

**CITY OF CORPUS CHRISTI
AMENDMENT NO. 3
CONTRACT FOR MONITORING SERVICES**

The City of Corpus Christi, Texas hereinafter called "CITY", and the **Conrad Blucher Institute at Texas A&M University – Corpus Christi**, hereinafter called "CBI," agree to the following amendment to the Contract for Professional Services for **Nueces River Water Quality, Oso Creek Water Level & City of Corpus Christi Meteorological Monitoring 2013 (Project No. 8443)**, as authorized and amended by:

Original A/E Agreement	August 30, 2011	Motion No. 2011-187	\$92,355.00
Amendment No. 1	February 28, 2012	Motion No. 2012-047	\$224,794.00
Amendment No. 2	April 17, 2013	Administrative Approval	\$46,112.00

- **Exhibit "A". SECTION II. SCOPE OF SERVICES** shall be modified to include the additional tasks as described in Amendment No. 3 Exhibit "A".
- The original contract **SUMMARY OF FEES** shall be modified and is attached as Amendment No. 3 Exhibit "A" for a revised fee not to exceed **\$93,381.00 (Ninety-Three Thousand Three Hundred Eighty One Dollars and Zero Cents)**, for a total restated fee not to exceed **\$456,642.00 (Four Hundred Fifty-Six Thousand Six Hundred Forty Two Dollars and Zero Cents)**.

All other terms and conditions of August 30, 2011 contract and amendments between the City and CBI will remain in full force and effect.

CITY OF COPUS CHRISTI

TEXAS A&M UNIVERSITY-CORPUS CHRISTI

Mark Van Vleck, P.E., (Date)
Interim Assistant City Manager for
Public Works & Utilities

[Signature] 10/11/13

Larry Lloyd, (Date)
Research Specialist II

RECOMENDED

Conrad Blucher Institute for Surveying and
Science
Texas A&M University – Corpus Christi
6300 Ocean Drive, Unit 5799
Corpus Christi, Texas 78412
(361) 825-5759 Office
Larry.Lloyd@tamucc.edu

[Signature] 10/16/13

Daniel Biles, P.E., (Date)
Director of Engineering Services

[Signature] 10.16.2013

Gustavo Gonzalez, P.E., (Date)
Director of Water Operations

[Signature] 10.15.13

Dr. Luis Cifuentes, (Date)
Vice President for Research, Commercialization
and Outreach

APPROVED

Office of Management and Budget (Date)

RECEIVED
OCT 16 REC'D
BY: TWA

ENTERED
OCT 14 2013 *[Signature]*
CONTRACT MANAGER

ATTEST

Armando Chapa, City Secretary

Project No: 8443
Fund Source No: 530000-4010-31501-8443
Fund Name: Water Operating
Encumbrance No: <u>EX443ABLI</u>



**CONRAD BLUCHER
INSTITUTE
FOR SURVEYING AND SCIENCE**

Larry Lloyd
Research Specialist II
Conrad Blucher Institute for Surveying and Science
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Mr. Gabriel Ramirez
2726 Holly Rd.
City of Corpus Christi
Corpus Christi, TX 78415

5 August, 2013

Dear Mr. Ramirez:

The statements of work covered herein are submitted to the City of Corpus Christi Water Department (CCWD) for consideration. These statements will constitute a fee for services rendered by the Conrad Blucher Institute for Surveying and Science (CBI) at Texas A&M University - Corpus Christi (TAMUCC). Included is an outline of our scope of work and budget to continue to maintain environmental monitoring stations in the Nueces River, Oso Creek and within the City of Corpus Christi under. The following scope of work and budget will reflect an amendment to allow for continuation of the project.

**PROPOSED AMENDMENT FOR NUECES RIVER WATER QUALITY, OSO CREEK WATER LEVEL
AND CITY OF CORPUS CHRISTI METEROLOGICAL MONITORING: 2013**

SUMMARY

Thirteen real-time environmental monitoring stations in the Nueces River, Oso Creek and the City of Corpus Christi will continue to be covered under this agreement. Station service includes exchange of water quality datasonde instruments with a freshly calibrated unit and factory recommended maintenance of water level and meteorological monitoring instrumentation. All monitoring stations will report air temperature, wind speed, wind direction, liquid precipitation, barometric pressure and relative humidity. In addition to these parameters, water level stations will report water level and stage height and water quality stations will report water temperature, salinity, specific conductance, pH, dissolved oxygen and turbidity. All data will be available in graphical and tabular format on CBI's website (<http://cbi.tamucc.edu>) within one hour of the time data were collected.

RESEARCH OBJECTIVES

Nueces River Water Quality Monitoring

Three water quality stations are located along the lower Nueces River at the Wesley Seale Dam (28° 2' 32" N 97° 52' 5" W), Nueces River Estates (27° 56' 4" N 97° 48' 8" W) and at the Nueces River intake station (27° 52' 2" N 97° 38' 1" W). These stations consist of a Hach Hydrolab MS5 datasonde, Vaisala WXT-520 weather transmitter, IP modem, Campbell Scientific CR1000 datalogger, and photovoltaic power system and will report water temperature, salinity,



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conductivity, pH, dissolved oxygen, turbidity, air temperature, wind speed, wind direction, liquid precipitation, barometric pressure and relative humidity. The Nueces River Water Quality stations assist the CCWD in more efficiently treating public water through the monitoring of the water quality, specifically the turbidity, entering the O.N Stevens Water Treatment Plant.

Oso Creek Water Level Monitoring

Three water level monitoring stations are located on bridges along the Oso Creek at Saratoga Rd. near Calle Cuermavaca (~27° 43' 18.26" N 97° 27' 28.55" W), Weber Rd. near Yorktown Blvd. (~27° 41' 19.82" N 97° 25' 45.36" W) and at Staples St. near Oso Pkwy. (~27° 39' 24.89" N 97° 24' 5.89" W). These stations consist of a Campbell Scientific CS-475 radar water level sensor, Vaisala WXT-520 weather transmitter, IP modem, Campbell Scientific CR1000 datalogger, and photovoltaic power system and will report water level and stage height, air temperature, liquid precipitation, barometric pressure and relative humidity. Water level data will be reported in values relative to the NAVD88 datum. The Oso Creek water level stations will assist the CCWD in predicting water consumption rates and provide meteorological information to residents by measuring rainfall and water level.

Corpus Christi Meteorological Monitoring

Seven meteorological stations are located throughout the City of Corpus Christi at water Department, Parks and Recreation Department and Texas A&M University – Corpus Christi properties located at Up River Rd. near Rand Morgan (27° 49' 55" N 97° 33' 5" W), Navigation Blvd. near Agnes St. (27° 47' 18" N 97° 27' 10" W), Holly Rd. near Everhart Rd. (27° 42' 12" N 97° 23' 13" W), Ocean Dr. at TAMUCC (27° 42' 54" N 97° 19' 43" W), S.P.I.D. at Flour Bluff Dr. (27° 40' 31" N 97° 17' 44" W), San Dollar Ave. near Verdemar Dr. (27° 37' 33" N 97° 13' 13" W) and at the Nueces River pump station (27° 52' 4.2" N 97° 37' 54.5" W). These stations consist of a Vaisala WXT-520 weather transmitter, IP modem, Campbell Scientific CR1000 datalogger and a photovoltaic power system and reports air temperature, wind speed, wind direction, liquid precipitation, barometric pressure and relative humidity.

STATION SERVICE AND MAINTENANCE

Nueces River Water Quality Monitoring

Regular site visits will be made to each water quality station monthly during which the datasondes will be exchanged to prevent inaccurate data due to biofouling. During the site visit, readings will be recorded from the old datasonde which will then be replaced with a clean, calibrated datasonde after which readings from the new datasonde will be recorded. Independent salinity readings will be taken with a refractometer and recorded. Maintenance to the station hardware including cleaning solar panels and replacing damaged components will also be performed during regular site visits as needed. The weather transmitter on all water



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quality stations will also be cleaned and the component WXT-PTUSP will be replaced every two years as recommended by the manufacturer. Data from the weather transmitter will be recorded and the air temperature, wind speed and barometric pressure will be measured with an independent instrument and recoded during each site visit. Full inspections will be made annually during which the voltage output of every component on the power system will be checked, pictures of every station component will be taken and the desiccant will be replaced. Repair of damaged station components will be performed during regular service visits as needed and will be used in the event that a damaged station component prevents proper data collection or transmission. Scheduled site visits may be delayed due to foul weather, vehicle repair, flood conditions, etc. In the event that a service trip is delayed, every effort will be made to complete the scheduled site visit as soon as it is safe and feasible. A short summary of each site visit conducted will be placed on the station's website and publically available at all times.

Oso Creek Water Level Monitoring

Regular maintenance to water level stations will be conducted every six months. Leveling by CBI will be conducted annually during a regular visit at each water level station to ensure accurate data is being reported. During a leveling site visit, a leveling gun will be used to accurately measure the horizontal and vertical distance between a fixed point and a point on the water level sensor so that the water level can be accurately reported from the NAVD88 datum. Leveling site visits will continually monitor and document any drift in the distance from the fixed point to the water level sensor so that correction can be made to the data if needed. A full annual inspection will also be made annually during a regular site visit during which the voltage output of every component on the power system will be checked, pictures of every station component will be taken, the sensor orientation will be checked and the desiccant will be replaced. The creek stage height directly below the sensor will also be measured and the stage offset value will be updated in the water level sensor. One emergency site visits have been budgeted to repair damaged station components as needed and will be used in the event that the damaged component prevents proper data collection or transmission. A short summary of each site visit conducted will be placed on the station's website and publically available at all times.

Corpus Christi Meteorological Monitoring

Regular maintenance to meteorological stations will be conducted every 12 months. One site visit has been budgeted by CBI to conduct a full inspection during which the voltage output of every component on the power system will be checked, pictures of every station component will be taken and the desiccant will be replaced. One emergency site visit have been budgeted to repair damaged station components as needed and will be used in the event that the damaged component prevents proper data collection or transmission. A short summary of each site visit conducted will be placed on the station's website and publically available at all times.



DATA COLLECTION

Each real-time environmental monitoring station has its own webpage created within the website <http://cbi.tamucc.edu>. A custom computer program, written by staff at CBI, polls each station every six minutes. During a poll, averaged readings from the datalogger will be requested. The averages are then placed into the CBI database and reported on the station webpage so that each value will represent a six minute average. All data stored in the CBI database is publically available on the internet at <http://cbi.tamucc.edu> and can be retrieved at any time. CBI staff performs a quality control check (QC) of all real-time data daily. During a QC, the data will be checked for missing transmissions and data anomalies such as readings outside of a feasible range, readings of a constant value, random spikes, etc. Data anomalies, suspect data, missed transmissions and other factors affecting the data will be posted as a message on each station's webpage.

INSTRUMENT CALIBRATION

Hach Hydrolab MS5 Datasonde

Hach Hydrolab MS5s will be serviced and calibrated at a wetlab at TAMUCC. During calibration, the instrument will be placed in a known standard for each parameter and set to match its readings to that standard; all calibration standards used will be NIST traceable. All datasondes brought back from the field will have photographs taken of the sensors to document the amount of biofouling. The instruments will then be post-calibrated during which the readings for each parameter will be recorded in the same standard in which it was calibrated. The biofouling will then be removed and any maintenance recommended by the manufacturer will be performed. All calibration and post-calibration records will be available on the CBI website <http://cbi.tamucc.edu>. An annual maintenance agreement with HydrotechZS will be purchased which will cover repair/refurbishment to damaged components on the instruments and an annual quality check including calibration of the temperature sensor. Documentation from the annual quality check will be retained at CBI and available upon request.

Vaisala WXT-520 Weather Transmitter

The Vaisala WXT-520 weather transmitter does not require a regular calibration. However, the replacement part WXT-PTUSP contains calibration data and will be replaced every two years as recommended by the manufacturer for accurate data collection.

Campbell Scientific CS475 Radar Water Level Sensor

The Campbell Scientific CS475 Radar Water Level Sensor does not require a regular calibration. However, the sensor will be checked for accuracy during annual inspections and will be sent



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back to the manufacturer for a quality check if the data provided by the sensor becomes suspect.

REPLACEMENT PARTS AND EQUIPMENT

TAMUCC owns and insures the instrumentation and equipment purchased with funds from this project. In the case of damage, TAMUCC will repair or replace instrumentation as needed to ensure a continuous data collection record as long as enough funds are available. If not enough funds are available, the CCWD will be responsible for replacement or repair of instruments. Replacement equipment will be purchased for this project and kept in inventory until needed. If additional replacement equipment beyond what is kept in inventory is needed, every effort will be made by CBI and the CCWD to replace needed components.

COLLABORATIVE MONITORING

This proposed installation and maintenance of environmental monitoring stations will be designed to provide data to support those research efforts currently being done by the CCWD and the Nueces River Authority (NRA). The CBI will work with staff at the CCWD and NRA to provide data, information, instructions, etc. that will help them gather the resources needed to conduct research. Should the need or occasion arise where additional monitoring efforts are required, CBI will be in a position to support those efforts.

SCHEDULE OF WORK AND FEE FOR SERVICES

The Conrad Blucher Institute for Surveying and Science at Texas A&M University – Corpus Christi hereby agrees for the duration of November 15, 2013 through July 31, 2014 to perform all services necessary to install and maintain environmental monitoring stations, as described in this proposal. The budget for November 15, 2013 through July 31, 2014 is \$93,381 and is outlined below with this proposal. Operation and maintenance invoices will be sent on a quarterly basis. The total award amount will be billed in equal, monthly installments over the twelve month period of this contract. A new proposal will be provided for each year of continuing service.



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BUDGET SUMMARY

	TOTAL
Salaries & Benefits	\$50,348
Travel Pool	\$1,736
Supplies	\$5,500
Other Expenses (IP modem fee, freight service warranty)	\$13,700
Indirect	\$22,098
TOTAL	\$93,381

**NUECES RIVER WATER QUALITY, OSO CREEK WATER LEVEL &
CITY OF CORPUS CHRISTI METEOROLOGICAL MONITORING 2013
SUMMARY OF FEES**

		ORIGINAL CONTRACT	AMEND. NO. 1	AMEND. NO. 2	AMEND. NO. 3	TOTAL
1	Salaries & Benefits	\$60,181.00	\$85,860.00	\$22,340.00	\$50,348.00	\$218,729.00
2	Equipment/Maintenance	11,350.00	63,640.00	0.00	0.00	74,990.00
3	Travel Pool	7,175.00	5,540.00	1,510.00	1,735.00	15,960.00
4	Supplies	1,800.00	38,800.00	5,000.00	5,500.00	51,100.00
5	Other Expenses	0.00	14,100.00	6,350.00	13,700.00	34,150.00
6	Indirect	11,849.00	16,854.00	10,912.00	22,098.00	61,713.00
TOTAL		92,355.00	224,794.00	46,112.00	93,381.00	456,642.00
		08/30/11 M2011-187	02/28/12 M2012-047	04/17/13 Admin Approval	M2013-	



City of
Corpus
Christi

SUPPLIER NUMBER
TO BE ASSIGNED BY CITY
PURCHASING DIVISION

CITY OF CORPUS CHRISTI DISCLOSURE OF INTEREST

City of Corpus Christi Ordinance 17112, as amended, requires all persons or firms seeking to do business with the City to provide the following information. Every question must be answered. If the question is not applicable, answer with "NA". See reverse side for Filing Requirements, Certifications and definitions.

COMPANY NAME: Texas A&M University - Corpus Christi
Conrad Blucher Institute for Surveying and Science

P. O. BOX: _____

STREET ADDRESS: 6300 Ocean Drive, Unit 5799 CITY: Corpus Christi ZIP: 78412

FIRM IS: 1. Corporation 2. Partnership 3. Sole Owner
4. Association 5. Other

DISCLOSURE QUESTIONS

If additional space is necessary, please use the reverse side of this page or attach separate sheet.

1. State the names of each "employee" of the City of Corpus Christi having an "ownership interest" constituting 3% or more of the ownership in the above named "firm."

Name	Job Title and City Department (if known)
N.A.	
_____	_____
_____	_____
_____	_____

2. State the names of each "official" of the City of Corpus Christi having an "ownership interest" constituting 3% or more of the ownership in the above named "firm."

Name	Title
N.A.	
_____	_____
_____	_____
_____	_____

3. State the names of each "board member" of the City of Corpus Christi having an "ownership interest" constituting 3% or more of the ownership in the above named "firm."

Name	Board, Commission or Committee
N.A.	
_____	_____
_____	_____
_____	_____

4. State the names of each employee or officer of a "consultant" for the City of Corpus Christi who worked on any matter related to the subject of this contract and has an "ownership interest" constituting 3% or more of the ownership in the above named "firm."

Name	Consultant
N.A.	
_____	_____
_____	_____
_____	_____

FILING REQUIREMENTS

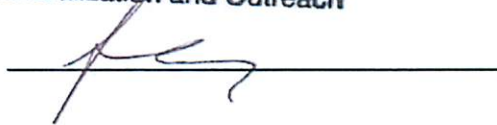
If a person who requests official action on a matter knows that the requested action will confer an economic benefit on any City official or employee that is distinguishable from the effect that the action will have on members of the public in general or a substantial segment thereof, you shall disclose that fact in a signed writing to the City official, employee or body that has been requested to act in the matter, unless the interest of the City official or employee in the matter is apparent. The disclosure shall also be made in a signed writing filed with the City Secretary.
[Ethics Ordinance Section 2-349 (d)]

CERTIFICATION

I certify that all information provided is true and correct as of the date of this statement, that I have not knowingly withheld disclosure of any information requested; and that supplemental statements will be promptly submitted to the City of Corpus Christi, Texas as changes occur.

Certifying Person: Dr. Luis Cifuentes Title: _____
Vice President for Research,
Commercialization and Outreach

Signature of Certifying
Person:



Date: 3.12.13

DEFINITIONS

- a. "Board member." A member of any board, commission, or committee appointed by the City Council of the City of Corpus Christi, Texas.
- b. "Economic benefit". An action that is likely to affect an economic interest if it is likely to have an effect on that interest that is distinguishable from its effect on members of the public in general or a substantial segment thereof.
- c. "Employee." Any person employed by the City of Corpus Christi, Texas either on a full or part-time basis, but not as an independent contractor.
- d. "Firm." Any entity operated for economic gain, whether professional, industrial or commercial, and whether established to produce or deal with a product or service, including but not limited to, entities operated in the form of sole proprietorship, as self-employed person, partnership, corporation, joint stock company, joint venture, receivership or trust, and entities which for purposes of taxation are treated as non-profit organizations.
- e. "Official." The Mayor, members of the City Council, City Manager, Deputy City Manager, Assistant City Managers, Department and Division Heads, and Municipal Court Judges of the City of Corpus Christi, Texas.
- f. "Ownership Interest." Legal or equitable interest, whether actually or constructively held, in a firm, including when such interest is held through an agent, trust, estate, or holding entity. "Constructively held" refers to holdings or control established through voting trusts, proxies, or special terms of venture or partnership agreements."
- g. "Consultant." Any person or firm, such as engineers and architects, hired by the City of Corpus Christi for the purpose of professional consultation and recommendation.