



Barowka and Bonura
Engineers and Consultants, L.L.C.

SOQ No. 22-011

**Routine Engineering Services
for Drainage Projects**

Resolution No.: 138811

**Deadline: Thursday, March 31, 2022
at 3:30 PM**

Barowka and Bonura Engineers and Consultants, L.L.C.
209 Canal Street
Metairie, Louisiana 70005

Jeffrey Bonura, P.E., Member
jbonura@bbecllc.com
PHONE: 504-828-0030
FAX: 504-828-8006



Collaborate. Innovate. Implement.

BBEC Barowka and Bonura Engineers and Consultants, L.L.C.

March 31, 2022

Jefferson Parish Council
c/o Ms. Eula A. Lopez, Parish Clerk
General Government Building
200 Derbigny St., Suite 6700
Gretna, Louisiana 70053

SUBJECT: **Routine Engineering Services for Drainage Projects
Resolution No. 138811**

Dear Ms. Lopez:

Barowka and Bonura Engineers and Consultants, L.L.C. (BBEC) appreciates the opportunity to submit this Statement of Qualifications to provide Routine Engineering Services for Drainage projects in Jefferson Parish.

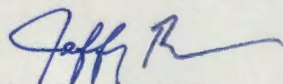
The attached qualifications statement demonstrates that BBEC maintains the technical ability to address the needs of Jefferson Parish and assist them in the execution of any Drainage project. BBEC, an engineering consulting firm specializing in civil engineering design, construction management, grant management and computer consulting services, is fully qualified to provide the engineering services necessary.

BBEC's substantial experience in drainage design and construction management, civil engineering design, and program administration in Jefferson Parish and surrounding areas in Southeast Louisiana is evidenced in the attached statement of qualifications. BBEC has completed numerous projects through construction throughout residential neighborhoods and high-traffic commercial and industrial areas. In Jefferson Parish, just a few examples where BBEC provided or is currently providing engineering services for drainage projects include Ames Boulevard Roadside Drainage Improvements, Avondale/Bridge City Drainage Evaluation, Bissonet Plaza Master Drainage Plan, Labarre Road Back-to-Back U-Turn Intersection Improvements, and Craig Avenue Drainage Improvements.

As noted in this Statement of Qualifications, BBEC has substantial experience managing projects in neighboring parishes as well. The projects include drainage, water, sewer, and roadway construction, sidewalk and driveway connections, utility relocation and coordination, levee construction and renovation, flood control analysis, and all incidental work.

Once again, we sincerely appreciate the opportunity to submit this Statement of Qualifications to Jefferson Parish, and we look forward to serving you.

Very truly yours,
BAROWKA AND BONURA ENGINEERS AND CONSULTANTS, L.L.C.



Jeffrey Bonura, P.E.
Member

A. Project Name and Advertisement Resolution Number:

Routine Engineering Services for Drainage Projects (Resolution # 138811)

B. Firm Name & Address:

**Barowka and Bonura Engineers and Consultants, L.L.C.
209 Canal Street, Metairie, LA 70005**

C. Name, title and contact information of Principal, as defined in Section 2-926 of the Jefferson Parish Code of Ordinances, who is a registered, licensed architect, professional engineer, or surveyor in the State of Louisiana:

**Jeffrey A. Bonura, P.E.
Member
Office: (504) 828-0030
Fax: (504) 828-8006
Email: jbonura@bbecllc.com**

D. Name and contact information of employee who is a registered and licensed architect, professional engineer, or surveyor in the State of Louisiana in the applicable discipline. A subcontractor may be substituted here only if the advertised Project requires more than one discipline.

**Kevin Forschler, P.E.
Office: (504) 828-0030
Fax: (504) 828-8006
Email: kforschler@bbecllc.com**

E. Please provide the number of employees whose primary function corresponds with each category:

<u>3</u> Administrative	<u>1</u> Estimators	<u>1</u> Specification Writers
<u>0</u> Architects (Licensed)	<u>0</u> Geologists	<u>0</u> Structural Engineers
<u>0</u> Chemical Engineers	<u>0</u> Geotechnical Engineers	<u>1</u> Graduate Engineers
<u>4</u> Civil Engineers	<u>0</u> Interior Designers	<u>1</u> Project Managers
<u>3</u> Construction Inspectors	<u>0</u> Landscape Architects	<u>1</u> Clerical
<u>0</u> Ecologists	<u>0</u> Land Surveyor	<u>3</u> Grant/Funding Specialist
<u>1</u> Electrical Engineers	<u>0</u> Mechanical Engineers	<u>0</u> Sanitary Engineers
<u>0</u> Engineer Intern	<u>0</u> Environmental Engineers	
<u>0</u> Professional Land Surveyors		<u>19</u> TOTAL

F. Is this submittal by a JOINT-VENTURE? Please check: YES ☐ NO ☒
If marked "No" skip to Section I. If marked "yes" complete Sections G-H.

G. If submittal is by JOINT-VENTURE, list the firms participating and outline specific areas of responsibility (including administrative, technical, and financial) for each firm. Please attach additional pages if necessary.		
1. N/A		
2. N/A		
H. Has this JOINT-VENTURE previously worked together? Please check: N/A YES _____ NO _____		
I. List all subcontractors anticipated for this Project. Please note that <u>all subcontractors must submit a fully completed copy of this questionnaire</u>, applicable licenses, and any other information required by the advertisement. See Jefferson Parish Code of Ordinances, Sec. 2-928(a)(3). Please attach additional pages if necessary.		
Name & Address:	Specialty:	Worked with Firm Before (Yes or No):
1. BBEC will obtain prior approval from the Parish before utilizing a subconsultant should one be deemed necessary. Further, we will work with any sub-consultant or support consultant assigned to us for a specific project.		
2.		
3.		
J. Please specify the total number of support personnel that may assist in the completion of this Project: <div style="border-bottom: 1px solid black; display: inline-block; width: 100px; margin-left: 0;">19</div>		

K. List the professional in charge, key persons, specialists, and individual consultants anticipated for this Project and provide their relevant information below. If necessary, please attach additional documentation (i.e. resume) that demonstrates the employment history and experience of the Firm's key persons that may assist in the completion of this Project. Please attach additional pages if necessary.

PROFESSIONAL IN CHARGE OF PROJECT:

Name & Title:

**Jeffrey Bonura, P.E.
Member**

Project Assignment:

Supervising Professional / Project Manager

Name of Firm with which associated:



**Barowka and Bonura
Engineers and Consultants, L.L.C.**

Years' experience with this Firm:

25

Education: Degree(s)/Year/Specialization:

B.S. / 1991 / Civil Engineering

Active registration: Year first registered/discipline:

1995 / Civil

Other experience and qualifications relevant to the proposed Project:

Jeffrey Bonura, P.E. is the sole owner of the firm of Barowka and Bonura Engineers and Consultants, L.L.C. Mr. Bonura began his career in 1988 and since that time has worked as a project engineer, project manager and program manager on municipal, commercial, institutional and industrial projects.

Mr. Bonura has broad experience in civil engineering resulting from his more than 30 years in the consulting engineering practice. He has substantial experience in roadway and drainage planning, design, and construction management. Mr. Bonura's experience related to drainage includes design of drain piping, box culverts, structures, pump stations, ditches and canal, detention systems, and managing the cleaning of debris from the systems.

Mr. Bonura served as project engineer/manager for the projects listed below. His responsibilities included work plan preparation, budgeting, cost control and monitoring, team supervision, engineering design, and construction management.

Projects with detailed descriptions of work are provided below:

Widening / Stabilization of Congressman Hebert, Creely, and Bluebird Canals (Hazard Mitigation Grant Program (HMGP), St. Bernard Parish, LA, 01/2015-Present

Mr. Bonura serves as the supervising professional and project engineer on the hydraulic and hydrologic model phase of the entire project and the design of the Congressman Hebert Canal replacement portion of the project. The project includes increasing the capacity and improves the stability of Congressman Hebert, Creely, and Bluebird Canals, that consists of 11,600 linear feet of open canal and culverts ranging from 4-feet bottom width to 16-feet bottom width channels. Mr. Bonura coordinated with St. Bernard Parish, Lake Borgne Basin Levee District, and the Louisiana Department of Transportation and Development to obtain information regarding the existing drainage plan. BBEC performed a hydrologic and hydraulic analysis of the existing system to evaluate the entire area for the 5-year, 10-year, and 25-year storms. BBEC established the design cross sections for the channels, which included concrete u-channels, concrete box culverts, and round and arched pipe, and concrete lined trapezoidal sections, depending on the availability of land and other conditions.

Project Worksheet 20824 – Storm Drains, Jean Lafitte Parkway Drainage Line Repairs/Replacement, St. Bernard Parish, LA, 06/2014-11/2019

Mr. Bonura assisted the Parish in securing funding; and managed as supervising professional the Design, bidding, and construction services for repairs. The project included the complete replacement of about 4,200 linear feet of 72-inch to 96-inch drainpipe, with drainage structures and smaller lateral lines to collect stormwater from existing roadway catch basins. The project also included the replacement of roadway intersections where the drain line crosses streets. The project bid was \$3.9 million. BBEC performed all design, bidding, and is performing the construction services for the project. In addition to the normal design services, Mr. Bonura obtained a Coastal Use Permit determination, and USACE wetlands permit determination, and a SLFPA-E (regional levee district) permit for the project.

Cleary Avenue Roadway and Drainage Improvements, Jefferson Parish, LA, 01/1998-06/2005 & 11/2017-Present

The construction project included reconstruction of approximately 4000 feet of concrete roadway, redesign of existing drainage system and general improvements to existing infrastructure on Cleary Avenue from Veterans Boulevard to West Esplanade Avenue. The project area modeled included Cleary Avenue from Veterans Boulevard to West Esplanade Avenue, including neighbor streets connecting to Cleary's drainage trunk line. Mr. Bonura performed the modeling, design, evaluation (drainage under roadway), and plans and specifications. The project is complete through construction.

Harvard Avenue Drainage Study (Master Plan of area bounded by Veterans, I-10, Transcontinental, and Clearview), Project No. 99-046-046-DR and 99-046A-DR, Jefferson Parish, LA, 04/2000-06/2006

Mr. Bonura designed approximately 6,000 linear feet of 24-inch to 72-inch drainpipe in Jefferson Parish, Louisiana. BBEC used Intergraph's Storm and Sanitary SelectCAD modeling software to determine the surface runoff and the pipe sizes. Data from the existing Parish's GIS was used to develop the surface terrain for the basis of the model. The project requires that the various drain lines be installed within 50-foot Parish rights-of-way in commercial and residential areas, existing utilities throughout the length of the project are maintained, and the site is restored, including roadways, to its before construction condition. The project also required three separate jack-and-bores, from 30-inches to 72-inches in diameter, across a three-lane roadway to discharge into a canal. The estimated construction cost is \$2,430,000.

Manson Ditch and Lower Kraak Outfall System Improvements, Jefferson Parish, LA, 06/2004-09/2008

Mr. Bonura served as Supervising Engineer for the project which the scope of the work was to provide full engineering services, including evaluation of alternatives, preliminary design, final design, bidding, construction administration, resident inspection, and as-built drawing services, for the improvements to the Manson Ditch outfall into the West Metairie Avenue Canal. All design work is complete, and the project is on hold pending funding. The project consists of hydraulic modeling of drainage structures, design of drainage systems composed of cast-in-

place concrete structures and pipe systems, connection to existing culverts, transition to existing canal banks, utility relocations, roadway and other site restoration, traffic maintenance and signal design, pavement striping, and all incidental work. Currently two large diameter drain lines (60-inch and 72-inch diameter) discharge into the West Metairie Canal culvert crossing under Cleary Avenue. The purpose of the project is to remove the connection and discharge the two drain lines directly into the canal, requiring an outfall structure. The outfall structure is designed to accept the two drain lines, connect to the existing two 96-inch diameter culverts, and be able to transition to a future 16-foot wide u-channel. Temporary bank stabilization is required until the future u-channel project is completed. Traffic flow on the two major arterial streets always had to be maintained throughout construction of the project.

Road Bond Parish-Wide Improvement Program (Public Works Project No. 98-026-RBI), Jefferson Parish, LA, 04/1998-08/2006

Mr. Bonura coordinated several road construction projects between Jefferson Parish and the design consultants as a member of the Jefferson Parish Roads Program Management Team, ensuring timely progress of the projects and maintaining the quality and standards of the work, maintaining computerized project schedules and an on-line reporting system for all projects in the program.

- **Whitney Avenue Canal Improvements (Stumpf Boulevard To Belle Chasse Highway) SPN # 98-030-RBI**

Mr. Bonura served as Program Manager during construction of this project. Project consisted of lining the Whitney Ave. Canal with a concrete flume (20'-wide x 10'-high x 3434 ft.-long) to stabilize the canal banks in order to improve the existing two-lane roadway (including curb & gutter, roadway base repair, milling of asphalt and overlay). Monitored the construction of this project for the Parish. Assisted the Construction Engineer by resolving conflicts or other situations that arose during construction. Presented field concerns to the Parish and coordinated their resolutions. Reviewed Contractor Invoices, Testing Lab Invoices, & Change Orders for processing. Assisted the Contractor with his coordination with another near-by construction operation (98-031-RBI). Coordinated the hauling of excavated canal material with the Contractor and the Parish-operated landfill to use for cover material. Assisted the Construction Engineer with his dealings with the utility company to move their lines. Closely monitored the vibration results from the Testing Lab to keep the vibrations from the construction operations to a minimum (worked with local leaders and their concerns for private property). (\$7,729,045.00)

- **Whitney Ave Improvements. (Westbank Expressway to Stumpf Blvd.) SPN # 98-031-RBI**

Mr. Bonura Served as Program Manager during construction of this project. Project consisted of closing the Whitney Ave. Canal with several concrete box culverts (triple-barrel 433 feet, double-barrel 550 feet, single barrel 2825 feet) to enclose the canal in order to improve the existing two-lane roadways on each side of the canal and add U-turns in various locations (including curb & gutter, roadway base repair, milling of asphalt and overlay, sub-surface drainage, traffic signalization). Monitored the construction of this project for the Parish. Assisted the Construction Engineer by resolving conflicts or other situations that arose during construction. Presented field concerns to the Parish and coordinated their resolutions. Reviewed Contractor Invoices, Testing Lab Invoices, & Change Orders for processing. Assisted the Contractor with his coordination with another near-by construction operation (98-030-RBI). Coordinated the hauling of excavated canal material with the Contractor and the Parish-operated landfill to use for cover material. Assisted the Construction Engineer with his dealings with the utility company to move their lines. Closely monitored the vibration results from the Testing Lab to keep the vibrations from the construction operations to a minimum (worked with local leaders and their concerns for private property). Worked closely with Parish officials to solicit funds from an incorporated city to help replace the deteriorated water line and line the deteriorated sewer line prior to proceeding with a reconstructed roadway. Met with local businesses and the Construction Engineer to facilitate access to all driveways during construction. (\$9,103,724.00)

Labarre Road Back-to-Back U-Turn Intersection Improvements (West Esplanade Avenue/North Labarre Road), Jefferson Parish, LA, 2004

Mr. Bonura served as the Supervising Engineer where the project consisted of the construction of a new cast-in-place concrete bridge and the installation of a 36-inch diameter water line canal crossing. BBEC provided construction management and resident inspection. The construction cost was \$1,200,000.

Boutte Drainage Improvements, St. Charles Parish, LA, 09/2002-05/2004

Mr. Bonura performed all engineering tasks for the project consisting of about 1,500 linear feet of 24-inch drainage pipe along US Highway 90 in Boutte. Included is provision of additional catch basins and manholes, traffic maintenance, roadway restoration, and re-grading of existing channels. TR-55 (computer model) was used to determine the watershed's runoff. Hydraulic calculations were performed by hand. The estimated construction cost is \$274,000.

Primrose Box Culverts, St. Charles Parish, LA, 03/2004-10/2004

Mr. Bonura provided design and construction related services for the three 24-foot clear span box culverts and related road/drive restoration.

Craig Avenue Drainage Improvements, Public Works Project No. 2019-022-DR, Jefferson Parish, LA, 01/2020-Present

Mr. Bonura is currently serving as the Supervising Engineer for this project. The scope of work includes the design and construction administration services for the design of upgrades to subsurface drainage on Craig Avenue between Kawanee Avenue and West Esplanade Avenue. The project involves installing a large diameter drain line within 20 feet of residential structures and connecting this new drain line to the existing trunk line that runs along the opposite side of the road and to the existing catch basins on the cross streets of Craig Avenue. BBEC is overseeing the Surveying and Geotechnical Engineering services.

Sanitary Landfill Phase I and II Expansion, Jefferson Parish, LA, 1997

As Project Engineer and Construction Manager for the upgrade to the Phase I and Phase II sites of the Jefferson Parish Sanitary Landfill to meet new Federal Subtitle D regulations, Mr. Bonura designed about 20 HDPE leachate manholes with submersible pumps and several thousand feet of leachate collection pipe under existing solid waste. Mr. Bonura designed several thousand feet of leachate transmission lines, the retrofitting of about 20 leachate collection lines to install in-line submersible pumps, and an oxidation pond with an overflow/outfall structure. Mr. Bonura served as Construction Manager for the entire project.

Design of Access Ways and Ladders at Drainage Pump Stations, Jefferson Parish, LA, 01/2015-11/2016

Mr. Bonura served as Supervising Engineer where BBEC prepared cost estimates and designed ladders, stairs, and elevated walkways to be installed in 16 drainage pump stations to connect elevated structures or allow personnel to access the top of structures within Jefferson Parish. Design included analysis and details to retrofit new items to existing structures.

District 4 Drainage Outfall Improvements Evaluation, Jefferson Parish, LA, 08/2014-08/2017

Mr. Bonura was project engineer and the supervising professional on the project. The project consisted of identifying all drainage outfalls in Jefferson Parish Council District 4 and developing preliminary plans and cost estimates for options to replace the existing outfalls with improved structures, considering aesthetics, maintenance, and hydraulic performance.

CN Railroad Culverts in Ormond, Project No. P200801, Ordinance No. 20-9-5, St. Charles Parish, LA, 10/2020 – Present

Mr. Bonura is serving as Supervising Engineer for this project which includes performing engineering services related to improving the drainage systems crossing Canadian National (CN) Railroad System on the east bank of

St. Charles Parish. The project includes the drainage facilities crossing and/or adjacent to the CN railroad at Ducayet Drive, Ormond Oaks Drive, Destrehan Drive, Longview Drive, Longwood Drive, and S. Destrehan Avenue. The project includes the installation of (6) 60-inch culverts, (2) 54-inch culverts, and (1) 48-inch culvert crossing the railroad at various locations. The project also includes the installation of 60-inch drainpipe, cast-in-place concrete box culverts, u-channels, and other drainage structures. BBEC is performing design, construction management, and permitting of the project. BBEC is also coordinating with and managing the surveying, and geotechnical engineering services.

Drainage Pump Station Evaluation, St. Bernard Parish, LA, 2005

Evaluation of condition and hydraulic capacity of the Parish's 18 existing pump stations, perform preliminary design services, identify alternatives for improvements. The evaluation considered the hydraulic performance of the pumps, the conditions of the incoming channel, automation/control capabilities, and projected flows. Mr. Bonura developed a master plan document to prioritize the improvements and developed cost estimate for the improvements.

Map Modernization Project (DFIRM) (Contract No. EMT-2005-CA-0110), St. Bernard Parish, LA, 03/2005-12/2008

Mr. Bonura oversaw and assisted FEMA to develop St. Bernard Parish's flood insurance rate maps as part of FEMA's map modernization program. Mr. Bonura prepared the project scoping document for St. Bernard Parish and received FEMA approval in accordance with FEMA document Guidance for Scoping Flood Mapping Projects. Mr. Bonura incorporated the Parish's hydraulic features into the GIS. Mr. Bonura performed the necessary hydraulic and hydrologic studies and analyses necessary for the implementation of the map modernization project by using USCAE's hydraulic and hydrologic modeling software HEC-RAS and HEC-HMS. Mr. Bonura incorporated the results of the hydrologic and hydraulic studies GIS to develop the necessary flood plains. Mr. Bonura prepared a Base Map for the project (streets, ditches, benchmarks, etc.) from St. Bernard Parish's existing GIS, modifying the format to FEMA standards. Mr. Bonura has submitted all hydraulic and hydrologic and survey work for independent QA/QC and is currently developing DFIRM base maps. All work associated with the development of the DFIRMs were in strict compliance with the National Flood Insurance Program.

Ames Boulevard Roadside Drainage Improvements, Jefferson Parish, LA, 01/2004-12/2005

Mr. Bonura performed runoff calculations and designed drainage improvements for a two-mile segment of Ames Boulevard on the West Bank of Jefferson Parish. Mr. Bonura prepared construction drawings for the project in less than three weeks utilizing the Parish's standard details, and the Parish's GIS maps for plan sheets, and coordinated the work with the Parish, private utilities, and the annual contractor constructing the project. The total project cost is about \$800,000.

Canal Monumentation Program, Jefferson Parish, LA, 01/2004-12/2005

Mr. Bonura worked with the Parish's Drainage Department to develop and implement a canal monumentation project for the entire Parish. The project included stationing the canals with vertical and horizontal monuments strategically located, locating right of way and servitude information, researching existing data and projects for data relevant to the project such as current or past projects, subdivision plats, the Parish's GIS, and other information available for the implementation of the project.

Guichard Canal Area Drainage Evaluation, St. Bernard Parish, LA, 03/2004-04/2005

The project consisted of evaluating the ability of an existing drainage system in St. Bernard Parish, Louisiana to handle the 10-year storm for a 200-drainage basin in a residential area primarily consisting of open ditches and miscellaneous culverts with multiple outfalls into the Guichard Canal. The area is bounded by the Guichard Canal on the west, Paris Road on the east, Judge Perez Drive on the south, and Patricia Street on the north. The area also contained two drainage pump stations that were designed to drain the subsurface system, while the main volume of flow during the rain events utilized roadside ditches and some subsurface drain lines. Mr. Bonura

supervised the development of a drainage layer in the Parish's GIS, supervised the surveying of elevations of the drainage features, developed a hydrologic and hydraulic model for the area, modeled the area and determined all deficient drain lines. Mr. Bonura made recommendations for the necessary improvements to cover the 10-year storm.

Lake Avenue and Carrollton Avenue Drainage Study, Jefferson Parish, LA, 04/2003-07/2005

Project included an extensive drainage and traffic control study on Lake and Carrollton Avenues in the Bucktown area of Jefferson Parish, Louisiana. Hydraulic modeling of the entire area was performed, and drainage improvements were recommended in conjunction with the findings of the traffic study. Mr. Bonura performed the hydraulic model, coordinated with the traffic engineer and designed the proposed drainage improvements.

HMGP Elevation of Coast Guard Road, Phase I (Project No. 1603x-075-0010), Plaquemines Parish, LA (Funding Source: FEMA Hazard Mitigation Grant Program), 09/2013-06/2016

Mr. Bonura worked with Plaquemines Parish Government to design the two-foot elevation and stabilization of Coast Guard Road. As Supervising Engineer, he oversaw the design of the upgrades to the existing drainage system, a Hydrologic and Hydraulic (H & H) Study to identify the existing drainage system, the need for upgrades, and to assess the reduction of flooding due to contemplated improvements to Coast Guard Road. He performed calculations, modeling, and analysis to assess the hydraulic capacity of the existing drainage system and provided recommendations for improvements that will increase system capacity and reduce the risk of flooding. As part of the H&H evaluation, Mr. Bonura included an analysis of Mississippi River elevations data to identify periods when the improvements would be inundated by the river effects, and what depths would be encountered. Mr. Bonura oversaw the surveying and environmental review process.

Cypress Park Subdivision Drainage Evaluation, St. Tammany Parish, LA, 11/2016-12/2017

Mr. Bonura served as the supervising professional and project engineer on the hydraulic and hydrologic study of the Erindale Heights and Cypress Park Subdivisions (about 450 acres of single-family residential property). The study consisted of developing a computer model of the hydrology and drainage system consisting of natural channels, open ditches, closed conduits, and culverts. BBEC evaluated the 5, 10, 25, 50, and 100-year storms, and developed several alternatives for addressing the flooding concerns. BBEC provided pros and cons, permitting concerns, and construction cost estimates related to the alternatives. The alternatives considered included elevation adjustments to open channels, increased closed conduit usage and size of existing closed conduits, levees, and pump stations.

Avondale/Bridge City Drainage Evaluation (Area between the Mississippi River and the Union Pacific Railroad, from Huey P. Long Bridge to Avondale Garden Road), Jefferson Parish, LA, 04/2021-Present

Mr. Bonura is serving as Supervising Engineer for this project where BBEC developed the topographical survey scope for the project and manages the surveyor for the Parish. BBEC is developing a hydraulic and hydrologic model using SWMM v.5 of the Project Area between the Mississippi River and the Union Pacific Railroad, from the Huey P. Long Bridge to Avondale Garden Road; and, developing various alternatives for improvements with cost estimates for the alternatives. BBEC will provide alternatives and associated cost estimates for improvements, including alternate channels to drain the Host Facility and rail yard area, alternatives to drain the Training Facility, potential locations for storage as an alternative to transmission, and alternatives to drain the Bridge City residential area.

Bissonet Plaza Drainage Master Plan (A/E Project No. 20-1708), Jefferson Parish, LA, 05/2018-05/2021

Mr. Bonura served as the Supervising Engineer for this project where BBEC developed a hydrologic and hydraulic (H & H) model of a 180 acre residential (zoned R1) area in Jefferson Parish, Louisiana, said area bounded by Power Boulevard, Kawanee Avenue, West Esplanade Avenue, and the Elmwood Canal. BBEC developed a limited scope of services for the necessary topographical survey; provided oversight and reviewed the final topographic survey; developed the H & H model using third party software; coordinated the model with the

Parish's own parish-wide H & H model; and provided the running model to others for evaluation of improvements.

Waggaman Drainage Master Plan (Project No. 2011-03-DR), Jefferson Parish, LA, 02/2013-01/2016

Mr. Bonura served as Supervising Engineer to perform a hydrologic study for three separate residential subdivisions in Waggaman, Louisiana: Waggaman, South Kenner, and Manor Lane. The Waggaman subdivision is bounded by River Road to the north, Live Oak Boulevard to the south, Saul's Canal to the west, and Dandelion Ditch to the east. South Kenner subdivision is bounded by River Road to the north, North Railroad Canal to the south, Saul's Canal to the east, and another subdivision to the west. The Manor Lane subdivision is bounded by River Road to the north, North Railroad Canal to the south, Latigue Road Ditch to the west, and Modern Farms Road Ditch to the east. BBEC used the Storm Water Management Model (SWMM) to evaluate the existing subsurface drainage capacities for each subdivision and to examine if the existing system was able handle a 10-year design storm. BBEC developed a hydrologic and hydraulic model for each area and recommended subsurface improvements based on the SWMM model to handle a 10-year design storm.

LA-45 Evacuation Route Basin Drainage Improvements, Lafitte Area Independent District, LA, 02/2020-Present

Mr. Bonura is serving as Supervising Engineer for BBEC, performing as sub-consultant, for the development H&H models for the LA-45 Evacuation Route Basin, both for existing conditions and to reflect the proposed Lafitte Tidal protection project. The analysis identified internal drainage problems resulting from the completion of the Tidal Protection project and established pipe, ditch, canal, and LADOTD roadway culvert sizes. BBEC also modeled discharge pump station and determined the capacity for each of the three pump stations. BBEC also provided Drainage Maps and Conceptual Storm Sewer Routing Plans to show ditches and storm sewer locations, and sized required, and identify any potential problem areas, plans and profiles, required right-of-way and construction access, and any impacts to existing properties.

Bayou Gauche Drainage Analysis, St. Charles Parish, LA, 01/2003-12/2005

Mr. Bonura served as Design Engineer for the project which included updating the Parish's existing hydraulic and hydrologic computer models with current developments for the Sunset Drainage District watershed in St. Charles Parish. The Parish's existing HEC -1 and HEC-2 hydraulic models were evaluated and revised to include infrastructure improvements throughout the drainage district. The existing models were converted to HEC-RAS and HEC-HMS for use in this study and future evaluations. Model runs were performed to verify the need for drainage pump station improvements in the area and determine the improved capacity of the pump station.

Westbank Mississippi River Bike Trail, Around Avondale Shipyard (2017-059-RBP), Jefferson Parish, LA, 05/2018-Present

Mr. Bonura is the supervising professional over the project, providing day to day input for the implementation of the project. BBEC is currently working on detailed plans and specifications for the construction of the 2.5-mile bike path, part of which is on the top of the Mississippi River levee and the balance of which in on the shoulders of two state highways. A key component to BBEC's designs on the levee section is to maintain the integrity of the levee and while constructing the base and asphalt bike path section with a limited width of top of levee. For the state highway portion of the project, part of the project has asphalt shoulders in place, therefore only pavement markings and signage are required. In other locations, roadway widening and required subsurface drainage is necessary to install the bicycle travel lanes. BBEC developed a hydraulic and hydrologic model to drain a 220-acre area. BBEC designed the drainage for the area, which includes a series of canals with 48-inch and double 48-inch culverts. BBEC is currently coordinating its work with the LDOTD, the West Jefferson Levee District, the USACE through the levee district, and Union Pacific Railroad to obtain the necessary permits to perform the project. BBEC is also working with Jefferson Parish to determine the required right-of-way (ROW) so it could be acquired from the adjacent property owner(s). Once the design is complete, BBEC will perform bidding services, construction administration services, and resident inspection services for the construction project.

Drainage Pump Station Fuel Storage Secondary Containment, Jefferson Parish, LA, 09/2002-06/2004

Mr. Bonura designed secondary containment systems to contain diesel fuel at 11 west bank drainage pump stations so that the fuel from the largest storage tank on the site would be retained in the event of a diesel fuel spill. Mr. Bonura developed details for containment systems such as concrete retaining walls for tanks farms stored on existing slabs, and lining systems for earthen containment ponds if the slab option did not provide enough volume. Mr. Bonura provided the details to the Drainage Department, who in-turn advertised the work for public bid as funding allowed and administered the work through construction.

Sanitary Landfill Stormwater Detention, Jefferson Parish, LA, 1998

As part of the landfill permitting process, the requirement for the site was to contain the 25-year storm. Mr. Bonura developed the initial stormwater management plans to address the requirement. To put the landfill project out for bid, Mr. Bonura designed the actual facilities and site improvements to maintain compliance with the 25-year storm requirement. Mr. Bonura designed a complete drainage system for the 88 acre Phase III expansion site, which included the construction of ditches, canals, bridges, culverts, and outfall structures, Mr. Bonura performed the hydraulic modeling to determine the runoff for the site, performed the hydraulic modeling analysis to determine the ditch and canal cross sections, with the existing tight elevation constraints, performed a cost analysis study to determine the most cost effective method for the canal crossings, compared precast box culverts, poured in place box culverts, ConSpan sections, precast (Waskey) bridge sections, and poured in place bridge sections. Mr. Bonura determined (with concurrence of the contractor on the site) that the poured in place bridge section was the most cost-effective method, determined the culvert sizes and prepared final construction drawings and specifications for the entire project. The drainage portion of the project cost about \$3,000,000.


Gloria Drive Pump Station, Project No. 20-2022A, Lafitte Area Independent Levee District Drainage, Town of Jean Lafitte, LA, 05/2020-Present

Mr. Bonura is serving as Supervising Engineer for this project for Design Engineering Services for the Gloria Drive Pump Station Improvement Project which consists of expanding the existing pump station by doubling its capacity from 45 cfs to 90 cfs. The existing pump station has one pump on a pile supported structure, adjacent to an existing levee. The existing pump discharge pipe runs through the levee, discharging on the other side. On the pump station side, the levee is supported by a timber bulkhead, part of which has deteriorated over time. When constructed, the levee project provided for a second pipe penetration in anticipation of this project. The pump station has an existing stand-by generator, which was appropriately sized for the single pump. The proposed scope of the 45 cfs expansion includes:

- Installing a new 45 cfs pump in line with the second discharge pipe provided by the levee project
- Constructing a new reinforced concrete pump station structure for both pumps, with bar screens (mechanical if funding allows) at the entrance. The new structure will replace the deteriorating timber bulkhead, as well.
- Repairing or replacing the timber bulkhead wall not addressed by the pump station structure.
- Installing a new generator structure and generator sized to run both pumps and incidental equipment.
- Extending the new pump discharge pipe as required and providing for scour protection at the outfall.
- Building the project in phases to utilize the existing pump during construction or providing temporary pumping during construction.

Sanitary Landfill, Jefferson Parish, LA

Mr. Bonura Designed four cast-in-place concrete bridges with wingwalls, which were required to have up to 24 feet clear spans, performed cost analysis to determine that the designs were the most cost-effective designs, as compared to precast and box culvert bridges.

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:	
Name & Title:	
	Kevin Forschler, P.E. Project Engineer
Project Assignment:	
	Project Engineer / Model Development
Name of Firm with which associated:	
	 Barowka and Bonura Engineers and Consultants, L.L.C.
Years' experience with this Firm:	
	7
Education: Degree(s)/Year/Specialization:	
	B.S. / 2014 / Civil
Active registration: Year first registered/discipline:	
	2020 / Civil
Other experience and qualifications relevant to the proposed Project:	
<p>Mr. Forschler is currently working on projects for Jefferson Parish, the City of New Orleans, St. Bernard Parish, and St. Tammany Parish. The projects he is working on involve roadway restoration, drainage modeling and design, off-system bridges, walkway design, lift station design, and water and wastewater treatment.</p> <p>Mr. Forschler has utilized Autodesk Storm and Sanitary Analysis and SWMM modeling programs to develop drainage models for multiple areas in Jefferson Parish, including certain sections of Waggaman and the Bissonet Plaza neighborhood. He is currently working on a drainage model for the Avondale and Bride City area using SWMM V.5 in order to determine possible drainage improvements in the area. In addition to drainage modeling, Mr. Forschler also has experience using the HYDRWIN application to design drainage systems for roadways.</p> <p>Mr. Forschler has experience working with Jefferson Parish and other municipalities, coordinating with other entities such as the levee districts, LADOTD, and railway companies to resolve conflicts and ensure that proposed designs meet the entities' guidelines.</p> <p>Projects with detailed descriptions of work are provided below:</p> <p>Widening / Stabilization of Congressman Hebert, Creely, and Bluebirds Canals, St. Bernard Parish, LA, 01/2015-Present</p> <p>Mr. Forschler used Autodesk Storm and Sanitary Analysis software to create accurate drainage models of the project area for both pre-mitigation and post-mitigation conditions. The drainage model provides analyses of the area's interior canal system for a 10-year, 50-year and 100-year storm event. The results of the model were then compared to the existing house slab elevation data provided by St. Bernard Parish for each of the storms in order</p>	

to determine the impact that the improvements have on flooding of the properties in the project area.

Project Worksheet 20824 – Storm Drains, Jean Lafitte Parkway Drainage Line Repairs/Replacement, St. Bernard Parish, LA, 06/2014-11/2019

Mr. Forschler estimated the cost of the replacement of drain lines along Jean Lafitte Parkway from Judge Perez Dr. to the outfall at Hermitage Dr. The scope of work for the project included the removal and replacement of drain lines; removal and replacement of roadway pavement section, sidewalks, and driveways; and the improvement of the outfall at Hermitage Dr.

Cleary Improvements (Veterans Blvd. to West Esplanade Ave.) (Council District 5) Jefferson Parish, LA, Public Works No. 2017-014-RBP, 11/2017-Present

Mr. Forschler assisted with developing plans for the rehabilitation of this road and verified that the proposed vertical profiles allowed for positive drainage along the road. The project contains the area of Cleary Ave. from Veterans Blvd. to W. Esplanade Ave. The repairs to be made include removing and replacing the existing concrete roadway, adding improvements to the subsurface drainage system, and relocating any utilities that were conflicts.

Craig Ave. Drainage Improvements, Jefferson Parish, LA, 05/2020-Present

Mr. Forschler assisted with the development of plans for the addition of new drain line on this road. The project contains the area of Craig Ave. from Kawanee Ave. to Gillen St. The scope of the project includes the installation of a new trunk line, connecting the lateral drain lines to the new trunk line, and the removal and replacement of existing concrete roadway. Mr. Forschler helped in the design of the proposed drain line, determining the correct vertical and horizontal alignment to avoid conflicts with existing utilities. He also designed the vertical profile for the proposed roadway repairs.

Waggaman Hydraulic Study, Jefferson Parish, LA, 02/2013-01/2016

Mr. Forschler performed a hydrologic study for three separate residential subdivisions in Waggaman, Louisiana, Waggaman, South Kenner, and Manor Lane. The Waggaman subdivision is bounded by River Road to the north, Live Oak Boulevard to the south, Saul's Canal to the west, and Dandelion Ditch to the east. South Kenner subdivision is bounded by River Road to the north, North Railroad Canal to the south, Saul's Canal to the east, and another subdivision to the west. The Manor Lane subdivision is bounded by River Road to the north, North Railroad Canal to the south, Latigue Road Ditch to the west, and Modern Farms Road Ditch to the east. Mr. Forschler utilized the Storm Water Management Model (SWMM) to evaluate the existing subsurface drainage capacities for each subdivision and to examine if the existing system can handle a 10-year design storm. He developed a hydrologic and hydraulic model for each area and recommended subsurface improvements based on the SWMM model to handle a 10-year design storm. Mr. Forschler ran the Parish's existing West Bank drainage model in SWMM to determine the discharge water surface elevation of the project.

Bissonet Plaza Drainage Master Plan (A/E Project No. 20-1708), Jefferson Parish, LA, 05/2018-05/2021

Mr. Forschler met with Jefferson Parish personnel to identify and discuss flood prone streets within the study area. He worked with a CAD technician to develop a map highlighting these flood prone areas and utilized Jefferson Parish GIS and Autodesk Storm and Sanitary Analysis software to create an accurate drainage model of the project area. The drainage model provided analysis of the area's interior drainage system for a 10-year storm event. Mr. Forschler ran the Parish's existing East Bank drainage model in SWMM to determine the discharge water surface elevation of the project.

Technical Assistance for Floodplain Management, Community Rating System and Hazard Mitigation Related Services (Project No. 0352)), Jefferson Parish, LA, 01/2017-06/2020

Mr. Forschler provided Asset Inventory Assessments of Parish and Municipal structures for evaluation of risk vulnerabilities and mitigation opportunities in preparation of an updated multi-jurisdictional hazard mitigation plan.

Westbank Mississippi River Bike Trail, Around Avondale Shipyard, (2017-059-RBP), Jefferson Parish, LA, 05/2018-Present

Mr. Forschler is developing plans and specifications for the construction of a bike path around the Avondale Shipyard area. The project contains the area of River Rd. from east of Avondale shipyard to LA 18 and the stretch of LA-18 up until the existing bike path access ramp west of the shipyard. The project includes the installation of a bike path on top of the levee, restriping existing shoulder to be repurposed as a bike path, widening the road to allow for bike travel, and addition of subsurface drainage in areas indicated by Jefferson Parish. Mr. Forschler is also currently developing the necessary details to cross active railroads at 3 locations and working with the railroad company and LDOTD to obtain construction permits.

Hurricane Katrina Damage Roadway Restoration, East Law Damage Assessment, St. Bernard Parish, LA, 07/2015-05/2018

BBEC was hired by SBP to assess the roadway and subsurface damages caused by a private operator, Mr. Forschler reviewed sewer and drain line videos for damages, prepared the evaluation report and cost estimate to repair damages.

Hurricane Katrina Damage Roadway Restoration, St. Bernard Parish, LA, 06/2015-08/2017

Mr. Forschler accompanied BBEC and St. Bernard Parish (SBP) representatives during the supplemental walkthroughs, taking pictures of any of the damages and issues that SBP requested to be addressed. He also used the elevation surveys provided by Barriere Construction Co., L.L.C. to determine if drainage could be improved on the streets that had issues with standing water post construction. Mr. Forschler reviewed as-builts for each road for closeout to check for discrepancies between the as-builts provided by the contractor and our own.

RR176 – St. Roch Group North Group A (PMOI), City of New Orleans, LA, 10/2019-Present

Mr. Forschler accompanied a representative of New Orleans DPW and assessed the damage along the streets contained in this project. The project area consists of the streets in the area south of I-610, north of the Florida Ave. canal, east of N. Broad St., and west of Elysian Fields Ave. The scope of work for each street is either replacement of sidewalks and driveways, incidental road repairs determined by FEMA, or full replacement of roadway section and subsurface sewer, water, and/or drainage. **Mr. Forschler used DOTD's HYDRWIN software to design all drainage improvements in the project area.** He is also designing the roadways receiving full pavement replacement and subsurface utility relocations/improvements and creating plans for the construction of the proposed work. Mr. Forschler made sure that the plans for sewer and water line replacements addressed all SWBNO comments and that design followed the SWBNO guidelines.

RR177 – St. Roch Group North Group B (FRC), City of New Orleans, LA, 10/2019-Present

Mr. Forschler accompanied a representative of New Orleans DPW and assessed the damage along the streets contained in this project. The project area consists of the streets in the area south of I-610, north of the Florida Ave. canal, east of Elysian Fields Ave., and west of St. Roch Ave. The scope of work for each street is either replacement of sidewalks and driveways, incidental road repairs determined by FEMA, or full replacement of roadway section and subsurface sewer, water, and/or drainage. **Mr. Forschler used DOTD's HYDRWIN software to design all drainage improvements in the project area.** He is also designing the roadways receiving full pavement replacement and subsurface utility relocations/improvements and creating plans for the construction of the proposed work. Mr. Forschler made sure that the plans for sewer and water line replacements addressed all SWBNO comments and that design followed the SWBNO guidelines.

RR178 – St. Roch Group North Group C (FRC), City of New Orleans, LA, 10/2019-Present

Mr. Forschler accompanied a representative of New Orleans DPW and assessed the damage along the streets contained in this project. The project area consists of the streets in the area south of I-610, north of the Florida Ave. canal, east of St Roch Ave., and west of the Peoples Ave. canal. The scope of work for each street is either replacement of sidewalks and driveways, incidental road repairs determined by FEMA, or full replacement of roadway section and subsurface sewer, water, and/or drainage. **Mr. Forschler used DOTD's HYDRWIN software to design all drainage improvements in the project area.** He is also designing the roadways receiving full pavement replacement and subsurface utility relocations/improvements and creating plans for the construction of the proposed work. Mr. Forschler made sure that the plans for sewer and water line replacements addressed all

SWBNO comments and that design followed the SWBNO guidelines.

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:**Name & Title:**

**John Housey, P.E.
Project Engineer**

Project Assignment:

Project Engineer / Project Development

Name of Firm with which associated:

**Barowka and Bonura
Engineers and Consultants, L.L.C.**

Years' experience with this Firm:

10.5

Education: Degree(s)/Year/Specialization:

**M.S. / 1965 / Structural Engineering
B.S. / 1964 / Civil Engineering**

Active registration: Year first registered/discipline:

1966 / Civil

Other experience and qualifications relevant to the proposed Project:

Mr. Housey has been working as an engineer in the public works industry for over 54 years. His experience includes bridges, buildings, roadways, and utility (water, sewer, and drainage) construction. He has substantial experience in project management, steel building detailing, bridges, barges and parts for offshore platforms. As a steel fabricator, Mr. Housey oversaw the fabrication of steel buildings, steel bridges (stationary and movable), barges, various parts of offshore platforms including girders, piling and legs, floor and wall framing, various parts of ships including bulkheads and framing members. Over the past 54 years, he has been responsible for the design of crane runways, spreader bars, lifting frames, and hydraulic jacking of heavy structures and barges.

Mr. Housey managed the construction of over \$40 million in asphaltic concrete (AC) and Portland cement concrete (PCC) roadways funded by FEMA Public Assistance Grants. He has intimate knowledge in how various site conditions affect the construction and performance of the roadways, as well as how to maintain the necessary documentation to comply with the funding federal programs.

Mr. Housey is a past Board Member and President of the Southern Association of Steel Fabrication. He served as a member on AISC committee regarding quality control. As a member and past Chairman of the ASCE/SEI Structures Committee in New Orleans for several years, he is familiar with the design of bridges, buildings and residential structures. He is familiar with fabrication specifications of API, AWS, AREA, AISC and ABS.

Projects with detailed descriptions of work are provided below:

Widening / Stabilization of Congressman Hebert, Creely, and Bluebird Canals, St. Bernard Parish, LA, 01/2015-Present

The project includes increasing the capacity and improving the stability of Congressman Hebert, Creely, and Bluebird Canals, that consists of 11,600 linear feet of open canal and culverts ranging from 4-feet bottom width to 16-feet bottom width channels. Mr. Housey coordinated with St. Bernard Parish, Lake Borgne Basin Levee District, and the Louisiana Department of Transportation and Development to obtain information regarding the existing drainage plan. BBEC established the design cross sections for the channels, which included concrete u-channels, concrete box culverts, and round and arched pipe, and concrete lined trapezoidal sections, depending on the availability of land and other conditions. Mr. Housey is currently designing 2,500 linear feet of large diameter reinforced concrete pipe box culverts, and U-channels for the project.

Project Worksheet 20824 – Storm Drains, Jean Lafitte Parkway Drainage Line Repairs/Replacement, St. Bernard Parish, LA, 06/2014-11/2019

Mr. Housey prepared the damage assessment to adjacent existing roadway.

Access Ways & Ladders at Drainage Pump Stations; Project No. 2014-022-DR, Jefferson Parish, LA, 11/2014-Present

Mr. Housey has prepared cost estimates and designed ladders, stairs, and elevated walkways to be installed in 16 drainage pump stations to connect elevated structures or allow personnel to access the top of structures within Jefferson Parish. Design included analysis and details to retrofit new items to existing structures.

Cleary Improvements (Veterans Blvd. to West Esplanade Ave.) (Council District 5), Jefferson Parish, LA, 11/2017-Present

Mr. Housey supervised and reviewed CAD drawings of waterlines as requested by the Parish.

Hurricane Katrina Roadway Restoration, St. Bernard Parish, LA, 05/2011-08/2017

Mr. Housey provided Construction Administration services and Supervised Resident Inspectors for over \$40 Million in roadway repair for 436 streets. Mr. Housey developed plans and construction cost estimates as well as managed the construction of facility repairs. He reviewed contractor submittals for conformity, resolved construction issues and led field progress meetings. Mr. Housey was BBEC's on-site engineer for BBEC's (18) project \$100 million street and drainage repair program. Mr. Housey coordinated with the Contractor, Parish, and inspectors to troubleshoot issues in the field, resolved neighbor complaints, interpreted design specs to maintain the quality and standards of the work, and ensured that the work is satisfactorily completed. Mr. Housey reviewed all test reports for conformity to specifications, performed substantial and final completion walk-throughs for acceptance, reviewed as-builts for work completed, and reviewed contractor's monthly invoices and quantities. The project lasted 11 years and consisted of up to 18 construction inspectors at one time.

RR176 – St. Roch Group North Group A (PMOI), City of New Orleans, LA, 10/2019-Present

As part of BBEC design team, Mr. Housey met with DPW representatives and surveyed damage to existing streets, reviewed and designed repairs to existing streets, including roadway profiles and drainage requirements.

RR177 – St. Roch Group North Group B (FRC), City of New Orleans, LA, 11/2019-Present

As part of BBEC design team, Mr. Housey met with DPW representatives and surveyed damage to existing streets, reviewed and designed repairs to existing streets, including roadway profiles and drainage requirements.

RR178 – St. Roch Group North Group C (FRC), City of New Orleans, LA, 11/2019-Present

As part of BBEC design team, Mr. Housey met with DPW representatives and surveyed damage to existing streets, reviewed and designed repairs to existing streets, including roadway profiles and drainage requirements.

Read Blvd. East Group C, Capital Improvement Program, Project No. 2016-RR146 (PW No. 21032), City of New Orleans, LA, 03/2017-Present

As Project Manager, Mr. Housey has designed requirements to remove damage to existing streets and replace with new concrete streets and proper drainage profiles. He is also providing Contract Administration on this project. This involves overseeing the resident inspector and reviewing inspection reports, approval of construction

materials, conducting bi-weekly progress meeting, approving construction invoices and keeping the client informed of construction progress, issues and other items. The CCTV Inspection of the existing drainage lines revealed the need for multiple repairs to existing drainage lines. This has required evaluation of method of repair and associated costs.

Mr. Housey managed the resident inspection services, including providing guidance and oversight to the resident inspector and coordinating with the City to ensure contract quantities were tracked timely and accurately.

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:**Name & Title:**

**Madan Kamboj, P.E.
Project Engineer**

Project Assignment:

Project Engineer / Project Development

Name of Firm with which associated:

**Barowka and Bonura
Engineers and Consultants, L.L.C.**

Years' experience with this Firm:

1.5

Education: Degree(s)/Year/Specialization:

**M.S. / 1978 / Civil Engineering: Structures/Soil Mechanics
B.S. / 1967 / Civil Engineering**

Active registration: Year first registered/discipline:

1977 / Civil - Environmental

Other experience and qualifications relevant to the proposed Project:

Mr. Kamboj has more than 41 years of experience performing project design, construction administration, and project monitoring for general civil projects including water and sewer treatment plants, drainage, utilities, streets, highways and bridges, buildings, multi-story parking garages; airport taxiways, traffic separation facilities, bike paths, and overhead pedestrian walkways at high traffic intersections.

Mr. Kamboj has successfully attended a course in "Highway Capacity Manual" at New York Polytechnical. He led a team of Engineers and Cost Estimators for conducting line and grade studies for North South Expressway in Northern Louisiana which eventually became Interstate 49. This project includes Hydraulic Design of culverts, pavement type analysis, intersection geometry and cost estimates for each projected alignment analysis. Mr. Kamboj designed twelve (12) miles of US-61 four lane highway in Wilkinson County, Mississippi for MDOT. He evaluated geometrical design, profile and grades, intersection layout, culvert analysis and cost estimation for construction. Mr. Kamboj designed city streets for C.J. Peete including geometry, pavement, design, intersection improvements, redesigning utilities (e.g. water, sewer, gas) and drainage improvements. The cost of street improvements was \$24M.

Projects with detailed descriptions of work are provided below:

Gloria Drive Pump Station, Project No. 20-2022A, Lafitte Area Independent Levee District Drainage, Town of Jean Lafitte, LA., 02/2021 – Present

Mr. Kamboj is providing Structural and Foundation design of Gloria Drive Pumping Station and approximately 70 Ft. long Steel Sheet Pile wall supported by ASTM D25 Timber Piles. The Pump Station design incorporates designing foundations supported by 14"X 14" PPC Piles, Concrete Base Level, Middle Level and Roof Slabs,

Concrete Enclosure Walls & Structural Supports for Pump Station Screens. The present Generator Structure will be enlarged and strengthened to accommodate new electrical equipment.

CN Railroad Culverts in Ormond, Project No. P200801, Ordinance No. 20-9-5, St. Charles Parish, LA, 10/2020-Present

Mr. Kamboj is preparing drainage improvements by the Jack & Bore method of multiple culvert sites to improve frequent flooding in Luling, St. Charles Parish. Multiple culverts employing Jacking Method are to be rammed under the road embankment by using 72", 60" and 48" metal pipes. The ditches on inlet and outlet shall be improved by providing Conspan Culvert Bridges and these ditches shall be provided with G.C.C.M. lining to improve flow of rain discharge. The project cost is \$6.2M.

Westbank Mississippi River Bike Trail, Around Avondale Shipyard, (2017-059-RBP), Jefferson Parish, LA, 12/2020-Present

Mr. Kamboj is designing a 2.3 milelong bike path along River Road and finishing on the top of Mississippi River Levee. The bike path is designed to provide separated path to the pedestrians and shall provide safety by separating bike and pedestrian traffic. The project cost is \$350,000.

Clear Creek CSO Treatment Facility, Atlanta, Georgia, 04/2004-09/2006

While employed with Delon Hampton Associates, Mr. Kamboj oversaw the structural design group. The Clear Creek CSO Treatment serves as one of the largest combined sewershed of the City's seven (7) CSO facilities and includes the downtown business district and midtown areas. Dry weather flow 40 MGD is routed to the Peachtree Intercept which then takes the flow to RM Clayton WRC for treatment. Wet weather flow is routed to Clear Creek CSO facility for treatment before being discharged to open channel that leads to Clear Creek.

B & E Jackson Engineers, Atlanta, GA., 06/2001-11/2003

Mr. Kamboj performed planning and preliminary design for rerouting I-285 with twin tunnel structures under proposed New Runway V and related Taxiway 10-28 at Hartsfield Airport.

He also performed planning and preliminary design for I-285 from Riverdale Road (GA 139) to Lake Mirror Road, detailed construction sequence, traffic detours, and construction estimation. Project Const Cost: \$ 160 million. Consolidated Rental Car facility planning, preliminary design for people movers, parking garages and maintenance facilities for all rental carriers at Hartsfield airport. Concourse E planning and preliminary design for land side at-grade and elevated access at the airport, improvements to Airport Blvd. Roadways, ramps and retaining wall structures, geometry and profiles, drainage and utility relocations. Project Const. Cost: \$ 182 million.

Volkert Consulting Engineer, Metairie LA, 1990-1994

Mr. Kamboj designed US 61 12 miles of four lane highway in Wilkinson County for MDOT, designed geometry, plan & profile, drainage culverts with HY-8, drainage ditches and construction sequencing. Mr. Kamboj designed 6500 ft long, 75 wide Taxiway at New Orleans International Airport in Kenner LA, this Taxiway was surcharged with 13 ft high fill to reduce after construction settlement. The cross Taxiways leading to East West Runway had 8 ft of Polystyrene under the pavement to reduce differential settlement at the intersections to the East West Runway.

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:**Name & Title:**

John Sparks
Construction Services

Project Assignment:

Design / Construction Management

Name of Firm with which associated:

Barowka and Bonura
Engineers and Consultants, L.L.C.

Years' experience with this Firm:

.5

Education: Degree(s)/Year/Specialization:

M.S. / 1998 / Civil Engineering
B.S. / 1994 / Civil Engineering

Active registration: Year first registered/discipline:**Other experience and qualifications relevant to the proposed Project:**

Mr. Sparks has more than 23 years of experience specifically with sewerage collection and treatment systems. His experience includes various methods of trenchless technology and excavation construction, lift stations, mechanical treatment, and pond treatment.

Projects with detailed descriptions of work are provided below:

Continuing Sewer Assessment Program, City of Vicksburg, MS 2/2016 – 11/2020

Evaluation Program -- Years One through Four

Street Repairs Program – Years One through Three

Mr. Sparks was the Project Manager for the sanitary sewer evaluation and repair projects for the City. The evaluation projects consisted of smoke testing, inspection of sewer lines and manholes. Provided deliverables of evaluation and analysis of observations made during the inspection phases. Deliverables also included the GIS positioning of assets and observations/defects. Evaluation projects consisted of the annual assessment of approximately 150,000 linear feet of sanitary sewer and 500 manholes. Repair projects consisted of new installations of sewer lines and manholes, replacement of existing sewer lines by excavation, rehabilitation of existing sewer lines by Cured-In-Place Pipe (CIPP) and Pipebursting. Mr. Sparks was responsible for the design and routing of all bypass pumping and traffic control. Repair projects had an annual construction value of approximately 1.5 million.

Judge Perez Sewer Rehabilitation, St. Bernard Parish, LA 2019

Mr. Sparks served as project manager for the rehabilitation of a 24-36" interceptor along Judge Perez from Paris Road to Valero refinery. Project included incoming line repairs by pipe bursting and rehabilitation of lateral services. Project included the boring and installation of 2,000 linear feet of 20-inch diameter HDPE force main. Permitting was obtained due to the vicinity of a high pressure/capacity natural gas line. Mr. Sparks also designed the capacities and layouts of all bypass pumping for maintenance of sanitary sewer flows and the design and installation of temporary traffic control for 24-hour lane closures on Judge Perez.

Sanitary Sewer CIPP Rehabilitation, Various Locations, Daphne Utilities, Daphne, AL 2017-2020

Mr. Sparks served as the project manager for the construction of rehabilitation of 8-24" diameter sanitary sewer lines for the authority under a three-year contract. Mr. Sparks was responsible for the design and routing of all bypass pumping and temporary traffic control. This included the design and installation of a high head bypass system with 24" diameter HDPE discharge piping with multiple permit-required road crossing by open cut excavation.

A2/A4 Basins—Downtown Sewer Rehabilitation, Emerald Coast Utilities Authority, Pensacola, FL, 2008-2009

Mr. Sparks served as project manager for the rehabilitation of over 100,000 linear feet of 8-36" sanitary sewer lines. The project also included the design and installation of road crossings by directional drilling/boring. Mr. Sparks was responsible for all Permit-required Temporary Traffic Control needed for intersection and lane closures on FLDOT State Highways. Mr. Sparks was responsible for the design and routing of all bypass pumping required. Also, responsible for all required City permits and coordination between involved entities during all construction activities.

PREVIOUS EMPLOYMENT**Suncoast Infrastructure Inc., Project Manager, Florence, MS, 01/2005-04/2021**

Mr. Sparks provided project management of CIPP and sewer construction projects and evaluated and analyzed sewer collection and treatment systems. He managed wetout facility, and materials inventory and improved efficiencies and capabilities of manufacturing.

Lampkin Construction Co., Inc., Vice President/Project Manager, Vicksburg, MS, 09/2002-12/2004

Mr. Sparks performed construction management of heavy construction projects, including USACE, USGS, FHWA design build projects, bank stabilization, lake dam rehabilitation, and road building. He managed inventory and certifications of rock yards.

Neel Schaffer, Inc., EI/PE Project Engineer, Jackson, MS, 06/1998-09/2002

Mr. Sparks performed design and construction administration services for water and sewer projects, lift station, WWTP rehabilitation projects and hydraulic analysis of water systems.

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:**Name & Title:**

Pete Foret
Computer Aided Drafting

Project Assignment:

Drafting

Name of Firm with which associated:

Barowka and Bonura
Engineers and Consultants, L.L.C.

Years' experience with this Firm:

1.5

Education: Degree(s)/Year/Specialization:

**B.S. / 1995 / Business Administration with a Computer Science Option
and Management Minor**

Active registration: Year first registered/discipline:**Other experience and qualifications relevant to the proposed Project:**

Mr. Foret is a multi-discipline AutoCAD drafter and designer with experience in the Civil, Structural, Architectural, Electrical and GIS/Mapping fields. He has a combined 31 years of experience generating alignments, plan and profile sheets, cross sections, contour maps, structural and architectural plans and details and electrical one-line diagrams. He has been the drafting coordinator for multiple firms and has been responsible for developing drafting standards for a consistent and quality drawing set.

Projects with detailed descriptions of work are provided below:

Gloria Drive Pump Station, Project No. 20-2022A, Lafitte Area Independent Levee District Drainage, Town of Jean Lafitte, LA, 02/2021-Present

Mr. Foret set up the survey and generated a preliminary site plan for a drainage pump station.

CN Railroad Culverts in Ormond, Project No. P200801, Ordinance No. 20-9-5, St. Tammany Parish, LA, 10/2020-Present

Mr. Foret set up the survey reference file with a baseline supplied by the railroad and created site plans for 6 proposed construction sites including a plan/profile sheet for a new 425' long 60" drainpipe connecting two sites. He also generated multiple cross sections through the 6 construction sites as well as other details.

Craig Avenue Drainage Improvements, Public Works Project No. 2019-022-DR, Jefferson Parish, LA, 10/2020-Present

Mr. Foret updated the plan/profile sheets with a new proposed roadway grade line.

Ames Boulevard Rehabilitation, West Bank Expressway to Happy Street, (Public Works Project No. 2013-033-RB) (DOTD No. H.011797), Jefferson Parish, LA., 07/2020-Present

Mr. Foret was involved with the 98% and 100% Final submittal of roadway design plans to the LADOTD. This involved updating the project border on all sheets to the current LADOTD border while maintaining LADOTD standards. The drawing set included a standard LADOTD title sheet as well as plan sheets, typical sections, cross sections, core boring sheets, LADOTD and Jefferson parish special detail sheets and associated summary and quantities table sheets.

Texaco, Inc., New Orleans, LA., 05/1990-11/1994

Mr. Foret's job duties at Texaco included the drafting of geologic structures and civil/GIS mapping using Microstation. This involved scanning large scale maps and inserting the raster image into the design file in order to digitize the data for digital manipulation.

RR176 – St. Roch Group North Group A (PMOI), City of New Orleans, LA., 07/2020-Present

Mr. Foret generated the 100% submittal drawings on this project. This drawing submittal contained plan and profile sheets that included proposed centerline and gutter line profiles as well as existing centerline, gutter line, sidewalk, right of way and utilities grades and profiles in the project area. Mr. Foret was also responsible for ensuring that the drawing set conformed to City of New Orleans Department of Public Works drawing standards.

RR177 – St. Roch Group North Group B (FRC), City of New Orleans, LA., 07/2020-Present

Mr. Foret generated the 100% submittal drawings on this project. This drawing submittal contained plan and profile sheets that included proposed centerline and gutter line profiles as well as existing centerline, gutter line, sidewalk, right of way and utilities grades and profiles in the project area. He also generated cross sections based on project guidelines. Mr. Foret was also responsible for ensuring that the drawing set conformed to City of New Orleans Department of Public Works drawing standards.


RR178 – St. Roch Group North Group C (FRC), City of New Orleans, LA., 07/2020-Present

Mr. Foret generated the 100% submittal drawings on this project. This drawing submittal contained plan and profile sheets that included proposed centerline and gutter line profiles as well as existing centerline, gutter line, sidewalk, right of way and utilities grades and profiles in the project area. He also generated cross sections based on project guidelines. Mr. Foret was also responsible for ensuring that the drawing set conformed to City of New Orleans Department of Public Works drawing standards.

N-Y Associates (DOTD Projects), Metairie, LA., 12/2002-12/2004

Mr. Foret was hired by N-Y Associates to work on a study for the East-West corridor for the LADOTD. This project involved the widening of Airline Highway and the relocation of necessary utilities for an overhead expressway, as well as, a possible lightrail system between New Orleans and Baton Rouge. He then became the project lead for another LADOTD study to replace the Florida Avenue bridge over the Industrial Canal. This project involved generating multiple proposed alignments for DOTD review. As the project lead, he was responsible for coordinating the drafting between multiple engineers, technicians and drafters.

While at N-Y, Mr. Foret also worked on various other projects, including LADOTD plan/profile roadway projects, street resurfacing projects for the City of New Orleans, a new street grid through the Guste housing redevelopment and all necessary plan/profile sheets, a study to replace the outdated Causeway overpass over Airline Highway and various other street and drainage improvement and pump station projects.

KEY PERSON, SPECIALIST, OR INDIVIDUAL CONSULTANT:
Name & Title:
Rayburn Clipper GIS
Project Assignment:
GIS / Mapping / Data Collection
Name of Firm with which associated:
 Barowka and Bonura Engineers and Consultants, L.L.C.
Years' experience with this Firm:
15
Education: Degree(s)/Year/Specialization:
B.S. / 2006 / Computer Information Systems A.S. / 2000 / Computer Aided Drafting
Active registration: Year first registered/discipline:
Other experience and qualifications relevant to the proposed Project:
<p>Mr. Clipper is a Geographic Information Systems Analyst with 20 years of experience in GIS project architecture, systems engineering and management, and 10 years designing, supporting, and maintaining enterprise and solutions architectures in a variety of public and private projects; he also has 20 years of experience using AutoCAD in association with his GIS projects.</p> <p>Projects with detailed descriptions of work are provided below:</p> <p>Widening/Stabilization of Congressman Hebert, Creely, and Bluebird Canals, St. Bernard Parish, LA, 01/2015-Present</p> <p>Mr. Clipper created flood inundation models to assist with capital drainage projects. Models built for the project were used to forecast the water depths for 1 year, 5-year, 50-year, 100 year, and 500-year flood events.</p> <p>Digital Flood Insurance Rate Map, Jefferson Parish, LA</p> <p>Mr. Clipper created features and layers for the creation of DFIRM maps in Geomedia 5. He geoprocessed digital elevation models used in the determination of flood zones and provided support for Jefferson parish officials accessing data.</p> <p>Bissonet Plaza Drainage Master Plan (A/E Project No. 20-1708), Jefferson Parish, LA, 05/2018-05/2021</p> <p>Mr. Clipper created maps to illustrate the locations of drainage lines and inlets, and he created project maps to show affected drainage areas.</p>

Waggaman Area Drainage Study, Jefferson Parish, LA, 02/2013-01/2016

Mr. Clipper created hydraulic models based on the engineer specifications to determine 10-year storm flooding.

Jefferson Parish GIS Dept., Jefferson Parish, LA, 2019-Present

Mr. Clipper Maintains the Parish's GIS infrastructure. The enterprise architecture includes ArcGIS Enterprise Portal, ArcGIS GeoEvent Server, ArcGIS Image Server, ArcGIS Datastore, and several ArcGIS Servers. Mr. Clipper has created several applications for the enterprise including a Damage assessment application for parish inspectors to survey damages after hurricanes. The recent pandemics called for the creation of a covid-19 dashboard to track cases and hospitalizations in the parish. Parish administration required several sites for economic development and analysis which Mr. Clipper designed.

Cypress Park Subdivision Drainage Evaluation, St. Tammany Parish, LA, 11/2016-12/2017

Mr. Clipper created hydraulic models based on the engineer specifications to determine 10, 25, 50, and 100-year storms flood inundation.

GIS Project, St. Charles Parish, LA, 2003-2006

Mr. Clipper designed GIS for St. Charles Parish Government, collected field information on parish assets to incorporate them into the GIS Aerial imagery rectification and mosaicing, and provided Base map creation. Mr. Clipper created 3-D terrain models from elevation data collected from sub-meter GPS precision units, developed first, highly accurate, zoning map based on parish code and CAD drawings, created first land use map for zoning department, and created shapefiles for project base map.

GIS Project, St. Tammany Parish, LA, 1999-2003

Mr. Clipper inaugurated the GIS Project; collected ground control points with sub-meter precision GPS receiver for aerial image orthorectification. He identified parish assets from aerial imagery, geoprocessed initial features for base map layer creation, created 3-D terrain models from analysis of Imagery and Digital Elevation Models. Mr. Clipper provided re-mapping of facilities on a land base into different co-ordinate systems. He developed digital land base maps inclusive of Planimetric, topographic and cadastral features maps from mosaiced aerial imagery.

GIS Projects, St. Bernard Parish, LA

Mr. Clipper provided the parish with GIS support with daily need and custom request. He supported St. Bernard's 911 systems by providing telco's with addressing requests. Mr. Clipper designed the first Evacuation Registration application in the State of Louisiana based on state requirements which surpassed the states own software by providing a failure free registration environment during the Hurricane Gustav evacuation. During the summer when the river levels reached record highs throughout the state, Mr. Clipper created ESRI ArcGIS Server maps for the projects showing the area of construction exclusion based on the army corps of engineers' guild lines that state no construction or excavation work could take place within a certain distance from the levees.

GIS Projects, Jefferson Parish, LA

Mr. Clipper created mobile application with ESRI ArcGIS Mobile mapping screens for location-based field work and code enforcement that synchronized map date to ArcSDE server via ArcGIS Server over HTTP.

GIS Project, St. Charles Parish, LA

Mr. Clipper was responsible for drawing maps, diagrams, and profiles, using cross-sections and surveys, to represent elevations, topographical contours, subsurface formations and structures. Mr. Clipper would correlate, interpret, and modify data obtained from topographical surveys, well logs, and geophysical prospecting reports, and he prepared subdivision plats for integration into the GIS. Mr. Clipper used AutoCAD to digitize features on aerial images.

FEMA Hazard Mitigation Assistance Consultant (Project No. 2130-02035), Project Management for 2013 FMA Grant Funding, City of New Orleans, LA, 08/2017- Present

Mr. Clipper created flood inundation models to identify homes impacted during flood events. Models built for the

project were used to forecast the water depths for 1 year, 5-year, 50-year, 100 year, and 500-year flood events.

Technical Assistance for Floodplain Management, Community Rating System and Hazard Mitigation Related Services (Project No. 0352), Jefferson Parish, LA, 01/2017-06/2020

Mr. Clipper created and identified areas in the Parish that were not developed and could be certified for FEMA's undeveloped land use for rainwater drainage. He developed a new parish map to calculate the total area of parish land to be used by the parish for all FEMA certifications. Mr. Clipper reviewed previous Mitigation Plans, identified areas of the plan to be updated. He also mapped critical facilities and developed inundation models to forecast the water depths for 1 year, 5-year, 50-year, 100 year, and 500-year flood events.

I-85 Extension and Corridor Study, ALDOT Project No. NCPD-PE02 (910), Montgomery, AL

I-85 Extension from I-59/I-20 near the Mississippi State Line NE of Cuba to I-65 near Montgomery. Mr. Clipper was a GIS consultant to Volkert and associates, in the use of CorridorTrak software. He developed a highly accurate parcel map with land-owner information for use in land acquisition and created map of ecologically sensitive areas which includes mapping of WMA and other wetlands.

I-12 to Bush Corridor Study, LADOTD Project No. 700-52-0124 (TIMED), Bush, LA, 2006

While employed with DBSysgraphy, Mr. Clipper provided Environmental Site Assessment, extensive cultural resources survey and wetlands delineations, and hydrological modeling, along with numerous other analyses. Mr. Clipper separated from DBSysgraphy prior to completion of the project.

Merlin Oil Company, Smith, MS

Mr. Clipper created parcel base map for Mineral Lease Ownership map in Smith county Mississippi and collected ground control points for geoprocessing of parcel ownership information.

Louisiana Land Trust, Statewide, LA, 01/2009-12/2016

Mr. Clipper created ESRI ArcGIS Server web-based mapping of LLT properties for tracking property status and provided analysis of properties in flood zones by given spec from LDEQ. Complete design of n-tier architecture. Demonstrated proximity and contiguous properties through a specially designed proxy parcel layer in the absence of a real parcel layer in ESRI ArcMap.

MRGO Closure

Mr. Clipper designed figures and base maps for engineering support and created Triangulated irregular network (Tin) datasets for 3D surface model of the MRGO channel bottom for closure location review by project engineer in ArcMap and ArcGLOBE.

L. Work by Firm or Joint-Venture members which best illustrates current qualifications relevant to this Project. Please include any and all work performed for Jefferson Parish. Please attach additional pages if necessary.

PROJECT NO. 1

**Project Name,
Location and Owner's
contact information:**

Nature of Firm's Responsibility:

**Waggaman Area
Drainage Study
(Project No.
2011-03-DR),
Jefferson Parish, LA**

**Jefferson Parish
Government
Mitchell Theriot, P.E.,
Director
Department of Drainage
1221 Elmwood Park
Blvd., Suite 907
Jefferson, LA 70123
MTheriot@jeffparish.net
(504) 736-6753**

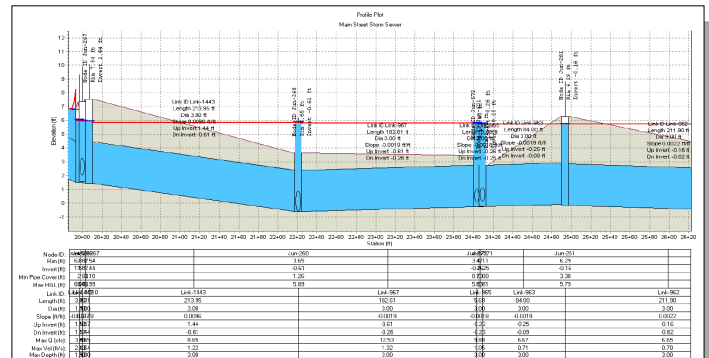
Applicable Experience

- Project Evaluation
- Project Design
- Drafting of Technical Plans
- Development of Technical Specifications
- Construction Administration

BBEC performed a hydrologic study for three separate residential subdivisions in Waggaman, Louisiana: Waggaman, South Kenner, and Manor Lane. The Waggaman subdivision is bounded by River Road to the north, Live Oak Boulevard to the south, Saul's Canal to the west, and Dandelion Ditch to the east. South Kenner subdivision is bounded by River Road to the north, North Railroad Canal to the south, Saul's Canal to the east, and another subdivision to the west. The Manor Lane

subdivision is bounded by River Road to the north, North Railroad Canal to the south, Latigue Road Ditch to the west, and Modern Farms Road Ditch to the east. BBEC used the Storm Water Management Model (SWMM) V.5 to evaluate the existing subsurface drainage capacities for each subdivision and to examine if the existing system was able handle a 10-year design storm. BBEC developed a hydrologic and hydraulic model using the existing Parish GIS for each area and recommended subsurface improvements based on the SWMM model to handle a 10-year design storm.

BBEC developed the survey scope of work and managed the surveyor to obtain the needed data for the model. BBEC performed multiple model runs to determine the most cost-effective means to drain the 10-year storm for each subdivision. BBEC developed recommended project scopes and construction cost estimates for each subdivision.



**Completion Date
(Actual or estimated):**

Estimated Cost:

Entire Project:

Work for which Firm was Responsible:

2016 (actual)

\$300.000 (fee)

\$300.000 (fee)

PROJECT NO. 2

**Project Name,
Location and Owner's
contact information:**

Nature of Firm's Responsibility:

**Lake Avenue and
Carrollton Avenue
Drainage Study,
Jefferson Parish, LA**

**Jefferson Parish
Government**

**Mark Drewes, Director
Department of Public
Works**

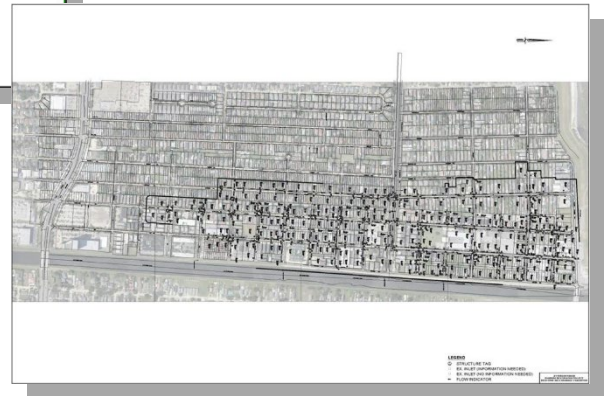
**1221 Elmwood Pk.
Blvd., Suite 904
Jefferson, LA 70123**

**MDrewes@jeffparish.net
(504) 736-6783**

Applicable Experience

- Project Evaluation
- Project Design
- Drafting of Technical Plans

The project included an extensive drainage and traffic control study on Lake and Carrollton Avenues in the Bucktown area. Hydraulic modeling of the entire area was performed and drainage improvements were recommended in conjunction with the findings of the traffic study. BBEC performed the hydraulic model, coordinated with the traffic engineer and designed the proposed drainage improvements.



**Completion Date
(Actual or estimated):**

Estimated Cost:

Entire Project:

Work for which Firm was Responsible:

2005 (actual)

\$80.000 (fee)

\$80.000 (fee)

PROJECT NO. 3

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Primrose Box Culverts, St. Charles Parish, LA</p> <p>St. Charles Parish Government Public Works and Wastewater 15045 River Road Hahnville, LA 70057 Darrin Duhe, Chief Operating Officer dduhe@stcharlesgov.net (985) 783-5102</p>	<div data-bbox="451 449 850 751"> <p><u>Applicable Experience</u></p> <ul style="list-style-type: none"> • Project Evaluation • Project Design • Drafting of Technical Plans • Development of Technical Specifications • Construction Administration </div>	<p>BBEC performed preliminary and final design, construction related services, administration, and resident inspection services for three 24-foot clear span box culverts and related road/drive restoration.</p> <div data-bbox="451 852 1552 1575"> </div>
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2004 (actual)	\$350.000	\$350.000

PROJECT NO. 4

Project Name, Location and Owner's contact information:

Nature of Firm's Responsibility:

**Harvard Avenue
Drainage Improvements,
Project No 99-046-DR
and 99-046A-DR,
(Funding Source:
Community
Development
Block Grant),
Jefferson Parish, LA**

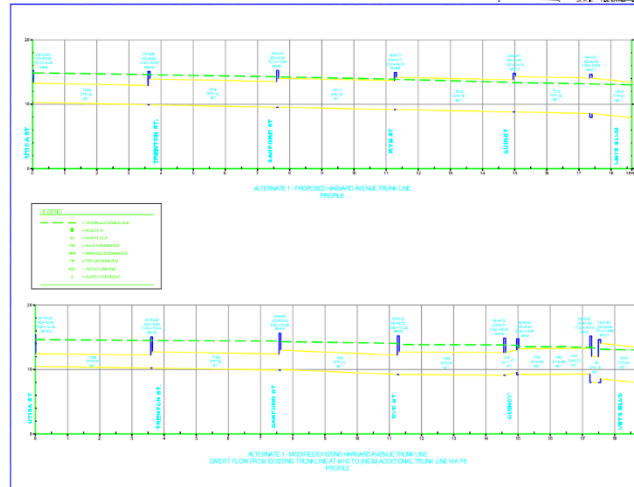
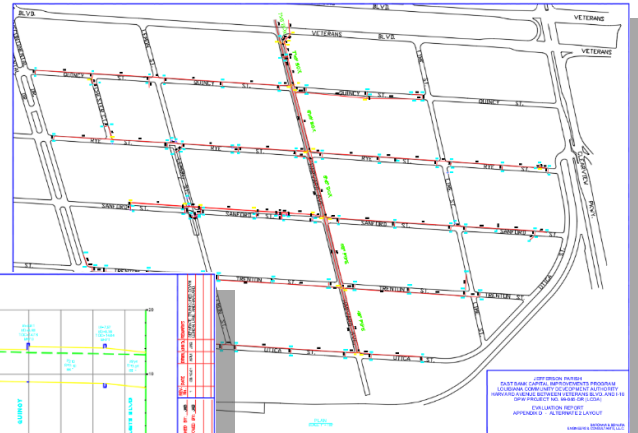
**Jefferson Parish
Government
Mark Drewes, Director
Department of
Public Works
1221 Elmwood Pk.
Blvd., Suite 904
Jefferson, LA 70123
MDrewes@jeffparish.net
(504) 736-6783**

Applicable Experience

- Project Evaluation
- Project Design
- Drafting of Technical Plans
- Development of Technical Specifications
- Construction Administration

BBEC designed approximately 6,000 linear feet of 24-inch to 72-inch drainpipe in Jefferson Parish, Louisiana. BBEC used Intergraph's Storm and Sanitary SelectCAD modeling software to determine the surface runoff and the pipe sizes. Data from the existing Parish's GIS was used to develop the surface terrain for the basis of the model. The project required that the various drain lines be installed within 50-foot Parish right-of-ways in

commercial and residential areas, existing utilities throughout the length of the project maintained, and the site restored, including roadways, to it's before construction condition. The project also required three separate jack-and-bores, from 30-inches to 72-inches in diameter, across a three-lane roadway to discharge into a canal. BBEC developed and administered the temporary traffic control plans for while the work was being performed.



Completion Date (Actual or estimated):

Estimated Cost:

Entire Project:


Work for which Firm was Responsible:

2006 (actual)

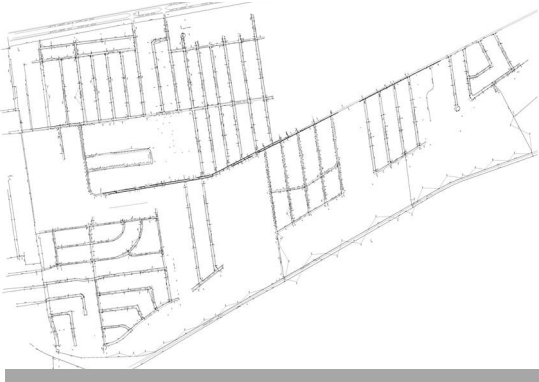
\$2,879,840

\$2,879,840

PROJECT NO. 5

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Manson Ditch and Lower Kraak Outfall System Improvements, Jefferson Parish, LA</p> <p>Jefferson Parish Government Mark Drewes, Director Department of Public Works 1221 Elmwood Pk. Blvd., Suite 904 Jefferson, LA 70123 MDrewes@jeffparish.net (504) 736-6783</p>	<p><u>Applicable Experience</u></p> <ul style="list-style-type: none"> • Project Evaluation • Project Design • Drafting of Technical Plans • Development of Technical Specifications <p>Metairie Canal culvert crossing under Cleary Avenue. The purpose of the project was to remove the connection and discharge the two drain lines directly into the canal, requiring an outfall structure. The outfall structure is designed to accept the two drain lines, connect to the existing two 96-inch diameter culverts, and be able to transition to a future 16-foot wide u-channel. Temporary bank stabilization is required until the future u-channel project is completed. Traffic flow on the two major arterial streets will be maintained throughout the construction of the project.</p>	<p>The scope of BBEC's work was to provide full engineering services, including evaluation of alternatives, preliminary design, final design, bidding, construction administration, resident inspection, and as-built drawing services, for the improvements to the Manson Ditch outfall into the West Metairie Avenue Canal. The project consisted of hydraulic modeling of drainage structures, design of drainage systems composed of cast-in-place concrete structures and pipe systems, connection to existing culverts, transition to existing canal banks, utility relocations, roadway and other site restoration, traffic maintenance and signal design, pavement striping, and all incidental work. Currently two large diameter drain lines (60-inch and 72-inch diameter) discharge into the West</p> 
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2008 (actual)	\$8,000,000	\$8,000,000

PROJECT NO. 6

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>Ames Boulevard Roadside Drainage Improvements, Jefferson Parish, LA</p> <p>Jefferson Parish Government Mitchell Theriot, P.E., Director Department of Drainage 1221 Elmwood Park Blvd., Suite 907 Jefferson, LA 70123 MTheriot@jeffparish.net (504) 736-6753</p>	<p><u>Applicable Experience</u></p> <ul style="list-style-type: none"> • Project Evaluation • Project Design • Drafting of Technical Plans • Development of Technical Specifications <p>diameter. Round and arched pipe was installed; concrete and plastic materials were used. Project site provided limited space between the road and property lines because of its 40-foot ROW. Existing water, sewer, power, cable television, and telephone services were worked around.</p>	<p>BBEC designed roadside drainage improvements along approximately 6,200 linear feet of Ames Boulevard in Jefferson Parish for this project. BBEC utilized TR-55 (computer model) to determine surface runoff for the drainage system. BBEC developed a computer model based on DOTD's spreadsheet to perform the hydraulic design. The drainage pipe ranged from 15- to 36-inches in</p> 
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2005 (actual)	\$180,000	\$180,000

PROJECT NO. 7

**Project Name,
Location and Owner's
contact information:**

Nature of Firm's Responsibility:

**Cleary Improvements
(Veterans Blvd. to West
Esplanade Ave.)
(Council District 5),
Public -Works
No. 2017-014-RBP,
Jefferson Parish, LA**

**Jefferson Parish
Government
Mark Drewes, Director
Department of
Public Works
1221 Elmwood Pk.
Blvd., Suite 904
Jefferson, LA 70123
MDrewes@jeffparish.net
(504) 736-6783**

Applicable Experience

- Project Evaluation
- Project Design
- Drafting of Technical Plans
- Development of Technical Specifications
- Construction Administration

The project consists of the reconstruction of Cleary Avenue between Veterans Boulevard and West Esplanade Avenue and includes drainage improvements.

Under a prior contract, BBEC developed a hydrologic and hydraulic model for the project area and the surrounding neighborhoods that drain into the project area; evaluated the design conditions and made recommendations for drainage

improvements for the area.

The improvements include removing and replacing approximately 4,000 linear feet of four-lane concrete street (2 travel lanes, 2 parking lanes) with curbs; removing and replacing adjoining concrete sidewalks, drives, and ADA ramps; installation of new sub-surface drainage; installation of new outfall pipe crossing W. Esplanade Avenue and discharging into W. Esplanade Avenue Canal; installation of new outfall pipe crossing Veterans Blvd. and discharging into Veterans Blvd. Canal (Canal No. 3); the replacement of all water mains crossing Cleary Avenue and West Esplanade Avenue in the project area; and coordination with private utilities for their respective utility relocations.

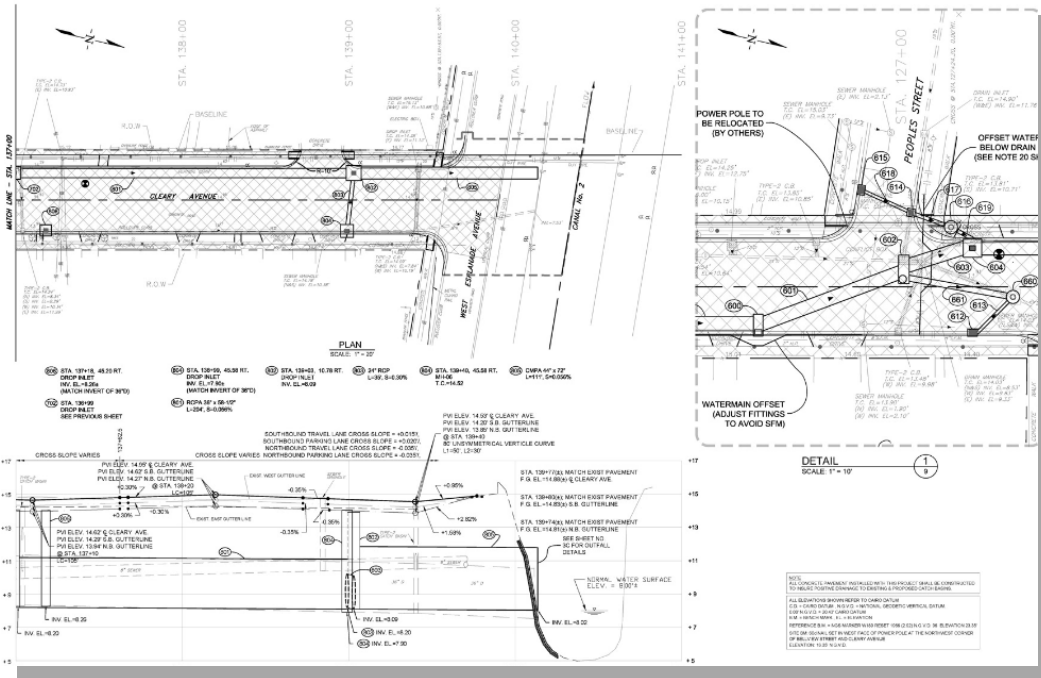
The scope of work also includes traffic phasing, allowing the contractor to work on one lane at a time. When working on the parking lanes, the 2-way traffic is maintained. When working in the travel lanes, only 1-way traffic is allowed.

As part of the roadway and drainage improvement project, BBEC performed the engineering services to design and construct 7 water line roadway crossings varying in size from 8-inch to 12-inch water mains. The roadway crossings included connecting to existing water mains with valves, tees, and other fittings as required.

BBEC is currently providing Construction Administration and Construction Inspection Services including but not limited to:


- Preparing formal contract documents for the execution of the construction contract
- Observing and inspecting the materials and construction procedures at the site of the work as it progresses
- Establishing construction monuments, project baseline, and benchmark's as necessary
- Coordinating with owners of utilities for relocation of their facilities to clear the site for construction
- Requiring and reviewing tests of materials necessary for the project
- Determining contract pay quantities, including necessary materials checking

- Verifying and approving contractor's pay estimates
- Preparing progress reports, as requested
- Preparing detailed drawings as necessary to supplement the construction drawings
- Reviewing shop drawings and samples for conformance with the design and for compliance with the result required in the contract documents
- Performing final inspection and making a recommendation for acceptance
- Verifying and approving Testing Laboratory pay estimates
- Preparing all necessary documentation required for construction change orders
- Preparing written recommendation for all required changes to plans and specifications during construction
- Attending council meetings and other meetings as necessary to discuss issues associated with the project



Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2021 (actual)	\$4.456.889	\$4.456.889

PROJECT NO. 8

Project Name, Location and Owner's contact information:	Nature of Firm's Responsibility:	
<p>West Napoleon Avenue Improvements, Cleary Avenue to Severn Avenue, (LA DOTD Project No. 742-07-0088), Jefferson Parish, LA</p> <p>Jefferson Parish Government Mark Drewes, Director Department of Public Works 1221 Elmwood Pk. Blvd., Suite 904 Jefferson, LA 70123 MDrewes@jeffparish.net (504) 736-6783</p>	<div data-bbox="440 443 846 709"> <p><u>Applicable Experience</u></p> <ul style="list-style-type: none"> • Project Design • Drafting of Technical Plans • Development of Technical Specifications • Construction Administration </div> <p>BBEC performed construction administration services on this \$11 million TIMED roadway and drainage project, which consisted of about 3,800 linear feet of four-lane concrete roadway divided by a new 30-foot wide concrete u-channel. BBEC coordinated with the private utility companies to relocate (or work around) natural gas pipelines and power and communication lines, overhead and buried, and coordinated construction and connection to public utilities (water and sewer) as well. BBEC reviewed and made recommendations regarding substitute materials and construction methods and monitored the contractors' accelerated operations that reduced the construction contract time from two and a half years to one and a half years. The project consisted of the design of three 9' x 9' box culverts (for a 250-foot box culvert crossing; design (roadway & culvert), construction administration services for about 3,500 linear feet of a new four-lane roadway construction with installation of 26 foot-wide concrete u-channel, traffic design & maintenance, utility relocations, resident inspection.</p>	
Completion Date (Actual or estimated):	Estimated Cost:	
	Entire Project:	Work for which Firm was Responsible:
2005 (actual)	\$11.580.000	\$11.580.000

PROJECT NO. 9

**Project Name,
Location and Owner's
contact information:**

Nature of Firm's Responsibility:

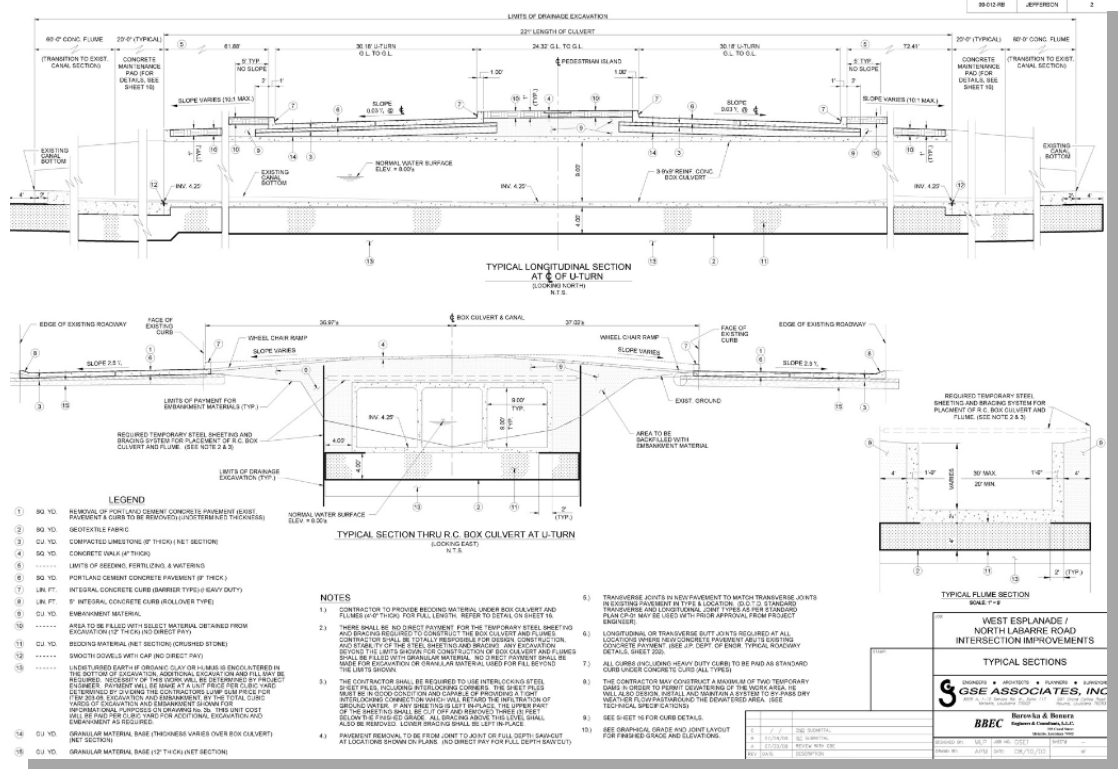
**Labarre Road
Back-to-Back
U-Turn Intersection
Improvements
(West Esplanade
Avenue/North
Labarre Road),
Jefferson Parish, LA**

**Jefferson Parish
Government
Mark Drewes, Director
Department of
Public Works
1221 Elmwood Pk.
Blvd., Suite 904
Jefferson, LA 70123
MDrewes@jeffparish.net
(504) 736-6783**

Applicable Experience

- Project Evaluation
- Project Design
- Drafting of Technical Plans
- Development of Technical Specifications

BBEC prepared plans and specifications for a 250-foot box culvert canal crossing on West Esplanade Avenue near N. Labarre Road. The project included the design of a box culvert containing three 9-foot by 9-foot precast concrete culverts, roadway design above the culvert and along West Esplanade adjacent to the structure, traffic design and maintenance, and utility relocations.



**Completion Date
(Actual or estimated):**

Estimated Cost:

Entire Project:

Work for which Firm was Responsible:

2004 (actual)

\$1,020,854

\$1,020,854

PROJECT NO. 10

**Project Name,
Location and Owner's
contact information:**

Nature of Firm's Responsibility:

**Boutte Drainage
Improvements,
St. Charles Parish, LA**

**St. Charles Parish
Government
Public Works and
Wastewater
15045 River Road
(LA 18)
Hahnville, LA 70057
Darrin Duhe, Chief
Operating Officer
dduhe@stcharlesgov.net
(985) 783-5102**

Applicable Experience

- Project Evaluation
- Project Design
- Drafting of Technical Plans
- Development of Technical Specifications
- Construction Administration

The project consisted of design and construction related services for 2,000 linear feet of 15-inch to 30-inch drain-pipe along US Highway 90, including roadway and parking lot restoration. TR-55 (computer model) was used to determine the watershed's runoff. Hydraulic calculations were performed by hand.



**Completion Date
(Actual or estimated):**

Estimated Cost:

Entire Project:

Work for which Firm was Responsible:

2004 (actual)

\$350.000

\$350.000

M. List all prior and/or on-going litigation between Firm and Jefferson Parish. Please attach additional pages if necessary.

Parties:		Status/Result of Case:
Plaintiff:	Defendant:	
1. N/A	N/A	BBEC's firm nor its staff has had any litigation with Jefferson Parish.
2.		
3.		
4.		

N. Use this space to provide any additional information or description of resources supporting Firm's qualifications for the proposed project.



**Barowka and Bonura
Engineers and Consultants, L.L.C.**

Barowka and Bonura Engineers and Consultants, L.L.C. is an engineering consulting firm specializing in civil engineering design, construction management, and computer consulting services. BBEC's Project Team has substantial experience in all aspects of public works projects. Our staff has specific experience in project development, drainage design, construction management, hydraulic and hydrologic modeling and alternative project evaluation. Our drainage design experience includes numerous projects including drainage pipe, cast-in-place conduit (closed and open), and roadway culvert crossings of all kinds. Our project experience also includes the necessary environmental permitting and property acquisition necessary to get any project done.

MINIMUM QUALIFICATIONS:

- One Principal who is a professional engineer who shall be registered as such in Louisiana. This requirement is met by: Jeffrey Bonura, P.E.

- A professional in charge of the project who is a professional engineer who shall be registered as such in Louisiana with a minimum of five (5) years-experience in the disciplines involved.
This requirement is met by: Jeffrey Bonura, P.E.
- One employee who is a professional engineer registered as such in Louisiana in the field or fields of expertise required for the project:
This requirement is met by: John J. Housey, Jr., P.E., Madan Kamboj, P.E., and Kevin Forschler, P.E.

1. PROFESSIONAL TRAINING AND EXPERIENCE IN RELATION TO THE TYPE OF WORK REQUIRED FOR THE ROUTINE ENGINEERING SERVICES:

BBEC's proposed project manager, Mr. Jeffrey Bonura, P.E. has experience in performing and managing design, bidding, construction (including inspector training and oversight), and as-built drawing phases of over \$100 million in FEMA funded roadway and drainage projects in the last 10 years alone, and has performed engineering services for over \$200 million in Public Works projects before that; construction projects that included all aspects of roadway, drainage, sidewalk and driveway construction. Mr. Bonura has substantial specific drainage experience in Jefferson Parish in designing neighborhood drainage systems such as Cleary Avenue between Veterans Boulevard and West Esplanade Avenue and Harvard Avenue between Veterans Boulevard and I-10. Mr. Bonura has current major drainage channel experiences in designing canal and box culvert improvements in our Widening/Stabilization of Bluebird, Creely, and Congressman Hebert Canals project in St. Bernard Parish, Louisiana. Mr. Bonura also has substantial experience using computer models such as Storm CAD and Storm and Sanitary Select CAD to evaluate drainage systems and determine the optimum design for the site conditions. Mr. Bonura used computer models for the design of the aforementioned Cleary Avenue and Harvard Avenue projects, as well as to evaluate drainage conditions along Ames boulevard and in the Bucktown area.

In addition to our specific engineering and disaster related expertise, BBEC has extensive knowledge of the Geographic Information Systems (GIS). Drawings and data developed from the GIS showing site topography could be used to develop site plans for construction, traffic detour plans, preliminary cost estimates, project presentations, tracking operations, and many other uses. We have used these services to prepare detailed zone maps for streets, drain lines, sewer systems, and canals. We have also prepared progress reports of construction services by showing street-by-street progress of crews through a zone, and we published the information on the web daily for some of our clients.

Our training and experience is directly embedded in our staff. What follows are a list of key individuals anticipated for the project with brief resumes. Complete resumes are provided elsewhere in this SOQ.

In addition to Mr. Bonura:

What follow are brief summaries of our key staff in addition to Mr. Bonura:

- **Mr. Kevin Forschler, P.E.**, (7 years of experience) has been designing and administering the construction of typical public works projects (sewer, drainage, and roadway); including the recent completion of the hydrologic and hydraulic modeling of the area associated with our Waggaman Hydraulic Study and the completion of the Bissonet Plaza Master Drainage Plan in Jefferson Parish. He is currently working on the Widening/Stabilization of Congressman Hebert, Creely, and Bluebird Canals in St. Bernard Parish and the Drainage and roadway improvements described herein.
- **Mr. John J. Housey, Jr, P.E.**, (54 years of experience), administered the construction of over \$40 million roadway and drainage improvements for the last several years. His work includes projects such

as Hurricane Damage Katrina Roadway Improvements and Drainage Repair in St. Bernard Parish, Drainage Pump Stations in Jefferson Parish, the Widening/Stabilization of Congressman Hebert, Creely, and Bluebird Canals in St. Bernard Parish, and the Lower 45 Evacuation Route Basin for the Lafitte Area Independent District.

- **Mr. Madan Kamboj, P.E.** (41 years of experience) has been performing project design, construction administration, and project monitoring for general civil projects including drainage, utilities, streets, highways and bridges, buildings, water and sewer treatment plants, multi-story parking garages; airport taxiways, traffic separation facilities, bike paths, and overhead pedestrian walkways at high traffic intersections.
- **Mr. John Sparks**, (23 years of experience), has a Master of Science degree in Civil Engineering with emphasis on Wastewater Processes and Water and Sewer Systems Design. He has over 23 years of experience designing and rehabilitating sewer systems in the Southeastern states.
- **Mr. Pete Foret** (31 years of experience), is a multi-discipline AutoCAD drafter and designer with experience in the Civil, Structural, Architectural, Electrical and GIS/Mapping fields. He has a combined 31 years of experience generating alignments, plan and profile sheets, cross sections, contour maps, structural and architectural plans and details and electrical one-line diagrams. He has been the drafting coordinator for multiple firms and has been responsible for developing drafting standards for a consistent and quality drawing set.
- **Mr. Rayburn Clipper** (25 years of experience) is a Geographic Information Systems Analyst with 20 years of experience in GIS project architecture, systems engineering and management, and 10 years designing, supporting, and maintaining enterprise and solutions architectures in a variety of public and private projects. He also has 20 years of experience using AutoCAD in association with his GIS projects. Mr. Clipper's many years of experience includes his GIS work on the Bissonet Plaza Master Drainage Plan, Waggaman Area Drainage Study, and Digital Flood Insurance Rate Map projects for Jefferson Parish as evidenced in his resume. He is also currently maintaining Jefferson Parish's GIS infrastructure.

2. CAPACITY FOR TIMELY COMPLETION OF NEWLY ASSIGNED WORK, CONSIDERING THE FACTORS OR TYPE OF ROUTINE ENGINEERING TASK, CURRENT UNFINISHED WORKLOAD, AND PERSON OR FIRM'S AVAILABLE PROFESSIONAL AND SUPPORT PERSONNEL:

BBEC has substantial experience in working on many public works projects, drainage and otherwise, in Jefferson Parish and surrounding areas. We have worked as a company for the Parish for 23 years, and Mr. Bonura worked an additional 10 years on Parish projects before that. Our experience includes performing engineering consulting and funding assistance to Jefferson Parish and the surrounding parishes.

Our wealth of experience with public works type projects in Jefferson Parish allows us to provide the Parish with the necessary knowledge of keeping the Project on schedule and within budget, adhering to the standards set forth by the Parish. BBEC can begin work immediately and devote the necessary manpower to continue with the work through completion within any reasonable schedule required by the Parish. BBEC has never failed to meet or exceed our clients' expectations on any of our projects.

Regarding our specific workload, we have recently submitted 90% plans for about \$23M in Public Works projects in a neighboring parish, freeing up sufficient personnel to work on any project assigned. Also, we just hired Mr. John Sparks (Masters in Civil Engineering with emphasis on Wastewater Design) with over 20 years of experience working with sewer system who is available, as needed. As such, we continuously complete projects and win new work and manage our projects accordingly to finish every project timely.

Mr. Bonura will manage the project through completion, making sure that all requirements of the project are

met. BBEC has sufficient licensed and experienced engineers, junior engineers, technicians, and GIS and drafting support to effectively perform work with its existing staff and meet any schedules reasonably set by the Parish.

3. LOCATION OF PRINCIPAL OFFICE WHERE WORK WILL BE PERFORMED:

BBEC's main office is located at 209 Canal Street in Metairie which is where our part of the work will be performed.

4. ADVERSARIAL LEGAL PROCEEDINGS BETWEEN THE PARISH AND THE PERSON OR FIRM PERFORMING PROFESSIONAL SERVICES, IN WHICH THE PARISH PREVAILED, OR ANY ONGOING PROCEEDINGS BETWEEN PARISH AND THE PERSON OR FIRM:

BBEC's firm nor staff has had any litigation with Jefferson Parish.

5. PRIOR SUCCESSFUL COMPLETION OF THE PROJECTS OF THE TYPE AND NATURE OF THE ENGINEERING SERVICES, AS DEFINED, FOR WHICH FORM HAS PROVIDED VERIFIABLE REFERENCES:

As noted throughout this Professional Services Questionnaire, BBEC and its staff members have an excellent history of service to Jefferson Parish, its Departments, and its citizens. Our projects range from the smallest \$5,000 fee project to our largest \$45,000,000 fee project. Project descriptions are included in this qualifications submittal to substantiate our experience in previous contracts. We invite further scrutiny of our track record with the Parish through discussion with any of the Departments noted elsewhere in this document. BBEC has not been faulted with any time delays, cost overruns, and / or design inadequacies.

For Jefferson Parish drainage projects completed by BBEC inclusive of Waggaman Area Drainage Study, Bissonet Plaza Master Drainage Plan, Harvard Avenue Drainage Improvements, Cleary Avenue Roadway and Drainage Improvements, and Lake Avenue and Carrollton Avenue Drainage Study, we offer the following:

- **Mitchell Theriot, P.E., Director of Drainage Department • Jefferson Parish • 1221 Elmwood Park Blvd., Suite 907, Jefferson, LA. 70123 • 504-736-6753**
- **Mark Drewes, Director of Public Works • Jefferson Parish • 1221 Elmwood Park Blvd., Suite 904, Jefferson, LA. 70123 • 504-736-6783**
- **Michelle Gonzales, CFM Director of Ecosystem and Coastal Management • Jefferson Parish • 1221 Elmwood Park Blvd., Suite 310, Jefferson, LA. 70123 • 504-736-6653**
- **Jeb Tate, Director of Electronic Information Systems • Jefferson Parish • 1221 Elmwood Park Blvd., Suite 700, Jefferson, LA. 70123 • 504-736-6720**

For recent projects we have performed that have similar drainage project development aspects for other clients, we offer the following references:

- **Ken Dugas, Parish Engineer • Plaquemines Parish • 333 F. Edward Hebert Blvd., Bldg 500, Belle Chasse, LA 70037 • 504-297-5343**
- **Donald Bourgeois, Jr., Capital Projects Supervisor • St. Bernard Parish • 1125 E. St. Bernard Hwy, Chalmette, LA. 70043 • 504-278-4250**
- **Darrin Duhe, Chief Operating Officer • St. Charles Parish • 15045 River Road, Hahnville, LA 70057 • 985-783-5102**

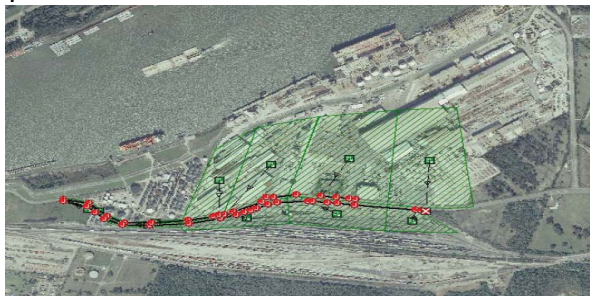
To simplify the submittal, the following projects for BBEC are listed in section L:

- Waggaman Area Drainage Study (Project No. 2011-03-DR), Jefferson Parish, LA
- Lake Avenue and Carrollton Avenue Drainage Study, Jefferson Parish, LA
- Primrose Box Culverts, St. Charles Parish, LA
- Harvard Avenue Drainage Improvements, Project No 99-046-DR and 99-046A-DR, (Funding Source: Community Development Block Grant), Jefferson Parish, LA
- Manson Ditch and Lower Kraak Outfall System Improvements, Jefferson Parish, LA
- Ames Boulevard Roadside Drainage Improvements, Jefferson Parish, LA
- Cleary Improvements (Veterans Blvd. to West Esplanade Ave.) (Council District 5), Public -Works No. 2017-014-RBP, Jefferson Parish, LA
- West Napoleon Avenue Improvements, Cleary Avenue to Severn Avenue, (LA DOTD Project No. 742-07-0088), Jefferson Parish, LA
- Labarre Road Back-to-Back U-Turn Intersection Improvements (West Esplanade Avenue/North Labarre Road), Jefferson Parish, LA
- Boutte Drainage Improvements, St. Charles Parish, LA

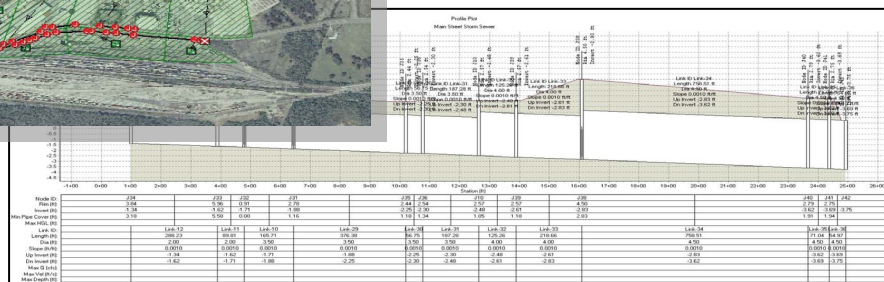
Additional Relevant Project Listing (not in section L):

Avondale/Bridge City Drainage Evaluation (Area between the Mississippi River and the Union Pacific Railroad, from Huey P. Long Bridge to Avondale Garden Road), Jefferson Parish, LA

BBEC developed the topographical survey scope for the project and manages the surveyor for the Parish. BBEC is developing a hydraulic and hydrologic model using SWMM v.5 of the Project Area between the Mississippi River and the Union Pacific Railroad, from the Huey P. Long Bridge to Avondale Garden Road; and, developing various alternatives for improvements with cost estimates for the alternatives. BBEC will provide alternatives and associated cost estimates for improvements, including alternate channels to drain the



Host Facility and rail yard area, alternatives to drain the Training Facility, potential locations for storage as an alternative to transmission, and alternatives to drain the Bridge City residential area.



Craig Avenue Drainage Improvements, Public Works Project No. 2019-022-DR, Jefferson Parish, LA, 01/2020-Present

BBEC's scope of work includes the design and construction administration services for the design of upgrades to subsurface drainage on Craig Avenue between Kawanee Avenue and West Esplanade Avenue. The project involves installing a large diameter drain line within 20 feet of residential structures and connecting this new drain line to the existing trunk line that runs along the opposite side of the road and to the existing catch basins on the cross streets of Craig Avenue. BBEC is overseeing the Surveying and Geotechnical Engineering services.

Digital Flood Insurance Rate Map, Jefferson Parish, LA

[illegible]

keep the vibrations from the construction operations to a minimum (worked with local leaders and their concerns for private property). Worked closely with Parish officials to solicit funds from an incorporated city to help replace the deteriorated water line and line the deteriorated sewer line prior to proceeding with a reconstructed roadway. Met with local businesses and the Construction Engineer to facilitate access to all driveways during construction.

Drainage Pump Station Fuel Storage Secondary Containment, Jefferson Parish, LA, 09/2002-06/2004

BBEC designed secondary containment systems to contain diesel fuel at 11 west bank drainage pump stations so that the fuel from the largest storage tank on the site would be retained in the event of a diesel fuel spill. BBEC developed details for containment systems such as concrete retaining walls for tanks farms stored on existing slabs, and lining systems for earthen containment ponds if the slab option did not provide enough volume. BBEC provided the details to the Drainage Department, who in-turn advertised the work for public bid as funding allowed and administered the work through construction.

Canal Monumentation Program, Jefferson Parish, LA, 01/2004-12/2005

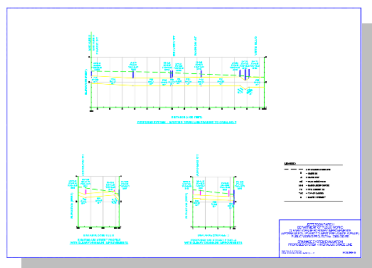
BBEC worked with the Parish's Drainage Department to develop and implement a canal monumentation project for the entire Parish. The project included stationing the canals with vertical and horizontal monuments strategically located, locating right of way and servitude information, researching existing data and projects for data relevant to the project such as current or past projects, subdivision plats, the Parish's GIS, and other information available for the implementation of the project.

Bissonet Plaza Master Drainage Plan (A/E Project No. 20-1708), Jefferson Parish, LA, 05/2018-05/2021

BBEC developed a hydrologic and hydraulic (H & H) model of a 180 acre residential (zoned R1) area in Jefferson Parish, Louisiana, said area bounded by Power Boulevard, Kawanee Avenue, West Esplanade Avenue, and the Elmwood Canal. BBEC developed a limited scope of services for the necessary topographical survey; provided oversight and reviewed the final topographic survey; developed the H & H model using third party software; coordinated the model with the Parish's own parish-wide H & H model; and provided the running model to others for evaluation of improvements.

Cleary Avenue Roadway and Drainage Improvements, Jefferson Parish, LA

The project included reconstruction of approximately 4000 feet of concrete roadway, redesign of existing drainage system and general improvements to existing infrastructure on Cleary Avenue from Veterans Boulevard to West Esplanade Avenue. Hydraulic modeling and studies were performed on the existing drainage system to determine the size and location of new trunk lines to be constructed with this project. BBEC performed the modeling, design, evaluation (drainage under roadway), and bidding services. The project is currently under construction. BBEC is performing construction administration and resident inspection services.



Design of Access Ways and Ladders at Drainage Pump Stations, Project No. 2014-022-DR, Jefferson Parish, LA, 11/2014-11/2019

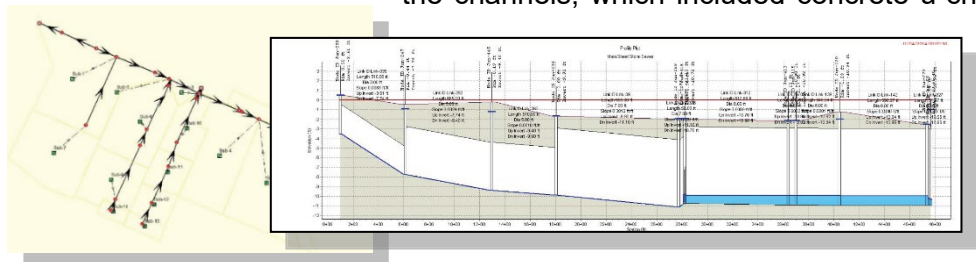
The projects included the design of access ways and ladders at various drainage pump stations on the East bank and Westbank of Jefferson Parish identified as follows: Project I: Bondable, Elmwood, Estelle No. 1, Estelle No. 2, Hero, Lake Cataouche No. 2 and Westminster. Project II: Suburban, Duncan and Planters. Project III: Parish Line, Ames, Bayou Segnette, Mount Kennedy, Westwego No. 2 and Whitney-Barataria. Jefferson Parish determined the need for protected access ways and ladders at drainage pump stations to allow operators safe movement to outside equipment. BBEC prepared cost estimates and designed ladders, stairs, and elevated walkways in 16 drainage pump stations to connect elevated structures and allow personnel to access the top of structures within Jefferson Parish. Design included analysis and details to

retrofit new items to existing structures. BBEC also performed Bidding, Construction Management, Resident Inspection and As-built services for Project I.

Widening / Stabilization of Congressman Hebert, Creely, and Bluebird Canals, St. Bernard Parish, LA, 01/2015-Present

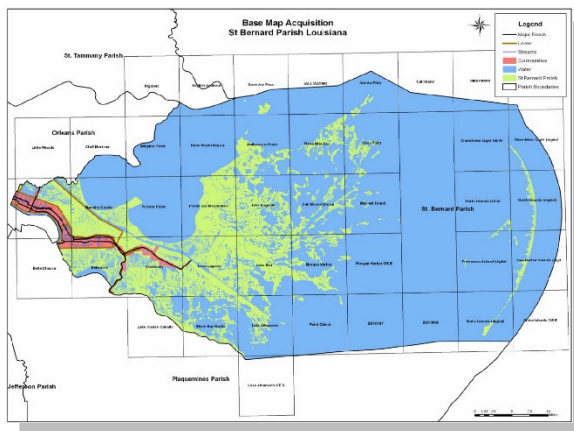
The project includes increasing the capacity and improves the stability of Congressman Hebert, Creely, and Bluebird Canals, that consists of 11,600 linear feet of open canal and culverts ranging from 4-feet bottom width to 16-feet bottom width channels. BBEC coordinated with St. Bernard Parish, Lake Borgne Basin Levee District, and the Louisiana Department of Transportation and Development to obtain information regarding the existing drainage plan. BBEC performed a hydrologic and hydraulic analysis of the existing system to evaluate the entire area for the 5-year, 10-year, and 25-year storms. BBEC established the design cross sections for the channels, which included concrete u-channels, concrete box culverts, and

round and arched pipe, and concrete lined trapezoidal sections, depending on the availability of land and other conditions. 50% Final Designs have been submitted to the client.



Map Modernization Project (DFIRM) (Contract No. EMT-2005-CA-0110) (2003 Contract), St. Bernard Parish, LA

BBEC assisted FEMA develop St. Bernard Parish's flood insurance rate maps as part of FEMA's map modernization program. BBEC prepared the project scoping document for St. Bernard Parish and received FEMA approval in accordance with FEMA document Guidance for Scoping Flood Mapping Projects. BBEC incorporated the Parish's hydraulic features into the GIS. BBEC performed the necessary hydraulic and hydrologic studies and analyses necessary for the implementation of the map modernization project by using USCAE's hydraulic and hydrologic modeling software HEC-RAS and HEC-HMS. BBEC incorporated the results of the hydrologic and hydraulic studies GIS to develop the necessary flood plains. BBEC prepared a Base Map for the project (streets, ditches, benchmarks, etc.) from St. Bernard Parish's existing GIS, modifying the format to FEMA standards. BBEC has submitted all hydraulic and hydrologic and survey work for independent QA/QC and is currently developing DFIRM base maps. All work associated with the development of the DFIRMs were in strict compliance with the National Flood Insurance Program.



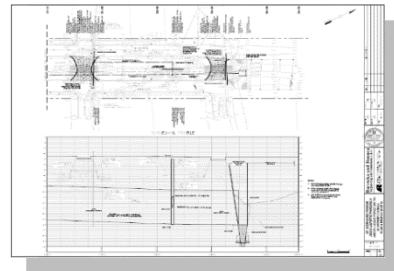
LA-45 Evacuation Route Basin Drainage Improvements, Lafitte Area Independent District, LA, 02/2020-Present

BBEC, performing as sub-consultant, developed H&H models for the LA-45 Evacuation Route Basin, both for existing conditions and to reflect the proposed Lafitte Tidal protection project. The analysis identified internal drainage problems resulting from the completion of the Tidal Protection project and established pipe, ditch, canal, and LADOTD roadway culvert sizes. BBEC also modeled discharge pump station and determined the capacity for each of the three pump stations. BBEC also provided Drainage Maps and Conceptual Storm Sewer Routing Plans to show ditches and storm sewer locations, and sized required, and identify any potential problem areas, plans and profiles, required right-of-way and construction access, and any impacts to

existing properties.

Project Worksheet 20824 – Storm Drains, Jean Lafitte Parkway Drainage Line Repairs/Replacement, St. Bernard Parish, LA, 06/2014-11/2019

The project consisted of the complete replacement of about 4,200 linear feet of 72-inch to 96-inch drainpipe, with drainage structures and smaller lateral lines to collect stormwater from existing roadway catch basins. The project also included the replacement of roadway intersections where the drain line crosses streets. The project bid was \$3.9 million and the work is complete. BBEC performed all design, bidding, and is performing the construction services for the project. In addition to the normal design services, BBEC obtained a Coastal Use Permit determination, and USACE wetlands permit determination, and a SLFPA-E (regional levee district) permit for the project.



CN Railroad Culverts in Ormond, Project No. P200801, Ordinance No. 20-9-5, St. Charles Parish, LA, 10/2020 – Present

BBEC is performing engineering services related to improving the drainage systems crossing Canadian National (CN) Railroad System on the east bank of St. Charles Parish. The project includes the drainage facilities crossing and/or adjacent to the CN railroad at Ducayet Drive, Ormond Oaks Drive, Destrehan Drive, Longview Drive, Longwood Drive, and S. Destrehan Avenue. The project includes the installation of (6) 60-inch culverts, (2) 54-inch culverts, and (1) 48-inch culvert crossing the railroad at various locations. The project also includes the installation of 60-inch drainpipe, cast-in-place concrete box culverts, u-channels, and other drainage structures. BBEC is performing design, construction management, and permitting of the project. BBEC is also coordinating with and managing the surveying, and geotechnical engineering services.

Drainage Pumping Stations Improvements, St. Bernard Parish, LA, 2005

BBEC evaluated the condition and performance of 18 existing drainage pump stations in St. Bernard Parish and made recommendations for improvements. The evaluation consisted of site visits to observe condition and make test pump runs to measure performance, developing computer models to evaluate alternatives for improvements, perform hydrologic analysis to determine required capacity, and evaluate costs of improvements to arrive at the most cost effective improvements. BBEC prepared plans and specifications for several stations.

Cypress Park Subdivision Drainage Evaluation, St. Tammany Parish, LA, 11/2016-12/2017

BBEC performed a hydraulic and hydrologic study of the Erindale Heights and Cypress Park Subdivisions (about 450 acres of single-family residential property). The study consisted of developing a computer model of the hydrology and drainage system consisting of natural channels, open ditches, closed conduits, and culverts. BBEC evaluated the 5, 10, 25, 50, and 100 year storms, and developed several alternatives for addressing the flooding concerns. BBEC provided pros and cons, permitting concerns, and construction cost estimates related to the alternatives. The alternatives considered included elevation adjustments to open channels, increased closed conduit usage and size of existing closed conduits, levees, and pump stations.

Bayou Gauche Drainage Analysis, St. Charles Parish, LA, 01/2003-12/2005

The project included updating the Parish's existing hydraulic and hydrologic computer models with current developments for the Sunset Drainage District watershed in St. Charles Parish. The Parish's existing HEC -1 and HEC-2 hydraulic models were evaluated and revised to include infrastructure improvements throughout the drainage district. The existing models were converted to HEC-RAS and HEC-HMS for use in this study and future evaluations. Model runs were performed to verify the need for drainage pump station improvements in the area and determine the improved capacity of the pump station.

Guichard Canal Area Drainage Evaluation, St. Bernard Parish, LA, 03/2004-04/2005

The project consisted of evaluating the ability of an existing drainage system to handle the 10-year storm for a 200-drainage basin in a residential area primarily consisting of open ditches and miscellaneous culverts with multiple outfalls into the Guichard Canal. The area is bounded by the Guichard Canal on the west, Paris Road on the east, Judge Perez Drive on the south, and Patricia Street on the north. The area also contained two drainage pump stations that were designed to drain the subsurface system, while the main volume of flow during the rain events utilized roadside ditches and some subsurface drain lines. BBEC developed a drainage layer in the Parish's GIS, surveyed elevations of the drainage features, developed a hydrologic and hydraulic model for the area, modeled the area and determined all deficient drain lines. BBEC made recommendations for the necessary improvements to cover the 10-year storm.

Plaza Drive Area Drainage Evaluation, St. Bernard Parish, LA, 2005

The project consisted of evaluating the ability of an existing drainage system to handle the 10-year storm for a 150 drainage basin in a residential area primarily consisting of open ditches and miscellaneous culverts with multiple outfalls into the drainage trunk line under Judge Perez Drive to the north and the drainage canal along St. Bernard Highway to the south. The area includes three parallel streets, including Plaza Drive. The area also contained two drainage pump stations that were designed to drain the subsurface system, while the main volume of flow during the rain events utilized roadside ditches and some subsurface drain lines. BBEC developed a drainage layer in the Parish's GIS, surveyed elevations of the drainage features, developed a hydrologic and hydraulic model for the area, modeled the area and determined all deficient drain lines. BBEC made recommendations for the necessary improvements to cover the 10-year storm.

Parish-Wide Drain Line Cleaning – Phase I, St. Bernard Parish, LA, 2005

Immediately following Hurricane Katrina many of the Parish's streets were flooded and had difficulty draining due to the storm debris clogging its drainage system. The Parish issued an emergency contract for debris removal services, including the removal of debris from Parish drain lines. BBEC immediately issued work orders to the contractor to remove the debris and restore drainage, and monitored the work being performed. BBEC utilized the Parish's existing GIS system to accurately track and report progress. BBEC worked with the Parish and FEMA to obtain FEMA Public Assistance eligibility determinations and assisted the Parish in securing \$9.3 million in FEMA funding to cover the project costs. Mr. Bonura managed the project through completion, including developing the necessary work orders and field protocol for resident inspection and quality control, overseeing the document control and invoice review in the office, coordination of disposal sites, and contract compliance.

Parish-Wide Drain Line Cleaning – Phase 2, St. Bernard Parish, LA, 2007

Following Hurricane Katrina, while BBEC was managing and administering an emergency drain line cleaning contract, BBEC developed bid documents to publicly bid a drain line cleaning contract to complete the cleaning of all Parish drain lines not covered by the emergency contract (Phase 1). BBEC assisted the Parish through the Public Bid process to obtain a new contractor. BBEC utilized the Parish's existing GIS system to accurately track and report progress, and to verify that work performed under Phase 1 was not duplicated under Phase 2. BBEC worked with the Parish and FEMA to obtain FEMA Public Assistance eligibility determinations and assisted the Parish in securing FEMA funding to cover the project costs.

Bar None East Phase III, St. Charles Parish, LA, 03/2004-08/2005

The project included reconstruction of an existing drainage system in the Bar None Subdivision along Canyon and Holster Lanes. BBEC's services included a hydraulic analysis of the existing drainage system using StormCAD hydraulic modeling software, recommendations for improvements, and the preparation of plans and specifications for the recommended improvements. The project consisted of the installation of approximately 1,000 linear feet of 18-inch diameter drain-pipe and associated inlets and structures, typical utility coordination and relocation, and pavement restoration.

Gloria Drive Pump Station, Project No. 20-2022A, Lafitte Area Independent Levee District Drainage,

Town of Jean Lafitte, LA, 05/2020-Present

BBEC is providing Design Engineering Services for the Gloria Drive Pump Station Improvement Project which consists of expanding the existing pump station by doubling its capacity from 45 cfs to 90 cfs.

The existing pump station has one pump on a pile supported structure, adjacent to an existing levee. The existing pump discharge pipe runs through the levee, discharging on the other side. On the pump station side, the levee is supported by a timber bulkhead, part of which has deteriorated over time. When constructed, the levee project provided for a second pipe penetration in anticipation of this project. The pump station has an existing stand-by generator, which was appropriately sized for the single pump.

The proposed scope of the 45 cfs expansion includes:

- Installing a new 45 cfs pump in line with the second discharge pipe provided by the levee project
- Constructing a new reinforced concrete pump station structure for both pumps, with bar screens (mechanical if funding allows) at the entrance. The new structure will replace the deteriorating timber bulkhead, as well.
- Repairing or replacing the timber bulkhead wall not addressed by the pump station structure.
- Installing a new generator structure and generator sized to run both pumps and incidental equipment.
- Extending the new pump discharge pipe as required and providing for scour protection at the outfall.
- Building the project in phases to utilize the existing pump during construction or providing temporary pumping during construction.

Diamond Pump Station, Plaquemines Parish, LA

BBEC provided Resident Inspection Services serving as the liaison between the Corp of Engineers and Plaquemines Parish. BBEC worked with members of CPRA in the review and QA process. This project is frontal protection for the Diamond pump station. The work consisted of construction of reinforced concrete floodwalls, clearing and grubbing, site drainage modifications, vertical wick drains, embankment material installed for preload/surcharge, steel sheet pile driving, steel H pile driving, concrete slope paving, concrete base slab and stem for T-walls, extending steel pump station discharge tube piping, installing backflow prevention and all mechanical components necessary per specification. Temporary Flood Protection and Temporary Restraining Structures using sheet piles, Struts, and whalers, required accomplishing the construction goals for the contract. These TRS were installed and to facilitate the install and were removed once the below grade structures were complete. The earthen levee was reconfigured to tie into the newly installed T-wall. This project consisted of 8 monoliths. All monoliths consisted of the driving of sheet piles up to 45' in length and H piles up to 150' in length. All sheet piles were driven to grade on the project baseline. Sheet piles were also used to close off the existing discharge basin. This consisted of tying into the existing sheet pile structures and running piles into a curtain wall incorporated into the flood wall base slab. All grades/locations were verified using RTK method survey equipment provided by the contractor. All site/crane safety inspections follow USCAE EM-385 and performed by BBEC and USACE QA.

Ollie Pump Station, Plaquemines Parish, LA

BBEC provided Resident Inspection Services serving as the liaison between the Corp of Engineers and Plaquemines Parish. BBEC works with members of CPRA in the review and QA process. This project was to provide frontal protection for the Ollie Pump Station. The work consisted of construction of reinforced concrete floodwalls, clearing and grubbing, site drainage modifications, steel sheet pile driving, extending steel pump station discharge tube piping, installing backflow prevention and all mechanical components necessary. Temporary Flood Protection and Temporary Restraining Structures using sheet piles, Struts, and whalers, are required to accomplish the construction goals for the contract. These TRS were installed and to facilitate the install and were removed once the below grade structures were complete. Asbestos and Lead Abatements included in the demolition on an existing pump station building. A bridge was constructed on the north side of the property to haul earthen levee embankment material and create a surcharge/preload of material to

stabilize the sub-grade. The earthen levee will be reconfigured to tie into the newly installed floodwall. This project consisted of 10 monoliths. All monoliths consisted of the driving of sheet piles up to 45' in length and H piles up to 150' in length. All sheet piles are driven to grade on the project baseline. Sheet piles were also used to close off the existing discharge basin. This consisted of tying into the existing sheet pile structures and running piles into a curtain wall incorporated into the flood wall base slab. All grades/locations were verified using RTK method survey equipment provided by the contractor. All site/crane safety inspections follow USCAE EM-385 and performed by BBEC and USACE QA.

Duvic Pump Station, Plaquemines Parish, LA

BBEC provides Resident Inspection Services serving as the liaison between the Corp of Engineers and Plaquemines Parish. BBEC works with members of CPRA in the review and QA process. The work consists of construction of reinforced concrete floodwalls, earthen levee construction, clearing and grubbing; painting; establishment of turf; placing crushed stone for roadway, bedding, geo-textile, driving steel sheet piling, steel H-piles, excavation, structural excavation and backfill, surfacing, drainage systems, electrical systems, back flow prevention, demolition of existing discharge pipes, construction of temporary flood protection and other incidental work. All site/crane safety inspections follow USCAE EM-385 and performed by BBEC and USACE QA.

Wilkinson Pump Station, Plaquemines Parish, LA

BBEC provided Resident Inspection Services serving as the liaison between the Corp of Engineers and Plaquemines Parish. BBEC worked with members of CPRA in the review and QA process. The work consisted of construction of a new pump station, new floodwall, new levees, berms and embankments, new channels and ditches, and demolition of the existing pump station. The pump station and floodwall construction consists of two phases of work.

The first phase was construction and monitoring of the preload. Construction of the preload consisted of clearing and grubbing, sand fill placement, vertical wick drain installation, geotechnical instrumentation installation, and placing and compacting embankment.

The second phase was construction of the pump station and floodwall. Construction of the pump station consists of clearing and grubbing, excavation, deep soil mix column installation, driving pile, placing reinforced concrete, placing and compacting embankment, and installing vertical pumps, engines, discharge piping, new discharge pipe supports, and other electrical and mechanical system. Construction of the new discharge pipe supports consists of driving pile, placing concrete beam, and constructing pipe support saddles. Construction of the pump station included a metal building system with safe room, an elevated fuel storage platform, a precast concrete ramp, reinforced concrete wing-walls, and a steel walkway above the discharge piping. Construction of the floodwall consists of clearing and grubbing, excavation, driving pile, placing reinforced concrete, and placing and compacting embankment. Levee and embankment construction consists of clearing and grubbing, excavation, placing sand fill and un-compacted fill, placing reinforcement geo-textile, placing and compacting embankment, and establishing turf. Channel and ditch construction consists of excavation and placement of riprap with bedding. A new storm drainage system consisting of reinforced concrete pipe and inlet was constructed to convey storm water from the pump station and levee to the intake channel. Demolition of the existing pump station consists of removal and storage of pumps, engines, and gears, demolition and removal of the pump station structure, elevated fuel storage tanks, fencing, retaining walls, and other structural, electrical, and mechanical systems.

6. SIZE OF FIRM, CONSIDERING NUMBER OF PROFESSIONAL AND SUPPORT PERSONNEL REQUIRED TO PERFORM THE TYPE OF ENGINEERING TASKS:

The firm's staff consists of 19 professional, technical, and clerical personnel capable of handling all project and administrative tasks; all of which are available to work on the project. Mr. Bonura will manage the project through completion, making sure that all requirements of the project are met. BBEC has sufficient licensed

and experienced engineers, junior engineers, technicians, and GIS and drafting support to effectively perform work with its existing staff and meet any schedules reasonably set by the Parish.

7. PAST PERFORMANCE BY PERSON OR FIRM ON PARISH CONTRACTS:

Our proposed Project Manager performed several drainage projects for Jefferson Parish, namely, Harvard Avenue Drainage, Bucktown Drainage, Cleary Avenue Drainage, and Waggaman Drainage. Mr. Bonura also managed the parish-wide drainage model for St. Bernard Parish to update its FIRMs and performed similar multi-subdivisions drainage projects for other parishes. Kevin Forschler has drainage experience, working on many of the projects with Mr. Bonura. Mr. Forschler also performed BBEC's portion of the Bissonet Drainage Master Plan in gathering data, reviewing the Parish's existing SWMM model, and developing the existing conditions model for the watershed. Mr. Forschler is currently performing the modeling and master planning services for the Avondale/Bridge City project.

BBEC's staff has performed and managed design, bidding, construction (including inspector training and oversight), and as-built drawing phases of about \$50 million in Jefferson Parish Department of Public Works construction projects that included all aspects of construction similar to those in the project sought such as drainage evaluation and design, deep excavations by trenching, trenchless pipeline installation, roadway restoration, traffic maintenance, maintenance of water flow in pipes and canals, public utilities, and public awareness and relations. BBEC's reputation for performance in Jefferson Parish second to none.

Our GIS staff has been working within the Parish's GIS for over 20 years, including developing the floodplain maps for the Parish's flood insurance rate map update in 2008. Our GIS staff did the same mapping for our FIRM update project for St. Bernard Parish

Relevant projects completed or currently being managed by BBEC staff specifically for Jefferson Parish include:

- Ames Boulevard Roadside Drainage Improvements
- Avondale/Bridge City Drainage Evaluation (Area between the Mississippi River and the Union Pacific Railroad, from Huey P. Long Bridge to Avondale Garden Road),
- Bissonet Plaza Master Drainage Plan (A/E Project No. 20-1708)
- Canal Monumentation Program
- Cleary Avenue Roadway and Drainage Improvements
- Craig Avenue Drainage Improvements, Public Works Project No. 2019-022-DR
- Design of Access Ways and Ladders at Drainage Pump Stations, Project No. 2014-022-DR
- Digital Flood Insurance Rate Map
- Drainage Pump Station Fuel Storage Secondary Containment
- Harvard Avenue Drainage Improvements, Project No 99-046-DR and 99-046A-DR (Funding Source: Community Development Block Grant)
- Labarre Road Back-to-Back U-Turn Intersection Improvements (West Esplanade Avenue/North Labarre Road)
- Lake Avenue and Carrollton Avenue Drainage Study
- Manson Ditch and Lower Kraak Outfall System Improvements
- Road Bond Parish-wide Improvement Program Jefferson Parish, LA, Public Works Project No. 98-026-RBI, Whitney Avenue Canal Improvements (Stumpf Boulevard to Belle Chasse Highway) SPN # 98-030-RBI
- Road Bond Parish-wide Improvement Program Jefferson Parish, LA, Public Works Project No. 98-026-RBI, Whitney Ave Improvements. (Westbank Expressway to Stumpf Blvd.) SPN # 98-031-RBI
- Waggaman Area Drainage Study

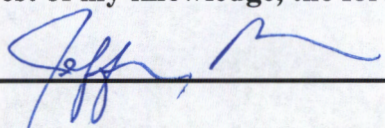
- West Napoleon Avenue Improvements, Cleary Avenue to Severn Avenue, (LA DOTD Project No. 742-07-0088)

BBEC performed many other engineering projects for Jefferson Parish unrelated to drainage; therefore, they are not listed.

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O. To the best of my knowledge, the foregoing is an accurate statement of facts.

Signature:



Print Name: Jeffrey Bonura, P.E.

Title: Member

Date: March 31, 2022