

RESOLUTION NO. 2015-17

A RESOLUTION TO AUTHORIZE A CONTRACT WITH MOORE & BRUGGINK FOR SERVICES RELATED TO RELOCATING CHEMICALS FROM THE MAIN CONTROL BUILDING

WHEREAS, this project was identified for construction within three years in the 2012 Capital Improvement Plan prepared by Fishbeck, Thompson, Carr, and Huber; and

WHEREAS, the WWTP uses ferric chloride (Fe Cl_3) continually as a critical process chemical for the removal of phosphorus; and

WHEREAS, the Fe Cl_3 is currently located in the main control building and is corroding equipment in its vicinity including the main electrical feed to the plant, electrical switchgear for critical operations in the plant, HVAC equipment, doors, lighting, and the generator; and

WHEREAS, the two 5,000 gallon tanks and the required pumps for the FeCl_3 have previously experienced failures and have served beyond their useful life; and

WHEREAS, the building was built around the tanks and replacement of the tanks in the same location would require removal of the roof or a masonry wall; and

WHEREAS, the current location of the Fe Cl_3 requires pumping the chemical over 500 feet which leads to periodic plugging of the piping; and

WHEREAS, operational staff along with the engineers agree that it would be in the best interest of the operations to move the Fe Cl_3 to a location approximately 100 feet from the application point; removing the tank from a building where it is causing corrosion; that proper containment and ventilation be provided for safety; and that the existing tank area would be retrofit to increase efficiency of the operations in the main control building; and

WHEREAS, Moore & Bruggink has submitted a proposal in the amount of \$64,000 to prepare plans and specifications.

THEREFORE, BE IT RESOLVED That the City enter into a contract with Moore & Bruggink to provide the above mentioned services and that the mayor or clerk be directed to sign said contract on behalf of the City.

City of Charlotte Wastewater Treatment Plant
2012 Capital Improvements Plan
G120016MP

Treatment Facility	Component	Year Installed	Current Condition	Remedy	Est. Construction Cost	Cost Incl. Engineering	Priority	Timeline	
Control Building	Ferric Chloride Feed Room	1979	<ul style="list-style-type: none"> Leaking ferric bulk storage tank; need to replace both tanks Ferric fumes corrode metal ductwork, fixtures and doors in room 	<ul style="list-style-type: none"> Demolish tanks Move ferric bulk storage tanks to new building with adequate cross ventilation 	\$10,000	\$12,500	3	Within 3 years	
		1979		<ul style="list-style-type: none"> Structural investigation of roof trusses and attic Fill in pit and renovate current Ferric Chloride Feed Room space Replace mixers 	\$0	\$185,000	3		
	Chlorine Gas Feed Room	1979	<ul style="list-style-type: none"> Sodium metabisulfite day tank mixers leak oil 	<ul style="list-style-type: none"> Replace with UV disinfection in below grade pit south of Control Building 	\$80,000	\$10,000	3	Within 5 years	
		1979	<ul style="list-style-type: none"> Chlorine solution feed piping from 1970's in poor condition Gas feed equipment over 10 yrs old System no longer safe for plant staff 	<ul style="list-style-type: none"> Add bleach solution feed systems for filter backwash and surface wash lines and cooling water pump lines 	\$10,000	\$12,500	5		
	Ancillary Equipment		1979	<ul style="list-style-type: none"> MCCs and distribution panels in room adjacent to ferric feed room are badly corroded Condenser cooling water pump original to plant Two compressors in basement original to plant Nonpotable water pumps original to plant Sump pumps need replacement See secondary sludge pump and filter backwash and surface wash pumps below 	<ul style="list-style-type: none"> Replace MCCs after ferric bulk storage tanks are moved to new building Replace cooling water pump Replace compressors Replace nonpotable water pumps Replace sump pumps 	\$75,000	\$90,000	5	Within 5 years
			1979			\$5,000	\$5,000	5	
			1979			\$20,000	\$25,000	5	
			1979			\$7,500	\$7,500	5	
	Generators Laboratory		1979	Original to plant; maintained in good working condition	Replace when necessary	\$80,000	\$95,000	6	Within 5-10 years
			1979	<ul style="list-style-type: none"> Oxidation of cabinetry, fixtures, shower pipe, etc. 	<ul style="list-style-type: none"> Recommission and test and balance entire HVAC 	\$0	\$15,000	2	Within 2 years
Chlorine Contact Tanks	Office Conference Room, etc.	1979	Groundwater leaks near floor in Basement of Control Building	Inject crack sealant and repaint walls and floor.	\$125,000	\$155,000	6	Within 5-10 years	
		1979	Good working condition; no action necessary	Annual maintenance	\$10,000	\$12,500	1	Within 1 year	
		1979	Good working condition; no action necessary	Annual maintenance					
Regeneration System		1979	Good working condition; no action necessary	Annual maintenance					
		1979	Good working condition; no action necessary	Annual maintenance					
Final Effluent Outfall		1979	Good working condition; no action necessary	Annual maintenance					



MOORE & BRUGGINK, INC.

Consulting Engineers

2020 Monroe Avenue, N.W.

Grand Rapids, Michigan 49505-6298

September 18, 2015

Proposal – Chemical Building

City of Charlotte
Ms. Amy Gilson, Director of Public Works
111 E. Lawrence Avenue
Charlotte, Michigan 48813

Dear Ms. Gilson:

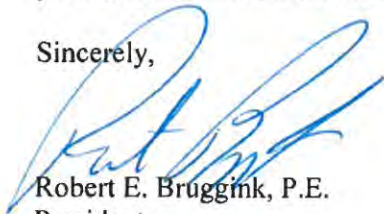
Moore & Bruggink, Inc. is pleased to submit a proposal for the **Charlotte Chemical Building Project** to the City of Charlotte. Our proposal is prepared in accordance with our site visit with your staff to determine the project scope on September 9, 2015. Our understanding is that the City would like to construct a new Chemical Storage and Pumping Building. This would entail a new block building, concrete chemical containment, FRP storage tanks, chemical metering pumps, fill piping, a safety shower, and all necessary platforms to access the tanks. Sheets will be prepared to detail the demolition of the existing chemical tanks and equipment. Yard piping will be placed to distribute the chemical and provide water for the building. A survey will be conducted for use as a site plan, and we assume one soil boring will be necessary to assess the soil conditions under the proposed building.

A breakdown of design phase tasks is included in the attached manhour worksheet, detailing our scope of work and estimated manhours for the design of the chemical building project. A line item is included for our electrical engineering sub consultant, Century AE (also used on the UV Disinfection Project). We have also included a line item for one soil boring under the building location. As usual, we will only bill for time and materials expended on the project, and will complete the design phase for a not-to-exceed price of \$64,000.

Once the design is complete and the bids are taken, the construction phase can be negotiated with the City based on the selected contractor's construction timeline. Our understanding is that the City may want to phase the design work to be completed after the Grit Chamber Renovation Project. Our proposal was prepared assuming a separate set of bid documents. Some economies of scale may be gained by bidding both projects together.

We look forward to working with the City of Charlotte and the Wastewater Staff and hope to be your selected consultant. Please call me if you have any questions.

Sincerely,



Robert E. Bruggink, P.E.
President



Brian Hannon, P.E.
Project Engineer

REB/kjk

Attachment #1 – Manhour Cost Worksheet

CHARLOTTE CHEMICAL BUILDING - DESIGN ENGINEERING COST ESTIMATE

9/18/2015

CHEMICAL BUILDING PROPOSAL

	Project Manager	Project Engineer	Structural Engineer	Survey Crew	CAD Tech	Clerical	Total M&B
							0
kick-off meeting w/ staff	4	4					8
survey area of new building				8	8		16
soil boring in bldg area	1	1					2
design sketches	4						4
discuss design w/ tank and pump vendors and get initial estimates	2	8					10
coordinate w/ architectural	4	8					12
create yard piping demo and re-routing sheets	2	4			8		14
confirm design elements w/ staff	4	4					8
confirm design elements w/ vendors	2	6					8
site grading plan	4	2			8		14
draw P&ID's	4	4			2		10
run hydraulic scenarios	1	4					5
draw plan/profile views and note	16	40			24		80
design structural for containment and pump room	2	2	8		4		16
put specifications together	32	16				32	80
write SCADA process control description	4	1				1	6
final design review w/ staff	4	4				1	9
part 41 permit	1	2				1	4
engineers estimate	2	8					10
put final bid docs on the table	4	4				8	16
conduct prebid meeting	4	4				1	9
answer RFI's	3	6				1	10
take bids	4	4				1	9
award and budget letters	1					1	2
get contract books processed and signed	4	2				4	10
coordination w/ electrical and architectural (throughout)	12	8					20
QA/QC	4	4	4				12
TOTAL HOURS, DESIGN PHASE	129	150	12	8	54	51	404
Estimated M&B Cost Chemical Building	\$	37,000					
Estimated Century A&E Cost Chemical Building	\$	24,000					
MTC - soil boring	\$	2,000					
Expenses (mileage and printing)	\$	1,000					
ESTIMATED TOTAL COST, Chemical Building design phase	\$	64,000					