is referred to as inflation. This graphic might represent how most owners and estimators reference these two terms.



This link points to comprehensive coverage of the topic inflation and is recommended reading. [Click Here for Link to a 20-year Table of 25 Indices](#)

[Construction Analytics 2021 Construction Economic Forecast is here](#)