PROPOSAL
Produced for Louisiana Department of Transportation and Development (DOTD)
September 2022

moffatt & nichol

IDIQ CONTRACTS FOR NON-DESTRUCTIVE TESTING/ EVALUATION OF STRUCTURES STATEWIDE

Contract Nos. 4400025002 and 4400025003

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DOTD FORM: 24-102

PROPOSAL TO PROVIDE CONSULTANT SERVICES

Prime consultant shall complete the DOTD Form 24-102 without altering the Form's text; however, the instruction and/or guidance for Sections 12 through 23 can be removed but do not remove Section title and number.

ANY CONSULTANT FAILING TO SUBMIT ANY OF THE INFORMATION REQUIRED ON THE DOTD FORM 24-102, OR PROVIDING INACCURATE INFORMATION ON THE DOTD FORM 24-102, MAY BE CONSIDERED NON-RESPONSIVE.

Prime consultant should enter the firm name in the footer at the bottom of this page. (It will carry over to subsequent pages.)

1. Contract title as shown in the advertisement	**IDIQ CONTRACTS FOR NON-DESTRUCTIVE TESTING/EVALUATION OF STRUCTURES STATEWIDE**
2. Contract number(s) as shown in the advertisement	**4400025002 and 4400025003**
3. State Project Number(s), if shown in the advertisement	NA
4. Prime consultant name (as registered with the Louisiana Secretary of State where such registration is required by law)	Moffatt & Nichol
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	EF.0003104
6. Prime consultant mailing address	301 Main Street, Suite 800 Baton Rouge, LA 70801
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	301 Main Street, Suite 800 Baton Rouge, LA 70801
8. Name, title, phone number, and email address of prime consultant's contract point of contact	Chace Hulon, PE, Program Manager 225-610-1932 chulon@moffattnichol.com
9. Name, title, phone number, and email address of the official with signing authority for this proposal	Jonathan Hird, PE, Vice President 225-610-1930 jhird@moffattnichol.com

10. This is to certify that all information contained herein is accurate and true, and that the team presently has sufficient staff to perform these services within the designated time frame. By submitting this proposal, proposer certifies that it is not engaged in a boycott of Israel and it will, for the duration of its contract obligations, refrain from a boycott of Israel. Proposer also certifies and agrees that the following information is correct: In preparing its response, the proposer has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The proposer also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. DOTD reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response.	Signature (shall be the same person as #9): Jonathan Hirst Date: September 29, 2022
11. If a Disadvantaged Business Enterprise (DBE) goal has been set for this advertisement, indicate which firm(s) will be used to meet the DBE goal and each firm(s)' percentage.	Firm(s): Firm(s)' %: ***NO DBE GOAL***

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12. Past Performance Evaluation Discipline Table:

Evaluation Discipline(s)	% of Overall Contract	**Prime** Moffatt & Nichol	**Firm B** Infratek Solutions	**Firm C** Forte and Tablada	Each Discipline must total to 100%
Bridge	30%	55	20	25	100%
Data Collection	70%	50	40	10	100%
*Identify the percentage of work for the **overall contract** to be performed by the prime consultant and each sub-consultant.*					
Percent of Contract	100%	51	34	15	100%

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13. Firm Size:

Firm name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this DOTD Job Classification (if needed)
Moffatt & Nichol	Accountant	1	10
	Administrative	1	15
	CADD Operator	1	75
	Computer Analyst	1	5
	Engineer (LA PE)	4	28
	Inspector – Bridge	6	50
	Senior Technician	3	14
	Supervisor – Engineer	3	8
	Principal	1	25
Infratek Solutions Inc.	Principal	1	2
	Administrative	2	1
	Engineer – Other	4	3
	Computer Analyst	2	3
Forte and Tablada, Inc.	Engineer – Other	2	3

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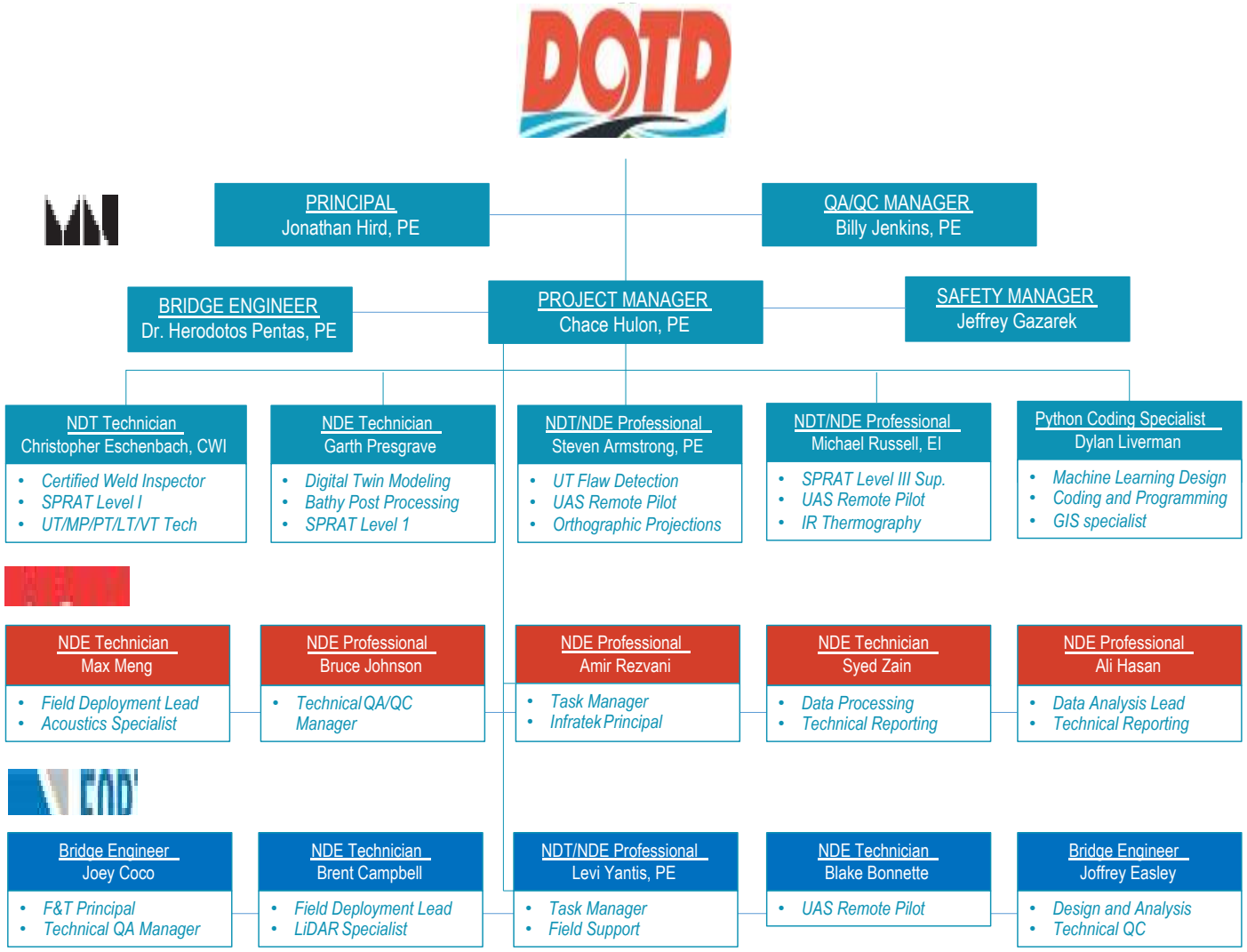
14. Organizational Chart:



 Prime consultant name: **Moffatt & Nichol**

15. Minimum Personnel Requirements:

MPR No. Do not insert wording from ad	Personnel being used to meet the MPR (Individual(s) may not satisfy more than one MPR unless specifically allowed by Attachment B of the advertisement)	Firm employed by	Type of license / certification & number	State of license	License / certification expiration date
1	Jonathan Hird, PE	Moffatt & Nichol	PE / 32299	LA	09/30/2024
2, 3	Chace Hulon, PE	Moffatt & Nichol	PE / 39701	LA	09/30/2023

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16. Staff Experience:

Résumés shall be provided for all prime and sub-consultant personnel listed in Sections 14 and/or 15 of the proposal. Résumés of personnel not identified in Section 14 or Section 15 of the proposal should not be included and will not be evaluated. Résumés should be limited to 2 pages per person. Any certificates required by the advertisement are to be placed in Section 20.

<table>
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="2">Moffatt & Nichol</td><td></td></tr>
<tr><td>Name</td><td>Jonathan Hird, PE</td><td>Years of relevant experience with this employer</td><td>16</td></tr>
<tr><td>Title</td><td>Vice President</td><td>Years of relevant experience with other employer(s)</td><td>6</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">MS / 2001 / Civil and Environmental Engineering
BS / 1993 / Environmental Science</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 32299 / Louisiana / 09/30/2024</td></tr>
<tr><td>Year registered</td><td>2006</td><td>Discipline</td><td colspan="2">Civil Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Principal</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">Experience and qualifications relevant to the proposed contract; i.e., “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).</td></tr>
<tr><td>08/15 – 08/19</td><td colspan="4">LADOTD Statewide Truss Sign Inspection, Louisiana. Principal-in-Charge for the current five-year retainer contract to perform approximately 1,700 overhead sign truss inspections (routine and interim) throughout Louisiana. Ancillary inspections include steel and aluminum welds, high stress moment connections, and fracture critical elements in accordance with FHWA guidelines. Team performed Level III inspections with ultrasonic testing on bolted connections, mag particle testing on steel welded connections, and dye penetrant testing on aluminum-welded connections.</td></tr>
<tr><td>01/14 – 08/19</td><td colspan="4">LADOTD Underwater Bridge Inspections, Louisiana. Principal-in-Charge for the previous and current five-year retainer contracts to perform underwater bridge inspections statewide, including Level I, II, and III inspections of submerged elements in accordance with state and federal requirements. Assisted with several emergency response requests ranging from extremely urgent (<24-hr response time) to urgent (<1-wk response time). Monitored the progress of the invoicing and updated related procedures to streamline processes.</td></tr>
<tr><td>02/16 – 08/19</td><td colspan="4">LADOTD RSIS Railroad Inventory Upgrade Statewide, Louisiana. Assistant Project Manager, Client Services Manager, and Local Project Liaison for the effort to provide Web-based crossing safety inventory service (RIMS) for LADOTD to perform a comprehensive evaluation of LADOTD RSIS data and FRA inventory data for Louisiana railroads. Program provides suggestions to modify state RSIS data to comply with the latest Federal Railroad Administration (FRA) requirements, implement changes, and incorporate FRA with LADOTD data into a Web-based system.</td></tr>
<tr><td>11/15 – 08/16</td><td colspan="4">Port of New Orleans Master Plan Development Phase I, New Orleans, Louisiana. Project Manager for the 2016 Phase I of the Master Plan performed a strategic, predictive analysis of the market – looking at global, national, regional, state, and local conditions for industry needs and projections.</td></tr>
</table>

	Firm Employed by	Moffatt & Nichol		
	Name	**Chace Hulon, PE**	Years of relevant experience with this employer	8
	Title	Program Manager	Years of relevant experience with other employer(s)	9

Degree(s) / Years / Specialization			BS / 2005 / Civil Engineering / Norwich University, Vermont
Active registration number / state / expiration date			Professional Engineer: 39701 / Louisiana / 09/30/2023
Year registered	2009	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			Project Manager

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/19 – Present	**LADOTD IDIQ for In-Depth Inspection of Complex Bridges, Statewide, Louisiana.** Project Manager and Team Leader to perform in-depth bridge inspections on complex, signature, long-span bridges. Performed the inspections of both cable-stayed bridges (Audubon and Luling) with rope access techniques to inspect 208 cables between the two bridges, their Gensui Dampers, and anchorages. Performed the inspection of I-10 Horace Wilkinson Bridge utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts. Performed a supplemental inspection of the GNO Cantilever Truss Bridges in New Orleans utilizing rope access techniques. Performed a fracture critical inspection of the Green Bridge, a steel tied arch in New Orleans utilizing rope access and **UAS** access techniques. Performed the inspection of the I-10 Bridge over the Calcasieu River in Lake Charles utilizing rope access on FCM's and **UAS** access techniques on columns. **The Skydio drone with DroneDeploy and 3D Scan was used to capture an orthomosaic projection of the structure for digital twin models**. Hands-on management and implementation of the QC review plan is vital to the continued success of this project.
01/20 – Present	**LADOTD IDIQ for In-Depth Bridge Inspection of Complex Structures, Statewide, Louisiana.** Project Manager and Team Leader, perform in-depth bridge inspections on complex, movable, long-span, and precast segmental box girder bridges. Performed structural, mechanical, and electrical inspections of six (6) movable bridges utilizing detailed, nondestructive, and laboratory testing methods with hand sketches. **Utilized NDE methods** (laser and acoustic) to analyze the rotational movement of an unstable pivot pier. Hands-on management and implementation of the QC review plan is vital to the continued success of this project.
09/14 – Present	**LADOTD IDIQ for Underwater Bridge Inspection, Statewide, Louisiana.** Project Director and Team Leader for the third cycle of contracts in which we've performed 1,375 underwater NBIS bridge inspections statewide. In-depth UWI were performed on 75 signature bridges over large waterways with deep foundations and dynamic channel conditions. All diving inspections were augmented with NDE acoustic imaging technology to consistently monitor streambed changes and structural deficiencies over subsuequent inspection cycles. Acoustic hydrographic surveying methods were performed using the HydroLite-TM, Kongsberg Mesotech MS 1000, and the Norbit Winghead i77 units deployed from a vessel. QINSy, Qimera, Applanix POSPac, MMS systems, and MatLab were used for accurate and repeatable **post processing and evaluations**. Assisted LADOTD with several emergency response requests ranging from hours to days, utilizing local team members. Served as Chief Editor of the LADOTD Bridge Inspection Manual released in 2020.

	Firm Employed by	Moffatt & Nichol		
	Name	**Herodotos A. Pentas, PhD, PE**	Years of relevant experience with this employer	1<
	Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	32

Degree(s) / Years / Specialization			PhD / 1990 / Civil Engineering, Louisiana State University MS / 1985 / Civil Engineering, University of Alabama at Birmingham BS / 1984 / Civil Engineering, University of Alabama at Birmingham
Active registration number / state / expiration date			Professional Engineer: 24660 / Louisiana / 09/30/2024
Year registered	1992	Discipline	Civil and Structural
Contract role(s) / brief description of responsibilities			Bridge Engineer

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
01/07 – 12/07	**West Drive & Lock #2 Road Bridges Inspection & Load Analysis, St. Tammany Parish, Louisiana.** Project Manager for inspection, load analysis, and rating of timber bridge and concrete bridges by applying AASHTO and LADOTD Standards.
08/97 – 06/99	**LADOTD S.P. No. 737-99-0441 & 737-99-0158, Assessment of Bridge Damage by Watercraft, Divisions 2, 3, & 7, Louisiana.** Project Manager for baseline inspections of fender systems/substructures of 134 bridges to determine damages caused by marine vessels. Provided damage assessment, repair plan preparation, cost estimates, repair procedure, & report. Project received national attention due to its effectiveness & execution.
01/96 – 12/96	**LADOTD S.P. No. 700-99-0118, Structural Load Rating, 118 Bridge, Louisiana.** Project Manager for load rating of 118 bridges throughout the state. A majority of the bridges were prestressed concrete and steel plate girder design.
02/96 – 11/96	**LADOTD S.P. No. 700-99-0264, Bars Re-Rate, Louisiana.** Project Manager for conversion of all existing BARS load rating WSM and LFM files to VIRTIS database and running of converted BARS files to verify VIRTIS rating results for 493 structures. Analyzed with finite element method, three structures for three super-load permit vehicles and recommended distribution factor, influence line, permit laod review procedure, and examples for typical complex members (truss span, steel & prestressed girder, steel and reinforced concrete cap beam.
10/93 – 10/95	**LADOTD S.P. No. 700-30-0002, Complex Structures Load Rating, 37 Bridges, Louisiana.** Project Manager, led analysis and rating of 37 complex steel and concrete bridges using both working stress and load factor methods. Structure types included simple and mult-span steel curved plate girders, simple and multi-span normal and skewed box girders, and curve box girders.
03/93 – 12/93	**LADOTD S.P. No. 359-02-0012, Clear Lake Bridge Design, Louisiana.** Project Engineer for preliminary and final design for LA 1226 bridge over Clear Lake, a five-span continuous unit utilizing AASHTO Type IV precast prestressed concrete girders supported by 30-in-diam concrete pile bents.
01/92 – 12/92	**LADOTD S.P. No. 033-03-0033, Red River Bridge, Louisiana.** Project Engineer for preliminary and final design of superstructure, piers, and piles of LA Highway 107 over Red River at Moncla. Superstructure consisted of four-span steel composite girders. Substructure consisted of reinforced concrete piers. Performed the ship impact analysis for piers and related analysis of bridge.

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	Firm Employed by	Moffatt & Nichol		
	Name	**Mike Russell, EI**	Years of relevant experience with this employer	1
	Title	Specialty Access Manager	Years of relevant experience with other employer(s)	12

Degree(s) / Years / Specialization			BS / 2015 / Civil Engineering, Central Connecticut University
Active registration number / state / expiration date			Engineer-in-Training: 35255 / Tennessee / NA
Year registered	2021	Discipline	Civil and Structural
Contract role(s) / brief description of responsibilities			NDT Technician

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
08/21 – Present	**LADOTD IDIQ for In-Depth Inspection of Complex Bridges, Statewide, Louisiana.** Team Member, Drone Operator, and Rope Access Supervisor for one of the current five-year retainer contracts (2019-2024) as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspection of the I-10 Bridge over the Calcasieu River in Lake Charles utilizing rope access on fracture critical members and UAS drone access techniques on columns, secondary members and connections. Responsible for inspecting the steel substructure units utilizing fall protection techniques and a work boat platform with a rope access safety management plan. Responsible for inspecting the lower chord of the main span steel arched through truss utilizing fall protection and rope access techniques. Responsible for working together with other supervisors and team leaders on site to communicate the hazards and mitigation techniques for safe operations and rescue pre-plans. Documented field notes and sketches utilizing traditional methods amenable to the project team leader for standardized report processing. Organized files per the quality management plan and reviewed the draft report for consistency and accuracy.
04/19 – Present	**LADOTD IDIQ for Ancillary Sign Inventory and Inspection, Statewide Louisiana.** Team Leader and Rope Access Supervisor for both five-year retainer contract to perform over 1700 sign truss inspections throughout Louisiana, including the Orleans District along this corridor. Lead the development of the new Sign Truss Inspection Program by implementing policies and standard operating procedures. Managed and utilized the fall protection safety program with rope access techniques and rescue plans. Lead the development of an application for an internal tablet-based inventory management system. Non-destructive testing was performed on all anchor rods at all cantilever structures, base plates with excessive standoff distances, and where deficiencies were observed at steel and aluminum welds. Managed the QC report review process and the QA field and office review process. Managed and planned the Temporary Traffic Control plans and setups for lane closures throughout the state along with all of the District traffic engineers. Analyzed altered load paths.
01/22 – Present	**LADOTD In-Depth Inspections of Complex Bridges, Audubon Bridge, Louisiana.** Rope Access supervisor and NBIS Inspector planning for the in-depth NBIS routine and fracture critical inspection of the Audubon Bridge.

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	Firm Employed by	Moffatt & Nichol		
	Name	**Steven Armstrong, PE**	Years of relevant experience with this employer	8
	Title	Bridge Engineer	Years of relevant experience with other employer(s)	2

Degree(s) / Years / Specialization			MS / 2021 / Civil Engineering / University of New Orleans BS / 2015 / Civil and Environmental Engineering / University of New Orleans
Active registration number / state / expiration date			Professional Engineer: 44405 / Louisiana / Exp. 09/30/2022
Year registered	2020	Discipline	Civil
Contract role(s) / brief description of responsibilities			NDT/E Professional

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/19 – Present	**LADOTD IDIQ for Statewide In-Depth Bridge Inspection, Louisiana.** Team Member for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspections of the Audubon cable-stayed bridge with rope access techniques to inspect a total of 136 cables, the HDPE protection, and anchorages. Performed the inspection of the I-10 Horace Wilkinson Bridge (New Bridge) completely utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts. Performed draft inputs and consolidated notes from multiple teams to present proper data consistently throughout the report.
01/20 – Present	**LADOTD IDIQ for Statewide In-Depth Bridge Inspection of Complex Structures, Louisiana.** Team Member for one of the current five-year retainer contracts as a major subconsultant to Gresham Smith, contracted to perform in-depth bridge inspections on complex, movable, long-span, and precast segmental box girder bridges throughout Louisiana. Performed structural inspections of six (6) movable bridges. Utilized nondestructive methods to accurately document section loss in fracture critical members. Performed draft inputs and consolidated notes from multiple teams to present proper data consistently throughout the report.
09/14 – Present	**LADOTD IDIQ for Underwater Bridge Inspection, Statewide, Louisiana.** NBIS Team Leader for the current five-year retainer contract to perform Levels I, II, and III underwater bridge inspections in accordance with NBIS and AASHTO Manual for Bridge Element Inspection. Responsible for leading underwater inspection teams to complete field work, inspection reports, and quality control reviews. Bridge types inspected consisted of movable bridges, truss bridges, timber stringer bridges, cable-stayed bridges, and single and multi-span girder bridges up to fourteen miles in length. Site conditions included salt and fresh waters, with varying levels of current, having low to no visibility. UAI techniques were utilized to locate structural deficiencies and identify bottom conditions.

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	Firm Employed by	Moffatt & Nichol		
	Name	**Jeffrey Gazarek**	Years of relevant experience with this employer	7
	Title	NBIS Team Leader	Years of relevant experience with other employer(s)	10

Degree(s) / Years / Specialization			Commercial Diving with Concentration in Subsea Inspection / 2005 / Divers Institute of Technology
Active registration number / state / expiration date			N/A
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities			Safety Manager

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
09/14 – Present	**LADOTD IDIQ for Underwater Bridge Inspection, Statewide, Louisiana.** NBIS Team Leader for the third cycle of contracts in which we have performed 1,375 underwater bridge inspections statewide. Responsible for leading dive operations for underwater inspection teams to complete field work, writing inspection reports, and performing quality control reviews. Bridge types inspected consisted of movable bridges, truss bridges, timber stringer bridges, cable-stayed bridges, and single and multi-span girder bridges up to fourteen miles in length. Site conditions included salt and fresh waters, with varying levels of current, having low to no visibility. UAI techniques were utilized to locate structural deficiencies and identify bottom conditions.
04/16 – Present	**LADOTD IDIQ for Ancillary Sign Inventory and Inspection, Statewide, Louisiana.** Team Leader and Rope Access Supervisor for both five-year retainer contracts. Performed ~40% of 1700 sign truss inspections throughout Louisiana. Utilized fall protection and rope access techniques with rescue plan development. Performed non-destructive testing on all anchor rods at all cantilever structures, base plates with excessive standoff distances, and where deficiencies or impacts were observed at steel and aluminum welds. Drafted and reviewed inspection reports per the quality management plan. Monitored the TTC lane closures and reviewed the TTC plans for over 10 lane closures throughout the state.
11/14 – Present	**MDOT 2014 & 2021 Underwater Bridge Inspection Contract, Districts 1 & 2, Mississippi.** NBIS Bridge Inspector performed underwater inspections of 12 bridges in accordance with NBIS and MDOT PONTIS Inspection Manual. Bridges inspected were constructed of concrete, steel, and timber, and high-resolution scanning sonar was used on selected bridge elements. Responsible for pre-inspection planning, scheduling, field work, performing NDT and soundings, diving operations, drafting reports, sketches, and repair recommendations.
11/19 – Present	**LADOTD IDIQ for In-Depth Bridge Inspection, Statewide, Louisiana.** Team Member for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges throughout Louisiana. Performed the inspection of the I-10 Horace Wilkinson Bridge (New Bridge) completely utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts.

	Firm Employed by	Moffatt & Nichol		
	Name	**Christopher (Chip) Eschenbach**	Years of relevant experience with this employer	4
	Title	NBIS Team Member	Years of relevant experience with other employer(s)	6

Degree(s) / Years / Specialization			Associates / 2015 / Welding Technology
Active registration number / state / expiration date			N/A
Year registered	N/A	Discipline	N/A
Contract role(s) / brief description of responsibilities			NDT Technician

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
11/19 – Present	**LADOTD IDIQ for In-Depth Bridge Inspection, Statewide, Louisiana.** NBIS Team Member for one of the current five-year retainer contracts as a major subconsultant to HNTB, contracted to perform in-depth bridge inspections on complex, signature, long-span bridges. Performed the inspections of both cable-stayed bridges (Audubon and Luling) with rope access techniques to inspect 208 cables between the two bridges, their Gensui Dampers, and anchorages. Performed the inspection of I-10 Horace Wilkinson Bridge utilizing rope access techniques and rolling lane closures to greatly minimize traffic impacts. Performed a supplemental inspection of the GNO Cantilever Truss Bridges in New Orleans utilizing rope access techniques. Performed a fracture critical inspection of the Green Bridge, a steel tied arch in New Orleans utilizing rope access and UAS access techniques. Performed the inspection of the I-10 Bridge over the Calcasieu River in Lake Charles utilizing rope access on FCM's and UAS access techniques on columns.
01/20 – Present	**LADOTD IDIQ for In-Depth Bridge Inspection of Complex Structures, Statewide, Louisiana.** NBIS Team Member for one of the current five-year retainer contracts as a major subconsultant to Gresham Smith, to perform in-depth bridge inspections on complex, movable, long-span, and precast segmental box girder bridges. Performed and lead the structural, mechanical, and electrical inspections of six (6) movable bridges utilizing detailed, nondestructive and laboratory testing methods with hand sketches. Hands-on management and implementation of the QA/QC plan is vital to the continued success of this project.
08/18 – Present	**LADOTD IDIQ for Underwater Bridge Inspection, Statewide, UWI District 62, Baton Rouge, Louisiana.** Bridge Inspector for bridges in District 62. Responsibilities included the underwater portion of the bridge inspection. Tasks for inspection of said bridges included inspection of all underwater members, gathering sediment depths around bridges, listing any additional defects not listed in previous reports, taking photos and updating current information on each bridge. Responsibilities for the job compiled of equipment preparations, driving the truck and company boat, diving on bridges and assisting with the inspection and data collection for the bridges above the water. The diving operations were conducted from the Baton Rouge pontoon boat using surface-supplied diving or scuba diving techniques to ensure safe practices as well as clear and precise notations.
09/18 – Present	**LADOTD IDIQ for Statewide Ancillary Sign Inventory and Inspection, Louisiana.** Bridge Inspector for the current five-year retainer contract to perform approximately 50% of 1,700 routine and interim overhead sign structure inspections.

Firm Employed by	Moffatt & Nichol		
Name	**Billy R. Jenkins, PE**	Years of relevant experience with this employer	10
Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	37

Degree(s) / Years / Specialization			BS / 1975 / Civil Engineering / Old Dominion University, Virginia
Active registration number / state / expiration date			Professional Engineer: 78034 / Pennsylvania / 09/30/2023
Year registered	1979	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			QA/QC Manager

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
06/19 – 06/20	**City of Newport News Annual Bridge Inspection Program, Newport News, Virginia.** QA/QC Manager and Technical Expert responsible for quality review of all inspection reports including NBIS inspection bridges and culverts. Reviewed over 150 reports to date. Services include inspections, load rating, review of overweight permits, and providing guidance on repair recommendations design. Also assisted the City with updating Haul Permit Manual. Also served as the Chief Engineer for the 39th Street Bridge and 16th Street over Salter's Creek Bridge.
01/21 – 12/21	**City of Norfolk IDQ for Bridge Inspection and Engineering Services, Norfolk, Virginia.** QA/QC Manager and Technical Expert responsible for technical and quality review of all inspection reports and load ratings. Reviewed over 15 reports to date. QA/QC manager for the major rehabilitation of the Granby Street Bridge. Technical lead for development of repair recommendations for the rehabilitation of Robin Hood Road Bridge and multiple rehab packages which focus on specific bridge preservation techniques to extend the service life of the City's structures.
12/21 – Present	**City of Virginia Beach Annual Services Contract for Inspection of Various Structures, Virginia Beach, Virginia.** QA/QC Manager and Technical Expert responsible for technical and quality review of all inspection reports and load rating/analysis. Reviewed over 200 reports to date. Technical lead for development of approach for repair recommendations for the rehabilitation of Elbow Road Bridge, Long Creek Bridge, Pungo Ferry Bridge, five bridge deck overlays, and provided technical and QA/QC efforts for plans and specifications. Reviewed the City's update of Hauling Permit Manual and routinely meets with the City with the Project Manager to update/discuss next repair recommendations with their inventory.

	Firm Employed by	Moffatt & Nichol		
	Name	**Garth Presgrave**	Years of relevant experience with this employer	4
	Title	Engineering Technologist/Diver	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			Diploma in Civil Engineering / 2005 / British Columbia Instriturte of Technology
Active registration number / state / expiration date			NA
Year registered	NA	Discipline	NA
Contract role(s) / brief description of responsibilities			NDE Technician

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
12/21 – Present	**LADOTD Underwater Bridge Inspections, Statewide, Louisiana.** Team Leader and Assistant Project Manager for over 500 underwater bridge inspections throughout Louisiana. Level I, II, and III inspections of submerged elements were performed in accordance with the FHWA, BIRM, AASHTO MBE, current NBIS requirements and LADOTD engineering and maintenance directives. Inspections completed used surface-supplied and scuba diving, as well as single beam, multibeam, LiDAR, and side scanning operations. Data collected was managed through Assetwise, underwater reports, and data processing such as QINSy, Qimera, Applanix POSPac MMS Systems, etc. Bridge types included movable swing span bridges, bascule bridges, truss bridges, timber stringer bridges, cable-stayed bridges, single and multi-span bridges. Assisted with managing the inspection logistics, report scheduling, subcontractors, submittals, and quality control.
01/22 – 12/22	**LADOTD In-Depth Bridge Inspections (Task Order 5), Statewide, Louisiana.** Team Member who performed an in-depth bridge inspection of the Vicksburg Bridge (Cantilever Bridge) bordering Louisiana and Mississippi. The in-depth inspection completed was a routine inspection type which included Level I, II, and III work using rope access and drone footage. The inspection was in correspondence with the FHWA, BIRM, AASHTO MBE, AASHTO BEIM, and the LADOTD Bridge Inspection Manual. Using multibeam and LiDAR, a full above and below water three-dimensional model was created of the bridge and surrounding channel to supplement data collected during the in-depth inspection.
11/21 – Present	**TXDOT Underwater Bridge Inspection, Statewide, Texas.** Team Member who performed underwater bridge inspections throughout Texas. Level I, II, and III inspections of submerged elements were performed in accordance with the FHWA, BIRM, AASHTO MBE, current NBIS requirements and TXDOT engineering and maintenance directives. Inspections completed used surface-supplied and scuba diving, as well as side scanning operations. Structure types included timber stringer bridges, single and multi-span bridges, and culverts. Performed quality check reviews and Assetwise inputs for all underwater reports.
09/21 – 10/21	**Vopak Terminal Los Angeles Port of Los Angeles Berths 187-190 MOTEMS Third Subsequent Audit, Los Angeles, California.** Team Member who assisted in completing the 2022 MOTEMS inspections for the Port of Los Angeles. The underwater inspection included the assessment of Berths 187-188 and 189-190 concrete, timber, steel pipe piles, and the breasting dolphin at varying depths. Level I, II, and III inspections were performed on submerged elements in accordance with the ASCE Underwater Investigations Standard Practice Manual and ASCE Waterfront Facilities Inspection and Assessment. Level III inspections included timber coring to determine the interior condition, dissolved oxygen content of water testing with the pile wraps to assess marine borer habitability, and ultrasonic testing measurements of the steel pipe piles.

	Firm Employed by	Moffatt & Nichol		
	Name	**Dylan Liverman**	Years of relevant experience with this employer	12
	Title	Software Developer / GIS Analyst	Years of relevant experience with other employer(s)	4

Degree(s) / Years / Specialization			AAS / 2005 / Networking Technology
Active registration number / state / expiration date			NA
Year registered	NA	Discipline	NA
Contract role(s) / brief description of responsibilities			Python Coding Specialist

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
05/13 – Present	**Rail Inventory Management System, Multiple Clients, Multiple States.** Project Owner and DevOps Engineer for an interactive Web application designed for management of highway-railroad at grade crossing inventories. The software facilitates data transfer and efficient communication with the Federal Railroad Association's National File and other agency data sources. The software is easily customized to meet specific client needs and highly scalable to maximize performance and user access. It was developed for use with a variety of mobile devices to allow field data collection and real-time data updates to reduce data entry redundancy and error potential. RIMS typical provides faster data access, greater data visibility, increased data analysis capabilities, and an enhanced presentation of results.
01/20 – 09/22	**Waterborne Commerce Master Plan, LADOTD, Louisiana.** GIS Analyst who built an efficient method for querying marine traffic (AIS) data. Using a geospatial trajectory data management and analysis platform, raw AIS data was converted into temporal data types and noise was filtered out. Ship movements were broken into segments and segment statistics were generated to determine delays over time.
05/21 – Present	**Network Analysis Toolkit, Internal.** Software Engineer for the development of an internal network analysis toolkit. Implemented in Python and integrated with established GIS software, the network analysis platform allows efficient analysis of containerized cargo movements. The software uses graph analysis to calculate freight movement cost and can calculate impact of new infrastructure or new services over existing infrastructure. Used in multiple projects for greenfield Least Cost Market Analysis reports, the toolkit has evolved. Accumulators allow for multi-cost analysis by tracking currency, CO2, fuel, salary and more for a complete picture of a new project's impact.

	Firm Employed by	Infratek Solutions, Inc.		
	Name	**Amir Rezvani**	Years of relevant experience with this employer	5
	Title	Principal – Project Manager	Years of relevant experience with other employer(s)	11

Degree(s) / Years / Specialization			MBA / 2014 / Strategy and Project Delivery / Georgetown University, Washington MSc / 2011 / Systems Engineering / Rutgers, New Jersey BSc / 2007 / Computer Science / Amir Kabir University, Iran
Active registration number / state / expiration date			NA
Year registered		Discipline	NA
Contract role(s) / brief description of responsibilities			NDE Professional

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
06/22 – Present	**PANYNJ's LaGuardia Airport, New York**. Managed all aspects of a project for the LaGuardia airport to utilize Insight's Automated Chain Drag system to find shallow and deep delaminations with absolute success using a proprietary data acquisition and processing technique.
05/22 – Present	**Delaware DOTD.** Managed a bridge underside condition evaluation project for DelDOT utilizing point in time and time-lapse infrared thermography. The bridge was a viaduct and combined with its ramp had 84 piers.
02/22 – Present	**Delaware DOTD.** Managed field deployment for Insight's platforms (High Speed and High Definition) on several I-95 bridges in Delaware as part of their DOT's flagship Restore the Corridor project.
06/21 – Present	**Kansas DOTD.** Managed field deployment project for high-speed NDE of K16 Highway Bridge in Kansas.
03/21 – Present	**LADOTD.** Managed project delivery for Insight's high-speed NDE platform in Louisiana for US171 Bridge over the Calcasieu River conducted for LADOTD's Bridge Design Section.
11/20 – Present	**Iowa DOTD.** Managed project delivery for NDE condition assessment of 15 bridges in Iowa.
10/19 – 11/19	**Oregon DOTD.**Managed project delivery for NDE condition assessment of 21 bridge decks in Oregon.
08/18 – 10/19	**Internal.** Managed all the steps of product and service development of Infratek Insight High-Speed and High-Definition platforms for NDE inspection of concrete structures.
09/17 – 12/17	**FHWA.** Managed project delivery for condition assessment of bridge decks using automated NDE platforms in DE, PA, NJ, and MD.
09/17 – 08/18	**FHWA.** Managed project delivery for design, build, and service validation of 4 automated NDE deck inspection systems.

	Firm Employed by	Infratek Solutions, Inc.		
	Name	**Max Meng**	Years of relevant experience with this employer	6
	Title	Field Deployment Lead	Years of relevant experience with other employer(s)	6

Degree(s) / Years / Specialization			MS / 2016 / Mechanical Engineering BS / 2015 / Mechanical Engineering
Active registration number / state / expiration date			NA
Year registered		Discipline	NA
Contract role(s) / brief description of responsibilities			NDE Technician

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
06/22 – Present	**PANYNJ's LaGuardia Airport, New York.** Conducted High-Speed chain drag of the concrete runway slabs using the Insight system to find shallow and deep defects.
05/22 – Present	**Delaware DOTD.** Assisted the field SMEs with imaging and infrared thermography of superstructure and piers of a viaduct and its ramps totaling 84 piers to find surface and subsurface defects.
02/22 – Present	**Delaware DOTD.** Supervised field deployment of Insight's platforms (High Speed and High Definition) on several I-95 bridges in Delaware as part of DelDOT's flagship Restore the Corridor project.
06/21 – Present	**Kansas DOTD.** Supervised field deployment of Insight's High-Speed NDE platform in Kansas for K16 Highway Bridge.
03/21 – Present	**LADOTD.** Supervised field deployment of Insight's High-Speed NDE platform in Louisiana for US171 Bridge over the Calcasieu River.
11/20 – Present	**Iowa DOTD.** Supervised field deployment of Insight platforms (High Speed and High Definition) on 15 bridges in Iowa
10/19 – 11/19	**Oregon DOTD.** Supervised field deployment of Insight platforms (High Speed and High Definition) on 21 bridges in Oregon.
08/18 – 10/19	**Internal.** Designed and supervised the building of two fully automated high-speed NDE platforms for concrete structures.
09/17 – 12/17	**FHWA.** Conducted condition assessment of bridge decks using automated NDE platforms in DE, PA, NJ, and MD.

	Firm Employed by	Infratek Solutions, Inc.		
	Name	**Syed Zain**	Years of relevant experience with this employer	4
	Title	Data Processing, Lead and DAQ Engineer	Years of relevant experience with other employer(s)	4

Degree(s) / Years / Specialization			BSc / 2017 / Electronics and Communications Engineering BSc / 2017 / Physics
Active registration number / state / expiration date			NA
Year registered	NA	Discipline	NA
Contract role(s) / brief description of responsibilities			NDE Technician

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/18 – Present	**NDE Inspection of Bridges and Other Concrete Structures, Several Clients, Several States.** Data Processing Lead for several projects involving tera bytes of data acquired by Infratek's suite of NDE technologies and systems from bridges and other concrete structures. The data sets consist of 11 types of NDE data (Air Coupled GPR, Laser Profiler, High-Speed Chain Drag (sounding), Surface Imaging and Automated Crack Mapping, Infra-red Thermography, 360-Degree Imaging and LIDAR, Impact Echo, Ultrasonic Surface Wave, Electrical Resistivity, Ground Coupled GPR) and the projects involved data processing strategies, parameters, automation and QA/QC efforts.
03/21 – 04/21	**LADOTD Advanced High-Speed NDE Inspection of US Highway 171 Bridge over Calcasieu River, Louisiana.** Data Processing Lead and DAQ Engineer for deployment of Infratek High-Speed NDE system in Louisiana for US171 Bridge over the Calcasieu River in collaboration with LADOTD's bridge design section. The project involved simultaneous deployment of 7 NDE technologies at bridge's speed limit with no lane closure or traffic slowdown. The technologies included GPR, Laser Profiler, High-Speed Chain Drag (sounding), Surface Imaging and Automated Crack Mapping, Infra-red Thermography, 360-Degree Imaging and LIDAR. All data sets were collected within one hour in the morning and evening. The data was processed and the analysis reports delivered within 2 weeks through PDF reports and Infratek's online inspection and asset management portal.
02/20 – 10/20	**Design and Development of Automated Data Processing and Analysis Procedures for High-Speed Chain Drag Component of Infratek Insight High-Speed NDE Platform.** Data Processing and Software Developer for design, development and build of the high-speed chain drag (sounding) component of Infratek's Insight NDE platform. The high-speed chain drag system is capable or sounding the bridge deck in a continuous, sweeping fashion at speeds as high as 40 mph and is already deployed in 8 states. The data processing software can analyze the sound waves and marking the size and location of sub surface defects with great accuracy.

	Firm Employed by	Infratek Solutions, Inc.		
	Name	**Ali Hasan**	Years of relevant experience with this employer	5
	Title	Data Analysts and Reporting Lead	Years of relevant experience with other employer(s)	7

Degree(s) / Years / Specialization			BSc / 2017 / Computer Science BSc / 2017 / Mechanical Engineering
Active registration number / state / expiration date			NA
Year registered	NA	Discipline	NA
Contract role(s) / brief description of responsibilities			NDE Professional

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/18 – Present	**NDE Inspection of Bridges and Other Concrete Structures, Several Clients, Several States.** Data Analysis Lead for several projects involving tera bytes of data acquired by Infratek's suite of NDE technologies and systems from bridges and other concrete structures. The data sets consist of 11 types of NDE data (Air Coupled GPR, Laser Profiler, High-Speed Chain Drag (sounding), Surface Imaging and Automated Crack Mapping, Infra-red Thermography, 360-Degree Imaging and LIDAR, Impact Echo, Ultrasonic Surface Wave, Electrical Resistivity, Ground Coupled GPR). The projects involved comparing and contrasting all these data sets to find the common ground and underlying story that all data sets present together. The data sets would then be translated to actionable insights that are useable by the decision makers and published in PDF reports or Infratek's online inspection and asset management portal.
03/21 – 04/21	**LADOTD Advanced High-Speed NDE Inspection of US Highway 171 Bridge over Calcasieu River, Louisiana.** Data Analysis Lead for deployment of Infratek High-Speed NDE system in Louisiana for US171 Bridge over the Calcasieu River in collaboration with LADOTD's bridge design section. The project involved simultaneous deployment of 7 NDE technologies at bridge's speed limit with no lane closure or traffic slowdown. The technologies included GPR, Laser Profiler, High-Speed Chain Drag (sounding), Surface Imaging and Automated Crack Mapping, Infra-red Thermography, 360-Degree Imaging and LIDAR. All data sets were collected within one hour in the morning and evening. The data was processed and the analysis reports delivered within 2 weeks through PDF reports and Infratek's online inspection and asset management portal.
12/17 – 09/18	**Development of the Operating System (OS) and Middleware for the Robotic Assisted Bridge Inspection Tool – Commercial Edition, FHWA, Washington, DC.** Senior Software Architect for design, development, build and validation of the operating system and sensing system's middleware for 4 automated NDE deck inspection robotic systems for FHWA's TFHRC.

<table>
<tr><td rowspan="3">  </td><td>Firm Employed by</td><td colspan="3">Infratek Solutions, Inc.</td></tr>
<tr><td>Name</td><td>Bruce Johnson</td><td>Years of relevant experience with this employer</td><td>2</td></tr>
<tr><td>Title</td><td>Sr. Subject Matter Expert and QA/QC</td><td>Years of relevant experience with other employer(s)</td><td>45</td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">MSc / 1984 / Structural Engineering
BSc / 1975 / Transportation and Highway Engineering</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">NA</td></tr>
<tr><td>Year registered</td><td>NA</td><td>Discipline</td><td colspan="2">NA</td></tr>
<tr><td colspan="2">Contract role(s) / brief description of responsibilities</td><td colspan="3">QA/QC Manager</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">Experience and qualifications relevant to the proposed contract; i.e., “designed drainage”, “designed girders”, “designed intersection”, etc. Experience dates should cover the time specified in the applicable MPR(s).</td></tr>
<tr><td>05/20 – Present</td><td colspan="4">NDE Inspection of Bridges and Other Concrete Structures, Several Clients, Several States. Subject Matter Expert and Report QA/QC for several projects involving deployment of Infratek’s suite of NDE technologies and systems on bridges and other concrete structures such as airport rigid runways. The intent is to ensure the right mix or NDE sensors is utilized to answer the asset owners’ and decision makers’ questions and make sure the reports and insights produced have highest level of quality and are applicable to the project landscape and useful to the asset owners.</td></tr>
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	Firm Employed by	Forte and Tablada, Inc.		
	Name	**Russell J. "Joey" Coco, Jr., PE**	Years of relevant experience with this employer	9
	Title	President/CEO	Years of relevant experience with other employer(s)	13

Degree(s) / Years / Specialization			BSCE / 2000 / Civil Engineering / Old Dominion University MBA / 2006 / Business Administration / Old Dominion University Coastal Engineering Certificate / 2008 / Old Dominion University
Active registration number / state / expiration date			Professional Engineer: 31337 / LA / 09/30/2022
Year registered	2004	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			Bridge Engineer

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
05/19 – 09/19	**Danziger Bridge Rehabilitation Orleans Parish, Louisiana.** Principal overseeing survey investigation of Danziger Bridge. Included laser scanning and comparison of actual conditions to original plans.
10/18 – 12/18	**Sunshine Bridge Repair, St. James Parish, Louisiana.** Principal overseeing topographic surveying and terrestrial LIDAR services for the LADOTD Sunshine Bridge Emergency Repair project following the severe impact of a barge mounted crane with the lowest horizontal bridge chord.
09/17 – 12/19	**Palmetto Company Canal Bridge, St. Landry Parish, Louisiana.** Principal to provide property surveys, title take-offs, and right-of-way map services for the removal and replacement of a timber trestle bridge that spans Bayou Des Glaises, located along La. Highway. 10 in St. Landry Parish near the town of Palmetto, Louisiana.
05/17 – 10/18	**Belle Chasse Bridge and Tunnel Replacement Survey, Plaquemines Parish, Louisiana.** Principal for comprehensive topographic surveying services for the Belle Chasse Bridge and Tunnel Replacement project for LADOTD. Utilized traditional methods, terrestrial laser scanning of roadway surfaces, and multi-beam 3-D hydrographic surveying.
06/17 – 02/19	**Amite River Basin Model Hydrographic Survey, Livingston, Louisiana.** Principal to provide hydrographic surveying of the Amite River and Comite River. Tasks included typical cross-sections of these rivers, as well as detailed 3-D bathymetric data collected with sonar equipment, ground control for LIDAR of the Amite River Basin, and a high- resolution survey of the Amite River Diversion Weir utilizing a variety of techniques including multi-beam sonar and traditional survey methods.
02/17 – 03/18	**US Highway 90 / I-310 Interchange, St. Charles Parish, Louisiana.** Principal responsible for topographic surveying and 3-D laser scanning at the intersection of US Highway 90 and I-310 in St. Charles Parish. This project will allow improvements for safety and efficiency. The complete topographic survey includes all utilities with depths and all drainage required along with finish floor elevations of all buildings that fall within the survey limits.
08/14 – Present	**I-49 Connector, Lafayette Parish, Louisiana.** Principal responsible for providing topographic surveying services for the I-49 Connector. The project is in a dense urban area and is approximately 5 miles long. Forte and Tablada, Inc. completed laser scanning services for much of the congested corridor as a means to obtaining topographic data without endangering surveyors.
05/17 – Present	**Load Rating of Bridges, Statewide, Louisiana.** Served as a review engineer for load rating of statewide bridges.

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	Firm Employed by	Forte and Tablada, Inc.		
	Name	**Joffrey, E. Easley, PE**	Years of relevant experience with this employer	14
	Title	Supervisor Engineer	Years of relevant experience with other employer(s)	3

Degree(s) / Years / Specialization			BSCE / 2000 / Civil Engineering / Louisiana State University MSCE / 2003 / Civil Engineering / Louisiana State University
Active registration number / state / expiration date			Professional Engineer: 31542 / LA / 03/31/2023
Year registered	2004	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			Bridge Engineer

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
01/16 – 01/21	**Whittington Road Bridge Replacement, Livingston Parish, Louisiana.** Design Engineer for the replacement of an existing timber bridge over Grays Creek with a new concrete slab span bridge through the LADOTD off-system bridge replacement program.
01/14 – 01/20	**Travis Street and George Mashon Road Bridge Replacement, Livingston Parish, Louisiana.** Design Engineer for the replacement of two (2) timber bridges with concrete box culverts (Travis Street) and a curved concrete slab span bridge (George Mashon Road) through the LADOTD off-system bridge replacement program.
01/18 – 09/17	**Holly Drive Bridge Replacement, St. Tammany Parish, Louisiana.** Developed plans for the replacement of an existing timber bridge in St. Tammany Parish. Provided a load rating for the new design of the bridge.
01/14 – 01/20	**Buddy Ellis Road Overlay and Bridge Replacement, Livingston Parish, Louisiana.** Design Engineer for the replacement of the existing timber bridge on Buddy Ellis Road near LA Highway 447 in Livingston Parish.
03/18 – Present	**LADOTD Retainer Contract for Off-System Bridge Load Rating, Statewide, Louisiana.** Project Manager, Load Rating Engineer, and Team Leader for a retainer contract that includes multiple Task Orders (TO) to inspect and load rate off-system bridges and culverts. TO1: Inspection and load rating of 12 complex off-system bridges, including lift spans, swing spans, bascule spans, ferry landings, and truss bridges; TO2: Inspection and load rating of approx. 200 off-system bridges, consisting primarily of slab spans; TO4: Inspection and load rating of approx. 300 off-system bridges, consisting primarily of slab spans, but also including concrete and steel girder spans.
10/18 – 04/19	**LADOTD Retainer Contract for Bridge Preservation, Atchafalaya Floodway, Louisiana.** Project Manager to provide engineering services for the rehabilitation of multiple bridges along I-10 between Baton Rouge and Lafayette. Bridge types included PPC and steel girder spans, steel grid deck, and slab spans. Scope of work included performing a detailed inspection, documenting deficiencies, and preparing rehabilitation plans for all bridges.
11/14 – 08/16	**Westdale Road over Bayou Pierre Repairs, DeSoto Parish, Louisiana.** Inspected, laser scanned, developed plans, and provided construction administration services for the repairs of a timber bridge that had been closed due to its deteriorated condition. Provide a load rating following the completion of the repairs. Repairs allowed the bridge to be re-opened to vehicular traffic.

	Firm Employed by	Forte and Tablada, Inc.		
	Name	**Levi Yantis, PE**	Years of relevant experience with this employer	7
	Title	Bridge Engineer	Years of relevant experience with other employer(s)	2

Degree(s) / Years / Specialization			BSCE / 2013 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 42390 / LA / 09/30/2024
Year registered	2018	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			NDT/E Professional

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
03/18 – Present	**LADOTD Retainer Contract for Off-System Bridge Load Rating, Statewide, Louisiana.** Task Order 1: Led and assisted in 12 complex moveable bridge inspections and load ratings throughout the state. The bridge types included a single leaf bascule span, a vertical lift truss span, several steel vertical lift spans, multiple pontoon bridges, a steel plate girder swing bridge, a small steel truss/cable swing span, and a non-moveable steel truss. Task Order 2: Led and supervised the load ratings of 200 off-system slab span bridges throughout the state of Louisiana. To avoid posting bridges lower than necessary, bridge inspections were done for several bridges that had severe deterioration noted in their inspection reports to collect additional deterioration measurements to accurately determine the bridge member's load carrying capacity. Task Order 5: Load testing and refined load rating analysis of slab span bridges and culverts that previously received low or closed load postings.
03/21 –10/21	**TDOT Complex and Standard Bridge Load Ratings, Statewide, Tennessee.** Oversaw a team of load raters performing 35 AASHTOWare BrR load ratings in 4 months and was responsible for the quality control of the model inputs and outputs, troubleshooting bridge models, and assisting in load ratings. The bridge types of loads rated using AASHTOWare BrR software were prestressed I-beams and box girders, reinforced concrete multi-cell box bridges, reinforced concrete T-beams, continuous steel plate girders, and steel girder-floor beam-stringer systems.
01/20 – 10/21	**LADOTD Retainer for Complex In-Depth Bridge Inspections, Statewide, Louisiana.** Team Leader for the structural, mechanical, and electrical in-depth inspections for multiple movable bridges. Bridge types included vertical lift span bridges and steel swing bridges (through girders and through trusses). Also served as the task manager for preparing the in-depth inspection reports.
06/16 – 04/20	**St. Tammany Parish Off-System Bridge Load Ratings, St. Tammany Parish, Louisiana.** Led and assisted in bridge inspections and served as the load rating engineer for bridges throughout the parish of St. Tammany. The bridge types include slab spans, prestressed girder spans, and bridges constructed from retired railroad flatcars.
05/16 – 10/19	**Retainer Contract for Complex Bridge Rating, Statewide, Louisiana.** Bridge Inspector and load rater for a through truss bridge over a branch of the Pearl River. The bridge consisted of 3 pony truss spans and reinforced concrete T-beams and was load rated utilizing AASHTOWare BrR, Leap Bridge Concrete and Mathcad software.
03/14 – 03/17	**LADOTD Load Rating of On-System Bridges, Statewide, Louisiana.** Assisted in load rating of approximately 200 existing bridges across the state of Louisiana. Bridges range from slab span bridges on local roads to elevated curved steel interstate bridges in metropolitan areas.

	Firm Employed by	Forte and Tablada, Inc.		
	Name	**Brent M. Campbell**	Years of relevant experience with this employer	10
	Title	LiDAR Specialist	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			BS / 2013 / Construction Management
Active registration number / state / expiration date			NA
Year registered	NA	Discipline	NA
Contract role(s) / brief description of responsibilities			NDE Technician

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
05/19 – 09/19	**Danziger Bridge Rehabilitation, Orleans Parish, Louisiana.** Laser Scanning and Project Technician for survey investigation of Danziger Bridge. Included laser scanning and comparison of actual conditions to original plans.
02/22 – 08/22	**Merryville Aerial LIDAR, Beauregard Parish, Louisiana.** Advanced Measurements Technician for UAV based aerial LIDAR to quickly capture the site topography. The project included flying approximately 175 acres in Merryville to provide a bare earth model to our engineers. The surface model was used for preliminary site design and drainage flow characteristics.
10/19 – 10/20	**Inspection of Metal Culverts, Statewide, Louisiana.** Laser Scanning Technician to provide inspections and data acquisition for approximately 230 culvert locations statewide. Culvert measurements were acquired with a mixture of 3-D laser scanning, sonar, and LIDAR.
01/13 – 03/13	**I-10 (Highland Road to LA Highway 73), East Baton Rouge and Ascension Parishes, Louisiana.** Responsible for laser scanning of several bridges overpassing I-10 and extracting/coding survey coordinates and alignments. Also determined minimum horizontal and vertical clearances.
09/21 – 10/21	**Westbank Closure Complex Multi-Beam Hydrographic Survey, Belle Chasse, Louisiana.** Served as Advanced Measurements Technician for a comprehensive survey for a global depiction of scour. Scour results were presented in a color ramped elevation map, as well as imagery showing the presence of debris on an intake screen. Survey was performed using a shallow draft vessel equipped with advanced multi-beam equipment.
01/22 – 04/22	**Hat Creek Permit Survey, Bossier Parish, Louisiana.** Advanced Measurements Technician for UAV based aerial LIDAR and hydrographic surveys to provide plan and profile plans for permitting purposes. The project included flying approximately 200 acres on the Red River to provide a bare earth model to our engineers. This method allowed us to rapidly capture survey grade data versus traditional survey methods. A hydrographic survey of the Red River was performed using a sonarmite mounted on a shallow water vessel due to the low levels of the river. This hydrographic survey data was also provided to our engineers where it was integrated with the aerial LIDAR to provide the client with plan and profile plans for permit applications.
02/17 – 03/18	**US Highway 90 / I-310 Interchange, St. Charles Parish, Louisiana.** Project Technician responsible for topographic surveying and 3-D laser scanning at the intersection of US Highway 90 and I-310 in St. Charles Parish. This project allows improvements for safety and efficiency. The complete topographic survey includes all utilities with depths and all drainage required along with finish floor elevations of all buildings that fall within the survey limits.

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	Firm Employed by	Forte and Tablada, Inc.		
	Name	**Blake Bonnette**	Years of relevant experience with this employer	6
	Title	UAV Head Pilot	Years of relevant experience with other employer(s)	1.5

Degree(s) / Years / Specialization			2015 / South Louisiana Community College / Lafayette
Active registration number / state / expiration date			NA
Year registered	NA	Discipline	NA
Contract role(s) / brief description of responsibilities			NDE Technician

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage", "designed girders", "designed intersection", etc. Experience dates should cover the time specified in the applicable MPR(s).
05/19 – 09/19	**Danziger Bridge Rehabilitation, Orleans Parish, Louisiana.** Laser Scanning and Project Technician for survey investigation of Danziger Bridge. Included laser scanning and comparison of actual conditions to original plans.
10/19 – 10/20	**Inspection of Metal Culverts, Statewide, Louisiana.** Laser Scanning Technician to provide inspections and data acquisition for approximately 230 culvert locations statewide. Culvert measurements were acquired with a mixture of 3-D laser scanning, sonar, and LIDAR.
01/16 – 02/18	**I-49 Connector, Lafayette, Louisiana.** Laser Scanning Technician to develop the topographic survey of approximately 22 miles of roadway along this interstate to determine the existing conditions before finalizing the connection. Responsible for the data and leading the data extraction efforts using Faro Scene and MicroStation.
08/22 – 09/22	**Leonard Road Farm and Cupples Port Aerial LIDAR, Shreveport, Louisiana.** Project Technician responsible for preforming aerial LIDAR on over 700 acres and processing the data to produce surfaces and calculate dirt fill amount to alleviate flooding.
10/18 – 05/19	**Sunshine Bridge Emergency Repair, Donaldsonville, Louisiana.** Work with a design team as a Laser Technician to formulate a practical solution for attaining advanced measurements that were compatible with traditional measuring practices which were required for the structural analysis and repair design for the bridge. Created a set of plans to document the damage on this bridge that contained detailed information on structural strain and inconsistencies from original plans. Assisted with scanning for incremental bridge movement as well as monitoring bridge movement as LADOTD jacked on members to place new beams using Faro Scene and MicroStation.

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17. Firm Experience:

Firm name	Infratek Solutions Inc.		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	**High-Speed NDE Condition Evaluation of US Highway 171 Bridge Deck over Calcasieu River**		Firm responsibility (prime or sub?)	Sub	
Project number	H.010000.5-2	Owner's name	LADOTD		
Project location	US0171, Moss Bluff, Louisiana 70601		Owner's Project Manager	Zhengzheng "Jenny" Fu	
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70802, Tel: 225-379-1321, Email: zhengzheng.fu@la.gov				
Services commenced by this firm (mm/yy)	02/21	Total consultant contract cost ($1,000's)		$51,000	
Services completed by this firm (mm/yy)	03/21	Cost of consultant services provided by this firm ($1,000's)		$51,000	

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Relevance to LADOTD:
- Concrete Deck Evaluation
- Non-destructive testing & evaluation
- Work Zone Safety
- Excellent Ratings

This project required a high-speed (HS), multi-faceted condition evaluation of the bridge deck with zero disruption to traffic. The results intended to provide repair quantity estimates and validate the preservation and rehabilitation plans and the need to apply on overlay. To provide maximum efficiency and respond to LADOTD's needs, our proposed solution required the scanning of the entire bridge deck by Infratek Insight's HS system, which did not cause any traffic disruption. This was intended to be followed by the High Definition (HD) scanning on certain parts of the bridge if needed but the results of the HS scanning were conclusive enough and gave the decision makers enough data and assurance to proceed without the need for more thorough investigation provided by the HD system. The HS sensor data provided an estimate on the amount of top cover, the approximate likelihood of moisture ingress in addition to high-resolution surface images, surface crack maps, and crack density plots. The HS chain drag component provided a map of the shallow delamination and the IR thermography method help with validation of these results. Using the data from longitudinal surface profilers and crack maps, the team could also pinpoint the high likelihood of settlement of the approach slab. LIDAR and 360-degre imaging also enabled the project team to walk on the bridge virtually and conduct any visual observation or inspection necessary for their work. Following the HS data acquisition on the US Highway 171 Bridge over the Calcasieu River, the Infratek team processed and analyzed the data within 10 days after which the analysis results were reported to LADOTD.

Nature of firm's responsibility: Subconsultant
Firm members involved: Amir Rezvani, Max Meng, Syed Zain, Andrew Marrero, Bruce Johnson, Ali Hasan

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17. Firm Experience:

Firm name	Infratek Solutions Inc.		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	**High-Speed and High-Definition Condition Evaluation of Several I-95 Bridge Decks**		Firm responsibility (prime or sub?)	Sub	
Project number	1811F	Owner's name	Delaware DOTD		
Project location	Newark, DE		Owner's Project Manager	Scott Walls	
Owner's address, phone, email	800 S Bay Rd, Dover, DE 19901, Tel: (302)760-2080, Email: scott.walls@delaware.gov				
Services commenced by this firm (mm/yy)	02/21	Total consultant contract cost ($1,000's)		$86,000	
Services completed by this firm (mm/yy)	03/21	Cost of consultant services provided by this firm ($1,000's)		$86,000	

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Relevance to LADOTD:
- Concrete Deck Evaluation
- Non-destructive testing & evaluation
- Work Zone Safety
- Asset Management
- Electronic data collection

Infratek provided condition assessment of four bridge decks on the I-95 corridor in Newark, DE, including high-speed (HS) sounding, surface imaging, crack mapping, GPR, Impact Echo, Ultrasonic Surface Wave, Electrical Resistivity assessment and 360-degree imaging. These bridges are part of Delaware DOTD (DelDOTD)'s "Restore the Corridor" initiative and are currently in the rehab design phase. The assessment results were used to ensure the rehab planning was conducted in a data-driven fashion using the real-time, most recent condition of the structures observed from several different damage and corrosion related perspectives.

Due to the **high traffic** of these bridges (AADT above 113,000) the team first deployed the Insight's HS system to gain an understanding of the current condition of the bridge decks. The HS system conducted data acquisition at 40 mph with a TMA truck to increase safety due to the high-speed limit of the bridges (65 mph). The team studied the HS results, and it was observed that the sub-surface defects on all four bridges are scattered all around the deck and there is high potential of the need for full depth repair quantities. Having this information, the team made the decision to deploy Insight's high-definition system to provide a more high-resolution image of the subsurface conditions and full-depth repair quantity estimates. The results were packaged and delivered to DelDOTD using Infratek's **online inspection and asset management portal** as well as written PDF reports. The bridge design team and the external contractor utilized these results to finalize their rehab and preservation design plans.

Nature of firm's responsibility: Subconsultant

Firm members involved: Amir Rezvani, Max Meng, Syed Zain, Andrew Marrero, Bruce Johnson, Ali Hasan, Dr. Ivan Bartoli

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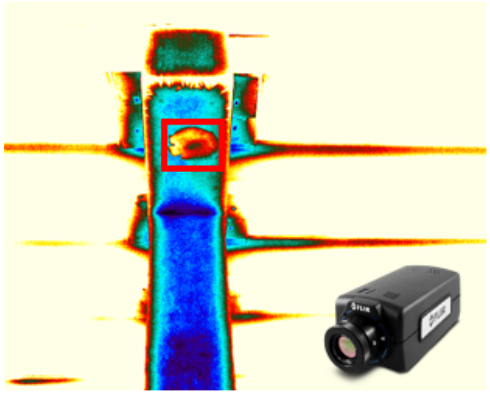
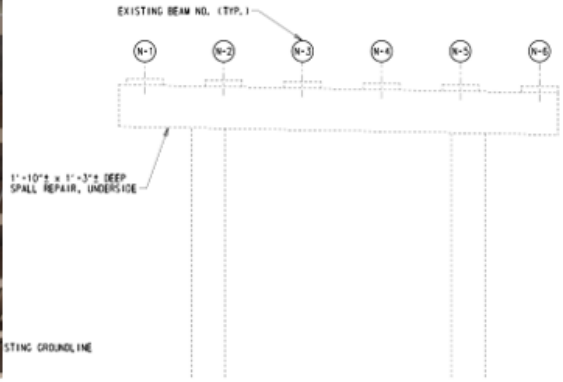
17. Firm Experience:

Firm name	Infratek Solutions Inc.			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Point-in-time and Time-lapse Infra-red Thermography of I-95 Wilmington Viaduct Piers and Ramps**			Firm responsibility (prime or sub?)	Sub
Project number	1811F	Owner's name	Delaware DOT		
Project location	Wilmington, DE		Owner's Project Manager	Percival McNeil	
Owner's address, phone, email	800 S Bay Rd, Dover, DE 19901, Tel: (302)760-2080, Email: Percival.Mcneil@delaware.gov				
Services commenced by this firm (mm/yy)	06/22	Total consultant contract cost ($1,000's)		$91,000	
Services completed by this firm (mm/yy)	09/22	Cost of consultant services provided by this firm ($1,000's)		$91,000	

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)





Relevance to LADOTD:
- Concrete substructure evaluation
- Non-destructive testing & evaluation
- IR thermography
- Electronic data collection
- Work Zone Safety

Infratek was asked by Delaware Department of Transportation (DelDOT) if there is an alternative way other than manual sounding of 84 pier structures across 1.04 miles of a viaduct and its several ramps. DelDOT was looking for an innovative way which is faster, more visual, more cost effective with less amount of equipment and staff than manual sounding. Infratek proposed point-in-time and time-lapse infra-red thermography in place of manual sounding. Our team conducted a pilot on 4 random piers and compared the results with manual sounding of the piers that was conducted in 2015. The amount of correlation was significant which gave DelDOT enough confidence to award Infratek the project.

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17. Firm Experience:

Firm name	Forte and Tablada, Inc.		Past Performance Evaluation Discipline(s)*		Survey
Project name	**IWGO Bridge Rehabilitation, Drone Flyover**		Firm responsibility (prime or sub?)		Prime
Project number	H.011965.6	Owner's name	LADOTD		
Project location	Orleans Parish		Owner's Project Manager	Hamed Babaizadeh	
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70802, 225-379-1331				
Services commenced by this firm (mm/yy)	07/22	Total consultant contract cost ($1,000's)			$55.2
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)			$55.2

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Relevance to LADOTD:
- Superstructure Evaluation
- UAV drone operations
- Work Zone Safety
- Electronic data collection
- Complex bridge
- Bridge IDIQ contract

Forte and Tablada was tasked by LADOTD to conduct **drone video** and still photography for in-phase inspection during rehabilitation and painting of the Paris Rd. bridge over the Intracoastal Waterway Gulf Outlet, aka the "Green Bridge". Conducting pre-planned flight paths using state-of-the-art **UAV within 3m accuracy** of the agreed-upon flight path, the collection of photos and videos throughout the project, and processing of content for final production use.

Nature of firm's responsibility: Prime Consultant

Firm members involved: Russell "Joey" Coco, Jr., Brent Campbell, Blake Bonnette

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17. Firm Experience:

Firm name	Forte and Tablada, Inc.			Past Performance Evaluation Discipline(s)*	Survey
Project name	**Sunshine Bridge Emergency Repair**			Firm responsibility (prime or sub?)	Sub
Project number	4400010587	Owner's name	LADOTD		
Project location	St. James Parish, LA			Owner's Project Manager	Stanley Ard
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70802, 225-379-1292, Stanley.Ard@la.gov				
Services commenced by this firm (mm/yy)	10/18	Total consultant contract cost ($1,000's)			$618
Services completed by this firm (mm/yy)	12/18	Cost of consultant services provided by this firm ($1,000's)			$618

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Relevance to LADOTD:
- Complex bridge inspection
- Cable-stayed bridges
- Non-destructive testing
- Fatigue prone details
- Work Zone Safety
- Fall Protection
- Electronic Submittals
- Bridge IDIQ contract
- NBE, BME, and ADE ratings

Forte and Tablada provided topographic surveying and terrestrial LIDAR services for the LADOTD Sunshine Bridge Emergency Repair project following the severe impact of a barge mounted crane with the lowest horizontal bridge chord. The severity of the structural damage forced the closure of the bridge resulting in disruption and re-routing of a large volume of industrial and general population motorists. Due to the elimination of this major corridor for commerce and its consequences, an expeditious and time efficient rehabilitation was paramount. Worked with a design team to formulate a practical solution for obtaining advanced measurements that were unachievable with traditional measuring practices which were required for the structural analysis and repair design for the bridge. Surmounted the challenges of the repair effort through the use of LIDAR techniques employing innovative applications to provide the necessary data for the bridge repair analysis and inventive construction of an apparatus needed to apply these techniques.

Laser Scan of Sunshine Bridge in Donaldsonville, LA

Nature of firm's responsibility: Subconsultant

Firm members involved: Russell "Joey" Coco, Jr., Wilfred Fontenot, Jonathan Coco, Ross Wilson, Brent Campbell, Tommy Lake

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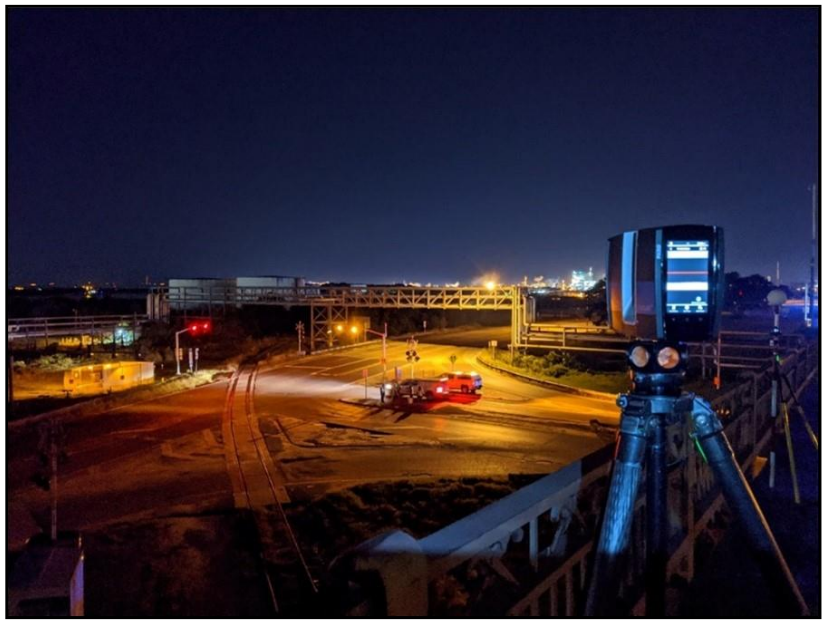
17. Firm Experience:

Firm name	Forte and Tablada, Inc.			Past Performance Evaluation Discipline(s)*	Survey
Project name	**Calcasieu River Bridge Investigation, Lake Charles, Louisiana**			Firm responsibility (prime or sub?)	Prime
Project number	S.P. No. H.012083.5	Owner's name	LADOTD		
Project location	Calcasieu Parish, LA			Owner's Project Manager	Stanley Ard
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA 70802, 225-379-1292, Stanley.Ard@la.gov				
Services commenced by this firm (mm/yy)		11/19	Total consultant contract cost ($1,000's)		$312.4
Services completed by this firm (mm/yy)		Ongoing	Cost of consultant services provided by this firm ($1,000's)		$312.4

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Relevance to LADOTD:
- Complex bridge inspection
- Cable-stayed bridges
- Non-destructive testing
- Fatigue prone details
- Work Zone Safety
- Fall Protection
- Electronic Submittals
- Bridge IDIQ contract
- NBE, BME, and ADE ratings

Forte and Tablada provided laser scanning services for the I-10/Lake Calcasieu bridge in Lake Charles, Louisiana. The purpose of this project is to analyze any movement of the sub and superstructure, as well as completing two sets of scans (cold and hot weather) to determine if there are any significant changes in the structure due to temperature change. Terrestrial scans were done underneath the bridge for 10 spans on the East and West side, on top the deck to capture the superstructure, as well as from the water below to capture the sub structure. In addition to the terrestrial scans, mobile LiDAR was done for future planning.



Nature of firm's responsibility: Prime Consultant

Firm members involved: Russell J. "Joey" Coco, Jr., Brent Campbell, Ross Wilson, Tommy Lake

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17. Firm Experience:

Firm name	Moffatt & Nichol		Past Performance Evaluation Discipline(s)*		Bridge
Project name	**IDIQ for In-Depth Inspection of Complex Bridges, Statewide, Louisiana**		Firm responsibility (prime or sub?)		Sub
Project number	4400009104	Owner's name	Louisiana Department of Transportation and Development		
Project location	Louisiana		Owner's Project Manager	Stephanie Doolittle	
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, Louisiana 70802 / 225.379.1329 / Stephanie.Doolittle@la.gov				
Services commenced by this firm (mm/yy)	03/20	Total consultant contract cost ($1,000's)			$5,000
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)			$600

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Relevance to LADOTD:
- Movable bridge evaluation
- UAV drone operations
- Cable-stayed bridges
- Non-destructive testing
- Fatigue prone details
- Work Zone Safety
- SPRAT Rope Acess
- Electronic Submittals
- Bridge IDIQ contract

M&N is performing in-depth bridge inspections on complex and movable bridges throughout Louisiana. As a major subconsultant, M&N is performing complete in-depth structural, mechanical, and electrical inspections. Bridge types include cantilever trusses, cable-stayed bridges, movable swing span bridges, and bascule bridges.

- M&N performed two in-depth inspections of the Audubon Bridge, specifically to inspect 136 main cables. Professional rope access techniques were used to safely access each cable and anchorage within arm's reach.
- M&N performed two in-depth, routine, and fracture critical inspections of the Horace Wilkinson Bridge, specifically to inspect the main truss spans above the guardrail. Professional rope access techniques were used to safely access each non-redundant steel tension member. This was the first inspection to be completed without requiring a lane closure.
- M&N performed the in-depth, routine, and fracture critical inspections of the Greater New Orleans Bridges and the Green Bridge, specifically to inspect the main truss spans. Professional rope access techniques were used to safely access each non-redundant steel tension member.
- M&N performed the in-depth inspection of the Luling Bridge, specifically to inspect all bladders at the upper Gensui Dampers and at the lower friction dampers at 72 cables.

Nature of firm's responsibility: Subconsultant

Firm members involved: Chace Hulon, Steven Armstrong, Jeffrey Gazarek, Joshua Martinez

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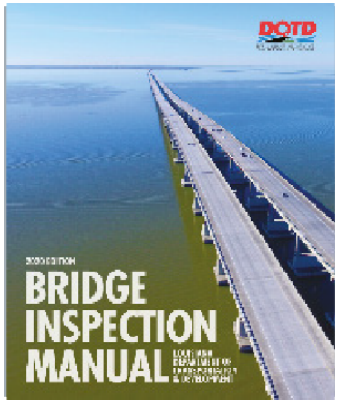
17. Firm Experience:

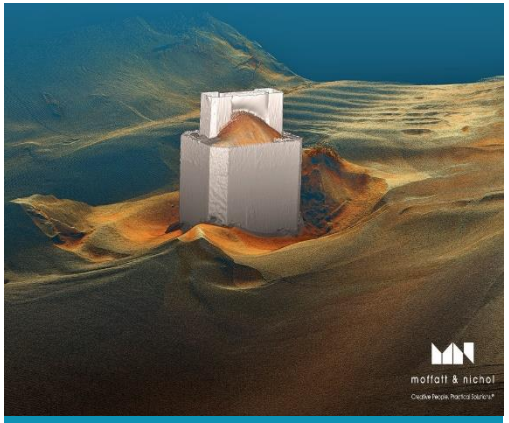
Firm name	Moffatt & Nichol			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**2017 Retainer Contract for Underwater Bridge Inspections, Statewide, Louisiana**			Firm responsibility (prime or sub?)	Prime
Project number	4400009104	Owner's name	Louisiana Department of Transportation and Development		
Project location	Louisiana		Owner's Project Manager	Bradley Mistich, PE	
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, Louisiana 70802 / 225.379.1544 / Bradley.Mistich@la.gov				
Services commenced by this firm (mm/yy)	06/17	Total consultant contract cost ($1,000's)		$1,346	
Services completed by this firm (mm/yy)	12/21	Cost of consultant services provided by this firm ($1,000's)		$980	

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Moffatt & Nichol (M&N) has been providing Levels I, II, and III underwater bridge inspections to the LADOTD since 2014. For each inspection, M&N provided a detailed inspection report within 30 days and entered inspection data into LADOTD's asset management tool (AssetWise). As part of M&N's quality control process, each inspection report was reviewed a minimum of three times, with subsequent reviews performed by team members with increasing levels of experience/ qualifications. Of particular note, Moffatt & Nichol was tasked with the development of the first comprehensive Bridge Inspection Manual (BIM) for LADOTD Bridge Program. Chace Hulon, PE, the proposed PM, was Chief Editor. Section 5.4 contains specific **NDT and NDE methods**. The BIM is designed as a single, centralized reference manual and aligns the goals of the Bridge Inspection Office Headquarters with all nine LADOTD districts. It also allows for better communication and quality management between the LADOTD project managers, their local bridge owners, and their consultants.



The BIM was designed to be used electronically on tablets as a reference file accessible to all LADOTD bridge inspection team leaders. It includes nine chapters intuitively ordered in a systemic fashion with hyperlinks throughout for quick referencing to vital documents. M&N subject matter experts provided statewide programmatic guidance with a national perspective, verified compliance with FHWA's 23 National Bridge Inspection Program Metrics, & presented BIM at a LADOTD statewide conference.



Relevance to LADOTD:
- Non-destructive evaluation
- Work Zone Safety
- Electronic Submittals
- Bridge IDIQ contract
- UAV drone image capture

Nature of firm's responsibility: Prime Consultant

Firm members involved: Chace Hulon, Steven Armstrong, Jeffrey Gazarek, Joshua Martinez

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17. Firm Experience:

Firm name	Moffatt & Nichol			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**LADOTD In-Depth Bridge Inspection Contract**			Firm responsibility (prime or sub?)	Sub
Project number	H.009730.5	Owner's name	Louisiana Department of Transportation and Development		
Project location	Louisiana		Owner's Project Manager	Stephanie Doolittle, PE	
Owner's address, phone, email	1212 East Highway Drive, Baton Rouge, Louisiana 70802 / 225.379.1329 / Stephanie.Doolittle@la.gov				
Services commenced by this firm (mm/yy)	11/19	Total consultant contract cost ($1,000's)			$1,200
Services completed by this firm (mm/yy)	Present	Cost of consultant services provided by this firm ($1,000's)			$695

Describe the project including the firm's role and members involved. (Highlight staff to be used in this proposal.)

Relevance to LADOTD:
- Complex bridge inspection
- Non-destructive testing/evaluation
- Fatigue prone details
- Work Zone Safety
- Fall Protection
- Electronic Submittals
- Bridge IDIQ contract

Moffatt & Nichol (M&N) is part of a team responsible for performing bridge inspections of complex structures such as cantilever trusses, prestressed concrete segmental box bridges, and movable bridges for statewide projects covered by an indefinite delivery/indefinite quantity contract under separate task orders.

The contract involves providing all services required to perform statewide NBIS in-depth, routine, fracture critical, and underwater inspections of complex structures to include mechanical and electrical inspections by certified engineers. Coating system assessments, nondestructive evaluations, traffic control services, and specialty access services are often utilized on this project.

In-depth inspection reports include precision measurements and testing results of all elements and systems, element level data collection and corrections, and recommendations as to prioritized repairs and general maintenance functions. M&N has provided specialty access services to include confined space entry, mobile elevated work platforms, fall protection, rope access, UAS drone access, and underwater diving operations. M&N has also provided mechanical and electrical inspections with NHI-certified engineers on swing span bridges to evaluate hydraulic and electro-mechanical systems on swing bridges according to the AASHTO Movable Bridge Inspection, Evaluation, and Maintenance Manual.

M&N is planning the SPRAT rope access operations for the main truss spans of the Vicksburg Bridge to safely eliminate the need for lane closures and avoid traffic disruptions to the public.

Nature of firm's responsibility: Subconsultant

Firm members involved: Chace Hulon, Steven Armstrong, Jeffrey Gazarek, Chip Eschenbach

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17. Firm Experience:

Firm name	**Moffatt & Nichol**		Past Performance Evaluation Discipline(s)*	**Bridge**	
Project name	**IDIQ Contract for Inventory and Inspection of Sign Trusses Statewide**		Firm responsibility (prime or sub?)	**Prime**	
Project number	**4400017089**	Owner's name	**Louisiana Department of Transportation and Development (LADOTD)**		
Project location	**Baton Rouge, Louisiana**		Owner's Project Manager	**Haylye Brown, PE**	
Owner's address, phone, email	**1212 East Highway Drive, Baton Rouge, Louisiana 70802 / 225.379.1500 / haylye.brown@la.gov**				
Services commenced by this firm (mm/yy)	**09/20**	Total consultant contract cost ($1,000's)		**$3,000**	
Services completed by this firm (mm/yy)	**Ongoing**	Cost of consultant services provided by this firm ($1,000's)		**$1,615**	

Moffatt & Nichol (M&N) is performing the inventory and inspection of overhead sign structures in accordance with FHWA guidelines. M&N has enhanced the program with the development of an interactive GIS database.

Over 1500 overhead sign structures have had their second routine inspection completed thus far, with an additional 200 interim inspections to monitor deficiencies more frequently. In addition, 205 post-event damage inspections were completed in 2020 due to Hurricane Laura and an additional 900 post-event damage inspections are being performed due to Hurricane Ida, including structures along this corridor. Inspections included NDT/NDE on steel and aluminum welds, high stress moment connections, and other fatigue prone details with deficiencies. The majority of the structures are aluminum box trusses that have a shorter fatigue life. Ultrasonic flaw detection is used by certified inspectors to examine the anchor rods for fractures or partial fractures. Rope access techniques are utilized to safely access primary elements **while eliminating traffic interruptions and conserving costs**.

Relevance to LADOTD:

- Program Support
- Nondestructive Testing and Evaluation
- Work Zone Safety
- Minimal Traffic Impacts
- Rope Access and Fall Protection
- Database Development & Management

Work zone safety is a critical component to the overall safety and success of this project. M&N lead inspectors are ATSSA certified technicians and/or supervisors, along with an expert traffic control company to assist with safe temporary lane closures on the highway. M&N has humbly maintained a zero-incident safety record throughout the life of this contract.

M&N has created the Inventory & Inspection Manual for Ancillary Structures in collaboration with the LADOTD under this current contract. Tablets were utilized in the field with a custom designed application that allowed for quick and efficient Quality Control reviews from the field.

Nature of firm's responsibility: Prime Consultant

Firm members involved: Chace Hulon, Steven Armstrong, Eric Vugteveen, Laura Miller, Jonathan Hird

18. Approach and Methodology:

The Moffatt & Nichol (M&N) team is very well positioned to provide **innovative** services, supreme client care, and a proven team of **local** professionals. We understand the unique needs of the Department and we can respond very quickly to emergencies. As we kickoff the project, M&N will meet with the LADOTD Project Manager to provide insight into the project scope, schedule, and goals of each task that will be developed into a specific action plan by the M&N Project Manager. M&N will offer ways to best utilize the available funds for this project, but also to best utilize LADOTD maintenance and preservation funds to extend the life of our bridge assets.

The M&N team offers local, experienced, and well-trained nondestructive testing technicians via our **SNT-TC-1A written practice**. To provide maximum efficiency for this project and meet LADOTD's needs, our proposed solution is based on the best practices of medical professionals. Many times, physicians can make an accurate diagnosis and provide the patient with a care plan which is also uploaded to a patient portal which is accessible by the patient and other care providers. If the primary diagnosis in not enough, secondary/in-depth diagnosis measures such as blood work, MRI, etc. provide more data point to the physician to make a proper decision regarding the care plan. Our methodology for condition evaluation of bridge decks resembles this methodology, as depicted in the graphic above.

For condition evaluation of bridge decks, our solution integrates the use of our High Speed (HS) and High Definition (HD) sensing technologies. This method requires scanning of all bridges under investigation by our HS system at speeds as high as 40 mph with no lane closure or traffic slowdown. The data is processed in automated fashions with more than fifteen software-based quality control measures, providing the shortest time to insight duration in the industry. The HS sensors' data provides the primary diagnostic data that most of the time are sufficient to identify the location and size of surface and subsurface defects, deterioration mechanisms and so many other characteristics of the deck that can help the decision makers prepare the most accurate preservation or rehabilitation plans for the

bridge decks. If the results of the HS system prompt the need for more in-depth inspection, the Infratek HD system can be deployed only on the areas of the bridge deck that required deeper investigation. The HD platform is the **fastest NDE platform in the industry** with speeds as high as 5,500 ft.^{2}/hr. using several ground coupled technologies.

Multiple sensor technologies onboard each platform and deployed at the data collection site at the same time, allows LADOTD to assess the condition of the bridge decks from different NDE aspects, each highlighting different characteristics of the concrete deck. Each group of NDE technologies are deployed together and the processing is highly automated to reach maximum productivity on the bridge:

High Speed Technologies onboard the HS System:

- High Speed Sounding (Chain Dragging)
  - To find all subsurface defects that manual chain drag can detect but with higher speed and accuracy at high speeds up to 40 mph. If the option of driving at 2 mph is available, this system can find deep delamination
- Air Coupled Ground Penetrating Radar (GPR)
  - To conduct a survey of moisture ingress and determine the top cover depth
- Infra-Red Thermography
  - To find shallow defects in favorable conditions
- High Resolution Surface Imaging and Automated AI Based Crack Mapping
  - To automatically find, classify and measure lengths and width of surface cracks to conduct an inspection of the deck and other topside elements (e.g., joints) from the safety and comfort of their desktops
  - Automated detection of cracks as small is 0.004" with the ability to define several user-defined ranges. All cracks are painted over based on the user-defined criteria and relevant density and crack map plots are generated automatically. With minor changes, the system can detect cracks as small is 0.1mm upon request
- Bridge Deck Profiler
  - To determine the longitudinal profile of the deck, transition smoothness from the pavement to approach slabs to the main spans as well as identification of dynamic amplification of the live load and ride quality
- 360° High Resolution Imaging
  - To visually inspect the topside of the bridge deck from the safety and comfort of the inspector's desktops
- Light Detection and Ranging (LiDAR)
  - To create a 3D point cloud of the surrounding environment to conduct measurements (e.g., measure height of railing, overpass clearance)

Ground Coupled Technologies Onboard the HD Platform:

- Ground Coupled GPR
  - To conduct a high-resolution survey of moisture ingress and determine the top cover depth
- Ground Coupled Impact Echo
  - To identify the size and location of subsurface defects inclusive of shallow or deep defects
- Ultrasonic Surface Waves
  - To estimate the concrete's modulus of elasticity at any given location on the deck

- Electrical Resistivity
  - To estimate the likelihood of a corrosive environment at any given location

Once all data is collected, processed, and analyzed it will be uploaded into an online inspection, asset, and **data management portal** where users can view, interact, and customize how they like. This portal is also capable of directly connecting and integrating with any 3rd party bridge or asset management system that LADOTD utilizes. The following critical and preparatory steps will be included as added value to our services:

Visualization and Reporting Procedures

This step is to refine and customize the current data visualization and report formats for deliverables based on LADOTD's requirements.

Data Analysis and Intervention Algorithms

This will familiarize LADOTD with how NDE data is analyzed and what is needed to generate reports and recommendations.

Interface and Integration Procedures with 3rd Party Asset/Bridge Management Systems

This task will explore the potential need to integrate the data, performance metrics, and any intervention recommendations.

The M&N team has significant experience with nondestructive testing methods on all structural materials including concrete, timber, and steel. The resistograph is a sophisticated tool for measuring the internal structural integrity of a "hollow" timber pile. Handheld DC resistant moisture meters are also used on timber piles. Electrochemical fatigue sensors are used for corrosion tests on steel members. Mechanical sonic pulse-velocity methods can be used to evaluate the geometry of concrete piles. Handheld GPR units are frequently used to locate reinforcement bar spacings for load ratings or for extracting coring samples.

The same methodology explained above applies to our in-place measurement technologies and capabilities. Such measurements can take place on an ad-hoc/as-needed basis or using a more data-driven approach to increase efficiency and cost-effectiveness. By utilizing a suite of condition metrics determined by different NDE technologies, we can determine if in-place measurement is required for a bridge or not, and based on that, the appropriate suite of in-place measurement technics that include but are not limited to the following can be selected: in place load capacity rating, strain, acceleration and vibration, tilt, wind speed, slope stability, displacements, movements or deflections, crack variability under live load, etc.

UAVs can safely be used for a high-level bridge inspection and reduce the need for costly special access equipment. However, it is important to understand the limitations of UAVs for being able to capture inconspicuous issues which may have high consequences. The team proposes to utilize UAVs for inspection purposes and balance safety, cost of accessibility, and consequence of what is being inspected to appreciate this limitation. A variety of different UAVs may be necessary for inspection depending on the circumstances and access. Smaller UAVs are more suitable for an up-close inspection of the bridge and require special cameras and intense lighting to satisfy the needs of an inspection. Larger UAVs can carry a heavier payload such as more powerful cameras, video equipment, as well as aerial LiDAR sensors. Importantly, each circumstance requires evaluation for safety of the public, or lane closures, when the UAV is being put into challenging places, for example, an overhead truss. The M&N team currently has 6 UAVs and 12 FAA Part 107 UAV pilots. The DJI Matric 600 Pro UAV can carry a 12-pound camera payload but is frequently used to carry a Riegl VUX LiDAR sensor that can take localized measurements. The Mavic 2 Enterprise and the Skydio 2+ UAV is ideal for close ranged and detailed inspections and can be used with VR goggles to assist bridge engineers with an eye on like experience that couples the view of a registered UAV pilot with that of a passenger bridge engineer.

The M&N team has significant experience in developing bridge information models for LADOTD represented in projects such as the Sunshine Bridge Repair, the Danziger Bridge Investigation, the Magnolia Pedestrian Bridge, and the Calcasieu River Bridge. High value “signature” bridges and deficient bridges oftentimes require a more complete understanding of their physical makeup and as-built geometry need to be instrumented and tested. This can be accomplished through developing a virtual model or "digital twin" of the bridge directly from laser scan data. In this process, the overall physical makeup of the structure is captured in the field and subsequently modeled to accurately represent member deformations, deflection or camber, positioning, alignment, size, and shape. When coupled with other non-physical attributes such as strength characteristics, decay, or the specifications for which the structure was built, the 3-D model can be made intelligent and used in concert with testing and instrumentation. The data can be used to develop computer-based models to compare and contrast the results with instrumented structures. To aid with complex and long-duration instrumentation projects, a digital twin can also be used as a physical backdrop for a visual providing the location of various sensors as well as real-time data.

Our team of professionals including but not limited to engineers, certified divers, welding inspectors, rope access technicians, underwater inspectors, drone pilots, and UAV pilots are looking forward to working with LADOTD to make this project a success.

moffatt & nichol

19. Workload:

Firm(s)	Past Performance Evaluation Discipline(s) *	State project number	Project name	Remaining Unpaid Balance**
Moffatt & Nichol	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges, Task Order 4	$135,900
	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges, Task Order 5	$184,344
	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges, Task Order 4	$187,812
	Bridge	H.009730.5	In-Depth Inspection of Complex Bridges, Task Order 5	$373,742
	Bridge	H.009730.5	IDIQ Contract for Underwater Bridge Inspection, Statewide	$2,402,171
	Bridge	H.011331.5	Inventory and Inspection of Sign Trusses	$1,252,010
	Data Collection	H.971294.1	LADOTD RIMS	$52,948
Forte and Tablada, Inc.	Survey	H.011965.6	IWGO Bridge Rehabilitation	$55,218
	Survey	H.011684	LA 327 Spur: Staring Lane Extension Route LA 327-S	$50,279
	Survey	H.012072	LA 60 Drain Bridge	$5,711
	Survey	H.014560	LA 94: Vermillion River Bridge	$4,553
	Survey	H.014416	LA 3125 at LA 3274 Roundabout	$60,543
	Survey	H.004273.5	LADOTD I-49 Connector (Lafayette Regional Airport to I-10/US 167 Interchange	$149,183.69
	Survey	H.011670	I-10/Loyola Additional Topo and ROW	$43,811
	Survey	H.003931.5	Calcasieu River Bridge Phase 3	$45,755
Infratek Solutions, Inc.	NA	NA	NA	NA

DO NOT SUM

* The only past performance evaluation disciplines to be used are: Road, Bridge, Traffic, CE&I/OV, Geotech, Survey, Environmental, Data Collection, Planning, Right-of-Way, CPM, ITS, Appraiser and Other. If a firm has more than one past performance evaluation discipline for any single project, the firm can use multiple rows to express the remaining unpaid balance per evaluation discipline.

** Round to the nearest dollar. **Do not** round to the nearest thousands. If there are no active contracts with a remaining unpaid balance, place N/A in the Remaining Unpaid Balance column. LEAVING THE "REMAINING UNPAID BALANCE" COLUMN BLANK IS NOT ACCEPTABLE.

20. Certifications/Licenses:

If the advertisement requires submission of licenses and/or certificates, include them here. Otherwise, leave this section blank.

22. Sub-consultant information:

If one or more sub-consultants will be used, provide the name, address, point of contact and phone number for each. Otherwise, leave this section blank.

Firm Name (as registered with Louisiana's Secretary of State)	**Address**	**Point of Contact and email address**	**Phone Number**
Infratek Solutions Inc.	6203 Lower York Road New Hope, PA 18938	Amir Rezvani amir@infrateksolutions.com	732.881.1265
Forte and Tablada, Inc.	9107 Interline Avenue Baton Rouge, LA 70809	Russell J. "Joey" Coco, Jr. jcoco@forteandtablada.com	225.927.9321

23. Location:

If location is an evaluation criterion for this advertisement and the prime consultant intends to establish a local presence, describe the plan for doing so. Otherwise, leave this section blank.

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