

EXHIBIT A

CITY OF POMPANO BEACH

CONTINUING CONTRACT FOR CONSULTING SERVICES EASTERN AND WESTERN WELLFIELD RAW WATER WELL RELOCATIONS

WORK AUTHORIZATION NO. 1: DATA COLLECTION, FEASIBILITY STUDY, REGULATORY CONSIDERATIONS, GROUNDWATER MODELING, EXISTING WELL TESTING, TEST WELL LOCATION AND TESTING

SCOPE OF SERVICES

I. BACKGROUND

It is the intention of the City of Pompano Beach (City) to improve and upgrade their existing raw water supply facilities, in the Eastern and Western wellfields. They intend to abandon and relocate selected wells, construct new raw water transmission mains, and construct new wells that will ensure the firm capacity of each wellfield is maintained. The Eastern wellfield consists of 16 wells constructed between 1950 and 1970 into the Biscayne aquifer. These wells provide raw water to the City's lime softening water treatment plant (WTP). The Western wellfield consists of 10 wells also constructed into the Biscayne aquifer. These wells provide raw water to the reverse osmosis (RO) WTP. The treatment plants are co-located, and finished water is blended there prior to sending to the potable water system.

Many of the Eastern wellfield wells are nearing the end of their useful life expectancy and should be replaced. Some of the Western wellfield wells are producing sand and will need to be tested to determine the source of the sand and whether the well(s) can be repaired or must be replaced. A plan will be required to remediate or replace any non-functioning well(s). There are also approximately eight proposed well sites within the Western wellfield set aside for new wells. In order to provide the best option for replacement and new well construction, the suitability for selected Eastern and Western wellfield well sites will be evaluated using several criteria including sanitary setbacks criteria, land ownership, water quality, hydraulic testing, and well interference determined by groundwater flow modeling. Once well sites have been identified, test wells need to be constructed to confirm water quality and yield at the new proposed locations.

The work proposed herein comprises conducting hydrogeological and engineering evaluations of the Eastern and Western wellfields to identify locations for new raw water wells using a numerical groundwater flow and transport model, identify raw water transmission main routes, conceptual level well and raw water transmission main costs, and conduct a pre-application meeting with South Florida Water Management District (District) to discuss replacement and relocation of the Eastern and Western wellfield wells and modification of the City's Water Use Permit (WUP).

II. SCOPE OF SERVICES

A. Project Kickoff, Pre-Application Meeting, Data Collection:

Project Kickoff meeting with City to discuss conditions and operations of the existing system, compliance with current WUP special conditions as related to sampling, recording, data submittals, preparation of required reports and to exchange information collected in preparation for undertaking the work. Additionally, Tetra Tech will attend the pre-application meeting with the City and District to discuss City's goals and approach for any required changes to the WUP as a result of the wellfield relocation work.

- 1. Project Kickoff Meeting.** A kickoff meeting will be held to introduce the team members, identify points of contact, define roles and responsibilities. Prior to the meeting Tetra Tech will prepare a data request for information not already provided or available from the District but necessary for the project. The status of the data request will be discussed at the kickoff meeting as well as the project schedule. WUP allocation is generally determined by demand unless adverse impacts are predicted at projected demand pumping. Consequently, to simplify data requests and avoid redundant effort, we will need water demand, sources of raw water supply, and wellfield operation plans before Tetra Tech begins simulating new well and wellfield locations and conducts the impact analyses.

We will discuss the City's thoughts on preferred well/ wellfield locations and raw water line routing based on the City's knowledge of current conditions and to refine target areas for evaluation.

Additional meetings with City will be required throughout the project to coordinate work and to review and discuss results provided in project deliverables.

- 2. Data Collection.** We will request from the City data regarding existing wells including installed well capacities, well construction specifications, water quality data from each well for the wellfields, stand-by/auxiliary power facilities, piping and appurtenances, raw water lines, sanitary setback information (RIBs, force mains, sewage disposal systems, reclaimed water lines, petroleum storage tanks, etc.), City ROWs, and City owned properties and easements, and current raw water line hydraulic model.
- 3. Regulatory Considerations.** Conduct a pre-application meeting with the District and one additional meeting with the SFWMD to discuss the City's overall Eastern and Western wellfield testing and relocation plans and potential requirements for permitting new wells and wellfields. Discuss use of the Lower East Coast Sub-Regional groundwater flow model and SEAWAT transport model for impact analyses. Discuss the Groundwater Availability Rule and how it will be used in the regulatory review process.

B. Eastern Wellfield Evaluation and Conceptual Design:

- 1. Well Site Identification & Screening.** This task will establish the site selection criteria for up to 10 wells within the target area identified by City and Tetra Tech during the kick-off meeting. We anticipate that during the kick-off meeting we will address the site selection criteria and they will include:

- 1) Proximity to existing raw water lines,

- 2) Well spacing (as determined by groundwater flow modeling and site constraints),
- 3) Site constraints such as regulatory setbacks for public water systems (sanitary hazards, RIBs, sewage disposal systems, reclaimed water lines, etc.), saltwater intrusion line (from SFWMD map and groundwater flow/transport modeling), environmental features, FEMA floodplain, National Wetland Inventory, environmental hazards (petroleum storage tanks, solid waste facilities, dairy farms, etc.),
- 4) Constructability and regulatory considerations, and
- 5) Preferred use of City or publicly owned land.

The site selection process will be initiated using the above criteria and will identify as many potential well sites within the target area as identified by City to meet the current firm capacity of the Eastern wellfield.

- 1.1. Prepare a well site screening memorandum summarizing site selection criteria used and suitable areas identified during the screening process.
- 1.2. Prepare a technical memorandum identifying preliminary new raw water main corridors/ routes.

2. Conceptual Raw Water Main Analysis. During the kick-off meeting and subsequent meetings, we will identify one conceptual raw water main route. With respect to the potential raw water main route, this task will include collecting and reviewing available information on existing public or private utilities, right-of ways, easements, plats, property ownership, aerials, soils publications, zoning classifications, wetlands delineations, threatened and endangered species, and proposed and current master planned roadway improvements along the potential raw water main routes that could have a bearing and impact on the planning, design, permitting and construction or operation of the proposed raw water line.

- 2.1 Conduct a preliminary site visit as necessary to observe the existing conditions and constraints along the potential routes.
- 2.2 Perform a regulatory database search to identify any reported sources of contamination along the raw water line routes and potential well locations.
- 2.3 During the preliminary site visit, we will evaluate the extent of potential jurisdictional wetlands, assess the condition of natural communities on-site, and the potential for occurrence of habitat of State and/ or Federal protected plant and wildlife species along the pipeline route and potential well locations.
- 2.4 Run City's existing raw water hydraulic model for one potential raw water line route scenario for the proposed Eastern wellfield wells. Routing will have been discussed with the City to determine the route to model.

3. Conceptual Well & Raw Water Main Cost Estimate Memorandum. Using the potential well sites identified during the kick-off meeting and subsequent discussions, we will provide a conceptual level cost estimate to construct and equip up to 10 new wells. The City wishes to move 10 wells from the airport and if possible, double the yield from approximately 1,500 gallons per minute (gpm) to 3,000 gpm per well and thereby would only need to construct 5 to 7 new wells (accounting for redundancy and reliability at the higher pumping rate).

Groundwater flow modeling will provide direction on the number of wells that are needed based on the impact analysis. The conceptual cost estimate will be planning level only; refinement of the costs will be provided under a future task authorization.

4. Groundwater Flow/Transport Modeling.

- 4.1 Use District's updated and recalibrated Lower East Coast Sub-Regional (LECSR) model to simulate the City's Eastern and Western wellfield in response to proposed well locations and individual well pumping rates using the District Applicants' Handbook Section 3.1.2.
- 4.2 The groundwater flow and transport model will be constructed so that the new model can simulate withdrawals from proposed well locations for both wellfields.
- 4.3 Perform up to five groundwater flow model simulations to evaluate potential wellfield layouts and operating schedules for the Eastern wellfield. Existing legal users within the cone of depression (as described in the Applicants Handbook) will be simulated along with the proposed use in a cumulative modeling scenario.
- 4.4 Run the SEAWAT saline water intrusion modeling code to estimate the movement of the saltwater interface in response to the changes in well locations to evaluate the potential for saltwater upconing at the proposed pumping rates. For modeling and decision-making purposes, changes to the saline water interface will be assumed to equate to changes to the position of the 250 milligrams per liters (mg/L) isochlor in "before and after" simulation scenarios.
- 4.5 Prepare Impact Analysis Report describing model construction, calibration, and simulation results.

C. Western Wellfield Testing and Conceptual Design:

1. Existing Well Testing.

- 1.1 Prepare a well and wellfield testing plan in coordination with the City. The testing plan will consider the demands of water production and will be scheduled and coordinated with the City's utility staff and WTP operators. Testing and collection of data will be performed by our local hydrogeological subconsultant firm (JLA Geosciences, Inc.).
- 1.2 Well and wellfield testing shall include the following: SCADA system data will be evaluated and compared to manual water level measurements obtained during testing, pumping water levels, water quality, (including SDI, Rossum sand testing, specific conductance, salinity, pH, field test kits will be used to analyze for hydrogen sulfide, total and soluble iron, DO, temperature and chlorides).
- 1.3 Run step-drawdown tests on up to 10- wells to establish specific capacities and measure sand levels during pumping.
- 1.4 Determine which wells should have additional detailed testing conducted, as described in 1.5 below.
- 1.5 Based on the results of the testing in 1.2 above, prepare technical specifications for well testing (pump removal and inspection, video and geophysical logging, and step drawdown testing using drilling contractor pump). Technical specifications will also

include construction and testing of one (1) test well in the Western Wellfield. Technical specifications will not include front end documents needed for bidding purposes.

- 1.6 City prepare bid documents including front end documents the City will advertise for bid. We assume that up to 8 wells in the wellfield will require this detailed testing.
- 1.7 Assist City with bidding and contracting with a well drilling contractor to remove pumps/motors to conduct video and geophysical logging, inspect pumps, and conduct additional step drawdown tests (using well drilling contractor pumps) at up to 10 Western Wellfield wells.
- 1.8 Construction administration and construction observation costs during well testing to assess condition of wells will be provided once the initial testing of the Western Wellfield wells has been completed, and recommendations for which wells require additional testing have been provided.
- 1.9 Use pump test data and video and geophysical logging information to make recommendations for well rehabilitation and/or new well construction (replacement).

2. Well Site Identification & Screening.

- 2.1 This task will establish the site selection criteria for up to eight wells within two target areas identified by City. Site selection criteria will include:
 - 1) Proximity to raw water lines,
 - 2) Well spacing (as determined by groundwater flow modeling and site constraints),
 - 3) Site constraints such as regulatory setbacks for Public Water Systems (sanitary hazards, RIBs, sewage disposal systems, reclaimed water lines, etc.), saltwater intrusion line (from District map and groundwater flow/transport modeling), environmental features, FEMA floodplain, National Wetland Inventory, environmental hazards (petroleum storage tanks, solid waste facilities, dairy farms, etc.),
 - 4) Constructability and regulatory considerations, and
 - 5) Preferred use of City or publicly owned land.

The site selection process will be initiated using the above criteria and it will identify up to eight potential well sites to meet the current firm capacity of the Western wellfield.

- 2.2 Prepare a well site screening memorandum summarizing site selection criteria used and suitable areas identified during the screening process for the parcels identified by the City.
- 2.3 Prepare a technical memorandum identifying preliminary raw water main corridors.

3. Groundwater Flow/Transport Modeling.

- 3.1 As described in Task B.4., use SFWMD's updated and recalibrated LECSR model to simulate the City's Eastern and Western wellfield in response to proposed well locations and individual well pumping rates using the District Applicants Handbook Section 3.1.2.
- 3.2 Perform up to five groundwater flow model simulations to evaluate potential wellfield layouts and operating schedules for the Western Wellfield. Existing legal users within

the cone of depression (as described in the Applicants Handbook) will be simulated along with the proposed use in a cumulative modeling scenario.

- 3.3 Run the SEAWAT saline water intrusion modeling code to estimate the movement of the saltwater interface in response to the changes in well locations to evaluate the potential for saltwater upconing at the proposed pumping rates. For modeling and decision-making purposes, changes to the saline water interface will be assumed to equate to changes to the position of the 250 mg/L isochlor in “before and after” simulation scenarios.
- 3.4 Prepare Impact Analysis Report describing model construction, calibration, and simulation results. Impact analysis will incorporate the new Eastern wellfield wells also.

4. Conceptual Western Wellfield Raw Water Main Route Analysis.

- 4.1 Collect and review available information on existing public or private utilities, right-of ways, easements, plats, property ownership, aerials, soils publications, zoning classifications, wetlands delineations, threatened and endangered species, and proposed and current master planned roadway improvements along the potential raw water main routes that could have a bearing and impact on the planning, design, permitting and construction or operation of the proposed raw water line.
- 4.2 Conduct preliminary site visits as necessary to observe the existing conditions and constraints along the proposed routes.
- 4.3 Perform a regulatory data base search to identify any reported sources of contamination along the raw water line routes and potential well locations.
- 4.4 Conduct a preliminary site review to evaluate the extent of potential jurisdictional wetlands, assess the condition of natural communities on-site, and the potential for occurrence of habitat of State and/ or Federal protected plant and wildlife species along the pipeline route and potential well locations.
- 4.5 Run City’s existing raw water hydraulic model for one potential raw water line route scenario for the proposed Western wellfield wells. Routing will have been discussed with the City to determine the route to model.
- 4.6 Evaluate and discuss potential routing corridors based on the information gathered, design criteria and permitting requirements, and methods of construction.
- 4.7 Prepare Conceptual Western Wellfield Raw Water Main Route Corridor Technical Memorandum.

5. **Conceptual Well & Raw Water Main Cost Estimate.** Provide a conceptual level cost estimate to construct and equip up to eight new wells. The City wishes to rehabilitate or replace wells with excess sand and would like to move or replace up to eight wells near the golf course site. Groundwater flow modeling will provide direction on the number of wells that are needed based on the impact analysis results. In addition, Tetra Tech will analyze one raw water line route and provide a cost estimate. The preliminary cost estimate will be planning level only; refinement of the costs will be provided under a future task authorization.

D. Eastern and Western Wellfield Test Wells.

- 1.1 Identify two (2) proposed test well locations, one in/near the proposed new Eastern Wellfield and one in/near the proposed new Western wellfield wells, from wellsite identification and screening conducted in Eastern Wellfield Task B.1 and Western Wellfield Task C.2.
- 1.2 Conduct site inspection of proposed well site(s) to confirm visual setbacks.
 1. Survey proposed well location(s).
 2. Preparation of technical specifications to construct and test (water quality and yield) for two (2) test wells. Tetra Tech will prepare technical sections of specifications. City will prepare the bid documents, including front end documents, and City will advertise for bids. Tetra Tech will provide assistance with bidding and selection of drilling contractor.
 3. Assist drilling contractor with well construction permit.
 4. Provide construction administration and construction observation during well construction and testing to confirm water quality and yield for proposed wellfield. Tetra Tech has estimated a total of 75 hours of construction oversight for each test well and a total of 30 hours for construction administration for each test well (2 test wells), based on experience with similar wells. Due to the uncertainties associated with subsurface lithology and well drilling, the hours provided are only an estimate and could exceed total proposed hours at one or both test well sites. Tetra Tech will notify City if proposed hours are expected to exceed estimate and request City approval for additional hours to proceed.
 5. Prepare report summarizing well construction and testing results.

Deliverables:

1. Summary of Project Kick-off Meeting.
2. Summary of initial District Meeting.
3. Wellsite Screening Memorandum for Eastern Wellfield.
4. Wellsite Screening Memorandum for Western Wellfield.
5. Western Wellfield Testing Results.
6. Eastern Wellfield Preliminary Raw Water Main Routing Corridor Technical Memorandum.
7. Western Wellfield Preliminary Raw Water Main Routing Corridor Technical Memorandum.
8. Eastern Wellfield Conceptual Well & Raw Water Main Cost Estimate.
9. Western Wellfield Conceptual Well & Raw Water Main Cost Estimate.
10. Test Well Construction/ Testing Specifications
11. Test Well Results

III. SERVICES NOT INCLUDED

1. Geotechnical investigations.
2. Jurisdictional wetland delineations and threatened and endangered species evaluations.
3. WUP modification application fees.
4. Final wellfield and raw water line design, bidding, and construction services.
5. Public Supply Well Construction and Testing.
6. Property acquisition.

IV. COMPENSATION

The total lump sum compensation for the Scope of Services described above is **\$357,432**. **Attachment B** presents a breakdown of the estimated hours and compensation for the Scope of Services.

Task	Fee (\$)
A. Project Kickoff, Pre-Application Meeting, Data Collection	\$53,026
B. Eastern Wellfield Evaluation and Conceptual Design	\$114,876
C. Western Wellfield Testing and Conceptual Design	\$141,565
D. Wellfield Test Wells	\$47,965
Total Lump Sum	\$357,432

V. SCHEDULE

The estimated project schedule, based on our understanding of the work and available data, is presented below. As certain tasks are completed, the duration and completion of subsequent tasks may change. If each task has a separate Notice To Proceed, the total time to complete all tasks will change.

Task	Duration (Weeks)	Weeks After Notice to Proceed
A. Project Kickoff, Pre-Application Meeting, Data Collection		
1. Project Kick-Off Meeting	2	2
2. Data Collection	4	6
3. Regulatory Considerations	2	6
B. Eastern Wellfield Evaluation, Conceptual Design and Permitting		
1. Well Site Identification & Screening	6	12
2. Eastern Wellfield Raw Water Main Route Analysis	6	18
3. Conceptual Well & Raw Water Main Cost Estimate	3	21
4. Groundwater Flow/Transport Modeling	8	29
5. Technical Memorandum	4	33
C. Western Wellfield Testing, Conceptual Design, and Permitting		
1. Existing Well Testing	5	11
2. Well Site Identification & Screening	6	17
3. Groundwater Flow/Transport Modeling	8	25
4. Western Wellfield Raw Water Main Route Analysis	6	31
5. Conceptual Well & Raw Water Main Cost Estimate	2	33
6. Technical Memorandum	4	35
D. Wellfield Test Wells		
1. Test Well Construction Specifications/ Construction	6	40
2. Test Well Summary Memorandum	2	42

Tetra Tech Price Proposal

Labor Plan

12 Resource

Task Pricing Totals 357,432

WA-1 Raw Water Relocation Services

Specify Add'l Fees on Setup 0

Technology Use Fee

Add'l Fees for Prem. O/T Labor N/A

Total Price 357,432

City of Pompano Beach (Attn: Phil Hyer)

Proj Area >

Pricing by Resource

Contract Type: Fixed Price

Project Phases / Tasks	Total Labor Hrs	Program Manager	Project Manager Sr	Sr. Scientist 2	Sr. Scientist 2	Scientist 3	Scientist 2	Scientist 2	Senior Engineer 3	Project engineer 1	Senior GIS analyst	Project Admin	Labor	Subs	Travel	Mat'ls & Equip	ODCs	Task Pricing Totals
		146	170	237	52	304	178	79	82	142	159	59	243,460	102,201	7,920	1,540	2,310	357,432

A. Project Kickoff, Pre-Application Meeting, Data Collection	282	55	22	66	-	69	26	-	10	6	16	12	46,151	2,750	3,300	-	825	53,026
1. Meetings/Coordination	163	34	16	42	-	35	-	-	10	6	8	12	28,040	2,750	1,650	-	413	32,853
1.1 Internal Project Kickoff Meeting	22	4	4	4		4			1	1	2	2	3,749	1,100				4,849
1.2 Project Kick-off meeting with City	26	8		8		2			4		2	2	4,639	1,650	330		83	6,701
1.3 Conference calls with City	43	10		10		5			5	5	4	4	7,290		1,320		330	8,940
1.4 Project Coordination/ Status Memoranda	72	12	12	20		24						4	12,362					12,362
2. Data Collection	71	1	-	10	-	26	26	-	-	-	8	-	8,380	-	-	-	-	8,380
2.1 Land ownership	33	1		4		10	10				8		3,974					3,974
2.2 Raw water requirements	15			3		6	6						1,777					1,777
2.3 Historical well data	23			3		10	10						2,630					2,630
3. Regulatory Considerations	48	20	6	14	-	8	-	-	-	-	-	-	9,730	-	1,650	-	413	11,793
3.1 Pre-application meeting with SFWMD	18	8		8		2							3,554		330		83	3,966
3.2 Additional Meetings with SFWMD/FDEP (2)	30	12	6	6		6							6,177		1,320		330	7,827
B. Eastern Wellfield Evaluation, Conceptual Design and Permitting	377	37	68	27	15	52	6	-	38	68	54	12	61,608	52,085	990	-	193	114,876
1. Well Site Identification and Screening	190	19	16	23	2	38	6	-	14	22	38	12	28,582	3,960	825	-	110	33,477
1.1 Site Constraints	20	1	4	3		6			2		4		3,116					3,116
1.2 Regulatory Constraints	9	1	4						2		2		1,677					1,677
1.3 Isochlor location	10	4				4				2	2		1,700					1,700
1.4 Wetlands, environmental features	7	1		4							2		1,145					1,145
1.5 Environmental Hazards	17	1		4		10					2		2,327	3,960				6,287
1.6 FEMA and floodplain	17	1	4	4		6					2		2,725					2,725
1.7 Preliminary Site Visits	8	8											1,990		825		110	2,925
1.8 Prepare a wellfield map including pipe route	23	1	2						2	6	8	4	3,230					3,230
1.9 Prepare well site screening memorandum	79	1	2	8	2	12	6		8	16	16	8	10,672					10,672
2. Raw Water Main Route Analysis	129	7	40	2	-	8	-	-	20	40	12	-	22,257	-	165	-	83	22,504
2.1 Mechanical/ electrical	31	1	12						6	12			5,602					5,602
2.2 Raw water line sizing and routing	52	2	20						6	16	8		9,112					9,112
2.3 Publicly owned land	24	2		2		8			4	4	4		3,477					3,477
2.4 Preliminary site visits	10	2	8										2,240		165		83	2,488
2.5 Run raw water hydraulic model (one route) Phase 2	12								4	8			1,826					1,826
3. Conceptual Well & Raw Water Main Cost Estimate	35	1	12	2	-	6	-	-	4	6	4	-	5,900	-	-	-	-	5,900
3.1 Conceptual level cost estimate memoranda	35	1	12	2		6			4	6	4		5,900					5,900
4. Groundwater Flow/Transport Modeling	23	10	-	-	13	-	-	-	-	-	-	-	4,869	48,125	-	-	-	52,994
4.1 Model Calibration	4	1			3								789	28,160				28,949
4.2 Run flow and upconing simulations	5	2			3								1,045	14,080				15,125
4.3 Impact Analysis	6	3			3								1,301	3,300				4,601
4.4 Technical Memorandum	8	4			4								1,735	2,585				4,320
C. Western Wellfield Testing, Conceptual Design and Permitting	615	45	80	92	29	125	41	-	34	68	78	23	95,326	44,066	990	990	193	141,565
1. Well Testing	155	10	4	45	11	49	25	-	-	-	8	3	22,121	22,231	-	-	-	44,352
1.1 Prepare well/wellfield testing plan	20	2		8	2	8							3,115	3,751				6,866
1.2 Select wells for sand and hydraulic testing	21	4		5		12							3,243					3,243
1.3 Well Testing	9	1		8									1,576	10,538				12,114
1.5 Prepare technical specs for well testing	41	1		8	2	15	15						5,118					5,118
1.7 Bidding and Award assistance	29	1	4	12	5	4						3	4,751					4,751
1.8 Construction admin and observation	-																	-
1.9 Report summarizing test results and recommendations	35	1		4	2	10	10				8		4,319	7,942				12,261
2. Well Site Identification and Screening	191	18	16	23	2	32	6	-	14	30	38	12	28,801	1,980	825	990	110	32,706
Site Constraints	25	2	4	3		6			2	4	4		3,954					3,954
Regulatory Constraints	13	1	4						2	4	2		2,266					2,266
Isochlor location	8	2				4					2		1,203					1,203

Wetlands, environmental features	7	1		4						2			1,145					1,145
Environmental Hazards	11	1		4		4				2			1,617	1,980		990		4,587
FEMA and floodplain	17	1	4	4		6				2			2,725					2,725
Preliminary Site Visits	8	8											1,990		825		110	2,925
Prepare a wellfield map including pipe route	23	1	2						2	6	8	4	3,230					3,230
Prepare well site screening memo	79	1	2	8	2	12	6		8	16	16	8	10,672					10,672
3. Groundwater Flow/Transport Modeling	26	6	-	-	12	-	-	-	-	-	8	-	4,553	19,855	-	-	-	24,408
3.1 Model Calibration	4	1			3								776					776
3.2 Run flow and upconing simulations	4	1			3								776	13,970				14,746
3.3 Impact Analysis	5	2			3								1,029	3,300				4,329
3.4 Technical Memorandum	13	2			3						8		1,972	2,585				4,557
4. Conceptual Wellfield Raw Water Main Route Analysis	117	7	40	2	-	8	-	-	16	32	12	-	21,044	-	165	-	83	21,291
4.1 Mechanical/ electrical	31	1	12						6	12			5,770					5,770
4.2 Raw water line sizing and routing	52	2	20						6	16	8		9,385					9,385
4.3 Publicly owned land	24	2		2		8			4	4	4		3,581					3,581
4.4 Preliminary site visits	10	2	8										2,308		165		83	2,555
4.5 Run raw water hydraulic model (one route)	-																	-
5. Conceptual Well & Raw Water Main Cost Estimate	34	-	12	2	-	6	-	-	4	6	4	-	5,821	-	-	-	-	5,821
5.1 Conceptual level cost estimate	34		12	2		6			4	6	4		5,821					5,821
6. Western Wellfield Technical Memoranda	92	4	8	20	4	30	10	-	-	-	8	8	12,986	-	-	-	-	12,986
6.1 Summary Report	92	4	8	20	4	30	10				8	8	12,986					12,986
D. Wellfield Test Wells	334	9	-	52	8	58	105	79	-	-	11	12	40,375	3,300	2,640	550	1,100	47,965
1. Test Well Locations	39	5	-	8	2	20	-	-	-	-	4	-	5,916	3,300	-	-	-	9,216
1. Identify Test Well Locations	14	2		4	2	6							2,281					2,281
1.2 Conduct site inspection of proposed well site(s)	20	2		4		14							2,900					2,900
1.3 Survey proposed well location(s)	5	1									4		735	3,300				4,035
2. Test Well Specifications	67	2	-	10	4	26	18	-	-	-	3	4	8,637	-	-	-	-	8,637
2.1 Preparation of technical specs for well construction and testing	63	2		8	4	24	18				3	4	8,052					8,052
2.2 Assist drilling contractor with well construction permit	4			2		2							585					585
3. Construction Administration/ Observation	185	1	-	30	-	-	75	75	-	-	-	4	20,595	-	2,640	550	1,100	24,885
3.1 Construction administration and observation for 2 wells	185	1		30			75	75				4	20,595		2,640	550	1,100	24,885
4. Testing Results Report	43	1	-	4	2	12	12	4	-	-	4	4	5,226	-	-	-	-	5,226
1.7 Prepare report summarizing well construction and testing	43	1		4	2	12	12	4			4	4	5,226					5,226
Totals	1,608	146	170	237	52	304	178	79	82	142	159	59	243,460	102,201	7,920	1,540	2,310	357,432