ATTACHMENT 1 TO EXHIBIT A
SCOPE OF SERVICES FOR
ROOF REPLACEMENTS AT VARIOUS DEPARTMENT OF WATER MANAGEMENT FACILITIES

PROJECT SUMMARY

The City of Durham, North Carolina Department of Water Management (DWM) owns and maintains multiple structures for the City's water treatment and water reclamation operations. Many of the buildings' roof systems are nearing or have exceeded their planned useful life and are in need of replacement.

Services to be performed for this project include:

- Task I: Roof replacement design and construction administration/observation for five buildings at the Little River and Lake Michie Dam and Pump Station facilities.
- Task II: Visual Roof Evaluation, Reporting, and 5-Year Plan development for 71 DWM buildings.
- Task III: Future Roof Replacement/Repair, will include additional design and construction administration/observation. Building roofs to be replaced/repaired under this task will be identified by the Task II evaluations.

This initial Scope authorization includes Tasks I and II. At their conclusion, the City may elect to amend this Agreement to authorize the Consultant to perform future roof replacement, repair and/or construction administration/observation services as determined by the Task II evaluation.

DETAILED SCOPE OF SERVICES

TASK I: ROOF REPLACEMENT DESIGN AND CONSTRUCTION ADMINISTRATION/OBSERVATION FOR THREE BUILDINGS AT LITTLE RIVER (PUMP STATION, INTAKE TOWER, STOP LOG BUILDING) AND TWO BUILDINGS AT LAKE MICHIE (PUMP STATION, ELEVATOR PENTHOUSE)

Task I-A: Kick Off Meeting - Attend a project kickoff meeting with DWM staff and Consultant's project manager and other key personnel to coordinate schedule, site visit logistics and plan for completing work.

Task I-B: Roof Inspection - Thorough roof inspections will be performed for each building to assess the condition of the roof systems. The roof assessment will include: asbestos inspections and visual observation of roof defects (such as membrane defects, missing/damaged components, damaged or missing penetration sealants/pitch pans), visual observation for inadequate drainage, and obtaining overall and selected detail measurements. Adequacy of the existing roof decks and supporting structures for supporting new roof design will be confirmed during this initial inspection.

Task I-C: Review available as-built drawings for the five buildings.

Task I-D: Prepare plans, specifications, and bidding documents.

1. Roof replacement designs shall be for lightweight insulating concrete systems (when allowed by existing building structure), meeting the Department of Water Management's Roof Replacement Standard Approach dated October 2014. Review of any existing building conditions limiting the application of the Department of Water Management's Roof Replacement Standard Approach dated October 2014 shall be reviewed with the Department of Water Management prior to proceeding with designs.
2. Roof replacement design shall meet current North Carolina Building Codes. This includes, but is not limited to the following considerations: wind uplift, insulation, fire rating, drainage and vapor retarder.
3. Minimum roof slope shall be ¼-inch / foot.
4. Roof membrane will be a 2-ply modified asphalt membrane.
5. Roof system warranty will be for 20 years.
6. The designs will be signed and sealed by an engineer registered in the state of North Carolina and by a Registered Roof Consultant registered with R.C.I., Inc.
7. Roof replacement design shall be based on the assumption that the existing roof deck and supporting structure are adequate and a structural evaluation is not required. Design of structural reinforcing and structural repairs can be provided as an additional service via a separate proposal at the time they are observed and mutually reviewed with the Department of Water Management.
8. One draft bid package (to include drawings and specifications in CSI format) and preliminary opinion of construction cost shall be submitted to DWM for review and comment prior to advertisement. The Consultant will attend a review meeting with DWM to discuss the draft bid package. The bid package and preliminary opinion of construction cost will be finalized upon receipt of DWM's review comments. Five (5) paper copies of the draft bid package will be provided.
9. One final bid package, including bid advertisement and drawings and specifications in CSI format, will be prepared to include all five buildings (two at Lake Michie and three at Little River). Five (5) paper copies of the bid package will be provided.

Task I-E: Assist with bidding and award by preparing and issuing bid/contract documents and receiving bids as outlined below:

1. Provide electronic copies of the bid package to selected bidders.
2. Conduct a single pre-bid conference and address questions of the bidders during the bidding period. Distribute pre-bid conference minutes to all attendees.
3. Provide any required addendums during the bid period.
4. Attend the bid opening, open the bids, tabulate and evaluate the bids, and provide a letter of recommendation of award.

Task I-F: Conduct Construction Administration/Observation

1. Prepare construction contracts for execution by both the City of Durham and the Contractor.
2. Conduct a single pre-construction meeting with DWM, the Contractor and subcontractors.

3. Receive and review Contractor submittals and Contractor payment requests.
4. Provide the following services during construction (we estimate construction could take place over a 9 week period):
    i. Address questions, handle all correspondence, and prepare any required change orders.
    ii. Visit each construction site weekly, at a minimum, or more frequently as needed to observe construction.
    iii. Conduct monthly construction progress meetings with DWM and Contractor.
    iv. Conduct one pre-final inspection of the work for each project site (to include a punchlist of work remaining to be completed), and conduct one final inspection of the completed work for each project site.

Task I-G: Provide project close out documentation in accordance with the City of Durham standards, to include as a minimum: release of liens, warranties and as-build drawings, etc.

TASK II: VISUAL ROOF EVALUATION AND REPORTING

Task II-A: Perform a visual evaluation of each roof area using an assessment checklist to determine the condition of the roof membrane, associated flashings and sheet metal (See Table 1 for a complete list of buildings). This will include measuring each roof to confirm overall roof area sizes, and noting roof defects such as but not limited to:

1. Holes or tears in the membrane,
2. Open seams in the membrane laps,
3. Confirm proper drainage exists (drain/gutter/downspout sizes will be measured & downspouts if present will be located),
4. Confirm proper overflow (secondary) drainage is present,
5. Open seams,
6. Open base flashings,
7. Blisters,
8. Exposed scrim/felt,
9. Splits in membrane,
10. Ponding water,
11. Loose/missing fasteners,
12. Damaged missing components,
13. Deteriorated pitch pan sealer,
14. Deteriorated sealants,
15. Damaged sheet metal.
16. Damaged or loose coping
17. Damaged or loose Z – bar metal

Task II-B: Deliverables for the Roof Evaluation will include:

1. Roof Checklist Inspection Report (Adobe PDF format) for each roof. Checklist will include:

i. Roof area,
ii. Method of roof access and location (roof hatch, wall mounted ladder, portable ladder, etc.),
iii. Means of drainage,
iv. Condition of each roof,
v. Tabulation of defects and other items related to the roof condition,
vi. A written Executive Summary of the current roof condition and observations,
vii. Record photographs with captions,
viii. Electronic CADD sketches showing overall roof dimensions. Approximate locations of selected rooftop features such as mechanical equipment, vents, drains, etc., will be shown,
ix. Each roof will be given a Condition Rating and placed in a category of reroofing, repair or maintenance for each year of the 5-Year Plan.

2. Microsoft Excel Spreadsheet - Roof Data - Roof data from each Roof Checklist Inspection Report will be summarized in a data table.

3. Microsoft Excel Spreadsheet - Maintenance Plan - A five-year plan of remedial actions showing the roofs in three groups by condition (maintenance, repair, reroof), the estimated cost of the recommended remedial action for each roof, and listing each of the three groups of roofs in order of priority.

4. Five (5) copies of each report will be provided. An executive summary letter will be provided to summarize the report data and outline the recommended roof replacement and repair work.

5. The Microsoft Excel format spreadsheets and the Adobe PDF checklists will be electronically linked. We will provide one CD with the electronic Microsoft Excel spread sheets and .pdf documents.

6. Weekly status updates will be provided to the City to report on the progress of the Visual Roof Evaluation and Reporting under Task II-B.

7. Initially, 10 buildings will be inspected and report data and Excel spreadsheets will be presented for DWM review. Once DWM approves format, the remaining site data, inspection reports and spread sheets will be completed. A draft of the Maintenance Plan will be submitted to DWM for review, following this review the Maintenance Plan will be finalized and the final spread sheets and visual inspection reports will be provided along with the executive summary letter.

Table 1. Buildings Included in Phase II Evaluations

No	Plant	Name/Location	Built	Approximate Building Sq.Ft.
1	WILLIAMS	CONTROL/PUMP BLDG.	1915-1948	47479
2	WILLIAMS	BOOSTER PUMP HOUSE	1925	1287
3	WILLIAMS	ALUM RECOVERY FACILITY	1992	3936
4	WILLIAMS	ELECTRICAL BUILDING	2001	1125
5	BROWN PLANT	FITER BUILDING #1	1979	13680
6	BROWN PLANT	CLEAR WATER PUMP BUILDING #1	1979	3496
7	BROWN PLANT	CHEMICAL STORAGE BUILDING	1979	6414
8	BROWN PLANT	ELECTRICAL BUILDING	1992	2604
9	BROWN PLANT	BACKWASH PUMP BUILDING	1992	1785
10	BROWN PLANT	FILTER BUILDING #2	1992	7200
11	BROWN PLANT	CHEMICAL STORAGE BUILDING #2	1992	1700
12	BROWN PLANT	PILOT PLANT BUILDING	2000	2244
13	BROWN PLANT	AMMONIA FEED/HYPOCHLORITE	2002	4224
14	HUCKELBERRY	VALVE HOUSE	1941	120
15	HUCKELBERRY	BOOSTER PUMP & GEN. BLDG.	1973	288
16	GOODWIN ROAD	BOOSTER PUMP BUILDING	1995	968
17	FINLEY ROAD	BOOSTER PUMP BUILDING	1995	968
18	NDWRF "A"	ELECTRIC BLOWER BUILDING	1976	432
19	NDWRF "A"	CONTROL/ENG/BLOWER BUILDING	1957	14530
20	NDWRF "A"	PRIMARY EFFLUENT PUMP BUILDING	1987/1994	1160
21	NDWRF "A"	ENGINE GENERATOR BUILDING	1933/1999	4880
22	NDWRF "A"	SLUDGE THICKENING BUILDING	1933/1987	3794
23	NDWRF "A"	CARPENTRY SHOP/STORAGE BUILDING	1933	966
24	NDWRF "A"	PRIMARY SOLIDS PUMP BUILDING	1987	841
25	NDWRF "A"	GENERATOR BUILDING	1987	812
26	NDWRF "A"	ALUM FEED BUILDING	1957/1990	1368
27	NDWRF "A"	SLUDGE TRANSFER BUILDING	1933/1987	442
28	NDWRF "A"	PRIMARY TREATMENT BUILDING "A"	1987/1994	2220
29	NDWRF "A "	DIGESTER #5 & #6 BUILDING	1998	7420
30	NDWRF "A"	BIO-SOLIDS BUILDING	1996	17222
31	NDWRF "A"	1954 SCREEN HOUSE	1954	1216
32	NDWRF "A"	1933 SCREEN HOUSE	1933	360
33	NDWRF "B"	PRIMARY TREATMENT BUILDING "B"	1994	8670
34	NDWRF "B"	PIPE GALLERY #1	1994	170
35	NDWRF "B"	PIPE GALLERY #2	1994	170
36	NDWRF "B"	PIPE GALLERY #3	1994	170
37	NDWRF "B"	ODOR CONTROL BUILDING	1994	273
38	NDWRF "B"	METAL STORAGE BUILDING	1994	2400
39	NDWRF "B"	BLOWER/CONTROL BUILDING	1994	26249
40	NDWRF "B"	EFFLUENT FILTER BUILDING	1994	4290
41	NDWRF "B"	RAS PUMP BUILDING	1994	2640
42	NDWRF 'B"	BIOSOLIDS STORAGE SHED	1996	62500

No	Plant	Name/Location	Built	Approximate Building Sq.Ft.
43	NDWRF 'B"	DCU 41	1994	270
44	NDWRF "B"	DCU 42	1994	270
45	NDWRF "B"	DCU 43	1994	270
46	SDWRF	CONTROL/ENG/BLOWER BUILDING	1984/1991	24457
47	SDWRF	ANAEROBIC DIGESTERS 1 & 2	1984	4368
48	SDWRF	WAS PUMP STATION	1984	1332
49	SDWRF	PRIMARY SLUDGE P S 1 & 2	1984	645
50	SDWRF	PRIMARY SLIDGE P S 3 & 4	1984	375
51	SDWRF	INFLUENT/GENERATOR BUILDING	1984/1991	1855
52	SDWRF	CHLORINE FEED BUILDING	1984	260
53	SDWRF	BELT FILTER PRESS BUILDING	1988	7832
54	SDWRF	ALUM FEED/STORAGE BUILDING	1988	510
55	SDWRF	SCUM CONCENTRATOR BUILDING	1991	1040
56	SDWRF	POLYMER BUILDING	1991	836
57	SDWRF	ODOR CONTROL BUILDING	1991	704
58	SDWRF	THICKENER BUILDING	1991	5980
59	SDWRF	VEHICLE MAINT. BUILDING	1991	2465
60	SDWRF	ELECTRICAL EQUIPMENT BUIDLING	1991	864
61	SDWRF	GAS COMPRESSOR BLDG.	1995	756
62	SDWRF	ANAEROBIC DIGESTERS 3 & 4	1995	7420
63	ENO	BLOWER/OFFICE BLDG.	1966/1978	795
64	ENO	BLOWER/CHEMICAL BLDG.	1982	700
65	ENO	PUMP STATION BLDG.	1990	7114
66	LICK CR.	BLOWER/OFFICE BLDG.	1966/1978	1095
67	LICK CR.	PUMP STATION BLDG.	1990	5538
68	PUMP STATION	PARKWOOD	1966	
69	PUMP STATION	FRAZIER FOREST	1987	
70	PUMP STATION	HERITAGE DR.	1992	748
71	PUMP STATION	TREYBURN #2	2000	64

SCHEDULE

The following schedules (for Task I and Task II) will begin approximately 2 weeks following Notice to Proceed.

TASK I: ROOF REPLACEMENT DESIGN AND CONSTRUCTION ADMINISTRATION/OBSERVATION FOR THREE BUILDINGS AT LITTLE RIVER (PUMP STATION, INTAKE TOWER, STOP LOG BUILDING) AND TWO BUILDINGS AT LAKE MICHIE (PUMP STATION, ELEVATOR PENTHOUSE)

TASK I	**Anticipated Completion [(1)]**
I-A: Kick off meeting with DWM	**1 Week**
I-B: Roof Inspection	**3 Weeks from Task I-A**
I-C: Review As-Builts	**1 Week from Task I-B**
I-D: Prepare Plans, Specs, Bid Documents	**10 Weeks from Task I-C**
I-E: Assist with Bidding and Award	**5 Weeks from Task I-D**
I-F: Conduct Construction Administration/Observation	**18 Weeks from Task I-E**
I-G: Provide Project Close-Out Documentation	**5 Weeks after Task I-F**

TASK II: VISUAL ROOF EVALUATION AND REPORTING

TASK II	**Anticipated Completion [(1)]**
II-A: Perform Visual Evaluations	**16 Weeks from NTP**
II-B: Provide Evaluation Reports (Checklists, Spreadsheets)	**12 Weeks from Task II-A**

Notes:

(1) "Task completion" is intended to mean submittal of final task deliverable that includes City review and comment (when applicable). Therefore, the final completion date is dependent upon time for City review and comment.

COST

See Section 4.01.A.1. of Exhibit C of the Agreement.

ASSUMPTIONS

1. DWM will provide available record drawings for this project in a digital (PDF) format.
2. DWM will make City staff available as necessary to provide site access for completing field investigations. Requests for site access will be made at least one week in advance whenever possible.
3. Meetings with DWM staff shall be scheduled a minimum of two weeks in advance. DWM will provide appropriate staff to participate in scheduled meetings.
4. DWM staff will review draft deliverables, review meeting summaries, and provide consolidated comments on a timely basis.
5. Contractor shall prepare and submit building permit application to the City.
6. DWM will designate an authorized project manager for communications in respect to matters relating to the services to be performed.
7. DWM authorizes the use of a camera for taking record photographs associated with the services to be performed.

8. DWM hereby grants permission to make and repair test cuts (for roof replacements/repair designs only). Test cuts may involve cutting through the membrane and underlying components down to the roof deck for the purpose of extracting samples and/or making observations. Repairs will be made using accepted roofing procedures and materials.
9. DWM will allow the subconsultant of Raymond Engineering to perform asbestos testing and obtain samples performed as a part of Task I.
10. All building roofs are accessible via attached access ladders or are accessible with a 24ft extension ladder.