

**CITY OF CORPUS CHRISTI
RINCON BAYOU DIVERSION
NUECES BAY AND RIVER
SALINITY AND FRESHWATER INFLOW MONITORING 2012-2013
(City Project No. 8443)
CONTRACT FOR MONITORING SERVICES**

The City of Corpus Christi, Texas, hereinafter called "City", and the Conrad Blucher Institute (CBI) at Texas A&M University - Corpus Christi, hereinafter called "CBI", hereby agree as follows:

- I. **SERVICES TO BE PERFORMED** – CBI hereby agrees to perform all consulting services necessary to plan, develop, undertake, complete, and report the results of a study for ongoing salinity monitoring efforts in the Nueces Estuary consisting of three salinity monitoring stations in the Nueces River and Bay.
- II. **SCOPE OF SERVICES** – CBI's services will be those necessary to provide the required monitoring corresponding to station service including the following:
- Station service includes exchange of Hydrolab instruments with a freshly calibrated unit;
 - Station service frequency will be based on observed marine growth (every 2 weeks when warmer bay waters foster excessive marine growth and every 3 weeks when water temperatures are cooler);
 - All salinity monitoring stations will report salinity and water temperature;
 - Stations SALT01 and SALT03 will also report dissolved oxygen, pH, and water depth; and
 - All data will be available in graphical and tabular format on the CBI website (<http://lighthouse.tamucc.edu/salinity>) within one hour of the time data were collected.
- A. **TASKS** – CBI will complete the tasks set forth in the research proposal attached as Exhibit "A". CBI will complete the following tasks:

Nueces Bay Salinity Monitoring – Freshwater Inflow – CBI will conduct Nueces Bay salinity monitoring two (2) monitoring platforms in the bay, one near Whites Point (SALT03) and the other mid bay, near the CPL (AEP) power lines (SALT01), plus one station in the Nueces River (SALT05); and will continue to maintain a station at the mouth of the Rincon Delta (SALT08) which is no longer sponsored by the City. Parameters measured by CBI will include salinity, conductivity, dissolved oxygen, water temperature, water depth, and pH. Station Salt05 parameters will include salinity, water temperature and water depth only. This is an ongoing project originating in the fall of 1991. The stations are placed in such a manner to track fresh water inflows into Nueces Bay using salinity levels and the indicator. Relief for required freshwater releases may be taken by the City if the salinity levels in Nueces Bay fall below the Upper Salinity Bounds. A daily running report (<http://lighthouse.tamucc.edu/salrel>) produced by DNR and the Nueces River Authority (NRA) shows the current freshwater relief status.

Nueces Delta Diversion Project – Freshwater Inflow – CBI will monitor the salinity and water levels of five salinity monitoring stations along the Rincon Bayou, beginning at the head and ending of Nueces Bay. City has designed and built a diversion channel from the Nueces River into the delta at the head of the Rincon Bayou channel. The diverted river water is designed to flow into the Rincon Bayou and adjacent wetland. The University of Texas Marine Science Institute at Port Aransas (UTMSI), Harte Research Institute for Gulf of Mexico Studies (HRI), and the Center for Coastal Studies (CCS) are presently conducting long-term ecological studies of the effects of this diversion.

Nueces Bay Tidal and Meteorological Station – The Texas Coastal Oceanic Observation Network (TCOON) operates a tidal/meteorological station (011) in the upper part of Nueces Bay at Whites Point. This station was replaced in the winter of 2010 with a new tidal monitoring platform (185) just across the bay, near the mouth of the Nueces River. CBI will use precise water level measurements from this station as a reference for work by the others in the various projects in the bay, river, and delta.

Station Service And Maintenance – CBI will exchange freshly calibrated Hydrolab units with units on the station as required every two to three weeks. CBI will provide post-calibration and preparation units for future service. All salinity and dissolved oxygen stations consist of a Hydrolab water quality datasonde, a radio, modem, and 12 volt solar power system. CBI may separately contract a maintenance agreement to ensure the continued reliability of the Hydrolab datasondes. The maintenance agreement must ensure that the instruments deployed are as good as, or better, than factory standards.

Data Collection – CBI will program a computer to poll each station every six minutes. Five measurements will be obtained from each instrument, which are then averaged. CBI will place the hourly averages into the database and be reported on the DNR web site. Daily salinity reports are produced showing the running ten and seven day averages as well as the daily average (<http://www.nueces-ra.org/CP/CITY/passthru/index.php>). Monthly salinity levels in relation to the Upper and Lower Salinity bounds is found at <http://lighthouse.tamucc.edu/salrel>, which is used to determine if the City may take credit from freshwater release from the storage facilities.

Instrument Calibration – CBI will ensure all calibration standards used are NIST traceable, and purchased from a qualified instrument maintenance company. CBI will use calibration and post-calibration methods established by the manufacturer of Hydrolab. All calibration and post-calibration records are available on the DNR website, <http://lighthouse.tamucc.edu/calib>. CBI will maintain an instrument maintenance agreement with a qualified instrument maintenance firm for each Hydrolab. Each unit will be annually inspected and refurbished. All components of the instrument will be covered under the warranty agreement and replaced as needed.

Collaborative Monitoring – CBI will provide data to support those research efforts currently being done by others. The continuation of the salinity monitoring program is designed to provide data to support those research efforts currently being done by the Center for Coastal Studies (CCS), University of Texas Marine Science Institute at Port Aransas (UTMSI), Harte Research Institute (HRI), Corps of Engineers (COE), Coastal Bend Bays and Estuaries Program (CBBEP), United States Geological Survey (USGS) and the City.

- B. RESEARCH PLAN AND METHODS – The specific research plan and methods are set forth in the Research Contract Proposal incorporated as Exhibit "A" of this contract.
- C. ORDER OF SERVICES – The monitoring period will be for 12 months, from October 1, 2012 through September 30, 2013.

- III. FEES AUTHORIZED – The City will pay CBI a fixed fee not to exceed \$93,062 for providing all services for 2012-2013. This fee will be full and total compensation for all services provided and expenses incurred in performing the tasks specified in Section II. Invoices will be submitted to the Director of Engineering Services. Invoices will be submitted no more frequently than once per month for services rendered. All invoices shall be accompanied by a cover letter summarizing project status and the tasks undertaken during the time period covered by the invoice. Invoices will be based on the budget attached as Exhibit "B". Invoices will be sequentially numbered for each project, state the project name (Rincon Bayou Diversion Project – Nueces Bay and River Salinity and Freshwater Inflow Monitoring 2012-2013) and City project number (8443). The letter shall state the number of the current invoice, the total authorized fee, the amount previously invoiced, and the current amount due. Statements will be based upon percent of project completed. However, a final payment of \$3,500 will be retained until delivery of the final report.

Exhibit "A" contains a detailed breakdown of the project budget for 2012-2013.

Budget Summary	
	FEEES 2012-2013
Salaries & Benefits	\$49,376.00
Equipment/Maintenance	16,850.00
Travel Pool	5,424.00
Computer Supplies	2,800.00
Indirect	18,612.00
Total	\$93,062.00

IV. **TERMINATION OF CONTRACT** – The City may, at any time, with or without cause, terminate this contract upon 30 days written notice to CBI at the addresses specified below. If termination occurs prior to the final completion of all work contemplated by this contract, DNR shall be paid for all reasonable costs incurred or contractually committed to be expended as of the effective termination date, including salaries of appointees for the remainder of their appointment. The foregoing shall not be construed to require the City to compensate CBI for any services not performed in a proper, professional manner.

V. **NOTICE ADDRESS** - Correspondence concerning this contract shall be sent to the City and CBI as follows:

<p>City:</p> <p>Daniel Biles, P. E., Director of Engineering Services City of Corpus Christi Department of Engineering Services 1201 Leopard Street Corpus Christi, TX 78401 (361) 826-3500 office (361) 826-3501 fax</p>	<p>CBI:</p> <p>Larry Lloyd, Research Specialist II Conrad Blucher Institute for Surveying and Science Texas A & M University – Corpus Christi NRC, Suite 3406 6300 Ocean Drive Corpus Christi, TX 78412 (361) 438-6594 mobile (361) 825-5759 office larry.lloyd@tamucc.edu</p>
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VI. **LOCAL PARTICIPATION** – The City Council's stated policy is that City expenditures on contracts for professional services be of maximum benefit to the local economy.

VII. **ASSIGNABILITY** – CBI will not assign, transfer or delegate any of its obligations or duties under this contract to any other person without the prior written consent of the City, except for routine duties delegated to personnel of CBI. No part of CBI's fee may be assigned in advance of receipt by CBI without written consent of the City.

The City shall not pay the fees of expert or technical assistance and consultants unless such employment, including the rate of compensation, has been approved in writing by the City.

VIII. **DISCLOSURE OF INTEREST** – In compliance with City of Corpus Christi Ordinance No. 17112, CBI agrees to complete the City of Corpus Christi Disclosure of Interests form attached.

CITY OF CORPUS CHRISTI

Oscar Martinez Date
Assistant City Manager

RECOMMENDED

for Wm J. Green P.E. 11/28/2012

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

[Signature] 11.20.12

Gustavo Gonzalez, P.E., Date
Director of Water Resources

APPROVED AS TO FORM

Assistant City Attorney Date

Office of Management and Budget Date

ATTEST

City Secretary Date

Project No. 8443
Fund Source No. 530000-4010-30220 Water Operating

E8443TBL
TUR

TEXAS A&M UNIVERSITY-CORPUS CHRISTI

[Signature] 11/11/12

Larry Lloyd, Research Specialist II Date
Principal Investigator
Conrad Blucher Institute for Surveying and Science
Texas A & M University - Corpus Christi
NRC, Suite 3406
6300 Ocean Drive
Corpus Christi, TX 78412
(361) 825-5759 Office
larry.lloyd@tamucc.edu

[Signature] 11.20.12

Dr. Luis Cifuentes Date
Associate Vp Research & Dean of Graduate Studies

NOV 16 2012 VP

Mr. Daniel Biles, P. E., Director of Engineering Services
City of Corpus Christi
Department of Engineering Services
1201 Leopard Street, 3rd Floor
Corpus Christi, TX 78401

14 August, 2012

Dear Mr. Biles:

The statements of work covered herein are submitted to the City of Corpus Christi for consideration. These statements will constitute a fee for services rendered by the Conrad Blucher Institute for Surveying and Science at Texas A&M University - Corpus Christi (TAMUCC). Included is an outline of our scope of work and budget to continue the ongoing salinity monitoring efforts in the Nueces Estuary.

**PROPOSED SCOPE OF WORK FOR NUECES BAY and RIVER
SALINITY AND FRESHWATER INFLOW MONITORING: 2012-2013**

Summary

Three salinity monitoring stations in the Nueces River and Bay will be covered under this agreement. Station service includes exchange of Hydrolab[®] instruments with a freshly calibrated unit. In order to reduce costs, station service frequency will be based on observed marine growth fouling the instruments; for example, every 2 weeks when warmer bay waters foster excessive marine growth and every 3 weeks when water temperatures are cooler. All salinity monitoring stations will report salinity and water temperature. Stations SALT01 and SALT03 will also report dissolved oxygen, pH, and water depth. All data will be available in graphical and tabular format on the Conrad Blucher Institute website (<http://lighthouse.tamucc.edu/Salinity>) within one hour of the time data were collected. This proposal covers a period of 1 year.

Research Objectives

The Conrad Blucher Institute for Surveying and Science (CBI) at TAMUCC has been operating and maintaining salinity monitoring equipment in the Nueces Estuary for the City of Corpus Christi since November 1991, trying to help understand the effects of freshwater inflows on salinity into the Nueces system. Additional funding from the Coastal Bend Bays and Estuaries Program (CBBEP) will ensure that comprehensive spatial coverage of the Nueces Estuary continues. This proposal is for a continuation of the current monitoring effort in support of salinity conditions in Nueces Bay and river. The data collected will be used to help the City of Corpus Christi water supply managers determine quantities of fresh water required by the amended Agreed Order between the City and the State of Texas. Other benefits of the data collection include collaboration with other researchers in the delta, namely, The Center for

Coastal Studies (CCS) and Harte Research Institute for Gulf of Mexico Studies (HRI) at TAMUCC, the University of Texas Marine Science Institute at Port Aransas (UTMSI), and the U.S. Army Corps of Engineers (COE; Fort Worth District).

Nueces Bay Salinity Monitoring – Freshwater Inflow

This is an ongoing project originating in the fall of 1991. Nueces Bay salinity monitoring by CBI consists of 2 monitoring platforms in the bay: one near Whites Point (SALT03) and the other mid bay, near the CPL power lines (SALT01); plus one station in the Nueces River (SALT05). In addition, with support from CBBEP, CBI will continue to maintain SALT08, at the mouth of the Rincon Bayou, which was, until recently, sponsored by the City. Parameters measured at stations SALT01 and SALT03 include salinity, conductivity, dissolved oxygen, water temperature, water depth, and pH. The SALT05 station will include salinity, water temperature, and water depth only. The stations are located in such a manner to track fresh water inflows into Nueces Bay using salinity levels as the indicator. Relief for required freshwater releases may be taken by the City if the salinity levels in Nueces Bay fall below the Upper Salinity Bounds. A daily running report (<http://lighthouse.tamucc.edu/salrel>) produced by DNR and the Nueces River Authority (NRA) shows the current freshwater relief status.

Nueces Delta Diversion Project – Freshwater Inflow

The City has designed and built a diversion channel from the Nueces River into the delta at the head of the Rincon Bayou channel. The diverted river water is designed to flow into the Rincon Bayou and adjacent wetland. UTMSI, HRI, and CCS are presently conducting long-term ecological studies of the effects of this diversion. Five salinity monitoring stations along the Rincon Bayou, beginning at the head and ending of Nueces Bay have been established to determine the fate of freshwater diversions from the pipeline.

Nueces Bay Tidal and Meteorological Station

The Texas Coastal Oceanic Observation Network (TCOON) operated a tidal/meteorological station (011) in the upper part of Nueces Bay at Whites Point. This station was replaced in the winter of 2010 with a new tidal monitoring platform (185) just across the bay, near the mouth of the Nueces River. Although not an official TCOON station, all maintenance and operation of the tidal station will follow TCOON protocols. Precise water level measurements from this station are used as a reference for work by the others in the various projects in the bay, river, and delta. The initial installation and maintenance was funded by the CBBEP. Funding for continuing maintenance of this station is currently being sought.

Station Service and Maintenance

All salinity and dissolved oxygen stations consist of a Hydrolab[®] water quality sonde, a radio, modem, and 12 volt solar power system. Freshly calibrated units are exchanged with units on the station every 2 to 3 weeks, depending on the degree of observed marine fouling on the instruments. The Hydrolabs[®] are taken back to CBI for post calibration and preparation for future service. An annual maintenance agreement with HydrotechZS of Austin, Texas, ensures the reliability of the Hydrolab[®] units. Covered under this agreement are all components of the Hydrolab[®], ensuring that the instruments deployed are as good as, or better, than factory standards. The factory warranty for all Hydrolab[®] datasondes have expired; therefore, all datasondes will be placed under the annual service agreement to ensure continual data collection at all stations.

Data Collection

A computer program, written by staff at CBI, polls each station every six minutes. Five measurements are requested from each instrument, these five are then averaged. The hourly averages are then placed into the database and reported on the DNR web site. Daily salinity reports are produced showing the running ten and seven day averages as well as the daily average (<http://www.nueces-ra.org/CP/CITY/passthru/index.php>). Monthly salinity levels in relation to the Upper and Lower Salinity bounds are found at <http://lighthouse.tamucc.edu/salrel>, and are used to help determine if the City may take credits to offset scheduled freshwater releases from the storage impounds.

Instrument Calibration

All calibration standards used are NIST traceable, and purchased from HydrotechZS. Calibration and post-calibration methods used are those established by the manufacturer of Hydrolab[®]. All calibration and post-calibration records are available on the DNR website, <http://lighthouse.tamucc.edu/calib>. An instrument maintenance agreement with HydrotechZS is used with each Hydrolab[®]. Each unit is sent to the manufacturer annually for inspection and refurbishment. All components of the instrument are covered under the warranty agreement and they are replaced as needed.

Collaborative Monitoring

This proposed continuation of the salinity monitoring program is designed to provide data to support those research efforts currently being done by CCS, UTMSI, HRI, COE, CBBEP, USGS and the City. 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 Service

The Conrad Blucher Institute for Surveying and Science at Texas A&M University – Corpus Christi hereby agrees for the duration of one year (1 October, 2012 through 30 September, 2013) to perform all services necessary to provide water quality monitoring, as described in this proposal. The budget for 1 October, 2012 through 30 September, 2013 is \$93,062 and is enclosed with this proposal.

ESTIMATED COSTS FOR OPERATION AND MAINTENANCE OF THREE SALINITY MONITORING
STATIONS IN THE NUECES ESTUARY 2012 - 2013
20 August, 2012

A. PERSONNEL

Principal Investigator	12,165
Database Management	2,306
Software Engineer / Database Management	1,455
Systems Programmer	1,902
Data Analyst	1,320
Technical Support	10,560
Undergraduate, Field Technician I	2,600
Undergraduate, Field Technician II	2,080
Staff Field Technician	<u>4,782</u>
Subtotal	39,170
Benefits	<u>10,206</u>
TOTAL PERSONNEL	<u>\$49,376</u>

B. GAUGE SUPPLIES AND MAINTENANCE

6 Hydrolab Units, Maintenance Contract	5,850
Calibration and Lab Supplies	6,000
Miscellaneous Supplies	<u>5,000</u>
TOTAL FIELD SUPPLIES	<u>\$16,850</u>

C. TRANSPORTATION

Boat	
Truck	
TOTAL TRANSPORTATION	<u>\$5,424</u>

D. COMPUTER SUPPLIES

Repair Allowance	1,000
IP modem charge	<u>1,800</u>
TOTAL COMPUTER SUPPLIES	<u>\$2,800</u>

E. INDIRECT (25% MTDC) **\$18,612**

TOTAL 2012-2013 **\$93,062**



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 Survey and Science

P. O. BOX: _____

STREET ADDRESS: NRC, Suite 3406
6300 Ocean Drive **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	
_____	_____
_____	_____
_____	_____