

Town of Andover

Request for Qualifications Replacement of Bunker Hill Road Bridge over Hop River

Submitted to:

Mr. Eric Anderson, Town Administrator
Town of Andover
17 School Road
Andover, CT 06232

CARDINAL
ENGINEERING ASSOCIATES



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TOWN OF ANDOVER, CONNECTICUT
REPLACEMENT OF BUNKER HILL ROAD BRIDGE

CARDINAL
ENGINEERING ASSOCIATES

SECTION 1

LETTER OF TRANSMITTAL

February 20, 2024

Mr. Eric Anderson, Town Administrator
Town of Andover
17 School Road
Andover, CT 06232

Dear Mr. Anderson,

Cardinal Engineering Associates (Cardinal) is pleased to present our firm's qualifications to provide construction inspection services for the Bunker Hill Road Bridge Replacement project for the Town of Andover. Cardinal has over 60 years' experience in the design, contract administration, and construction inspection of municipal bridge projects. The following are some of the advantages Cardinal can offer:

Bridge Design Experience: Cardinal is prequalified by the Connecticut DOT for Bridge Condition Inspection, Highway and Bridge Design and Construction Engineering (CEI). We have provided design and / or CEI services for over 72 state and municipal bridges over the past 10 years including fifty (50) State and Federal Local Bridge and four (4) LOTCIP funded projects. Cardinal also recently completed design of the rehabilitation of the Gold Star Memorial Bridge in Groton/New London, a \$25 million project for the Connecticut DOT.

Project Staffing: Mr. Joseph A. Cermola, III, P.E., President, will serve as Principal-in-Charge. Mr. Gary Giroux, P.E. and Patrick Crowell, P.E., both with over 30 years of experience, will provide Contract Administration. David Foley, P.E. our Construction Services Manager, will provide support. Justin Wengell, NICET III, with over 20 years of construction inspection experience, will serve as Resident Project Representative. Mr. Charles Hornak, P.E., certified by NETTCP and ACI for HMA paving and concrete inspection will coordinate materials testing. Mr. Hornak has been involved in the design and has provided contract administration services for all of our federal local bridge projects. Additional inspection staff and our surveying staff are available, if necessary. We also have a full-service surveying department.

Familiarity with the Federal Local Bridge Program: Cardinal has provided design and construction administration and resident engineering services for many Federal Local Bridge projects that are very similar to the Bunker Hill Road bridge. We have worked with the CTDOT MSAT team on these projects as well as several STP projects administered by the State DOT. We are very familiar with the Connecticut DOT requirements for construction contract administration and inspection.

Construction Administration, Engineering, and Inspection Experience: In addition to our design expertise, Cardinal has provided contract administration and resident engineering services on hundreds of municipal projects. We are very familiar with CTDOT construction inspection procedures, having provided those services for many STP, LOTCIP and State and Federal bridge projects. Therefore, we can provide all the services required for a typical municipal project.

Ability to respond to requests for assistance in a timely manner: Cardinal is accustomed to serving in an on-call capacity, providing engineering services on an as-needed basis. We have the resources and expertise to respond efficiently and effectively to requests for assistance. Our present workload will allow our key personnel to be available to start work immediately, if selected for this assignment.

RFP AN-2024-25 01
Bunker Hill Road Bridge

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February 20, 2024

We invite you to contact the individuals who are familiar with our firm – please refer to Section 5 for reference contact information.

We are available to meet with you at your convenience to discuss our qualifications in further detail. Please do not hesitate to contact me at any time if you should require any additional information or have any questions regarding this submission.

Very truly yours,

CARDINAL ENGINEERING ASSOCIATES, INC.

A handwritten signature in blue ink, reading "Joseph A. Cermola III".

Joseph A. Cermola III, P.E.
President

TOWN OF ANDOVER, CONNECTICUT
REPLACEMENT OF BUNKER HILL ROAD BRIDGE

CARDINAL
ENGINEERING ASSOCIATES

SECTION 2

FIRM PROFILE

COMPANY OVERVIEW

HISTORY, EXPERIENCE & CAPABILITIES

Cardinal Engineering Associates, Inc. ("Cardinal") is a Connecticut-based consulting engineering firm established in 1962 and headquartered in the City of Meriden since 1965. The firm was originally founded as a Partnership and later incorporated in 1971 under the laws of the State of Connecticut.

CARDINAL PROVIDES COMPREHENSIVE, INNOVATIVE AND COST-EFFECTIVE DESIGN SOLUTIONS FOR MULTI-DISCIPLINED MUNICIPAL ENGINEERING PROJECTS.

Cardinal has over 60 years' experience in planning, design and supervision of construction for a wide range of public works projects. In addition to the extensive list of Towns and Cities that we have worked for, our firm has completed assignments for the State of Connecticut Department of Transportation, Department of Energy and Environmental Protection, and Division of Construction Services.

CARDINAL IS PRE-QUALIFIED BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION IN THE CATEGORIES OF HIGHWAY AND BRIDGE DESIGN, BRIDGE & STRUCTURE INSPECTION, CONSTRUCTION CONTRACT ADMINISTRATION AND CONSTRUCTION INSPECTION (ROAD & BRIDGE).

Our seasoned team of professionally-licensed engineers have diverse backgrounds and complementary areas of specialization. We have a support staff of experienced technicians, surveyors, draftsmen and inspectors. Cardinal is capable of managing and performing the services required for the successful completion of complex civil engineering projects. Our extensive portfolio, technical expertise, and strong leadership combine to yield successful results for our clients.

- FEASIBILITY STUDIES
- SURVEYING AND MAPPING
- PRELIMINARY AND FINAL DESIGN
- PREPARATION OF CONSTRUCTION PLANS AND SPECIFICATIONS
- ENVIRONMENTAL PERMITTING
- PREPARATION OF FUNDING APPLICATIONS
- PREPARATION OF BID DOCUMENTS
- BID PHASE SERVICES
- CONSTRUCTION CONTRACT ADMINISTRATION
- RESIDENT ENGINEERING

COMPANY OVERVIEW

HISTORY, EXPERIENCE & CAPABILITIES

Cardinal has extensive expertise in all areas related to the design of civil engineering projects including, but not limited to the following:

TRANSPORTATION SYSTEMS

- Roadway Design
- Intersection Improvements
- Route Selection and Alignment Studies
- Bridges, Culverts, and Retaining Walls
- Utility Relocations and Improvements
- Drainage Design
- Pavement Analysis and Design
- Pavement Rehabilitation Programs
- Traffic Engineering
- State and Federal Funding Assistance
- Streetscapes & Sidewalks

SITE PLANNING & DESIGN

- Schools & Colleges
- Industrial Parks
- Public Parks & Playgrounds
- Parking Facilities
- Athletic Fields
- Bike Trails
- Residential Developments
- Commercial Developments

WASTEWATER COLLECTION

- Wastewater Management
- Feasibility Studies & Facility Plans
- Sanitary Sewer Extensions
- Combined Sewer Separation
- Sewer User Charges & Assessments
- Inflow & Infiltration studies
- Sewer System Evaluation Surveys
- Pumping Station Design
- Septic System Design
- Environmental Permitting
- Funding Applications and Assistance

WATER RESOURCES

- Hydraulic Analysis
- Hydrologic Studies
- River Hydraulics
- Bridge and Culvert Design
- Flood Control & Drainage Studies
- Beach Erosion Control
- Storm Drainage Facility Plans
- Environmental Permitting
- Wetland Mitigation
- Storm Water Management

LAND SURVEYING

- Topographic Surveys
- Boundary Surveys
- Easement & Taking Maps
- Construction Stakeout

CONSTRUCTION ENGINEERING

- Contract Administration
- Resident Engineering
- Bidding & Award Assistance
- Funding Reimbursements
- As-Built Drawings

TOWN OF ANDOVER, CONNECTICUT
REPLACEMENT OF BUNKER HILL ROAD BRIDGE

CARDINAL
ENGINEERING ASSOCIATES

SECTION 3

PROJECT
EXPERIENCE

SUMMARY OF EXPERIENCE

CONTRACT ADMINISTRATION & CONSTRUCTION INSPECTION

CARDINAL
ENGINEERING
HAS PROVIDED
CONSTRUCTION
CONTRACT
ADMINISTRATION
AND INSPECTION
ON OVER 100
MUNICIPAL
PROJECTS



OVER THE PAST
10 YEARS, WE
HAVE OBSERVED
CONSTRUCTION
OF OVER \$60
MILLION IN
CONSTRUCTION
PROJECTS

CARDINAL
ENGINEERING ASSOCIATES

SUMMARY OF EXPERIENCE

CONTRACT ADMINISTRATION & CONSTRUCTION INSPECTION

Municipality/Agency	Project
Town of Cheshire	Country Club Road Bridge Replacement East Johnson Avenue Bridge Replacement (SPN 23-143)
Town of Vernon	South Street Reconstruction (SPN 146-195); Regan Road Reconstruction; Center Road Reconstruction; Bolton Road Reconstruction; Hatch Hill Road Reconstruction; Brandy Hill Road Reconstruction; Prospect Street Reconstruction Mountain, Webster and Lawrence Streets Reconstruction High Street Reconstruction West Main Street Bridge (SPN 146-188) Bolton Road Bridge Replacement Thrall Road Reconstruction
City of Middletown	West Lake Drive Reconstruction (LOTICIP) City-wide Sewer Separation and Street Reconstruction - 15 Projects Mattabasett Regionalization Force Main Project Mattabasett Regionalization Pump Station Project Nejako Drive Reconstruction Middle Street Water and Sewer Extension Industrial Park Road Reconstruction Fountain Avenue CSO & Road Reconstruction Columbus Avenue Reconstruction Westfield Street Reconstruction Birchwood Drive and Spruce Street Reconstruction Old Mill Road Reconstruction Randolph Road Reconstruction Wadsworth Street Reconstruction Arbutus Street Sanitary Sewer Extension Margarite Road Sanitary Sewer Extension Mattabasett Bike Trail - Phase I and II Mill Street Bridge Replacement; Brown Street Bridge Replacement Freeman Road Bridge Replacement Route 66 Reconstruction - Water and Sewer Replacement
Greater New Haven Water Pollution Authority	Trumbull Street Combined Sewer Separation Project
Town of Cromwell	Town-wide Sewer Rehabilitation Coles Road Reconstruction Chelsea Estate Roadway Reconstruction Irongate Lane Reconstruction Coles Brook Sewer Interceptor County Line Road Extension and Signal Design Shunpike Road Sewer Extension & Pump Station Coles Road Interceptor Geer and Court Streets Sewer Extensions Nordland Avenue Interceptor Kirby Road Sewer Extension
City of New Haven	Orange Street Combined Sewer Separation Project Phase I Orange Street Combined Sewer Separation Project Phase II Elm Street Combined Sewer Separation Barnes Avenue Force Main Church Street Combined Sewer Separation Stone Street Pump Station Haven Street Lexington Avenue Realignment
Town of Berlin	Berlin Interceptor Rehabilitation High Road Bridge Replacement Belcher Brook Trunk Sewer Rehabilitation Burnham Street Bridge Replacement Main Street Streetscape

SUMMARY OF EXPERIENCE

CONTRACT ADMINISTRATION & CONSTRUCTION INSPECTION

Municipality/Agency	Project
Town of Litchfield	White Woods Road Bridge Replacement (SPN 73-184) North Shore Road Bridge Replacement (SPN 73-187) Milton Road Bridge Replacement (SPN 73-189) Beach Street Reconstruction Brush Hill Road Bridge Replacement Brush Hill Road Culvert Replacement Mike Road Culvert Replacement Brooks Road Bridge Replacement Moosehorn Road Bridge Replacement West Street Reconstruction Fern Avenue Reconstruction Beach Street Reconstruction
Town of Washington	Spring Hill Road Bridge Replacement Covey Road Bridge Replacement Rabbit Hill Road Bridge Replacement
Town of Weston	Godfrey Road Bridge Replacement
Town of New Fairfield	Smoke Hill Road Bridge Replacement Old Farms Road Bridge Replacement Williams Road Bridge Replacement
Town of Suffield	First to Fourth Street Reconstruction Route 75 Industrial Area Water and Sewer Extension Remington Street Bridge Replacement
Town of Orange	Derby-Milford Road Bridge Replacement (SPN 57-600)
Town of Winchester	West Road Bridge Replacement Overlook Drive Reconstruction Lanson Road Bridge Replacement West Wakefield Blvd Bridge Replacement Main Street Bridge Replacement
Town of Burlington	Barnes Hill Road Bridge Replacement
Town of Stafford	Furnace Avenue Reconstruction Westford Road Bridge Replacement Leonard Road Bridge Replacement Williamson Road Bridge Replacement Evergreen Road Reconstruction
Town of Kent	Carter Road Bridge Rehabilitation
Town of Norfolk	Mountain Road Bridge Replacement Maple Avenue Reconstruction
City of Meriden	Downtown Pavement Rehabilitation

SUMMARY OF EXPERIENCE

BRIDGE DESIGN AND CONSTRUCTION ENGINEERING

CARDINAL ENGINEERING HAS BEEN PREQUALIFIED BY CTDOT FOR BRIDGE & STRUCTURE INSPECTION; BRIDGE AND STRUCTURE DESIGN; CONSTRUCTION ENGINEERING & INSPECTION (ROAD AND BRIDGE) AND HIGHWAY DESIGN. WE HAVE DESIGNED OVER 85 MUNICIPAL BRIDGE PROJECTS, INCLUDING 60 BRIDGES FUNDED UNDER THE LOTCIP OR THE STATE AND FEDERAL LOCAL BRIDGE (FLBP) PROGRAMS AND TWO BRIDGES FOR CTDOT.



SCOPE OF SERVICES:

- GRANT/LOAN APPLICATIONS
- BRIDGE INSPECTION
- SURVEYING & MAPPING
- ENVIRONMENTAL PERMITTING
- HYDROLOGY & HYDRAULICS
- LOAD RATING CALCULATION
- SCOUR ANALYSIS
- DESIGN OF BRIDGE SCOUR PROTECTION
- BRIDGE REPLACEMENT
- BRIDGE REHABILITATION
- CONTRACT ADMINISTRATION
- CONSTRUCTION INSPECTION

SUMMARY OF EXPERIENCE

BRIDGE DESIGN AND CONSTRUCTION ENGINEERING PROJECTS

Municipality	Project
Connecticut Department of Transportation	Rehabilitation of the Gold Star Bridge, Over the Thames River, Groton/New London Replacement of Route One Bridge over Center Brook
Newtown (WESTCOG)	Sawmill Road Bridge over Pond Brook
New Fairfield	Replacement of Smoke Hill Road Bridge over East Lake Brook Replacement of Old Farms Road Bridge over East Lake Brook Replacement of Williams Road Bridge over East Lake Brook
Berlin	Beckley Road Bridge Inspection and Evaluation Spruce Brook Bridge Inspection Replacement of the High Road Bridge (SLBP) Replacement of the Burnham Road Bridge (SLBP) Four (4) Bridge Preservations Under 20' Bridge Inspections - Four (4) Bridges
Weston	Replacement of the Godfrey Road Bridge (SLBP)
Orange	Replacement of the Derby-Milford Road Bridge (State Local Bridge Program)
Vernon	Dart Hill Road Bridge Evaluation and Grant Application Replacement of the West Main St. Bridge over Hockanum River (SPN 146-188) Replacement Rehabilitation of Kelly Road Bridge over I-84 Deck Dobson Road over Tankerhausen River Deck Repairs
Cheshire	Replacement of Country Club Road Bridge Replacement of East Johnson Avenue Bridge over Quinnipiac River Bridge (SPN 23-143) Replacement of South Brooksvale Road over Brooksvale Stream Replacement of Mt. Sanford Road over Brooksvale Stream
Cornwall	Replacement of the Flats Rock Road Bridge
Litchfield	Replacement of White Woods Road Bridge (SPN 73-184) Rehabilitation of North Shore Road Bridge (SPN 73-187) Replacement of Milton Road Bridge (SPN 73-189) Rehabilitation of Clark Road Culvert Replacement of Mike Road Culvert Replacement of Brush Hill Road Culvert Replacement of Brush Hill Road Bridge Superstructure Replacement of Moosehorn Road Culvert (State Local Bridge Program) Replacement of Brooks Road Bridge (State Local Bridge Program) Under 20' Bridge Inspections - 23 Bridges Replacement of Goodwin Hill Road Culvert Replacement of Camp Dutton Road Rehabilitation of Richards Road Culvert
Meriden	Rehabilitation of the Bee Street Bridge over Spoonshop Brook Rehabilitation of the Coe Avenue Bridge over Sodom Brook Kensington Avenue Culvert
Middletown	Replacement of Mill Street Bridge (Federal Local Bridge Program) Replacement of Brown Street Bridge (Federal Local Bridge Program) Replacement of Freemon Road Bridge (Federal Local Bridge Program) Rehabilitation of the Industrial Drive Bridge over Mattabessett River (SPN 82-306)
Morris	Replacement of East Shore Road Bridge John Weik Road Bridge
Greenwich	Under 20' Bridge Inspections & Rehabilitation Design Bruce Park Bridge Design
Coventry	Replacement of Folly Lane Bridge (LOTICIP)
Woodbury	Under 20' Bridge Inspections - 13 Bridges
Woodbridge	Replacement of Merritt Avenue Bridge over West River (SPN 167-106)
Killingworth	Replacement of Reservoir Road Bridge over Menuntesuck River (SPN 69-75)
Rocky Hill	Replacement of France Street Bridge over East Branch of Saw Mill Brook (SLBP)
Shelton	Replacement of the Waverly Road Bridge (Funded Through LOTICIP)
Washington	Replacement of Spring Hill Road Bridge over Kirby Brook Replacement of Rabbit Hill Road Bridge Replacement of Calhoun Road Bridge

SUMMARY OF EXPERIENCE

BRIDGE DESIGN AND CONSTRUCTION ENGINEERING PROJECTS

Municipality	Project
Suffield	Replacement of the Remington Street Bridge (FLBP)
Cromwell	Replacement of North Road Bridge (FLBP)
Norfolk	Replacement of Mountain Road Bridge
Various Towns	Bridge Conditions Inspections
Stafford	Replacement of Williamson Road Bridge (SLBP) Replacement of Leonard Road over Furnace Brook Replacement of Hydeville Road Prel. Engineering Replacement of Westford Road Bridge Replacement of Upper Road Prel. Engineering
Winchester	Replacement of West Road over East Branch Naugatuck River Replacement of Lanson Road over East Branch Naugatuck River Rehabilitation of WPCA Bridge over Naugatuck River Rehabilitation of Smith Hill Road Rehabilitation of West Wakefield over Sucker Brook Replacement of West Wakefield over Taylor Brook Replacement of Walker Brook Replacement of Hannafin Road Bridge Replacement of Two (2) Pedestrian Bridges - Sue Grossman Trail Replacement of Christian Street
New Britain	Two (2) Stanley Quarter Park Pedestrian Bridges - Hydraulic Analysis
Roxbury	Replacement of Davenport Road over Battle Swamp Brook Replacement of Minor Road over Camp Brook Replacement of Squire Hill Road Culvert
Avon	Replacement of Cider Brook Road Bridge (SLBP)
Southbury	Rehabilitation of Flood Road over Pomperaug River Rehabilitation of Heritage Road over Pomperaug River Purchase Avenue Replacement (SLBP)
Burlington	Replacement of Covey Road over Bunnel Brook Replacement of Main Street over Whigville Brook Replacement of Barnes Hill Road Bridge Replacement of Alto Road Replacement of Alpine Road
Canaan	Replacement of Cobble Road Bridge
Kent	Replacement of Carter Road Bridge Under 20' Bridge Inspections - 13 Bridges
Wilton	Replacement of Musket Road Bridge

STATE PROJECT NO. 73-184

REPLACEMENT OF THE WHITE WOODS ROAD BRIDGE

DESIGN AND CONSTRUCTION ENGINEERING SERVICES

LITCHFIELD, CONNECTICUT

PROJECT COMPLETION: 2017 | PROJECT COST: \$ 3,300,000



SCOPE OF SERVICES: SURVEYING & MAPPING | BRIDGE DESIGN | HYDROLOGY & HYDRAULIC ANALYSIS | SCOUR ANALYSIS | ROADWAY DESIGN | PERMITTING | UTILITY COORDINATION | SUBSURFACE EXPLORATION | EASEMENT MAPPING | CONSTRUCTION CONTRACT ADMINISTRATION | RESIDENT ENGINEERING

Cardinal Engineering provided all engineering services for the replacement of the White Woods Road Bridge, which included survey, bridge design, full time contract administration and resident engineering services.

The major concern with the bridge, constructed in 1963, was the scour and undermining of both abutments. Structural stability analysis determined that the abutments were unstable under design scour conditions.

Three alternatives were evaluated during the preliminary engineering phase: bridge replacement, bridge rehabilitation with scour countermeasures, superstructure rehabilitation and structural countermeasures. It was determined that the bridge replacement is the most cost-effective solution.

This project is located within the White Memorial Nature Preserve Habitat and there are several endangered bird species that limited the construction season and required accelerated bridge construction methods. The design consisted of pre-stressed concrete box beam superstructure on integral abutments supported by a pile foundation which greatly simplified construction to meet a shortened schedule for reopening the bridge to traffic, while reducing construction costs and environmental impacts. Construction was completed in December 2017.

This project was funded under the Federal Local Bridge Program.

CLIENT REFERENCE:

RAZ ALEXE, P.E.
DIRECTOR OF PUBLIC WORKS
TOWN OF LITCHFIELD
101 RUSSELL STREET
LITCHFIELD, CT 06759
(860) 567-7571

REPLACEMENT OF THE WEST ROAD BRIDGE EAST BRANCH OF THE NAUGATUCK RIVER BRIDGE DESIGN AND CONSTRUCTION ENGINEERING SERVICES

WINCHESTER, CONNECTICUT

PROJECT COMPLETION: 2016 | PROJECT COST: \$ 600,000



SCOPE OF SERVICES: SURVEYING & MAPPING | BRIDGE DESIGN | HYDROLOGY & HYDRAULIC ANALYSIS | SCOUR ANALYSIS | FLOOD CONTROL STUDIES | HIGHWAY DESIGN | PERMITTING | UTILITY COORDINATION | SUBSURFACE EXPLORATION | EASEMENT MAPPING | CONSTRUCTION CONTRACT ADMINISTRATION | RESIDENT ENGINEERING

Cardinal Engineering provided complete engineering services for the replacement of the West Road Bridge in the Town of Winchester, including survey, design, contract administration, and full-time resident engineering services.

The existing bridge built in late 1920's consisted of a simple span bridge with cast-in-place concrete deck superstructure on stone masonry abutments. The superstructure was severely deteriorated, with large pieces of concrete missing and exposed rebar at the upstream fascia.

Three structure alternatives were studied during the preliminary engineering phase of the project to determine the most cost effective solution for the Town of Winchester.

The selected alternative consisted of a Twin Cell 10'-0" x 7'-0" precast concrete box culvert with precast concrete wingwalls, cut-off walls, and headwalls. The twin cells located within the river to provide for one Low-flow and one High-flow culvert channel.

This project was funded through the State Local Bridge Program. Cardinal obtained the following environmental permits: Army Corps of Engineers CAT II, Winchester Inland Wetland Commission, CTDEEP Fisheries Division concurrence, CTDEEP 401 Water Quality Certification, Winchester Planning and Zoning Commission.

CLIENT REFERENCE:

JAMES ROLLINS
DIRECTOR OF PUBLIC WORKS
TOWN OF WINCHESTER
189 ROWLEY STREET
WINSTED, CT 06098
860-738-6962



STATE PROJECT NO. 33-132

REPLACEMENT OF THE NORTH ROAD EXTENSION BRIDGE

CROMWELL, CONNECTICUT

PROJECT COMPLETION: 2020 | PROJECT COST: \$ 2,000,000



SCOPE OF SERVICES: SURVEYING & MAPPING | MAPPING | CONSTRUCTION CONTRACT ADMINISTRATION | RESIDENT ENGINEERING

Cardinal Engineering Associates provided all engineering services required for the design of the replacement of this bridge which is funded under the Federal Local Bridge Program. Cardinal also provided contract administration and full-time resident engineering services.

North Road Extension is located in the western part of the Town of Cromwell. The existing bridge, built in 1980, was a twin corrugated metal arch culvert with cast-in-place concrete headwalls and wingwalls. The total length of the existing structure was approximately 25ft. The North Road Extension Bridge was in poor structural condition. A 3-sided Rigid Frame Box Culvert on concrete spread footings was proposed to replace the existing arches. The clear span of the new rigid frame structure is 28 feet. The concrete footings were set on concrete sub-footings founded on sound bedrock.

The project also included channel and embankment improvements and the elimination of a stone weir immediately downstream of the project to improve hydraulic conditions. Roadway improvements included maintaining a constant roadway width of 28 feet, construction of a five-foot sidewalk, installation of roadside safety elements and relocation of overhead utilities.

An existing eight-inch gas distribution line and an existing high pressure 36-inch gas transmission line located within the roadway were supported and protected during construction

CLIENT REFERENCE:

JON HARRIMAN, P.E.
TOWN ENGINEER
TOWN OF CROMWELL
41 WEST ST
CROMWELL, CT 06416
(860) 632-3465



STATE PROJECT NO. 146-188

REPLACEMENT OF THE WEST MAIN ST. BRIDGE OVER THE HOCKANUM RIVER

BRIDGE DESIGN AND CONSTRUCTION ENGINEERING SERVICES

VERNON, CONNECTICUT

PROJECT COMPLETION: 2015 | PROJECT COST: \$1,500,000



SCOPE OF SERVICES: SURVEYING & MAPPING | BRIDGE DESIGN | HYDROLOGY & HYDRAULIC ANALYSIS | SCOUR ANALYSIS | FLOOD CONTROL STUDIES | HIGHWAY DESIGN | PERMITTING | UTILITY COORDINATION | SUBSURFACE EXPLORATION | EASEMENT MAPPING | CONSTRUCTION CONTRACT ADMINISTRATION | RESIDENT ENGINEERING

Cardinal Engineering provided complete engineering services for the replacement of the West Main Street Bridge, including survey, bridge design, contract administration, and full time resident engineering services.

The existing 25' bridge - a concrete-encased steel stringer superstructure supported by concrete abutments and wingwalls - was considered scour-critical. The replacement bridge consists of precast concrete deck units on cast in place concrete abutments with a drilled micropile foundation and has a span of 38'.

Required utility relocations were also completed in conjunction with the bridge replacement. These included the installation of a new water main under the riverbed and a new gas main along the fascia of the bridge. Environmental pollutants in the project area required a remedial management plan. Additional considerations included protection of two buildings located in close proximity to the bridge which required vibration and movement monitoring.

Floodway analysis was required, as the bridge is located within a regulated floodway. Cardinal obtained State Flood Management Certification as well as Federal and Local Inland Wetland permits for this project.

This project was funded under the Federal Local Bridge Program.

CLIENT REFERENCE:

DAVID A. SMITH, P.E. L.S.
TOWN ENGINEER
TOWN OF VERNON
14 PARK PLACE
VERNON, CT 06066
(860) 870-3665



ORIGINAL BRIDGE

CARDINAL
ENGINEERING ASSOCIATES

COUNTRY CLUB RD. BRIDGE REPLACEMENT

BRIDGE DESIGN AND CONSTRUCTION ENGINEERING SERVICES

CHESHIRE, CONNECTICUT

PROJECT COMPLETION: 2011 | **PROJECT COST:** \$550,000



SCOPE OF SERVICES: SURVEYING & MAPPING | BRIDGE DESIGN | HYDROLOGY & HYDRAULIC ANALYSIS | SCOUR ANALYSIS | FLOOD CONTROL STUDIES | HIGHWAY DESIGN | PERMITTING | UTILITY COORDINATION | SUBSURFACE EXPLORATION | EASEMENT MAPPING | CONSTRUCTION CONTRACT ADMINISTRATION | RESIDENT ENGINEERING

Cardinal Engineering provided complete engineering services for the replacement of the Country Club Road Bridge, including survey work, bridge design, full-time contract administration, and resident engineering services.

The Country Club Road Bridge was one of several bridges in the Town of Cheshire for which Cardinal was hired to perform condition inspection services.

Our evaluation of this 24' wide, 18.5' long bridge revealed extensive deterioration of the stringers. The worst stringers had up to 100% section loss in the stringer webs directly over the bearings, leaving these stringers with no load capacity. Cardinal immediately advised town officials to close the bridge.

Cardinal developed plans for the total replacement of the bridge. The alternative that was chosen to replace the deteriorated bridge was a 20' precast concrete arch.

Cardinal obtained Federal and Local Inland Wetland permits for this project.

CLIENT REFERENCE:
GEORGE NOEWATNE
DIRECTOR OF PUBLIC WORKS
TOWN OF CHESHIRE
84 SOUTH MAIN STREET
CHESHIRE, CT 06410
(203) 271-6650



REPLACEMENT OF THE EAST JOHNSON AVENUE BRIDGE OVER THE QUINNIPIAC RIVER BRIDGE DESIGN AND CONSTRUCTION ENGINEERING SERVICES

CHESHIRE, CONNECTICUT

PROJECT COMPLETION: 2016 | PROJECT COST: \$2,500,000



SCOPE OF SERVICES: SURVEYING & MAPPING | BRIDGE DESIGN | HYDROLOGY & HYDRAULIC ANALYSIS | SCOUR ANALYSIS | FLOOD CONTROL STUDIES | HIGHWAY DESIGN | PERMITTING | UTILITY COORDINATION | SUBSURFACE EXPLORATION | EASEMENT MAPPING | CONSTRUCTION CONTRACT ADMINISTRATION | RESIDENT ENGINEERING

Cardinal Engineering provided design services, construction inspection and contract administration for the replacement of the East Johnson Avenue Bridge.

The original bridge was an 94 -foot, two-span prestressed concrete deck with a concrete filled steel pipe pile. The bridge was hydraulically inadequate and scour-critical. During preliminary engineering, the center pier was found to be unstable. Cardinal determined that a total replacement was the best option for the structure.

The replacement alternative that was chosen was a 104-foot single span bridge with integral abutments and prestressed concrete box beams. The bottom of the bridge was raised 2 feet to accommodate hydraulics. The roadway was raised approximately 3 feet to accommodate increased structure depth.

The advantages of the chosen design included, 75-year design life requiring less maintenance, simple construction methods, jointless bridge, elimination of center pier and hydraulically adequate opening.

Cardinal obtained a State Flood Management Certification, as well as Federal and Local Inland Wetland permits for this project.

This project was funded under the Federal Local Bridge Program.

CLIENT REFERENCE:

WALTER GANCARZ, P.E.
TOWN ENGINEER
84 SOUTH MAIN STREET
CHESHIRE, CT 06410
(203) 271-6650



STATE PROJECT NO. 73-189

REPLACEMENT OF THE MILTON ROAD BRIDGE

MILTON HISTORIC DISTRICT

DESIGN AND CONSTRUCTION ENGINEERING SERVICES

LITCHFIELD, CONNECTICUT

PROJECT COMPLETION: 2020 | PROJECT COST: \$ 1,500,000



SCOPE OF SERVICES: SURVEYING & MAPPING | BRIDGE DESIGN | HYDROLOGY & HYDRAULIC ANALYSIS | SCOUR ANALYSIS | FLOOD CONTROL STUDIES | HIGHWAY DESIGN | PERMITTING | UTILITY COORDINATION | SUBSURFACE EXPLORATION | EASEMENT MAPPING | CONSTRUCTION CONTRACT ADMINISTRATION | RESIDENT ENGINEERING

Cardinal Engineering Associates provided complete engineering services and construction contract administration for this bridge replacement project which is located in the Milton Historic District within the Town of Litchfield. The original bridge was built in 1915 and was replaced in 1992. The existing timber bridge was found to be scour critical, and structurally and hydraulically inadequate.

CLIENT REFERENCE:

RAZAN ALEXE, P.E.
DIRECTOR OF PUBLIC WORKS
TOWN OF LITCHFIELD
101 RUSSELL STREET
LITCHFIELD, CT 06759
(860) 567-7571

Cardinal conducted a focused structure type study, and coordinated with the Milton Historic Commission to develop a proposed replacement alternative that blends into the historic setting.

The replacement bridge has a length of 25' and a width of 22', and is a concrete slab superstructure with integral abutments founded on micropiles drilled into bedrock. Wing-walls are cast in place with natural stone masonry finish, and timber bridge and approach guide rails were utilized.



This project was funded under the Federal Local Bridge Program. Construction was completed in 2020.

GODFREY ROAD BRIDGE REPLACEMENT

BRIDGE DESIGN AND CONSTRUCTION ENGINEERING SERVICES

WESTON, CONNECTICUT

PROJECT COMPLETION: 2015 PROJECT COST: \$650,000



SCOPE OF SERVICES: SURVEYING & MAPPING | BRIDGE DESIGN | HYDROLOGY & HYDRAULIC ANALYSIS | SCOUR ANALYSIS | FLOOD CONTROL STUDIES | HIGHWAY DESIGN | PERMITTING | UTILITY COORDINATION | SUBSURFACE EXPLORATION | EASEMENT MAPPING

This project consisted of the replacement of the existing Godfrey Road Bridge over the West Branch of the Saugatuck River with a new triple cell 8'x6' precast concrete box culvert. The construction of this project will be funded under the State Local Bridge Program. The bridge was designed in accordance with Connecticut Department of Transportation design standards.

CLIENT REFERENCE:

JOHN CONTE, P.E.
TOWN ENGINEER
TOWN OF WESTON
56 NORTHFIELD ROAD
WESTON, CT 06883
(203) 222-2680

The existing bridge had a deteriorated substructure, was hydraulically inadequate, and was located within a FEMA floodway. The replacement bridge was designed to pass the 100-year storm without overtopping and meet FEMA criteria. A low flow channel was provided for fish passage and boulders were placed in the river to enhance fish habitat.

Cardinal obtained the following environmental permits: Army Corps of Engineers CAT II, Weston Inland Wetland Commission, CTDEEP Fisheries Division concurrence, CTDEEP 401 Water Quality Certification, Weston Planning and Zoning Commission. Cardinal prepared the application for funding under the Local Bridge Program.

The project required coordination with utility companies for the relocation of an existing gas main and overhead power and telephone lines. Cardinal also provided contract administration and inspection for this project.



**Cardinal Engineering
Bridge Experience**

UPDATED 11/22/23

Municipality/Client	Project Title	Funding Source	Scope of Services		Preliminary Engineering	Date	DESIGN SERVICES					CEI SERVICES								
			Design	CEI			DOT	SLBP	LOT/CIP	FLBP	MUNI	SLBP	LOT/CIP	FLBP	MUNI					
CTDOT	Rehabilitation of Gold Star Bridge (SPN 94-252)	CTDOT	x	x		2018	x													
	Replacement of Route One over Center Brook (SPN 170-1940)	CTDOT	x			2018	x													
HAMDEN	Davis Street Bridge	State Local Bridge Program (SLBP)		x		1995		x							x					
SUFFIELD	Replacement of Remington Street over Stony Brook (SPN-139-114)	Federal Local Bridge Program (FLBP)	x	x		2020					x								x	
STAFFORD	Replacement of Leonard Road over Furnace Brook	LOT/CIP	x	x		2022			x								x			
	Replacement of Williamson Road over Chrystal Lake Brook	State LBP	x	x		2020		x							x					
	Replacement of Hydeville Road Prel. Engineering	Federal LBP			x	2020					x									
	Replacement of South Road Prel. Engineering	LOT/CIP			x	2017			x											
	Replacement of Upper Road Prel. Engineering	State LBP			x	2016			x											
	Replacement of Westford Road Bridge	State LBP	x	x		2022		x							x					
CHESHIRE	Replacement of East Johnson Ave. over Quinnipiac River	Federal LBP	x	x		2016					x								x	
	Replacement of Country Club Road over Center Brook	Municipal	x	x		2011					x									x
	Replacement of South Brooksville Road Bridge	Municipal	x			2014					x									
BERLIN	Replacement of High Road over Sebethe River	State LBP	x	x		2019		x							x					
	Rehabilitation of Kensington Road	LOT/CIP			x	2020			x									x		
KILLINGWORTH	Replacement of Burnham Street over Sebethe River	State LBP	x	x		2019		x							x					
	Replacement of Reservoir Road over Menuntesuck River (SPN 69-75)	Federal LBP	x	x		2012					x									
WOODBRIDGE	Replacement Merritt Avenue over West River (SPN 167-106)	Federal LBP	x	x		2015					x								x	
CROMWELL	Replacement of North Road Extension over Coles Brook	Federal LBP	x	x		2020					x								x	
LITCHFIELD	Replacement of White Woods Road Bridge over Bantam River (SPN 73-184)	Federal LBP	x	x		2017					x								x	
	Rehabilitation of North Shore Road Bantam River (SPN 73-187)	Federal LBP	x	x		2018					x								x	
	Replacement of Milton Road over Marshpaug River (SPN 73-189)	Federal LBP	x	x		2020					x								x	
	Superstructure Replacement of Brush Hill Road Bridge	Municipal	x	x		2019										x				x
	Mike Road and Brush Hill Road Culvert Replacement	Municipal	x	x		2018									x					x
	Replacement of Brooks Road Bridge	Municipal	x	x		2019									x					x
	Rehabilitation of Clark Road Culvert	Municipal	x	x		2014									x					x
	Replacement of Goodwin Hill Road Culvert	Municipal	x	x		2021									x					x
	Replacement Headquarters Road	Municipal	x	x		2021									x					x
	Replacement Camp Dutton Road	Municipal	x	x		2020									x					x
	Replacement of Moosehorn Road Culvert	State LBP	x	x		2020		x							x					
	Replacement of Marsh Road Culvert	Municipal			x	2022									x	x				
	Rehabilitation of Brush Hill Road Culvert	Municipal			x	2022									x					x
	Rehabilitation of Richards Road Culvert	Municipal	x			2022									x					
SOUTHBURY	Rehabilitation of Flood Road over Pomperaug River	Municipal	x	x		2022									x					x
	Rehabilitation of Heritage Road over Pomperaug River	Municipal	x	x		2022									x					x
	Purchase Avenue Replacement	State LBP	x									x								
COVENTRY	Replacement of Folly Lane over Skungamaug River (SPN L032-0002)	LOT/CIP	x			2021				x								x		
MIDDLETOWN	Replacement of Mill Street over Long Hill Brook	Federal LBP	x	x		1995					x									x
	Replacement of Brown Street	State LBP	x	x		1995		x								x				
	Replacement of Freeman Road	State LBP	x	x		1995		x								x				
	Rehabilitation of Industrial Park Road over Mattabassett River	Municipal	x	x		2010										x				x
NEW BRITAIN	Two (2) Stanley Quarter Park Pedestrian Bridges - Hydraulic Analysis	Municipal	x			2022										x				
AVON	Replacement of Cider Brook Road over Cider Brook	State LBP	x	x		2020		x									x			
ROCKY HILL	Replacement of France Street over Saw Mill Brook	State LBP	x	x		2017		x									x			
SHELTON	Replacement of Waverly Road over Farm Mill River (SPN 2215)	LOT/CIP	x	x		2019				x									x	
VERNON	Replacement of West Main Street over Hokanum River (SPN 146-188)	Federal LBP	x	x		2015					x									x
	Repairs to Kelly Road Bridge over I-84	Municipal	x			2022										x				
	Replacement of Bolton Road Bridge (SPN 146-860)	State LBP		x		2008		x										x		
MORRIS	Replacement of East Shore Road over Whittlesey Brook	State LBP	x			2022		x										x		
	John Weik Road Bridge	State LBP			x	2022		x										x		
ROXBURY	Replacement of Davenport Road over Battle Swamp Brook	State LBP	x	x		2022		x										x		
	Replacement of Minor Road over Camp Brook	State LBP	x	x		2023		x										x		
	Replacement of Squire Hill Road Culvert	Municipal			x	2021											x			
NORFOLK	Replacement of Main Street Bridge	State LBP	x	x		2022		x										x		
KENT	Carter Road	State LBP	x	x		2019		x										x		
	Kent Hollow Road	State LBP	x			2022		x												
WESTON	Replacement of Godfrey Road Bridge over Saugatuck River	State LBP	x	x		2015		x										x		
	Replacement of West Road over East Branch Naugatuck River	State LBP	x	x		2016		x												
WINCHESTER	Replacement of Lanson Road over East Branch Naugatuck River	State LBP	x	x		2020		x										x		
	Rehabilitation of WPCA Bridge over Naugatuck River	Municipal	x			2019												x		
	Rehabilitation of Smith Hill Road	Municipal	x			2022												x		
	Rehabilitation of West Wakefield over Sucker Brook	Municipal	x	x		2022		x										x		
	Replacement of West Wakefield over Taylor Brook	State LBP	x	x		2022		x										x		
	Replacement of Walker Brook	State LBP	x			2022		x												
	Replacement of Hannafin Road Bridge		x					x												
	Replacement of Two (2) Pedestrian Bridges - Sue Grossman Trail	CTDEEP	x	x		2022												x		
	Replacement of Christian Street	State LBP	x			2022		x												
WASHINGTON	Replacement of Spring Hill Road Bridge	Municipal	x	x		2018												x		
	Replacement of Rabbit Hill Road Bridge	State LBP	x	x		2022		x										x		
	Replacement of Calhoun Road Bridge	State LBP	x	x		2022		x												
BURLINGTON	Replacement of Covey Road over Bunnel Brook	State LBP	x	x		2022		x										x		
	Replacement of Main Street over Whigville Brook	State LBP	x	x		2022		x										x		
	Replacement of Barnes Hill Road Bridge	Federal LBP		x		2020														x
	Replacement of Alto Road	State LBP	x			2022		x												
	Replacement of Alpine Road	State LBP	x			2022		x												
MERIDEN	Kensington Avenue Culvert	State LBP		x		2021												x	x	
CORNWALL	Replacement of Flat Rocks Road over Shepaug River	Municipal	x			2017												x		
GREENWICH	Rehabilitation of 9 Bridges	Municipal	x			2020												x		
	Replacement of Bruce Park Drive - PD	Municipal			x	2020												x		
CANAAN	Replacement of Cobble Road Bridge	Municipal	x			2022		x												
BRISTOL	Replacement of Field Street Culvert	State LBP	x			2022		x												
WILTON	Replacement of Musket Ridge Road Bridge	State LBP	x			2022		x												
HARWINTON	Replacement of Valley Road 1	State LBP	x			2023		x												
	Replacement of Valley Road 2	State LBP	x			2023		x												
NEW FAIRFIELD	Replacement of Smoke Hill Drive	Municipal	x	x		2012													x	
	Replacement of Old Farms Road	Municipal	x	x		2012													x	
	Replacement of Williamson Road	Municipal	x	x		2012													x	
NEWTOWN	Replacement of Saw Mill Road Culvert 1 and 2	Municipal	x	x		2007												x		

SECTION 4

KEY PERSONNEL
RESUMES

ORG CHART

JOSEPH A. CERMOLA, P.E., L.S.

PRESIDENT AND PRINCIPAL-IN-CHARGE

Mr. Cermola is the President and founding partner of Cardinal Engineering Associates, Inc. His supervisory responsibilities include client liaison, quality control oversight on all design projects, problem analysis, special reports, cost estimating. Since founding Cardinal in 1962, Mr. Cermola has served as Principal-in-Charge for the vast majority of the major projects designed by the firm.

The following is a brief summary in which Mr. Cermola served as Principal-in-Charge:

BRIDGE REHABILITATION AND REPLACEMENT PROJECTS

Replacement of Reservoir Road Bridge, Killingworth, CT (# 04716)

Principal-in-Charge for design of this bridge replacement project. The project consisted of the replacement of an existing bridge found to be structurally and hydraulically inadequate. The design included structural type studies, subsurface investigations, scour analysis, hydrologic and hydraulic analysis, and preparation of property taking maps, environmental permitting and obtaining a Flood Management Certificate. Project was funded through the Federal Local Bridge Program.

Replacement of Merritt Avenue Bridge, Woodbridge, CT

Principal-in-Charge for design of this bridge replacement project, which consisted of the replacement of an existing bridge found to be structurally and hydraulically inadequate. The design included structural type studies, subsurface investigations, scour analysis, hydrologic and hydraulic analysis, preparation of property taking maps, environmental permitting and obtaining a Flood Management Certificate. Project was funded through the Federal Local Bridge Program.

Replacement of West Main Street Bridge, Vernon CT (# 04575)

Principal-in-Charge for design of this bridge replacement project. This project involves the replacement of an existing bridge found to be structurally and hydraulically inadequate. The design included structural type studies, subsurface investigations, scour analysis, hydrologic and hydraulic analysis, and preparation of property taking maps, environmental permitting and obtaining a Flood Management Certificate.

Replacement of East Johnson Avenue Bridge, Cheshire, CT

Principal-in-Charge for design of this bridge replacement project. The existing bridge is a two-span, reinforced concrete slab deck unit with a total length of 88 feet, and a width of 30. The bridge is considered scour critical as well as hydraulically inadequate.

Replacement of Country Club Road Bridge, Cheshire, CT

Principal-in-Charge for design of this bridge replacement project. The existing bridge a 24' wide 18.5 long bridge, revealed extensive deterioration of the stringers during routine inspections. The design included structural type studies, subsurface investigations, scour analysis, hydrologic and hydraulic analysis, preparation of property taking maps, environmental permitting.

Replacement of the Saw Mill Road Bridge Nos. 1&2, Newtown, CT

Principal-in-Charge for design of this bridge replacement project. This project consisted of the replacement of two existing bridges found to be structurally and hydraulically inadequate. Bridges Number One and Two carry the Sawmill Road over the Pond Brook. Bridge Number 1 was replaced with a triple 12'x6' reinforced concrete box culvert. Bridge Number 2 was replaced with twin 60" RCP pipes. The design included structural type studies, subsurface investigations,

REGISTRATION

- Professional Engineer, Connecticut, New York, Massachusetts
- Registered Land Surveyor: Connecticut

EDUCATION

- BSCE, Indiana Technical Institute, 1952

AFFILIATIONS AND MEMBERSHIPS

- Connecticut Engineers in Private Practice (Past President)
- Connecticut Association of Land Surveyors (Past President)
- Connecticut Society of Professional Engineers
- Connecticut Society of Civil Engineers
- American Consulting Engineers Council
- Water Pollution Control Federation
- National Society of Professional Engineers
- South Central Regional Water Authority
- Connecticut Association of Street and Highway Officials

PUBLICATIONS

- Co-author, "SWMM Application to Combined Sewerage in New Haven"

JOSEPH A. CERMOLA, P.E., L.S.

CONTINUED

scour analysis, hydrologic and hydraulic analysis.

Rehabilitation of the White Woods Road Bridge, Litchfield, CT

Principal-in-Charge for design of this bridge replacement project. The major concern associated with the bridge is the scour and undermining of both abutments. Additional observations include surface rust of the steel superstructure, scaling of the concrete parapet surfaces, and map cracking of the bridge deck bituminous concrete overlay.

Replacement of Davis Street Bridge, Hamden, CT

Replacement of the Mill Street Bridge, Middletown, CT

Replacement of Brown Street Bridge, Middletown, CT

Replacement of Freeman Road Bridge, Middletown, CT

GARY GIROUX, P.E.

SENIOR PROJECT ENGINEER

Mr. Giroux has over 40 years of management, strategic planning, and business development related to civil engineering for private consulting firms and state government. Mr. Giroux is a professional engineer with experience in site/civil, transportation, structural, environmental and water resources engineering and regulatory compliance coordination.

The following is a brief summary of Mr. Giroux's related experience. He was Project Manager for 70 bridge inspections and evaluations throughout towns in Connecticut. Additionally, he was Project Manager for the inspection of eight (8) Town-owned bridges (under 20-feet) to verify conditions noted from previous Detailed Inspections and the preparation of contract documents for the maintenance repair of the same similar to those allowed under FHWA's Bridge Preservation Program:

BRIDGE REHABILITATION AND REPLACEMENT

Folly Lane Bridge Replacement, Coventry, CT

Project Manager for the replacement design for a prestressed concrete bridge on masonry abutments. The existing deck geometry and hydraulic performance were inadequate. The replacement design includes removing the existing bridge, modifying the roadway profile, and constructing a 48'± span prestressed voided slab superstructure on reinforced concrete substructures with spread footings on bedrock.

Leonard Road Bridge Replacement, Stafford, CT

Project Manager for this project which involves the replacement design for a steel multi-girder bridge on masonry abutments. The bridge spans a dam spillway and the masonry abutments double as training walls for the spillway. The shallow abutments transfer all bridge loads directly to the earthen dam. The replacement design includes removing the existing bridge while maintaining the dam and spillway, constructing a 120'± span temporary pedestrian bridge, modifying the roadway profile, and constructing a 72'± span prestressed NEXT beam superstructure on reinforced concrete substructures with micropiles through the earthen dam to bedrock.

Mountain Road Bridge Replacement, Norfolk, CT

Project Manager for this project which involved a routine inspection, load rating analysis, and current replacement design for a jack-arch, steel girder bridge on masonry abutments. The existing masonry parapets exhibited deterioration, the existing abutment foundation was undermined at the fascia, and the steel girders exhibited significant section loss. Emergency repairs and lane restrictions were recommended. The load rating resulted in a permanent weight restriction for the existing bridge. The replacement design includes removing the existing bridge, modifying the roadway profile, and constructing a precast reinforced concrete box culvert with parallel wingwalls and a concrete core parapet. The parapet and wingwalls will be faced with the existing stone to match the existing bridge aesthetics.

Town of Greenwich - Bridge Inspections/Assessments

Project Manager for the inspection of nine (9) Town-Owned bridges (Under 20-feet) to verify conditions noted from previous Detailed Inspections and the preparation of summary report with cost estimates for the repair of issues similar to those allowed under FHWA's Bridge Preservation Program. Subsequent work included the design and the preparation of contract documents for the maintenance repair of eight (8) bridges. Contract documents included specifications and plans and details of the various repairs.

Town of Litchfield - Bridge Inspections/Assessments

Project Manager for the inspection of 22 Town-Owned bridges (Under 20-feet) to

EDUCATION

- University of Connecticut, MSCE
- Merrimack College, BSCE

REGISTRATIONS

- Professional Engineer – CT, MA, NY, NJ, RI, IN

GARY J. GIROUX, P.E.

CONTINUED

verify conditions noted from previous Detailed Inspections and the preparation of summary report with cost estimates for the repair of issues similar to those allowed under FHWA's Bridge Preservation Program. Subsequent work included detailed inspection of 5 of the bridges with design and preparation of contract documents of 1 emergency superstructure replacement and design of 2 replacement structures under the State/Local Bridge Program.

Town of Winchester - Bridge Inspections/Assessments

Project Manager for the inspection of 22 Town-Owned bridges (Under 20-feet) to verify conditions noted from previous Detailed Inspections and the preparation of summary report with cost estimates for the repair of issues similar to those allowed under FHWA's Bridge Preservation Program. Subsequent work included detailed inspection and design and preparation of contract documents for the 1 replacement structure under the State/Local Bridge Program.

Town of Norfolk - Bridge Inspections/Assessments

Project Manager for the inspection of a Town-Owned bridge (Under 20-feet) to verify conditions noted from previous Detailed Inspections and the preparation of summary report with cost estimates for the repair. Subsequent work included detailed inspection and load rating which resulted in the design and preparation of emergency repairs. Future work will include the design and preparation of contract documents for the replacement under the State/Local Bridge program.

River and Spring Street Bridges, Vernon, CT

Project Manager - Replacement of these two bridges which included prestressed concrete and a precast concrete arch. Extensive hydraulic analysis to determine proper opening and coordination with existing FEMA studies.

Montauk Avenue Bridge, New London, CT

Design Engineer - Prepared a structure type study and developed final contract documents for a prestressed concrete structure over Amtrak.

Emergency Bridge Inspection, Statewide, CT

Project Manager - Performed in-depth inspection and rehabilitation design of five bridges, one of which was the Putnam Bridge between Wethersfield/Glastonbury, CT.

Mott Haven Yard Access, Bronx, NY

Supervising Engineer - Prepared contract documents for a two-span simply supported thru-girder and multi-girder bridges supported by reinforced concrete pier bents; integral with caissons drilled to rock and mechanically stabilized earth system walls.

New York Thruway, Pleasantville, NY

Supervising Engineer - Prepared rehabilitation contract documents for a mainline bridge and a ramp structure over the Saw Mill River Parkway.

39th Street Viaduct, Queens, NY

Supervising Engineer - Prepared contract documents for the replacement of a 24-span, 1,500-foot multi-girder structure over the Sunnyside Yard (LIRR and Amtrak).

Jewett Street Culvert, Ansonia, CT

Project Manager for a twin cell precast concrete box. Project also included the removal of a dam adjacent to the bridge, removal and disposal of contaminated sediment and the construction of a new channel complete with check-dams and bank vegetation conducive to wildlife enhancement.

ROADWAY / ALTERNATIVE TRANSPORTATION

Main Street Streetscape, Berlin, CT

Sr. Project Engineer for the design of landscape / pedestrian improvements to the "Triangle" area of downtown Kensington. Initial phase included the conceptual design of the improvements and extensive public interaction. Subsequent phase will be the preparation of construction documents of the concept approved through public input, including a new parking lot to ease congestion of on-street parking.

JUSTIN WENGELL, NICET III

CHIEF INSPECTOR

Mr. Wengell has over 20 years of construction inspection experience. He has performed construction inspection services for a wide variety of projects including sanitary sewer systems, roadways, multi-use pedestrian trails, sidewalks, bridges and dams. His primary duties included: working with Clients, Contractors, Subcontractors, and various state agencies to ensure that project goals are met; acted as liaison with neighboring property owners to ensure their concerns are addressed and resolved to their satisfaction; prepared and maintained project records such as Change Orders, Contractor Pay Requisitions, Certified Payrolls and Volume Record books as required by various state agencies including ConnDEEP and ConnDOT

Mr. Wengell has served as Chief Inspector for the following State Local Bridge projects over the past three (3) years:

Replacement of Westford Avenue Bridge, Stafford, CT

Chief inspector for this project. The existing bridge was replaced with a precast box culvert with cast-in-place wingwalls. On the downstream side of the bridge 100 lf of concrete wingwalls were installed along a mill pond. The project also included relocation of a sanitary sewer and a water main.

Replacement of Davenport Road Bridge, Roxbury, CT

Chief Inspector for a new 16' x 8' steel plate arch culvert with Concrete headwalls, wingwalls, and foundation. The project completion date was a major concern for town officials and residents wanting to have road opened before school started.

Replacement of West Wakefield Road Bridge over Taylor Brook, Winchester

Chief inspector for the replacement of the existing bridge with a 15' x 5' precast concrete box culvert. The culvert connects Taylor Brook to Highland Lake.

Replacement of Calhoun Street Culvert, Washington, CT

Chief Inspector for a new 4-sided box culvert with wingwalls. This projects water handling system was reconfigured in the field to address a residents concern for saving trees adjacent to the project site. Project completed in two months.

Replacement of Rabbit Hill Road Bridge, Washington, CT

Chief Inspector for a new 4-sided box culvert with wingwalls. Key project issue from Town Residents included Turtle awareness & protection through the duration of the project. The road is also a locally designated scenic road requiring minimal tree cutting. Project completed in two months.

Replacement of Covey Road Bridge, Burlington, CT

Chief Inspector for a new double celled box culvert with wingwalls. Culvert is in a wetlands area and handling water & sediment control was a project priority.

Replacement of Main Street Bridge, Burlington, CT

Chief Inspector for a new double celled box culvert with wingwalls. Culvert is in a wetlands area and handling water & sediment control was a project priority. The project required the relocation of a 24" water main for the New Britain Water Authority.

Reconstruction of Evergreen Road, Stafford, CT

Chief Inspector for Evergreen Road rehabilitation. Daily inspection of work performed was in accordance with plans and specifications and testing guidelines were followed. Constant communication with Residents and Town officials on Project progress and any construction issues that arose.

Kensington Avenue Culvert, Meriden, CT

Chief Inspector for a new 4-sided precast box culvert with precast wingwalls and footings. Project was located near a mall and traffic control and safety was checked daily to ensure compliance. There was also major overhead utility relocations that were coordinated to get the project complete on time.

REGISTRATION

- NICET III
- ACI Concrete Field-Testing, Technician Grade
- NETTCP Certification-HMA Paving Inspector, Concrete, Soils & Aggregates
- OSHA 10-Hour Construction Safety & Health Training

EDUCATION

- B.S. Plymouth State, 2002

JUSTIN WENGELL, NICET III

SENIOR INSPECTOR

Mr. Wengell was Chief Inspector for the following Federal Local Bridge Program projects:

- Peck Orchard Road Bridge, Hartland
- School Ground Road Bridge, Branford
- Stepney Road Bridge Replacement, Redding
- Salmon Brook Crossing Ped.estrian Bridge, Granby
- Town Line Road Bridge, Plymouth
- North Main Street Bridge, Plymouth

Hall Avenue Pedestrian Improvements, Wallingford (ConnDOT 148-208)

Chief Inspector for Streetscape Improvements and a linear trail associated with the Senior Center entailing brick paving along with concrete sidewalks, landscaping, lighting, and trail signage.

Safe Routes to School, South Windsor (ConnDOT 132-130)

Inspection of drainage, paving and sidewalks, as well as on-site material sampling and concrete testing.

Capital Road Improvement Projects, New Milford

Construction inspection and contractor monitoring for construction operations including milling & paving, total pavement reconstruction, drainage improvements and sidewalk replacement for reconstruction of various roads and streets under their town-wide roadway reconstruction plan.

Combined Sewer Separation Project 19 B, Middletown, CT

Chief Inspector for \$ 3 Million project which included 0.5 miles of roadway reconstruction, replacement of 0.5 mile of water main, 0.5 mile of storm drainage, and 0.5 miles of sanitary sewer replacement and rehabilitation completed. Construction was completed in 2021.

CHARLES A. HORNAK, P.E.

CONSTRUCTION COORDINATOR

Mr. Hornak joined Cardinal Engineering Associates in January 2010 as a Civil Engineer. Prior to that he was employed by several other firms in Connecticut and also served as an officer in the United States Army. Mr. Hornak, a graduate of the United States Military Academy, has a broad background in civil engineering which includes roadway and bridge design, stormwater design, environmental engineering, site design, land surveying and construction inspection.

Mr. Hornak's responsibilities included design, preparation of contract drawings and bid documents, and contract administration and inspection.

The following is a brief summary of his experience:

BRIDGE DESIGN, CONSTRUCTION CONTRACT ADMINISTRATION AND INSPECTION

Federal Local Bridge Projects

Remington Street Bridge over Stony Brook, Suffield, CT (State Project No. 139-114)

Design and Contract Administration for this project. The existing multi-cell box culvert was replaced with a 105 foot span bridge with pre-cast NE Bulb Tee beam superstructure supported on a cast-in-place concrete substructure founded on micro-piles drilled into bedrock. The project also included a major horizontal realignment of Remington Street. The project was completed in 2020.

North Road over Coles Brook, Cromwell, CT

Design and Contract Administration for this project. North Road bridge was replaced with a 28 foot span pre-cast concrete rigid frame supported on a micro-pile foundation. The project required support and protection of a 36" high pressure gas pipeline while the rigid frame was slid into place below it. Mr. Hornak was responsible for design and contract administration.

Rehabilitation of the North Shore Road over Bantam River, Litchfield, CT (SPN 73-187)

Resident Engineer for this rehabilitation of this scour critical bridge that included installation of drilled shafts to stabilize the existing substructure. The project also included deck repairs, membrane waterproofing and repair of existing bridge railing.

Merritt Avenue over West River, Woodbridge, CT (State Project 167-106)

Design and Contract Administration for this bridge replacement project, which consisted of the replacement of an existing scour critical and structurally and hydraulically inadequate. The bridge was replaced with a 70 foot prestressed concrete box beam bridge supported on an H-pile foundation.

West Main Street over Hockanum River, Vernon, CT (State Project 146-188)

Design and Contract Administration for this bridge replacement project, which consisted of the replacement of an existing scour critical and structurally and hydraulically inadequate. The bridge was replaced with a 50 foot prestressed concrete box beam bridge supported on a micro-pile foundation.

Replacement of East Johnson Avenue over Quinnipiac River, Cheshire, CT (State Project 25-143)

Design and Contract Administration for this bridge replacement project. The bridge was considered scour critical as well as hydraulically inadequate. The bridge was replaced with a 100 foot span prestressed concrete box beam bridge supported on an H-piles installed in pre-drilled shafts into bedrock.

REGISTRATION

- Professional Engineer, Connecticut

EDUCATION

- BSCE, United States Military Academy, 1989

CHARLES A. HORNAK, P.E.

CONTINUED

Milton Road over Marshepaug River, Litchfield, CT SPN 73-189

The existing bridge, located within the Milton Historic District, was replaced with a 40 foot span cast-in-place semi-integral abutment bridge founded on micro-piles. Mr. Hornak participated in design and provided contract administration.

White Woods Road over Bantam River, Litchfield, CT (State Project 73-184)

Design and Contract Administration for this bridge replacement project. The existing bridge, constructed in 1963 consists of steel stringers with partial length welded cover plates supported on stub pile cap abutments. The major concern associated with the bridge is the scour and undermining of both abutments. The bridge is considered scour critical. Funding for this project is provided by the Federal Local Bridge program.

State Local Bridge Projects

Replacement of Leonard Road Bridge over Furnace Brook, Stafford, CT (Project L134-0002)

Contract Administration and Inspection for this project which included the replacement of a structurally deficient bridge located over an existing stone masonry dam. The bridge was replaced with a 82 foot prestressed concrete box beam superstructure supported on a micro-pile foundation. The project also included installation of a temporary pedestrian bridge and construction of a new low level outlet structure for the dam.

Replacement of West Road Bridge over East Branch of the Naugatuck River , Winchester, CT (Project 9162-0010)

Design and Contract Administration for this project, which consisted of the replacement of an existing structurally deficient bridge. The bridge was replaced with a twin (11' x 5' and 11' x 7') precast concrete box culvert with cast in place wingwalls and headwalls.

Davenport Road over Battle Swamp Brook, Roxbury, CT (Project 9119-0002)

Design and Contract Administration for this project, which consisted of the replacement of an existing structurally deficient bridge. The bridge was replaced with a 16' span structural metal pipe arch with cast in place wingwalls and headwalls.

Replacement of Waverly Road Bridge over Farmill River , Shelton, CT (Project L126-0001)

Design and Contract Administration for this project, which consisted of the replacement of an existing structurally deficient bridge. The bridge was replaced with a twin (11' x 10' and 11' x 8') precast concrete box culvert with cast in place wingwalls and headwalls.

PATRICK CROWELL, P.E.

SENIOR CIVIL ENGINEER

Mr. Crowell has over 30 years of experience in the Civil Engineering and Construction industries having worked for geotechnical consultants and a site contractor. His experience includes field inspections on large earthwork projects for pile foundations, support of excavations, shallow foundations and pavements. He has extensive testing experience having performed numerous sieve/proctors along with compaction tests using a nuclear density gauge. Projects include Stew Leonard's in Danbury, the Connecticut Post Mall expansion in Milford and Grade A Shoprite in Norwalk. The latter two included the widening of Route 1 to accommodate new turning lanes. Most recently, Mr. Crowell worked on the new Cyber & Engineering Academic Center at the West Point Military Academy which included the blasting/removal of 300k cy of rock and a 120 ft. deep rock cut

Professional Experience

Cardinal Engineering Associates, Inc., Meriden, Connecticut, 2023-Present

- Contract administration for several Local Bridge Program projects throughout the State including replacement of Covey Road and Main Street bridges in Burlington, West Wakefield Boulevard Bridge in Winchester, Westford Road Bridge in Stafford and Minor Road Bridge in Roxbury and the reconstruction of Maple Avenue in Norfolk and Furnace Avenue in Stafford (LOTICIP-funded project).

AMEC Construction LLC, Norwalk, Connecticut, 2015-2023

- Prepare estimates using Agtek and Heavy Bid

Heller and Johnsen Geotechnical Consultants Stratford, Connecticut, 1993-2015

- Inspect the construction of subdivision roadways and parking lots for private developments. Duties included subgrade inspections, laboratory/compaction testing of subbase and base course aggregates, and compaction testing of bituminous binder and wearing courses.
- Generate proposals and implement planning to satisfy engineering needs of clients
- Design and inspect the installation of drilled and driven pile foundations, support of excavations, shallow foundations and static load test frames
- Coordinate and execute geotechnical investigation programs and prepare the corresponding reports
- Install and utilize instrumentation including inclinometers, tilt meters and crack monitors
- Perform dynamic pile testing using strain sensors and accelerometers
- Monitor static load test programs for pile foundations
- Conduct laboratory testing including consolidation tests, hydrometers, Proctor tests and Atterberg limits
- Manage and coordinate earthwork projects of residential and commercial structures

GZA GeoEnvironmental, Inc., Trumbull, Connecticut, 1989-1993

- Log test borings and test pits
- Perform field inspections

REGISTRATION

- Professional Engineer, CT

EDUCATION

- B.S., University of Connecticut, 1989
- B.S., Fairfield University, 1989

SOFTWARE

- GRLWEAP
- Bluebeam
- Agtek
- Heavy Bid
- LPile
- Driven
- Shoring Suite
- Slope/W

CERTIFICATIONS

- NETTCP HMA Inspection

DAVID F. FOLEY, P.E.

CONSTRUCTION SERVICES MANAGER

Mr. Foley has over twenty years of construction inspection experience in roadway, drainage and bridge projects. He has been Resident Engineer for dozens of roadway and bridge construction projects funded under the CTDOT.

The following is a brief summary of his experience:

Replacement of Merritt Avenue Bridge, Woodbridge CT (SPN 167-106)
Resident Engineer for the replacement of the Merritt Avenue Bridge over the West River with a 52' single span structure, 33' wide consisting of pre-stressed concrete box beams on full-height cast in place concrete abutments on piles.

Replacement of East Johnson Avenue Bridge, Cheshire, CT
Resident Engineer for the replacement of this bridge replacement project. The existing bridge was a two-span, reinforced concrete slab deck unit with a total length of 88 feet, and a width of 30. The bridge was considered scour critical as well as hydraulically inadequate. Project was funded through the Federal Local Bridge Program.

Replacement of White Woods Road Bridge, Litchfield, CT
Resident Engineer for the replacement of this 105-foot span bridge replacement project. The bridge design consists of pre-stressed concrete box beam superstructure with open bridge rails on integral abutments supported by a pile foundation which reduced impacts to the river and greatly simplified construction to meet a shortened schedule for reopening the bridge to traffic.

Replacement of the Milton Road Bridge, Litchfield, CT (SPN 73-189)
Resident Engineer for this bridge replacement project, which consisted of the replacement of an existing bridge found to be structurally and hydraulically inadequate. Funding for this project is provided by the Federal Local Bridge program.

Replacement of Derby-Milford Road Bridge, Orange, CT
Resident Engineer for this bridge replacement project. The design included structural type studies, subsurface investigations, scour analysis, hydrologic and hydraulic analysis, environmental permitting.

Replacement of Barnes Hill Road, Burlington, CT
Resident Engineer for this superstructure replacement, Barnes Hill Road Bridge over Burlington Brook.

Town of Greenwich - Bridge Inspections/Assessments
Resident Engineer for the design and the preparation of contract documents for the maintenance repair of eight (8) bridges. Contract documents included specifications and plans and details of the various repairs.

South Street Reconstruction, Vernon, CT
Serving as Senior Inspector for this STP Urban-funded reconstruction project, which is a 4,700 foot urban collector road.

Reconstruction of Route 189 over the Farmington River
Resident Project Representative for bearing replacements and full deck reconstruction.

US Route 1 over Metro North Railroad and Amtrak, Milford CT
CTDOT Resident Project Representative responsible for bridge replacement

REGISTRATION

- Professional Engineer, Connecticut

EDUCATION

- BSCE, University of Hartford, 1980

DAVID F. FOLEY, P.E.

CONTINUED

including demolition of plate girder bridge and replacement with pre-stressed concrete structure.

Connecticut Route 34 over the Wilbur Cross Parkway

CTDOT Resident Project Representative responsible for partial arch reconstruction and parapet replacement with textured concrete.

Connecticut Route 142 over the East Haven River

CTDOT Resident Project Representative responsible for bridge replacement with demolition of cast in place deck and abutments, sheet pilings and dewatering plans and replacement with pre-stressed concrete structure.

Fairfield Avenue over I-95, Stamford, CT

CT DOT Resident Project Representative responsible for partial deck repairs.

I-95 over South Compo Road, Westport, CT

CT DOT Resident Project Representative responsible for partial deck repairs.

NYC Transit Authority, 149th Street Bridge over Metro North Amtrak, Bronx, NY

Resident Engineer for the full deck replacement with cast in place concrete structure. This project required daily interaction with contractor's superintendent, the department's representative, extensive maintenance and protection of traffic, enforcement of environmental requirements, schedule coordination. Directly responsible for contract compliance, project records monthly payments, change order estimating and preparation.

NYC Transit Authority, Grand Concourse and 151st Street Bridge over Metro North Amtrak, Bronx, NY

Resident Engineer for the plate girder truss replacement and repair, Deck replacement with cast in place concrete. This project required daily interaction with contractor's superintendent, the department's representative, extensive maintenance and protection of traffic, enforcement of environmental requirements, schedule coordination. Directly responsible for contract compliance, project records monthly payments, change order estimating and preparation.

Construction Inspection of Gampel Pavilion at University of Connecticut, Storrs, CT

Maintained project schedules, checked labor and materials of subcontractors; Resolved problems with general contractor and architect. Reviewed and approved general contractors monthly requisitions, additional work claims and change orders.

Life Care Center

Worked with architect, design engineers and owners on construction of Life Care Center with 196 units and attached skilled nursing facility. Involved in planning, scheduling, financial management, construction and trade coordination. Maintained complete and accurate project records. Estimated, priced and negotiated change orders.

Town of Andover
Construction Inspection Services
State Project No. 0001-0106
Replacement of Bunker Hill Road Bridge Over Hop River



Joseph A. Cermola, III, P.E.
Principal-in-Charge

***Construction Contract
Administration***
Gary Giroux, P.E.
Pat Crowell, P.E.
Charles Hornak, P.E.

David Foley, P.E.
***Construction Services
Manager***

Surveying
Bernard J. Cermola, L.S.
Matthew Cermola
Michael Cermola, EIT

***Resident Project
Representatives***
Justin Wengell, NICET III
Charles Hornak, P.E.

TOWN OF ANDOVER, CONNECTICUT
REPLACEMENT OF BUNKER HILL ROAD BRIDGE

CARDINAL
ENGINEERING ASSOCIATES

SECTION 5

PROFESSIONAL
REFERENCES

SF 330 FORM

CLIENT REFERENCES

CONTACT INFORMATION

TOWN OF LITCHFIELD:

RAZEN ALEXE, P.E.
DIRECTOR OF PUBLIC WORKS
101 RUSSELL STREET
LITCHFIELD, CT 06759
860-597-7571
DATES OF SERVICE: 2013-PRESENT

TOWN OF STAFFORD

DEVIN COWPERTHWAIT
DIRECTOR OF PUBLIC WORKS
210 EAST STREET
STAFFORD SPRINGS, CT 06076
860-684-3448
DATES OF SERVICE: 2018-PRESENT

TOWN OF NORFOLK

MATTHEW RIISKA
FIRST SELECTMAN
19 MAPLE AVENUE
NORFOLK, CT 06058
860-542-5829
DATES OF SERVICE: 2019 - PRESENT

TOWN OF AVON

LARRY BARIL, P.E.
TOWN ENGINEER
60 WEST MAIN STREET
AVON, CT 06001
860-409-4322
DATES OF SERVICE: 2019-PRESENT

TOWN OF VERNON:

DAVID A. SMITH, P.E., TOWN ENGINEER
ENGINEERING DEPARTMENT
14 PARK PLACE
VERNON, CT 06066
860-870-3665
DATES OF SERVICE: 2003-PRESENT

TOWN OF BURLINGTON

SCOTT THARAU, DIR. PUBLIC WORKS
200 SPIELMAN HIGHWAY
BURLINGTON, CT 06013
860-673-6789
DATES OF SERVICE: 2020-PRESENT

CITY OF MIDDLETOWN:

THOMAS NIGOSANTI, P.E.
CITY ENGINEER
245 DEKOVEN DRIVE
MIDDLETOWN, CT 06457
203-389-3421
DATES OF SERVICE: 1980-PRESENT

TOWN OF CROMWELL

JON HARRIMAN, P.E.
TOWN ENGINEER
41 WEST STREET
CROMWELL, CT 06416
860-632-3465
DATES OF SERVICE: 1980-PRESENT

TOWN OF KENT

J. RICK OSBORNE
41 KENT GREEN BLVD
KENT, CT 06757
860-927-3491
DATES OF SERVICE: 2018-PRSENT

TOWN OF BERLIN

JAMES HORBAL
DEPUTY PUBLIC WORKS
240 KENSINGTON ROAD
BERLIN, CT 06037
860-828-7069
DATES OF SERVICE: 2011-PRSENT

ARCHITECT – ENGINEER QUALIFICATIONS

PART 1 – CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

1. TITLE AND LOCATION (City and State)

**Replacement of Bunker Hill Road Bridge
Andover, Connecticut**

2. PUBLIC NOTICE DATE

January 24, 2024

3. SOLICITATION OR PROJECT NUMBER

AN-2024-25 01

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE

Joseph A. Cermola, III, P.E. – President

5. NAME OF FIRM

Cardinal Engineering Associates Inc.

6. TELEPHONE NUMBER

203-238-1969

7. FAX NUMBER

203-630-2056

8. E-MAIL ADDRESS

jess@cardinal-engineering.com

C. PROPOSED TEAM

(Complete this section for the prime contractor and all key subcontractors)

	(Check)			9. FIRM NAME	10. ADDRESS	11. ROLE IN THIS CONTRACT
	PRIME	J-V PARTNER	SUBCON TRACTOR			
a.	X			Cardinal Engineering Associates, Inc. ☐ CHECK IF BRANCH OFFICE	180 Research Parkway Meriden, CT 06450	Engineering / Inspection
b.				☐ CHECK IF BRANCH OFFICE		
c.				☐ CHECK IF BRANCH OFFICE		
d.				☐ CHECK IF BRANCH OFFICE		
e.				☐ CHECK IF BRANCH OFFICE		

D. ORGANIZATIONAL CHART OF PROPOSED TEAM

☒ (Attached)

Town of Andover
Construction Inspection Services
State Project No. 0001-0106
Replacement of Bunker Hill Road Bridge Over Hop River



Joseph A. Cermola, III, P.E.
Principal-in-Charge

***Construction Contract
Administration***
Gary Giroux, P.E.
Pat Crowell, P.E.
Charles Hornak, P.E.

David Foley, P.E.
***Construction Services
Manager***

Surveying
Bernard J. Cermola, L.S.
Matthew Cermola
Michael Cermola, EIT

***Resident Project
Representatives***
Justin Wengell, NICET III
Charles Hornak, P.E.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each key person.)

12. NAME Joseph A. Cermola, III, PE	13. ROLE IN THIS CONTRACT Principal-in-Charge	14. YEARS EXPERIENCE	
		a. TOTAL 31	b. WITH CURRENT FIRM 27

15. FIRM NAME AND LOCATION (City and State)

Cardinal Engineering Associates Inc. (Meriden, CT)

16. EDUCATION (DEGREE AND SPECIALIZATION) M.S.C.E / Civil Engineering B.S.C.E. / Civil Engineering	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Professional Engineer: CT
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18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

As Principal-in-Charge / Project Manager, Mr. Cermola is responsible for the supervision of the design engineers, management of the work in progress, liaison between the contractor and owner, and supervisor of resident engineering staff and contract administration.

19. RELEVANT PROJECTS

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
a.	Rehabilitation of Gold Star Bridge (ConnDOT) Groton/New London, CT	2014	2016
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Senior Project Manager for design of this bridge rehabilitation project. The project consisted of the rehabilitation of Connecticut's Longest Bridge with a length of 1+ mile/6,000'. The purpose was to extend the service life of a structurally deficient bridge for approximately 20 years. <i>Construction Cost: \$21,000,000</i>		
b.	Replacement of White Woods Road Bridge Litchfield, CT	2014	On-going
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Senior Project Manager for design and construction contract administration of this bridge replacement project, which consisted of the replacement of an existing bridge found to be structurally and hydraulically inadequate, as well as scour critical. Funding for this project is provided by the Federal and Local Bridge program. <i>Project Cost: \$2,000,000</i>		
c.	Replacement of Merritt Avenue Bridge Woodbridge, CT	2012	2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Senior Project Manager for design and construction contract administration for this 52' bridge replacement project, which consisted of the replacement of an existing bridge found to be structurally and hydraulically inadequate. Funding for this project is provided by the Federal Local Bridge program. <i>Project Cost: \$1,500,000</i>		
d.	Replacement of West Main Street Bridge Vernon, CT	2012	2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Senior Project Manager for design and construction contract administration for this 25' bridge replacement project. This project involved the replacement of an existing bridge found to be structurally and hydraulically inadequate. Funding for this project is provided by the Federal Local Bridge program. <i>Project Cost: \$1,500,000</i>		
e.	Replacement of Reservoir Road Bridge Killingworth, CT	2008	2010
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Senior Project Manager for design of this bridge replacement project. The project consisted of the replacement of an existing bridge found to be structurally and hydraulically inadequate. Funding for this project is provided by the Federal Local Bridge program. <i>Project Cost: \$600,000</i>		

STANDARD FORM 330 (3/2013)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each key person.)

12. NAME Gary Giroux, P.E.	13. ROLE IN THIS CONTRACT Project Manager	14. YEARS EXPERIENCE a. TOTAL 47	b. WITH CURRENT FIRM 5
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15. FIRM NAME AND LOCATION (City and State)

Cardinal Engineering Associates Inc. (Meriden, CT)

16. EDUCATION (DEGREE AND SPECIALIZATION) M.S., Civil Engineering B.S., Civil Engineering	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Professional Engineer: CT, MA, NY, NJ, RI, IN
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18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

He has over forty-five years of experience in management, strategic planning, and business development related to civil engineering for private consulting firms and state government. Mr. Giroux also has vast experience in transportation, structural, environmental and water resources engineering, and regulatory compliance/coordination. He provides oversight in the preparation of design plans, specifications, construction documents, and reports, as well as permit applications for Federal, State and Local approvals.

19. RELEVANT PROJECTS

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
a.	Replacement of Williamson Road Bridge Stafford, CT (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Project Manager for this project which consisted of the replacement of the existing bridge with a new 20' x 8' precast concrete box culvert. The bridge was designed to pass the 100-year storm. The roadway was widened and realigned vertically and horizontally to meet CTDOT highway design standards. Construction was staged to maintain traffic during construction.	2020	2021
b.	Bridge Replacement Design for Bridge 04632, Folly Lane over Skungamaug River (Coventry, CT) (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE This project involves the replacement design for a prestressed concrete bridge on masonry abutments. The existing deck geometry and hydraulic performance were inadequate. The replacement design includes removing the existing bridge, modifying the roadway profile, and constructing a 48'± span prestressed voided slab superstructure on reinforced concrete substructures with spread footings on bedrock. Performing comprehensive structural engineering for project.	2019	2020
c.	Bridge Replacement Design for Bridge 04478, Leonard Road over Furnace Brook (Stafford, CT) (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE This project involves the replacement design for a steel multi-girder bridge on masonry abutments. The bridge spans a dam spillway and the masonry abutments double as training walls for the spillway. The shallow abutments transfer all bridge loads directly to the earthen dam. The replacement design includes removing the existing bridge while maintaining the dam and spillway, constructing a 120'± span temporary pedestrian bridge, modifying the roadway profile, and constructing a 72'± span prestressed NEXT beam superstructure on reinforced concrete substructures with micropiles through the earthen dam to bedrock. Performing comprehensive structural engineering for project.	2019	2020
d.	Town of Wilton – Bridge Inspection / Assessments Wilton, CT (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Project Manager for the inspection of 4 Town-Owned bridges (1 Under 20-feet and 3 over 20-feet) to verify conditions noted from previous Detailed Inspections and the preparation of summary report with cost estimates for the repair of issues similar to those allowed under FHWA's Bridge Preservation Program. Subsequent work included detailed inspection of the under 20-foot bridge with preliminary design and cost estimates for the replacement of same.	2018-2019	
e.	Bridge Inspection and Replacement Design for Bridge 097-004, Mountain Road over Norfolk Brook (Norfolk, CT) (3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE This project involved a routine inspection, load rating analysis, and current replacement design for a jack-arch, steel girder bridge on masonry abutments. The existing masonry parapets exhibited deterioration, the existing abutment foundation was undermined at the fascia, and the steel girders exhibited significant section loss. Emergency repairs and lane restrictions were recommended. The load rating resulted in a permanent weight restriction for the existing bridge. The replacement design includes removing the existing bridge, modifying the roadway profile, and constructing a precast reinforced concrete box culvert with parallel wingwalls and a concrete core parapet. The parapet and wingwalls will be faced with the existing stone to match the existing bridge aesthetics..	2019	2020

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each key person.)

12. NAME Justin Wengell, NICET III	13. ROLE IN THIS CONTRACT Resident Project Representative	14. YEARS EXPERIENCE a. TOTAL 20	b. WITH CURRENT FIRM 5
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15. FIRM NAME AND LOCATION *(City and State)*

Cardinal Engineering Associates Inc. (Meriden, CT)

16. EDUCATION (DEGREE AND SPECIALIZATION) B.S., Civil Engineering	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) NICET III
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18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*

19. RELEVANT PROJECTS

(1) TITLE AND LOCATION <i>(City and State)</i>		(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION <i>(if applicable)</i>
a.	Replacement of Davenport Bridge Roxbury, CT (3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Chief Inspector for a new 16' x 8' steel plate arch culvert with Concrete headwalls, wingwalls, and foundation. The project completion date was a major concern for town officials and residents wanting to have road opened before school started..	2022	2022
Check if project performed with current firm ☒			
b.	Replacement of Calhoun Street Culvert Washington, CT (3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Chief Inspector for a new 4-sided box culvert with wingwalls. This project's water handling system was reconfigured in the field to address a resident's concern for saving trees adjacent to the project site. Project completed in two months.	2021	2022
Check if project performed with current firm ☒			
c.	Replacement of Rabbit Hill Road Bridge Washington, CT (3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Chief Inspector for a new 4-sided box culvert with wingwalls. Key project issues from Town Residents included Turtle awareness & protection through the duration of the project. The road is also a locally designated scenic road requiring minimal tree cutting. Project completed in two months.	2021	2022
Check if project performed with current firm ☒			
d.	Replacement of Main Street Bridge Burlington, CT (3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Chief Inspector for a new double-celled box culvert with wingwalls. Culvert is in a wetlands area and handling water & sediment control was a project priority. The project required the relocation of a 24" water main for the New Britain Water Authority.	2022	2022
Check if project performed with current firm ☒			

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each key person.)

12. NAME Charles Hornak, P.E.	13. ROLE IN THIS CONTRACT Construction Coordinator	14. YEARS EXPERIENCE a. TOTAL 24	b. WITH CURRENT FIRM 12
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15. FIRM NAME AND LOCATION (City and State)

Cardinal Engineering Associates Inc. (Meriden, CT)

16. EDUCATION (DEGREE AND SPECIALIZATION) B.S., Civil Engineering	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Professional Engineer: CT
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18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19. RELEVANT PROJECTS

(1) TITLE AND LOCATION (City and State)		(2) YEAR COMPLETED	
a.	Replacement of Remington Road Bridge Suffield, CT	PROFESSIONAL SERVICES 2020	CONSTRUCTION (if applicable) 2020
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Design and Contract Administration for this project. The existing multi-cell box culvert was replaced with a 105 foot span bridge with pre-cast NE Bulb Tee beam superstructure supported on a cast-in-place concrete substructure founded on micro-piles drilled into bedrock. The project also included a major horizontal realignment of Remington Street. The project was completed in 2020.		
b.	Replacement of Merritt Avenue Bridge Woodbridge, CT	PROFESSIONAL SERVICES 2012	CONSTRUCTION (if applicable) 2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Design and Contract Administration for this bridge replacement project, which consisted of the replacement of an existing scour critical and structurally and hydraulically inadequate. The bridge was replaced with a 70 foot prestressed concrete box beam bridge supported on an H-pile foundation.		
c.	Replacement of West Road Bridge Winchester, CT	PROFESSIONAL SERVICES 2008	CONSTRUCTION (if applicable) On-going
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Design and Contract Administration for this project, which consisted of the replacement of an existing structurally deficient bridge. The bridge was replaced with a twin (11' x 5' and 11' x 7') precast concrete box culvert with cast in place wingwalls and headwalls.		
d.	Replacement of West Main Street Bridge Vernon, CT	PROFESSIONAL SERVICES 2012	CONSTRUCTION (if applicable) 2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Design and Contract Administration for this bridge replacement project, which consisted of the replacement of an existing scour critical and structurally and hydraulically inadequate. The bridge was replaced with a 50 foot prestressed concrete box beam bridge supported on a micro-pile foundation.		
e.	Rehabilitation of White Woods Bridge, Litchfield, CT Litchfield, CT	PROFESSIONAL SERVICES 2014	CONSTRUCTION (if applicable) 2018
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Design and Contract Administration for this bridge replacement project. The existing bridge, constructed in 1963 consists of steel stringers with partial length welded cover plates supported on stub pile cap abutments. The major concern associated with the bridge is the scour and undermining of both abutments. The bridge is considered scour critical. Funding for this project is provided by the Federal Local Bridge program.		

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each key person.)

12. NAME David Foley, P.E.	13. ROLE IN THIS CONTRACT Construction Services Manager	14. YEARS EXPERIENCE	
		a. TOTAL 23	b. WITH CURRENT FIRM 11

15. FIRM NAME AND LOCATION (City and State)

Cardinal Engineering Associates Inc. (Meriden, CT)

16. EDUCATION (DEGREE AND SPECIALIZATION) B.S., Civil Engineering	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Professional Engineer: CT
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18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

19. RELEVANT PROJECTS

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
a.	South Street Reconstruction Vernon, CT	2015	2016
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Served as Senior Inspector for this STP Urban-funded reconstruction project of 4,700' of South Street, an urban collector road. This project included geometric improvements to upgrade the road from a 30 to a 40 MPH design speed, widening from 22' to 30', installation of a new storm drainage system, pedestrian safety improvements, and improvements to six intersections. <i>Project Cost: \$3,000,000</i>		
b.	Replacement of White Woods Bridge, Litchfield, CT Litchfield, CT	2014	2018
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Resident Engineer for the replacement of this bridge replacement project. The bridge design consists of pre-stressed concrete box beam superstructure with open bridge rails on integral abutments supported by a pile foundation which reduced impacts to the river and greatly simplified construction to meet a shortened schedule for reopening the bridge to traffic. <i>Project Cost: \$3,300,000</i>		
c.	Replacement of East Johnson Avenue Bridge Cheshire, CT	2016	2016
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Resident Engineer for the replacement of this bridge replacement project. The existing bridge was a two-span, reinforced concrete slab deck unit with a total length of 88 feet, and a width of 30. The bridge was considered scour critical as well as hydraulically inadequate. Project was funded through the Federal Local Bridge Program. <i>Project Cost: \$2,500,000</i>		
d.	Replacement of Derby-Milford Road Bridge Orange, CT	2018	2019
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Resident Engineer for this bridge replacement project. The design included structural type studies, subsurface investigations, scour analysis, hydrologic and hydraulic analysis, environmental permitting. <i>Project Cost: \$2,300,000</i>		
e.	Replacement of Merritt Avenue Bridge Woodbury, CT	2015	2016
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Resident Engineer for the replacement of the Merritt Avenue Bridge over the West River with a 52' single span structure, 33' wide consisting of pre-stressed concrete box beams on full-height cast in place concrete abutments on piles. <i>Project Cost: \$1,500,000</i>		

STANDARD FORM 330 (3/2013)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT
(Complete one Section E for each key person.)

12. NAME Bernard Cermola, L.S., NICET IV	13. ROLE IN THIS CONTRACT Construction Inspection/Land Surveying	14. YEARS EXPERIENCE a. TOTAL 30 b. WITH CURRENT FIRM 30	
15. FIRM NAME AND LOCATION (City and State) Cardinal Engineering Associates Inc. (Meriden, CT)			
16. EDUCATION (DEGREE AND SPECIALIZATION) B.S., Civil Engineering		17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Professional Land Surveyor: CT NICET IV	
18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)			

19. RELEVANT PROJECTS

	(2) YEAR COMPLETED
(1) TITLE AND LOCATION (City and State) Vernon Road Reconstruction Program Vernon, CT	PROFESSIONAL SERVICES 2005-2018
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Served as Chief of Surveys for the design of the Town of Vernon's \$20 million roadway reconstruction program, which involved reconstruction of over 12 miles of collector roads including extensive drainage improvements and utility relocations. Mr. Cermola was also responsible for oversight of construction contract administration and inspection of 10 construction contracts. <i>Project Cost: \$20,000,000</i>	CONSTRUCTION (if applicable) Various
(1) TITLE AND LOCATION (City and State) South Street Reconstruction Vernon, CT	PROFESSIONAL SERVICES 2015
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Served as Chief of Surveys for this STP Urban-funded reconstruction project of 4,700' of South Street, an urban collector road. This project included geometric improvements to upgrade the road from a 30 to a 40 MPH design speed, widening from 22' to 30', installation of a new storm drainage system, pedestrian safety improvements, and improvements to six intersections. <i>Project Cost: \$3,000,000</i>	CONSTRUCTION (if applicable) 2016
(1) TITLE AND LOCATION (City and State) Nejako Drive Reconstruction Middletown, CT	PROFESSIONAL SERVICES 2012
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Served as Chief of Surveys for the Reconstruction of Nejako Drive which involved the topographical survey for a 1.0 mile roadway reconstruction project. <i>Project Cost: \$2,000,000.</i>	CONSTRUCTION (if applicable) 2013
(1) TITLE AND LOCATION (City and State) West Lake Drive Reconstruction Middletown, CT	PROFESSIONAL SERVICES 2015
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Served as Chief of Surveys for the design and contract administration of this LOTCIP-funded reconstruction project for the City of Middletown. The project involved the reconstruction and drainage improvements to over 5,300' of West Lake Drive. <i>Project Cost: \$3,000,000</i>	CONSTRUCTION (if applicable) 2016
(1) TITLE AND LOCATION (City and State) Allen Street Reconstruction New Britain, CT	PROFESSIONAL SERVICES 2013
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Check if project performed with current firm ☒ Served as Chief of Surveys for the reconstruction of the Allen Street. This project involved the full-depth pavement reconstruction of over 3,300' of urban collector road. This project was funded through LOTCIP. <i>Project Cost: \$5,000,000</i>	CONSTRUCTION (if applicable) 2014

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

1.

21. TITLE AND LOCATION (City and State)

**Rehabilitation of Gold Star Bridge
Groton/New London, CT**

22. YEAR COMPLETED

PROFESSIONAL SERVICES
2015

CONSTRUCTION (if applicable)
2016

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER

CT Department of Transportation

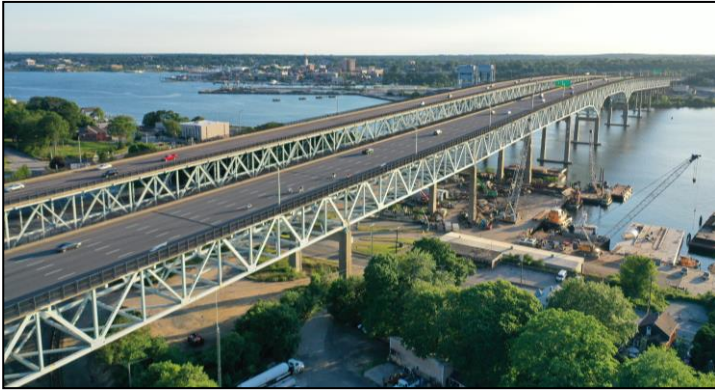
b. POINT OF CONTACT NAME

Andrew Cardinale, P.E.

c. POINT OF CONTACT TELEPHONE NUMBER

(860) 594-2000

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)



In 2015 Cardinal Engineering was selected by the Connecticut Department of Transportation to provide design services for the rehabilitation of the Gold Star Bridge. The Gold Star Bridge is the largest bridge in the State of Connecticut, with a length of 6,000 feet carrying five lanes of Interstate 95 southbound over the Thames River. The bridge, which was constructed in 1973, consists of 13 welded steel multi-girder approach spans, six girder-floor beam-stringer approach spans and 11 steel deck truss main spans. Each span supports a reinforced concrete deck with bituminous overlay.

The purpose of this rehabilitation project was to extend the life of the bridge approximately 15 to 25 years. The scope of services for this project includes developing construction plans for various structural defects, including details for the following:

Scope of Services included: • Repair defective welds and repair superstructure, • Replace strip seal expansion deck joints, • Repair modular deck joints, • Repair bridge drainage system, • Replace existing overlay and waterproofing membrane, • Partial/full depth patches in reinforced concrete deck, • Repair underside of concrete deck, • Patch substructure concrete and stone masonry, • Repair metal bridge rail, repair concrete sidewalk, • Paint removal and painting of superstructure, • Repair bridge drainage system • Replace overhead sign structures • Remove and Replace access ladders on pier columns

Construction cost: \$21,000,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) ROLE
	Cardinal Engineering	Meriden, CT	Prime

STANDARD FORM 330 (3/2013) PAGE 3

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)</i>		20. EXAMPLE PROJECT KEY NUMBER 2.				
21. TITLE AND LOCATION (City and State) Replacement of West Main Street Bridge Vernon, CT		22. YEAR COMPLETED <table border="1"> <tr> <td>PROFESSIONAL SERVICES</td> <td>CONSTRUCTION (if applicable)</td> </tr> <tr> <td>2012</td> <td>2015</td> </tr> </table>	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)	2012	2015
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)					
2012	2015					

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER Town of Vernon	b. POINT OF CONTACT NAME David Smith, Town Engineer	c. POINT OF CONTACT TELEPHONE NUMBER (860) 870-3663
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24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*



Cardinal Engineering provided complete engineering services for the replacement of the West Main Street Bridge, including survey, bridge design, contract administration, and full-time resident engineering services.

The existing 25' bridge - a concrete-encased steel stringer superstructure supported by concrete abutments and wingwalls - was considered scour-critical. The replacement bridge consists of precast concrete deck units on cast in place concrete abutments with a drilled micropile foundation and has a span of 36'. Environmental pollutants in the project area required a remedial management plan.

Required utility relocations were also completed in conjunction with the bridge replacement. These included the installation of a new water main under the riverbed and a new gas main along the fascia of the bridge. Environmental pollutants in the project area required a remedial management plan. Additional considerations included protection of two buildings located in close proximity to the bridge which required vibration and movement monitoring.

Water surface profiles and floodway analysis was required, as the bridge is located within a regulated floodway. Cardinal obtained State Flood Management Certification as well as Federal and Local Inland Wetland permits for this project.

This project was funded under the Federal Local Bridge Program.

Project cost: \$1,500,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a.	(1) FIRM NAME Cardinal Engineering	(2) FIRM LOCATION (City and State) Meriden, CT	(3) ROLE Prime
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F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)</i>		20. EXAMPLE PROJECT KEY NUMBER 3.				
21. TITLE AND LOCATION (City and State) Replacement of Merritt Avenue Bridge Woodbridge, CT		22. YEAR COMPLETED <table border="1"> <tr> <td>PROFESSIONAL SERVICES</td> <td>CONSTRUCTION (if applicable)</td> </tr> <tr> <td>2012</td> <td>2015</td> </tr> </table>	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)	2012	2015
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)					
2012	2015					

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER Town of Woodbridge	b. POINT OF CONTACT NAME Warron Connors, Operations Manager	c. POINT OF CONTACT TELEPHONE NUMBER (203) 389-3421
24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)		



Cardinal Engineering provided complete engineering services for the replacement of the Merritt Avenue Bridge, including survey, bridge design, contract administration, and full time resident engineering services.

The existing bridge was found to be structurally and hydraulically inadequate. The replacement bridge has a span of 52' and consists of precast concrete deck units on cast in place concrete abutments with a simulated stone masonry finish. The foundation consists of steel H-piles driven to bedrock.

The project included the relocation of a concrete-encased sanitary sewer across the river. A new water main was installed along the fascia of bridge. Other site constraints included several buildings located in close proximity to the bridge (requiring vibration and movement monitoring) and environmental limitations due to fish migration.

Water surface profiles and floodway analysis were required, as the bridge is located within a regulated floodway. Cardinal obtained State Flood Management Certification as well as Federal and Local Inland Wetland permits for this project.

This project was funded under the Federal Local Bridge Program.

Project cost: \$1,500,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT		
a. (1) FIRM NAME Cardinal Engineering	(2) FIRM LOCATION (City and State) Meriden, CT	(3) ROLE Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

4.

21. TITLE AND LOCATION (City and State)

**Replacement of the White Woods Road Bridge
Litchfield, CT**

22. YEAR COMPLETED

PROFESSIONAL SERVICES
2017

CONSTRUCTION (if applicable)
2017

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER

Town of Litchfield

b. POINT OF CONTACT NAME

Raz Alexe, Director of Public Works

c. POINT OF CONTACT TELEPHONE NUMBER

(860) 567-7571

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)



Cardinal Engineering provided all engineering services for the replacement of the White Woods Road Bridge, which included survey, bridge design, full time contract administration and resident engineering services.

The major concern with the bridge, constructed in 1963, was the scour and undermining of both abutments. Structural stability analysis determined that the abutments were unstable under design scour conditions.

Three alternatives were evaluated during the preliminary engineering phase: bridge replacement, bridge rehabilitation with scour countermeasures, superstructure rehabilitation and structural countermeasures. It was determined that the bridge replacement is the most cost-effective solution.

This project is located within the White Memorial Nature Preserve Habitat and there are several endangered bird species that limited the construction season and required accelerated bridge construction methods. The design consisted of pre-stressed concrete box beam superstructure on integral abutments supported by a pile foundation which greatly simplified construction to meet a shortened schedule for reopening the bridge to traffic, while reducing construction costs and environmental impacts. Construction was completed in December 2017.

This project was funded under the Federal Local Bridge Program.

Project cost: \$3,300,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a. (1) FIRM NAME

Cardinal Engineering

(2) FIRM LOCATION (City and State)

Meriden, CT

(3) ROLE

Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)</i>		20. EXAMPLE PROJECT KEY NUMBER 5.				
21. TITLE AND LOCATION (City and State) Replacement of East Johnson Avenue Bridge Cheshire, CT		22. YEAR COMPLETED <table border="1"> <tr> <td>PROFESSIONAL SERVICES</td> <td>CONSTRUCTION (if applicable)</td> </tr> <tr> <td>2013</td> <td>2017</td> </tr> </table>	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)	2013	2017
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)					
2013	2017					

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER Town of Cheshire	b. POINT OF CONTACT NAME Walter Gancarz, Town Engineer	c. POINT OF CONTACT TELEPHONE NUMBER (203) 271-6650
24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)		



Cardinal Engineering provided design services, construction inspection and contract administration for the replacement of the East Johnson Avenue Bridge.

The original bridge was a 94 -foot, two-span prestressed concrete deck with a concrete filled steel pipe pile. The bridge was hydraulically inadequate and scour-critical. During preliminary engineering, the center pier was found to be unstable. Cardinal determined that a total replacement was the best option for the structure.

The replacement alternative that was chosen was a 104-foot single span bridge with integral abutments and prestressed concrete box beams. The bottom of the bridge was raised 2 feet to accommodate hydraulics. The roadway was raised approximately 3 feet to accommodate increased structure depth.

The advantages of the chosen design included, 75-year design life requiring less maintenance, simple construction methods, jointless bridge, elimination of center pier and hydraulically adequate opening.

Cardinal obtained a State Flood Management Certification, as well as Federal and Local Inland Wetland permits for this project.

This project was funded under the Federal Local Bridge Program.

Project cost: \$2,500,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
a.	(1) FIRM NAME Cardinal Engineering	(2) FIRM LOCATION (City and State) Meriden, CT	(3) ROLE Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)</i>		20. EXAMPLE PROJECT KEY NUMBER 6.		
21. TITLE AND LOCATION (City and State) Replacement of Country Club Road Bridge Cheshire, CT		22. YEAR COMPLETED <table border="1"> <tr> <td>PROFESSIONAL SERVICES 2013</td> <td>CONSTRUCTION (if applicable) 2017</td> </tr> </table>	PROFESSIONAL SERVICES 2013	CONSTRUCTION (if applicable) 2017
PROFESSIONAL SERVICES 2013	CONSTRUCTION (if applicable) 2017			

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER Town of Cheshire	b. POINT OF CONTACT NAME Walter Gancaez, Town Engineer	c. POINT OF CONTACT TELEPHONE NUMBER (203) 271-6650
24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)		



Cardinal Engineering provided complete engineering services for the replacement of the Country Club Road Bridge, which included survey work, bridge design, full time contract administration, and resident engineering services.

The Country Club Road Bridge was one of several bridges in the Town of Cheshire for which Cardinal was hired to perform condition inspection services.

Our evaluation of this 24' wide, 18.5' long bridge revealed extensive deterioration of the stringers. The worst stringers had up to 100% section loss in the stringer webs directly over the bearings, leaving these stringers with no load capacity. Cardinal immediately advised town officials to close the bridge.

Cardinal developed plans for the total replacement of the bridge. The alternative that was chosen to replace the deteriorated bridge was a 20' precast concrete arch.

Cardinal obtained Federal and Local Inland Wetland permits for this project.

Project cost: \$550,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
a.	(1) FIRM NAME Cardinal Engineering	(2) FIRM LOCATION (City and State) Meriden, CT	(3) ROLE Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)

20. EXAMPLE PROJECT KEY NUMBER

7.

21. TITLE AND LOCATION (City and State)

**Replacement of the Milton Road Bridge
Litchfield, CT**

22. YEAR COMPLETED

PROFESSIONAL SERVICES
2018-2020

CONSTRUCTION (if applicable)
2020

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER

Town of Litchfield

b. POINT OF CONTACT NAME

Raz Alexe, Director of Public Works

c. POINT OF CONTACT TELEPHONE NUMBER

(860) 567-7571

24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)



Cardinal Engineering Associates provided complete engineering services and construction contract administration for this bridge replacement project which is located in the Milton Historic District within the Town of Litchfield. The original bridge was built in 1915 and was replaced in 1992. The existing timber bridge was found to be scour critical, and structurally and hydraulically inadequate.

Cardinal conducted a focused structure type study, and coordinated with the Milton Historic Commission to develop a proposed replacement alternative that blends into the historic setting.

The replacement bridge has a length of 25' and a width of 22', and is a concrete slab superstructure with integral abutments founded on micropiles drilled into bedrock. Wing-walls are cast in place with natural stone masonry finish, and timber bridge and

approach guide rails were utilized.

This project was funded under the Federal Local Bridge Program. Construction was completed in 2020.

Project cost: \$1,500,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a. (1) FIRM NAME

Cardinal Engineering

(2) FIRM LOCATION (City and State)

Meriden, CT

(3) ROLE

Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)</i>		20. EXAMPLE PROJECT KEY NUMBER 8.
21. TITLE AND LOCATION (City and State) Replacement of the Davenport Road Bridge Roxbury, CT		22. YEAR COMPLETED PROFESSIONAL SERVICES 2022
		CONSTRUCTION (if applicable) 2022

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER Town of Roxbury	b. POINT OF CONTACT NAME Patrick Roy, First Selectman	c. POINT OF CONTACT TELEPHONE NUMBER (860) 354-9938
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24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(Include scope, size, and cost)*



In 2021, Cardinal designed the replacement of the Davenport Road bridge, providing all engineering services including survey, bridge design, hydrology and hydraulics, State, Federal and Local permitting.

The existing structure was replaced with a 16' x 8' precast concrete arch box culvert.

In 2022, Cardinal provided contract administration and full-time resident engineering services.

Project cost: \$700,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

a.	(1) FIRM NAME Cardinal Engineering	(2) FIRM LOCATION (City and State) Meriden, CT	(3) ROLE Prime
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F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)</i>		20. EXAMPLE PROJECT KEY NUMBER 9.		
21. TITLE AND LOCATION (City and State) Replacement of the North Road Extension Bridge Cromwell, CT		22. YEAR COMPLETED <table border="1"> <tr> <td>PROFESSIONAL SERVICES 2020</td> <td>CONSTRUCTION (if applicable) 2020</td> </tr> </table>	PROFESSIONAL SERVICES 2020	CONSTRUCTION (if applicable) 2020
PROFESSIONAL SERVICES 2020	CONSTRUCTION (if applicable) 2020			

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER Town of Cromwell	b. POINT OF CONTACT NAME Jon Harriman, Town Engineer	c. POINT OF CONTACT TELEPHONE NUMBER (860) 632-3465
24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)		



Cardinal Engineering Associates provided all engineering services required for the design of the replacement of this bridge which is funded under the Federal Local Bridge Program. Cardinal also provided contract administration and full-time resident engineering services.

North Road Extension is located in the western part of the Town of Cromwell. The existing bridge, built in 1980, was a twin corrugated metal arch culvert with cast-in-place concrete headwalls and wingwalls. The total length of the existing structure was approximately 25ft. The North Road Extension Bridge was in poor structural

condition. A 3-sided Rigid Frame Box Culvert on concrete spread footings was proposed to replace the existing arches. The clear span of the new rigid frame structure is 28 feet. The concrete footings were set on concrete sub-footings founded on sound bedrock.

The project also included channel and embankment improvements and the elimination of a stone weir immediately downstream of the project to improve hydraulic conditions. Roadway improvements included maintaining a constant roadway width of 28 feet, construction of a five-foot sidewalk, installation of roadside safety elements and relocation of overhead utilities.

An existing eight-inch gas distribution line and an existing high pressure 36-inch gas transmission line located within the roadway were supported and protected during construction

Project cost: \$2,000,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
a.	(1) FIRM NAME Cardinal Engineering	(2) FIRM LOCATION (City and State) Meriden, CT	(3) ROLE Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)</i>		20. EXAMPLE PROJECT KEY NUMBER 10.		
21. TITLE AND LOCATION (City and State) Replacement of Calhoun Street Culvert Washington, CT		22. YEAR COMPLETED <table border="1"> <tr> <td>PROFESSIONAL SERVICES 2022</td> <td>CONSTRUCTION (if applicable) 2022</td> </tr> </table>	PROFESSIONAL SERVICES 2022	CONSTRUCTION (if applicable) 2022
PROFESSIONAL SERVICES 2022	CONSTRUCTION (if applicable) 2022			

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER Town of Washington	b. POINT OF CONTACT NAME James Brinton, First Selectman	c. POINT OF CONTACT TELEPHONE NUMBER (860) 868-2259
24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)		



Cardinal Engineering recently provided all engineering services for the replacement of the Calhoun Street Culvert for the Town of Washington. Work effort included survey, hydrology and hydraulics, environmental permitting, design, contract administration and resident engineering services.

The existing bridge at Calhoun Street was constructed in 1940 and was a single span steel girder superstructure on masonry abutments. The replacement structure consists of a Single Cell 12'x5' Precast Concrete Box Culvert with cast-in-place concrete wingwalls and footings.

Funding was provided through the State Local Bridge Program.

Project cost: \$575,000

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
a.	(1) FIRM NAME Cardinal Engineering	(2) FIRM LOCATION (City and State) Meriden, CT	(3) ROLE Prime

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS											
26. NAMES OF KEY PERSONNEL (From Section E, Block 12)	27. ROLE IN THIS CONTRACT (From Section E, Block 13)	28. EXAMPLE PROJECTS LISTED IN SECTION F (Fill in "Example Projects Key" section below before completing table. Place "X" under project key number for participation in same or similar role.)									
		1	2	3	4	5	6	7	8	9	10
Joseph A. Cermola, P.E.	Principal in Charge	X	X	X	X	X	X	X	X	X	X
Gary Giroux, P.E.	Senior Project Manager								X		X
David Foley, P.E.	Construction Services Manager				X	X		X			
Justin Wengell, NICET III	Resident Project Rep								X		X
Charles Hornak, P.E.	Senior Civil Engineer	X	X	X	X	X	X	X	X		X
Bernard J. Cermola, LS	Land Surveyor	X	X	X	X	X	X	X	X	X	X

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
1.	Rehabilitation of Gold Star Bridge	6.	Replacement of Country Club Road Bridge
2.	Replacement of West Main Street Bridge	7.	Replacement of Milton Road Bridge
3.	Replacement of Merritt Avenue Bridge	8.	Replacement of Davenport Road Bridge
4.	Replacement of White Woods Road Bridge	9.	Replacement of North Road Extension Bridge
5.	Replacement of East Johnson Avenue Bridge	10.	Replacement of Calhoun Street Culvert

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.



("Cardinal") is a Connecticut-based consulting engineering firm established in 1962 and headquartered in the City of Meriden since 1965. The firm was originally founded as a Partnership and later incorporated in 1971 under the laws of the State of Connecticut.

Cardinal provides comprehensive, innovative and cost-effective design solutions for multidisciplinary municipal engineering projects. Cardinal has over 60 years' experience in planning, design and supervision of construction for a wide range of public works projects. In addition to the extensive list of Towns and Cities that we have worked for, our firm has completed assignments for the State of Connecticut Department of Transportation, Department of Energy and Environmental Protection, and Division of Construction Services.

Cardinal is pre-qualified by the Connecticut Department of Transportation in the categories of Highway and Bridge Design, Construction Contract Administration and Construction Inspection.

Our seasoned team of professionally-licensed engineers have diverse backgrounds and complementary areas of specialization. We have a support staff of experienced technicians, surveyors, draftsmen and inspectors. Cardinal is capable of managing and performing the services required for the successful completion of complex civil engineering projects. Our extensive portfolio, technical expertise, and strong leadership combine to yield successful results for our clients.

Cardinal has extensive expertise in all areas related to the design of civil engineering projects including, but not limited to the following:

Transportation Systems	Land Surveying	Construction Engineering	Site Planning & Design
• Roadway Design	• Topographic Surveys	• Contract Administration	• Schools & Colleges
• Intersection Improvements	• Boundary Surveys	• Resident Engineering	• Industrial Parks
• Route Selection and Alignment Studies	• Easement & Taking Maps	• Bidding & Award Assistance	• Public Parks & Playgrounds
• Bridges, Culverts, and Retaining Walls	• Construction Stakeout	• Funding Reimbursements	• Parking Facilities
• Utility Relocations and Improvements	Wastewater Collection	• As-Built Drawings	• Athletic Fields
• Drainage Design	• Wastewater Management	Water Resources	• Bike Trails
• Pavement Analysis and Design	• Feasibility Studies & Facility Plans	• Hydraulic Analysis	• Residential Developments
• Pavement Rehabilitation Programs	• Sanitary Sewer Extensions	• Hydrologic Studies	• Commercial Developments
• Traffic Engineering	• Combined Sewer Separation	• River Hydraulics	
• State and Federal Funding Assistance	• Sewer User Charges & Assessments	• Bridge and Culvert Design	
• Streetscapes & Sidewalks	• Inflow & Infiltration Studies	• Flood Control and Drainage Studies	
	• Sewer System Evaluation Surveys	• Beach Erosion Control	
	• Pumping Station Design	• Storm Drainage Facility Plans	
	• Septic System Design	• Environmental Permitting	
	• Environmental Permitting	• Wetland Mitigation	

I. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

31. SIGNATURE

A handwritten signature in blue ink, appearing to read "Joseph A. Cermola, III".

32. DATE

02/22/2024

33. NAME AND TITLE

Joseph A. Cermola, III, P.E. – President

ARCHITECT-ENGINEER QUALIFICATIONS

1. SOLICITATION NUMBER (if any)

AN-2024-25 01**PART II – GENERAL QUALIFICATIONS***(If a firm has branch offices, complete for each specific branch office seeking work.)*

2a. FIRM (OR BRANCH OFFICE) NAME Cardinal Engineering Associates Inc.			3. YEAR ESTABLISHED 1962	4. DUNS NUMBER
2b. STREET 180 Research Pkwy			5. OWNERSHIP a. TYPE Corporation	
2c. CITY Meriden	2d. State CT	2e. ZIP CODE 06450	b. SMALL BUSINESS STATUS Engineering/Land Surveying/Mapping	
6a. POINT OF CONTACT NAME AND TITLE Joseph A. Cermola, III, P.E.- President			7. NAME OF FIRM (if block 2a is a branch office)	
6b. TELEPHONE NUMBER 203-238-1969		6c. E-MAIL ADDRESS jess@cardinal-engineering.com		
8a. FORMER FIRM NAME(S) (if any)			8b. YR. ESTABLISHED	8c. DUNS NUMBER

9. EMPLOYEES BY DISCIPLINE				10. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS		
a. Function Code	b. Discipline	c. No. of Employees		a. Profile Code	b. Experience	c. Revenue Index Number (see below)
		(1) FIRM	(2) BRANCH			
2	Administrative	2		H07	Highways; Streets; Parking Lots	4
8	CADD Technician	2		L06	Lighting (Exterior, Athletic Fields)	1
12	Civil Engineer	9		O01	Office Buildings; Industrial Parks	1
15	Construction Inspection	4		P06	Planning (Site, Installation, Project)	1
32	Hydraulic Engineer	1		R04	Recreation Facilities	1
38	Land Surveyor	4		R11	Rivers, Canals, Flood Control	1
48	Project Engineer	2		S04	Sewage Collection, Treatment	3
				S07	Solid Waste, Landfills	1
06	Transportation Engineer	1		S09	Structural Design, Special Structures	3
				S10	Surveying, Mapping	1
				S13	Storm Water Handling	1
				T02	Testing, Inspection Services	2
				W02	Water Resource, Hydrology	1
	Other Employees					
	Total	25				

11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS <i>(Insert revenue index number shown at right)</i>		PROFESSIONAL SERVICES REVENUE INDEX NUMBER	
a. Federal Work		1. Less than \$100,000	6. \$2 million to less than \$5 million
b. Non-Federal Work	5	2. \$100,000 to less than \$250,000	7. \$5 million to less than \$10 million
c. Total Work	5	3. \$250,000 to less than \$500,000	8. \$10 million to less than \$25 million
		4. \$500,000 to less than \$1 million	9. \$25 million to less than \$50 million
		5. \$1 million to less than \$2 million	10. \$50 million or greater

12. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts.

a. SIGNATURE 	b. DATE 2/22/2024
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c. NAME AND TITLE Joseph A. Cermola, III, PE – President
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