



November 30, 2016

City of Greensboro  
Department of Water Resources  
2602 S Elm Eugene St  
Greensboro, NC 27406

Attn: Mr. Danny Briggs

RE: The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Guaranteed Maximum Price (GMP)

Dear Mr. Briggs:

As described by its Agreement for Preconstruction Services with the City of Greensboro, North Carolina, HDR Constructors, Inc. (“HDRC”), has requested Subcontractor and Equipment bids for all work associated with the above described project. Accordingly, HDRC offers the following Guaranteed Maximum Price (“GMP”) for all work described by the bid documents, and otherwise described by Exhibit G Guaranteed Maximum Price (GMP) Summary, attached.

Guaranteed Maximum Price      \$18,659,134.00

Of this amount, it is anticipated that 8.02% of Minority Business Enterprise (MBE) and 12.34% Women Business Enterprise (WBE) participation will be achieved, as described by the City of Greensboro Minority and Women Business Enterprise Program. Please see Table MWBE-1, attached for a detailed summary of this participation.

Included with these costs are performance and payment bonds, insurance, general conditions, construction administration costs, and construction management fee. Builders Risk Insurance is strictly excluded, and is the responsibility of the City of Greensboro. If there is a Builders Risk Insurance claim during the course of construction, HDRC will reimburse the policy’s deductible of \$50,000 to the City of Greensboro.

HDRC Requests the following information from the Builder’s Risk Policy

- Certificate of Insurance (Named as Additional Insured)
- Copy of the Binder, only if the Policy is not available at time of mobilization
- Copy of the Builder’s Risk Policy

All work shall be completed and ready for Owner’s use within 759 calendar days, and final completion within 815 calendar days of a mutually agreeable date of Notice to Proceed. All terms and conditions shall be per the Standard Form of Agreement between Owner and Construction Manager, including revisions as negotiated by the parties, made on September 30, 2014.

This Guaranteed Maximum Price is in addition to the initial contract amount for Preconstruction Services.

A summary of services and work to be performed titled Exhibit F Scope of Construction Services” is attached.

A detailed tabulation and summary of above described costs titled Exhibit G Guaranteed Maximum Price (GMP) Summary” is attached.

This proposal is based upon the following adjustments to the Standard Form of Agreement between Owner and Construction Manager, including revisions as negotiated by the parties, made on November 30, 2014:

hdrinc.com      440 S. Church Street, Suite 1000  
Charlotte, NC 28202



Article 3.5.3.3, Change Order Control, add to the end:

“The CM shall be entitled to a fee equal to the cost of the work plus a fixed percentage of 10% for the overhead, administration, and profit of the CM for all work added under the CMAR Contingency. For all additional work funded through the Owner’s Contingency, the CM shall be entitled to a fee equal to the cost of the work plus a fixed percentage of 10% for the overhead, administration, and profit of the CM. This fixed percentage has already been taken into account under the Construction Fee Line Item.”

Article 4.1.2.4 delete and replace with

“The CM’s Basic Services during the Construction Phase shall be performed for a period of 759 calendar days to Substantial Completion, and final completion within 815 calendar days of a mutually agreeable date of Notice to Proceed”

Article 4.1.2.5 delete in its entirety.

These services are to be provided by the Designer.

Article 5.1.2 Additional Compensation and Extended Duration, delete and replace with

“The CM shall be entitled to receive additional compensation and additional time when the scope of Basic Services is increased or extended through no fault of the CM. If the scope of Basic Services is increased or the duration of the CM’s Basic Services is extended or the duration of the Basic Services to be performed within a phase duration specified in Article 4 is extended, the CM shall be entitled to receive additional compensation, and the duration of the Agreement shall be extended. A written request for additional compensation shall be given by the CM to the Owner within thirty (30) days of the occurrence of the event giving rise to such request. The amount of additional compensation to be paid and the amount of extension of the duration of this Agreement shall be determined on the basis of the CM’s cost, plus 10 percent as a customary and reasonable adjustment to the CM’s fee consistent with the provisions of Article 7, and a determination of the length of the extensions of the duration of this Agreement.”

Article 7.2, Cost Plus Fixed Fee, delete and replace with

“The Owner shall compensate the CM on the basis of the CM’s cost plus fixed fee for Phase 3 services only and in accordance with the terms and conditions of this Agreement as follows:  
Compensation for Basic Services: The CM shall be compensated for performing the Basic Services as described in Article 3, Exhibit F, “Scope of Construction Services”, and Exhibit G “GMP Summary”

Article 7.2.4.1, delete and replace with

“Payment of the Fixed Fee as indicated in Paragraph 7.2 shall due and payable in twenty (20) equal installments, on a monthly basis, with the first payable with the initial partial application for payment, and the last nineteen (19) months thereafter.”

Article 7.2.4.7, add the following new section

“Payment of the “Extended Preconstruction Services” portion of Construction Administration costs as indicated by Exhibit G “GMP Summary” including proportional Administrative fees shall due and payable with the initial partial application for payment.”

Article 7.2.4.8, add the following new section

“Payment of the “Construction Services” portion of Construction Administration costs as indicated by exhibit G “GMP Summary” including proportional Administrative fees shall due and payable upon in



twenty (20) equal installments, on a monthly basis, with the first payable with the initial partial application for payment , and the last nineteen (19) months thereafter.”

Article 8.2.1, remove and replace with

“The Owner shall be responsible for purchasing and maintaining insurance to protect the Project from perils of physical loss. The insurance shall provide for the full cost of replacement for the entire Project at the time of any loss. The insurance shall include as named insureds the Owner, the CM, the Contractors and their subcontractors and shall insure against the loss from the perils of fire and all risk coverage for physical loss or damage due to theft, vandalism, collapse, malicious mischief, transit, flood, earthquake, testing, defective design, negligent workmanship or defective material. The Owner shall increase the coverage limits as necessary to reflect changes in the estimated replacement cost. CM shall be responsible for all deductible payments up to \$50,000 to the Owner.”

Article 12.1.7 add the following new section

“Liquidated Damages:

CMAR recognizes that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the time frames set forth by this agreement. It also recognizes the delays, expense and difficulties involved in providing in a legal proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CMAR agree that as liquidated damages for delay (but not as a penalty) CMAR shall pay OWNER \$2,000 for each day that expires after the date of substantial completion, and until such time as work is sufficiently complete to serve its intended purpose. Similarly, CMAR shall pay OWNER \$750 for each day that expires after the date of final completion, and until such time as work is complete.”

Article 12.1.8, add the following new section

“The Guaranteed Maximum Price is Eighteen Million, Six Hundred Fifty-Nine Thousand, One Hundred Thirty-Four Dollars (\$18,659,134). This Guaranteed Maximum Price is for the Work described in Exhibit F Scope of Construction Services and as summarized by Exhibit G Guaranteed Maximum Price (GMP) Summary.”

We trust the above to be acceptable, and look forward to receipt of an executed Change Order. Should you have any question, comment, or wish to discuss any of the above in greater detail, please feel free to contact us immediately. I may be reached by email at [Bradley.hall@hdrinc.com](mailto:Bradley.hall@hdrinc.com), or via telephone at (704)338-6788.

Sincerely,

Bradley J Hall, AIC, CPC, LEED AP BD+C  
Senior Project Manager

Cc: Michael Borchers – COG  
Virginia Spillman – COG  
Doug Lisak – HDRC  
Tony Snead – HDRC



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B

Table MWBE-1

Summary of Minority and Women Owned Business Enterprise Participation

		1st Tier	2nd Tier	MBE	WBE
Waller & Associates	Project Surveyor	X		\$ 3,500	NA
Office Supplies	Office Furniture	X		NA	\$ 8,900
Johnson & Johnson Masonry	Building Masonry		X	\$ 191,000	NA
Johnson Concrete	Masonry Supplier		X	NA	\$ 39,800
Carolina Disposal	Construction Dumpsters		X	NA	\$ 23,400
Kelly Construction	Concrete Finishing		X	\$ 15,300	NA
Carolina Management Team	Concrete Coatings & Painting	X		NA	\$ 505,977
Scott's LTD	Pressure Washing & Painting		X	\$ 127,840	NA
Cooper	Electrical and I&C	X		NA	\$ 1,720,000
Electric 1	Building Electric		X	\$ 506,000	NA
Jessie Lane	Stone Hauling		X	NA	\$ 3,600
SL Staffing	Filter Underdrain Labor	X		\$ 102,900	NA
All Systems Restored	Plumbing Protégé	X		\$ 105,001	NA
All Systems Restored	HVAC Protégé	X		\$ 114,744	NA
All Systems Restored	Chemical Interior Pipe Protégé	X		\$ 117,884	NA
All Systems Restored	Chemical Exterior Pipe Protégé	X		\$ 55,428	NA
United Maintenance Group, LLP	Hardscape Protégé	X		\$ 160,000	NA
				\$ 1,496,097	\$ 2,301,677
	Guaranteed Maximum Price			\$	18,659,134
	Aspirational Project Goals			8.00%	7.00%
	GMP Percentage			8.02%	12.34%



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Exhibit F

**Scope of Construction Services**

Provide all required labor, materials, and equipment to construct and place into operation the work as described by Plans and Specifications prepared by Hazen and Sawyer dated September 2016, and titled

WATER RESOURCES DEPARTMENT  
CITY OF GREENSBORO, NORTH CAROLINA,  
TOWNSEND WTP 2015 BASIN, FILTER,  
AND BACKWASH IMPROVEMENTS  
CITY OF GREENSBORO CONTRACT No. 2011-066

including Addenda 1 issued during the bidding process, as modified hereafter.

**HDRC Professional Services**

HDRC will self perform the SCADA Programming and Configuration services for this project as detailed in the contract documents. HDRC will also coordinate with the City of Greensboro, Hazen and Sawyer by providing input during the design phase to complete the SCADA System architecture, Instrumentation and Controls and setup for the basin, filter, and backwash improvements. Additionally, HDRC will coordinate with control system vendor suppliers and installers during the construction phase and participate and support during the testing and startup phase. A more detailed scope is provided below:  
Scope of Services

**Phase 100 – Coordination Support and Construction Services**

- Task 101 – Coordination and Construction Services: Provide coordination services during the construction phase of the project. Services will include:
  - Submittal and RFI coordination
  - Attendance of construction progress meetings
  - Pre-construction meeting with the Panel Builder/Electrical Subcontractor
  - Coordination for redlined engineering record drawings
  - During the submittal phase of the project HDRC will review vendor packages, instrumentation and equipment submittals related to the SCADA systems and provide comments. Approval of submittals will be by Hazen and Sawyer.
  - The coordination of redlined record drawings will consist of one (1) electronic copy (pdf) on USB/Memory sticks with:
    - Record P&ID Drawing set
    - Record Control Descriptions

**Phase 200 – Application Programming**

- Task 201 – PLC Programming: HDRC will provide Programmable Logic Controller (PLC) Programming for the new GE PLCs and remote input/output (I/O) PLCs. All programming will be based on the algorithms called for in the control description contract documents developed and approved by the City of Greensboro. All PLC programming will be completed in accordance with City of Greensboro's programming standards.
- Task 202 - Network Equipment Configuration: HDRC will configure device level communication using Profinet protocol between remote I/O panels at the Townsend Water Treatment Plant. This task will also include setup of network switches and communications between networked equipment based on the SCADA architecture shown in the contract documents.
- Task 203 – SCADA Programming: HDRC will provide modifications to the existing Wonderware (v10.5) SCADA application at the Townsend Water Treatment Plant. Updated SCADA system will provide the functionality as called for in the algorithms described in the control description documents. Revised SCADA application will communicate with the new GE PLCs. All SCADA programming will be completed in accordance with City of Greensboro's programming standards.



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Exhibit F - Continued

**Scope of Construction Services**

Phase 300 - Testing, Start-up and Commissioning

- Task 301 – Applications Programming Testing: When construction of the Townsend Water Treatment Plant PLCs and remote I/O control panels has been completed and its full functionality confirmed by HDRC Project Manager, HDRC will conduct PLC testing of the control panels. The Application Testing will consist of setting up communications between equipment inside of the control panels, verifying I/O signals internal to the PLC for each of the control panels.
- Task 302 - Start-Up and Commissioning: HDRC will provide PLC and SCADA start-up and commissioning services of the new control system programs after the Subcontractors, HDRC, City of Greensboro and Hazen and Sawyer signs off that all the equipment are installed, terminated and field tested prior to the software testing of each remote I/O panel. Commissioning will begin at the end of the process area start-up and will continue for 7 days. At this point, the projects will be substantially complete. During commissioning, critical points of the application programming will be spot checked by City of Greensboro. Any questions and issues will be logged by City of Greensboro.
- Task 303 – Punch List: At the completion of the 7-day commissioning period, HDRC will address the software related defects identified on the punch list for up to XXX (X) days. HDRC will investigate and address punch list items during a 4-week period beginning immediately after control system punch list is issued. City of Greensboro shall witness and sign-off on completed punch list items. Once the punch list items are resolved the task will be considered completed.

Phase 400 – Training

- Task 401 – Training: HDRC will provide SCADA application training for the operations, maintenance and management staff for each major improvements area. The course will address basics such as system overview, navigation, system maintenance and basic start-up configuration of the new and revised control system in accordance with contract documents.

Phase 500 – System Documentation

- Task 501 – System Documentation: HDRC will prepare the draft and final SCADA system documentation. The manual will consist of three (3) electronic copies on USB/Memory sticks with:
  - PLC Applications
  - SCADA Applications
  - Network Configurations

Assumptions

1. HDRC is not responsible for software “bugs” inherent to vendor package software including the Windows operating system, the Wonderware software, any reporting software, or the like.
2. City of Greensboro is solely responsible for any and all water quality aspects and impacts during the installation of the new SCADA communication system and the modification of the SCADA system at the Townsend Water Treatment Plant.
3. Issues associated with existing equipment such as instrument calibration, wiring issues, PLC/SCADA programming issues, defective hardware, or the like are not included.
4. HDRC personnel shall have access to the SCADA system from 7 a.m. to 7 p.m. Monday through Friday, and at other City of Greensboro’s designated times during startup and emergencies.
5. City of Greensboro will procure SCADA Servers and Workstations and configure them as necessary.
6. City of Greensboro will acquire and provide any additional software licensing for the SCADA system as necessary.
7. City of Greensboro will be available to assist with field investigation and start-up services of the existing equipment.
8. Costs (Labor, Materials or Equipment) have not been included to move the Server Room from the indicated location on the plans (Lower Level Computer Room), as the Scope of Work was not clearly defined.



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Exhibit F - Continued

**Scope of Construction Services**

Greensboro Network Investigation Services

Summary SCOPE OF WORK (SOW)

The following scope of work has been developed for the Greensboro Filter Improvements Control System Network Investigation Services. The attached budget is based this scope of work and all associated assumptions and clarifications. The scope and budgetary estimate is based on the design documents prepared by Hazen & Sawyer. The following two sets of documents were used to develop the scope and budgetary estimate:

1. Contract Drawings – Issued For Construction; Townsend WTP Combined Set December 2015
2. Project Manual – Issued For Construction; Townsend WTP Basin and Filter Improvements

This SOW includes the following tasks:

1. Fiber Optic Network Investigation: This scope includes field verification of eight (8) SCADA/PLC fiber optic cables routing and terminations, including active and spare fiber cables as shown on the Contract Drawings I-11.
2. Copper (CAT-5) Network Investigation: This scope includes field verification of twenty (20) SCADA/PLC copper (CAT-5) network cable routing and terminations, including active and spare copper (CAT-5) cables as shown on the Contract Drawings I-11.
3. As Built Network Documentation and Cables Labeling: This scope includes SCADA/PLC fiber optic and copper (CAT-5) cables drawings and labeling of above installed SCADA/PLC fiber optic and copper (CAT-5) cables including spare cables. The updated drawings will be provided in pdf and AutoCAD format for future use by the Client.

Assumptions and Clarifications:

1. Plant Shutdown Pre-Inspection meeting is required with the plant management, operations and maintenance to discuss impacts and time duration for the fiber and copper SCADA network verification.
2. The Optical Time Domain Reflectometer (OTDR) testing is not included for fiber optic cable verification. The OTDR verifies inline splices on concatenated fiber optic cables, connectors, locates faults and quality (losses). The scope includes only continuity and identification of the fiber optic cables.
3. Total estimated Fiber Optic Cables are as follows:
  - a. PLC 9 – 4 cables (12 strands per cable)
  - b. PLC 10 - none
  - c. RIO 11 – 1 cable (12 strands per cable)
  - d. PLC 16 - none
  - e. PLC 17 – 3 cables (12 strands per cable)
  - f. PLC 18 – 1 cable (12 strands per cable)
  - g. PLC 19 – 3 cables (12 strands per cable)
  - h. Control Room – 3 cables (12 strands per cable)
  - i. Generator - none
4. Total estimated Copper (Cat-5) Cables are as follow:
  - a. PLC 9 – 1 cable
  - b. PLC 10 – 1 cable
  - c. RIO 11 – 1 cable
  - d. PLC 16 – 1 cable
  - e. PLC 17 – 2 cables
  - f. PLC 18 – 1 cable
  - g. PLC 19 – 7 cables



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Exhibit F - Continued

**Scope of Construction Services**

- h. Control Room – 4 cables
- i. Generator – 2 cables
- 5. Meetings:
  - a. Pre-Testing Coordination Meeting
  - b. Final Review Meeting
- 6. Assumed no training sessions are required
- 7. Assumed 80 hours of testing – 2 week trips
- 8. Assumed 10% contingency

**HDRC Clarifications and Assumptions:**

1. Existing asphalt roadways are to be left in a traversable condition. All road crossings for utility installation shall be restored per contract documents.
2. It is understood that operation of all new facilities during start-up and initial demonstration period is by the City of Greensboro
3. It is understood laboratory or third party testing of any kind is by the City of Greensboro
4. It is understood that CMAR shall have access to, and right of use to electricity, potable water, and other utilities in such quantity as may be needed or desirable during construction, so long as they are available at the jobsite, free of charge.
5. It is understood that one (2) Construction Trailers (Engineer/Owner and CMAR) will be provided for a duration of 22 Months.
6. Subsurface Exploration, Geotechnical Engineering Evaluation by Froehling & Robertson, Inc. dated: January 23, 2015.
7. Report of Subsurface Exploration by S&ME, Inc. dated: January 16, 2012.
8. Existing Conditions Drawings by Black & Veatch, dated: January 1993.
9. Technical Memorandum by Brown and Caldwell entitled, Greensboro NL Mitchell Filter Plant SCADA Replacement, dated: August 21, 2013.
10. Greensboro, NC. Tax rate of 6.75%.
11. Given electronic submittals, the standard review time is 7 working days , but no more than a total of 14 calendar days for the turn-around of submittals.
12. Mobilization / demobilization for both HDRC and its subcontractors per proposed Project Schedule.
13. Project schedule 5 day work week: M-F, 8 hour work days.
14. Does not include contingencies associated with Force Majeure, or schedule delay based on weather related events.
15. Location provided on facility grounds for lay-down area.
16. Electrical drop available within 100' of HDRC project trailer.
17. HDRC project staff can utilize owner's facilities after construction for project closeout.
18. All existing soils are suitable for re-use as backfill, but may not be suitable for structural fill.
19. All procurements by HDRC and its subcontractor's. No owner furnished items.
20. Site restoration includes backfill, compaction, seed and straw in disturbed areas.
21. Costs for performance and payment bonds are included.
22. Independent testing laboratory and inspections are excluded. Normal testing required for submission of materials for approval is also included.
23. General liability insurance.
24. All excavated materials are anticipated to be left onsite.
25. 1 set of Aerial Photographs has been included and will be performed at the completion of the project.
26. WC 01 – Lime Building - A budget of \$5,000 has been included to install underground Drainage as it is related to Detail 7/A414.
27. WC 26 – Electrical - All conduits will be exposed within the building.
28. WC 26 – Electrical - HDR/Cooper has included costs associated with increasing conduit size and quantity in ductbank from existing facility to New Lime Storage Facility (4-2" and 4-4")
29. WC 26 – Electrical - All hanging materials are either Spring Steel or Galvanized as called out in 26 05 29.
30. WC 35 - Slide Gate - Materials are 316 Stainless Steel.
31. WC 35 – Slide Gate - Manufacture has included 1 trip/1 day on-site start-up and testing services
32. WC 43A - Positive Displacement Blowers – 1 year supply of manufacturers oil has been included at \$2,000
33. WC 43A - Positive Displacement Blowers - Vibration Testing will be completed by WC 40.
34. WC 43B - Peristaltic Pumps – Manufacturer is an "or Equal"



35. WC 43C - SS Storage Tank – Manufacture is not a named manufacturer
36. WC 43C - SS Storage Tank – Tank will be manufactured per UL-142 and API-650.
37. WC 43C - SS Storage Tank – Includes testing per UL142/API @ 2.5 psi.
38. WC 43C - SS Storage Tank – Tank will not be tested to 10 psi air test as specified.
39. WC 46B – PAC Equipment - Specified Air Compressor is not rated for Class 2 Division 2 Classification.
40. WC 46B – PAC Equipment - Manufacture has only included 1 trip/2days for installation and testing.
41. WC 46C – Vertical Mixing Equipment – Field Services is calculated for each Manufacture at 3 Trips/3Days total, not for each unit. This reduced the over all pricing for the equipment.
42. WC 46C – Vertical Mixing Equipment – Vibration testing is included under WC 40.
43. WC 46C – Vertical Mixing Equipment – Mixing baffles are included under WC 40.
44. WC 46C – Vertical Mixing Equipment – Manufacture has excluded clamping device as specified under (46 41 11, 3.06.A.1).
45. WC 46D – Vertical Flocculation Equipment – Stainless Steel gearbox shaft is not available, per Invent Technologies.
46. WC 46D – Vertical Flocculation Equipment – Vibration testing is included under WC 40.
47. WC 46D – Vertical Flocculation Equipment – Mixing baffles are included under WC 40.
48. WC 46F – Filter Media – 2.01.B.Alternative Bid is not included in GMP.
49. WC 46G - Air Scour System – Alternate Price Item is included in GMP (41 61 17, 1.01.B)

#### Exclusions

1. No additional costs included for changes, VE suggestions by Hazen and Sawyer or its associates.
2. Excludes all non City of Greensboro permits, regulatory fees, environmental fees or requirements.
3. Any work related to hazardous materials or waste.
4. Any rock excavation or excavation of unforeseen underground obstacles.
5. Costs associated with temporary or permanent utility service for construction power.
6. Painting, tagging, labeling of exposed conduit.
7. Site security measures.
8. Epoxy coated rebar is not included for any structures.
9. Water testing of any structure as not been included. All structures are either existing or non-water bearing.
10. Fire Protection Systems have not been included.
11. No dewatering has been included from groundwater or existing structure exfiltration.



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Exhibit G - Continued

**Guaranteed Maximum Price (GMP) Summary**

including Addenda 1 issued during the bidding process, as modified hereafter.

Work Package/Scope of Work	Value
GC 01 - General Conditions	\$ 1,316,669
GC 02 - Programming Labor	\$ 606,878
GC 03 - Cabling Certification	\$ 38,500
WC 01 - Lime and PAC Facility (Building Envelope)	\$ 669,774
WC 03 - Concrete & Demolition	\$ 2,893,800
WC 09 - Concrete Repair Coatings & Painting	\$ 663,817
WC 10 - Specialities	\$ 15,000
WC 26 - Electrical / Instrumentation Install	\$ 2,235,200
WC 33 - Yard Piping	\$ 1,286,600
WC 35 - Hydraulic Slide Gates	\$ 33,947
WC 40 - Process Piping & Equipment Installation	\$ 1,785,263
WC 43A - Positive Displacement Blowers	\$ 96,459
WC 43B - Peristaltic Pumps	\$ 40,676
WC 43C - Stainless Steel Storage Tanks	\$ 56,886
WC 46A - Lime Slurry System	\$ 318,648
WC 46B - PAC Bulk Bag Discharger and Conveyor	\$ 188,457
WC 46C - Vertical Mixing Equipment	\$ 110,877
WC 46D - Vertical Flocculation Equipment	\$ 260,610
WC 46F - Filter Media	\$ 333,368
WC 46G - Filter Air Scour System	\$ 2,089,697
WC 46H - Chemical Metering Pumps	\$ 145,659
MP 01 - HVAC	\$ 116,244
MP 02 - Plumbing	\$ 105,001
MP 03 - Chemical Piping - Interior	\$ 134,884
MP 04 - Chemical Piping - Exterior	\$ 100,000
MP 05 - Hardscape	\$ 160,000
Construction Subtotal	\$ 15,802,914
CMAR Contingency (3.0% of Construction Subtotal)	\$ 474,087
Owner Contingency	\$ 550,000
Subtotal	\$ 16,827,001
Construction Fee (10% of Subtotal)	\$ 1,682,700
Phase 3 Construction Total	\$ 18,509,702
Additional Preconstruction Services	\$ 149,432
Gauranteed Maximum Price	\$ 18,659,134



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Exhibit G - Continued

**Guaranteed Maximum Price (GMP) Summary**

Project Specifications – Issued 9/21/2016

01 11 13	Summary of Work
01 14 10	Maintenance of Water Plant Operations During Construction
01 20 00	Project Meetings
01 25 00	Substitution Procedures
01 26 00	Contract Modification Procedures
01 29 76	Progress Payment Procedures
01 29 76.01	Contract Sales Tax Certificate
01 33 00	Submittal Procedures
01 42 00	Reference Standards
01 45 00	Quality Control
01 46 00	Special Inspections
01 51 00	Temporary Utilities
01 51 01	Temporary Field Office
01 56 00	Temporary Barriers and Enclosures
01 56 01	Site Access and Storage
01 57 00	Temporary Controls
01 58 00	Project Identification
01 77 00	Closeout Procedures
02 41 10	Demolition
02 41 11	Demolition and Removal of Existing Structures and Equipment
03 01 00	Concrete Repairs
03 10 00	Concrete Formwork
03 15 00	Concrete Accessories
03 20 00	Reinforcing Steel
03 29 00	Joints in Concrete
03 30 00	Cast-in-Place Concrete
03 35 00	Concrete Finishes
03 39 00	Concrete Curing
03 40 00	Precast Concrete
03 60 00	Grout
04 05 13	Mortar and Masonry Grout
04 05 23	Masonry Accessories
04 20 00	Unit Masonry
05 05 10	Structural Steel
05 05 13	Galvanizing
05 05 23	Metal Fastening
05 05 45	Bearing Devices and Anchoring
05 09 10	Metal Materials
05 13 00	Stainless Steel
05 14 00	Structural Aluminum
05 21 00	Steel Joists
05 30 00	Metal Decking
05 50 10	Metal Fabrications
05 51 33	Ladders
05 52 13	Handrails and Railings
05 53 00	Gratings, Access Hatches, and Access Doors
05 56 00	Castings
06 80 00	Glass Fiber and Resin Fabrications
07 11 00	Dampproofing
07 16 00	Cementitious and Reactive Waterproofing
07 21 00	Thermal Insulation
07 26 16	Below Grade Vapor Retarders
07 41 13	Metal Roof Panels
07 60 00	Flashing and Sheet Metal
07 70 00	Roof Specialties and Accessories
07 90 00	Joint Protection
08 11 00	Metal Doors and Frames
08 33 23	Overhead Coiling Doors
08 71 00	Door Hardware
08 80 10	Glazing
09 90 00	Painting



The Townsend WTP Basin and Filter Improvements Project – Contract No. 2011-066B  
Exhibit G - Continued

**Guaranteed Maximum Price (GMP) Summary**

10 14 00	Signage
10 44 16	Fire Extinguishers
10 73 16	Equipment Canopies
22 00 10	Plumbing
23 05 93	HVAC Testing, Adjusting, and Balancing
23 09 00	Instrumentation and Control for HVAC
23 20 10	HVAC Copper & Brass Pipe
23 34 00	Fans
23 81 16	Air Conditioning Units
23 82 39	Electric Space Heaters
26 05 19	Low-Voltage Electrical Power Conductors and Cables
26 05 23	Control-Voltage Electrical Power Cables
26 05 26	Grounding and Bonding for Electrical Systems
26 05 29	Hangers and Supports for Electrical Systems
26 05 33	Raceways and Boxes for Electrical Systems
26 05 43	Underground Ducts and Raceways for Electrical Systems
26 05 44	Sleeves and Sleeve Seals for Electrical Raceways and Cabling
26 05 53	Identification for Electrical Systems
26 05 72	Overcurrent Protective Device Short-Circuit Study
26 05 73	Overcurrent Protective Device Coordination Study
26 09 13	Electrical Power Monitoring and Control
26 09 23	Lighting Control Devices
26 22 00	Low Voltage Transformers
26 24 16	Panelboards
26 24 19	Low-Voltage Industrial Motor Control Centers
26 26 00	Power Distribution Units
26 27 26	Wiring Devices
26 28 13	Fuses
26 28 16	Enclosed Switches and Circuit Breakers
26 29 23	Variable-Frequency Motor Controllers
26 41 13	Lightning Protection
26 43 13	Surge Protection for Low-Voltage Electrical Power Circuits
26 51 19	LED Interior Lighting
26 52 19	Emergency and Exit Lighting
26 56 19	LED Exterior Lighting
31 05 00	Common Work Results for Earthwork
31 11 00	Clearing, Grubbing, and Site Preparation
31 22 18	Surface Restoration
31 22 19	Final Grading and Landscaping
31 25 10	Erosion and Sedimentation Control
32 12 10	Paving and Surfacing
33 05 16	Utility Structures
33 13 00	Disinfection of Water Treatment Plant
35 20 16.27	Hydraulic Slide Gates
40 05 13	Common Work Results for Process Piping
40 05 13.19	Steel and Stainless Steel Pipe
40 05 13.53	Ductile Iron Pipe
40 05 13.73	Polyvinyl Chloride (PVC) Pipe
40 05 13.83	High Density Polyethylene (HDPE) Pipe
40 05 23	Common Work Results for Process Valves
40 05 29	Pipe Supports
40 05 31	Butterfly Valves
40 05 33	Ball Valves
40 05 36	PVC/CPVC Valves
40 05 37	Pressure Reducing Valves
40 05 38	Altitude Valves
40 05 39	Miscellaneous Valves
40 05 53	Piping Identification Systems
40 06 21	Schedules for Piping and Valves
40 42 13.19	Insulation
40 48 00	Piping Expansion Compensation



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**Guaranteed Maximum Price (GMP) Summary**

40 90 10	Control and Information System Scope and General Requirements
40 90 11	Control and Instrumentation System Submittals
40 90 20	Instrument Schedule
40 90 30	Instrumentation and Control System Accessories
40 91 10	Common Work Results for Powered Instruments
40 91 11	Common Work Results for Unpowered Instruments
40 91 16.47	Streaming Current Analyzers
40 91 19.29	Liquid Pressure Measurement Devices
40 91 19.30	Liquid Pressure Indicating Transmitters
40 91 23.32	Magnetic Flow Meters
40 91 23.32.1	Insert Magnetic Flow Meters
40 91 23.33	Backwash Flow Control System
40 91 23.35	Turbine Flow Meters
40 91 23.36	Level Process Measurement Transmitters
40 91 23.37	Float Switches
40 91 23.49	Turbidity Measurement Systems
40 92 13.13	Electric Valve Actuators
40 94 43	Programmable Logic Process Controllers
40 95 13	Cabinets and Panels
40 95 34	Uninterruptible Power Systems
40 95 58	Surge Protection Devices
40 95 80	Process Control System Networks
40 96 15	Control System Input/Output List
40 96 50	Functional Control Descriptions
43 05 13	Common Electric Motor Requirements
43 11 33	Positive Displacement Blowers
43 21 44	Submersible Sump Pumps
43 21 48	Peristaltic Pumps
43 41 23	Stainless Steel Storage Tanks
46 05 00	Common Work Results for Water and Wastewater Equipment
46 33 41.10	Lime Slurry System
46 33 42	Mechanically-Actuated Diaphragm Chemical Metering Pumps
46 36 11	Powdered Activated Carbon Bulk Bag Discharger and Conveyor
46 41 11	Vertical Mixing Equipment
46 41 34	Vertical Flocculation Equipment (Hyperbolic Mixers)
46 61 13	Filter Media
46 61 17	Filter Underdrains and Air Scour System

**Project Drawings – Stamped 9-22-16**

G1	COVER
G2	GENERAL - INDEX OF DRAWINGS
G3	GENERAL - ABBREVIATIONS AND LEGEND
G102	GENERAL - OVERALL SITE PLAN
G103	GENERAL - PARTIAL SITE PLAN
G900	GENERAL - SITE DETAILS
X10	DEMOLITION - SITE PLAN
X30	DEMOLITION - FILTERS – PLANS
X31	DEMOLITION - FLOCCULATION AND SEDIMENTATION BASINS 1 AND 2 – BOTTOM PLANS
X32	DEMOLITION - FLOCCULATION AND SEDIMENTATION BASINS 1 AND 2 – TOP PLANS
X33	DEMOLITION - FLOCCULATION AND SEDIMENTATION BASINS 3 – PLANS
X34	DEMOLITION - HIGH LIFT PUMP STATION – PLAN
X35	DEMOLITION - HIGH LIFT PUMP STATION – SECTION
I10	INSTURMENTATION - PROCESS AND INSTRUMENTATION SYMBOLS AND LEGEND
I11	INSTURMENTATION - CONTROL SYSTEM ARCHITECTURE
I12	INSTURMENTATION - P & ID 1 – BASINS & CHEMICAL FEED
I13	INSTURMENTATION - P & ID 2 – FILTERS
I14	INSTURMENTATION - P & ID 3 – BACKWASH SYSTEM
I15	INSTURMENTATION - P & ID 4 – AIR SCOUR



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Exhibit G - Continued

**Guaranteed Maximum Price (GMP) Summary**

- M11 MECHANICAL - SITE PLAN – I
- M12 MECHANICAL - SITE PLAN – II
- M13 MECHANICAL - PARTIAL PLANS, SECTIONS, SCHEMATIC AND PROFILE
- M50 MECHANICAL - RAW WATER METER VAULTS 1 AND 2 – PLANS AND SECTIONS
- M100 MECHANICAL - PRV VALVE VAULT – PLANS AND SECTIONS
- M102 MECHANICAL - METER STATION – PLANS, SECTIONS AND DETAIL
- M110 MECHANICAL - HIGH LIFT PUMP STATION – BOTTOM PLAN
- M111 MECHANICAL - HIGH LIFT PUMP STATION – SECTIONS
- M300 MECHANICAL - FILTERS – IMPROVEMENTS AT VARIOUS ELEVATIONS
- M301 MECHANICAL - FILTERS – TOP PLAN
- M302 MECHANICAL - FILTERS – SECTIONS AND DETAIL
- M410 MECHANICAL - LIME AND PAC FACILITY – PLAN AND SECTION
- M411 MECHANICAL - LIME AND PAC FACILITY – FEED SCHEMATIC
- M500 MECHANICAL - CAUSTIC AND FERRIC FEED SYSTEM MODIFICATIONS – PLAN, SECTION AND DETAIL
- M900 MECHANICAL - MISCELLANEOUS DETAILS
- M901 MECHANICAL - MISCELLANEOUS DETAILS
- M902 MECHANICAL - MISCELLANEOUS DETAILS
  
- S1 STRUCTURAL - GENERAL NOTES
- S2 STRUCTURAL - GENERAL NOTES
- S50 STRUCTURAL - RAW WATER METER VAULTS 1 AND 2 – PLANS AND SECTIONS
- S51 STRUCTURAL - RAW WATER METER VAULTS 1 AND 2 – PLANS AND SECTIONS
- S100 STRUCTURAL - PRV VAULT – PLANS AND SECTIONS
- S101 STRUCTURAL - PRV VAULT – SECTIONS AND DETAIL
- S102 STRUCTURAL - METER STATION – PLANS, SECTION AND DETAIL
- S103 STRUCTURAL - BACKWASH STORAGE TANK – PLANS, SECTIONS AND DETAILS
- S300 STRUCTURAL - FILTERS – PLAN, SECTIONS AND DETAILS
- S301 STRUCTURAL - FILTERS – PIPE SUPPORT DETAILS AND SECTION
- S310 STRUCTURAL - FLOCCULATION AND SEDIMENTATION BASINS 1 AND 2 – BOTTOM PLAN
- S311 STRUCTURAL - FLOCCULATION AND SEDIMENTATION BASINS 1 AND 2 – TOP PLAN
- S312 STRUCTURAL - FLOCCULATION AND SEDIMENTATION BASINS 1 AND 2 – SECTIONS
- S313 STRUCTURAL - FLOCCULATION AND SEDIMENTATION BASINS 1 AND 2 – SECTIONS AND DETAILS
- S320 STRUCTURAL - FLOCCULATION BASIN 3 – PLANS
- S321 STRUCTURAL - FLOCCULATION BASIN 3 – SECTIONS
- S350 STRUCTURAL - REPAIR DETAILS
- S410 STRUCTURAL - LIME AND PAC FACILITY – PLANS AND DETAILS
- S411 STRUCTURAL - LIME AND PAC FACILITY – ROOF PLAN AND DETAILS
- S412 STRUCTURAL - LIME AND PAC FACILITY – SECTIONS AND DETAILS
- S413 STRUCTURAL - LIME AND PAC FACILITY – SECTIONS AND DETAILS
- S900 STRUCTURAL - DETAILS
- S901 STRUCTURAL - DETAILS
- S902 STRUCTURAL - DETAILS
- S903 STRUCTURAL - DETAILS
  
- A410 ARCHITECTURAL - LIME AND PAC FACILITY – CODE SUMMARY – SHEET 1
- A411 ARCHITECTURAL - LIME AND PAC FACILITY – CODE SUMMARY – SHEET 2
- A412 ARCHITECTURAL - LIME AND PAC FACILITY – TOP PLAN AND SCHEDULES
- A413 ARCHITECTURAL - LIME AND PAC FACILITY – ROOF PLAN
- A414 ARCHITECTURAL - LIME AND PAC FACILITY – ELEVATIONS
- A415 ARCHITECTURAL - LIME AND PAC FACILITY – WALL SECTIONS
- A416 ARCHITECTURAL - LIME AND PAC FACILITY – WALL SECTIONS
- A417 ARCHITECTURAL - LIME AND PAC FACILITY – DETAILS
- A418 ARCHITECTURAL - LIME AND PAC FACILITY – DETAILS
  
- H20 HVAC - SCHEDULES
- H410 HVAC - LIME AND PAC FACILITY – PLAN
  
- P10 PLUMBING - SCHEDULES AND SCHEMATIC
- P410 PLUMBING - LIME AND PAC FACILITY – PLAN
- P900 PLUMBING - MISCELLANEOUS DETAILS



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- E01 ELECTRICAL - LEGEND AND GENERAL NOTES
- E02 ELECTRICAL - SINGLE LINE DIAGRAM
- E03 EXISTING SWITCHBOARD A AND MCC-A ELEVATIONS
- E11 PARTIAL ELECTRICAL - SITE PLAN
- E13 PARTIAL ELECTRICAL - SITE PLAN
- E20 ELECTRICAL SCHEDULES
- E50 ELECTRICAL - RAW WATER METER VAULTS 1 AND 2 – PLANS
- E100 ELECTRICAL - PRV VALVE VAULT – PLAN
- E102 ELECTRICAL - METER STATION – PLANS
- E111 ELECTRICAL - HIGH LIFT PUMP STATION – SECTION
- E300 ELECTRICAL – EXISTING FILTERS IMPROVEMENTS – PLAN AND ELEVATION
- E301 ELECTRICAL – EXISTING FILTERS IMPROVEMENTS – PLAN
- E311 ELECTRICAL – FLOCCULATION BASINS – PLANS
- E410 ELECTRICAL – LIME AND PAC FACILITY – PLAN
- E500 ELECTRICAL – CAUSTIC AND FERRIC FEED SYSTEM – MODIFICATIONS
- E901 ELECTRICAL - DETAILS
- E902 ELECTRICAL - DETAILS
- E903 ELECTRICAL - VARIABLE FREQUENCY DRIVE SCHEMATIC
- E904 INSTRUMENTATION - RISER DIAGRAM – PART 1
- E905 INSTRUMENTATION - RISER DIAGRAM – PART 2
- E906 INSTRUMENTATION - RISER DIAGRAM – PART 3