Specifications

For

BRIDGE 193 REHABILITATION PROJECT

OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103

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General Conditions

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DEFINITIONS

The following terms, as used in these Contract Documents, are defined as follows:

"ADDENDA"	Written or graphic instruments issued prior to the opening of Bids, which clarify, correct, or change the bidding documents or Contract Documents.
"APPROVED"	The words "approved", "acceptable", "satisfactory", "in the judgment of", and words of like import, shall mean approval by, acceptable to, satisfactory to, or in the judgment of, the Engineer or Owner.
“BONDS"	Bid, Performance, Payment, or Maintenance Bonds, and other instruments of security collectively or individually as applicable.
"CHANGE ORDER"	A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.
"CONTRACTOR'	The person, firm, or corporation to whom the enclosed contract is awarded by the Owner and who is subject to the terms hereof.
"COUNTY SPECIFICATIONS”	The current Elkhart County roads guidelines and standards for design and public improvements.
"DIRECTED"	The words "directed", "required", "permitted", "ordered", "designated", and words of like import shall imply the direction, requirement, permission, order of designation of the Engineer or Owner.
"ENGINEER"	The Elkhart County Highway Division, or, the Elkhart Co. Manager of Engineering, or duly authorized representative designated by the Owner.
"FIELD ORDER"	A written order issued by ENGINEER which orders minor changes in the Work in accordance with paragraph 7.5 but which does not involve a change in the Contract Price or the Contract Time.
“FINAL ACCEPTANCE”	The date when OWNER accepts ENGINEER’S recommendation of final payment.

"GENERAL REQUIREMENTS"	Sections of Division A of the Specifications.
"LAWS AND REGULATIONS; LAWS OR REGULATIONS"	Laws, rules, regulations, ordinances, codes and/or orders.
"MUTCD"`	Manual of uniform traffic control devices.
"NOTICE TO PROCEED"	A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR'S obligations under the Contract Documents.
"OWNER"	The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided. This typically being Elkhart County, Indiana, acting through its Board of County Commissioners.
"PARTIAL UTILIZATION"	Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.
"PROJECT"	The total construction of which the Work to be provided under the Contract Documents may be the whole or a part as indicated elsewhere in the Contract Documents.
"RESIDENT PROJECT REPRESENTATIVE"	The authorized representative of ENGINEER who is assigned to the site or any part thereof
"SHOP DRAWINGS"	All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.
"SPECIFICATIONS"	Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

“STANDARD DETAILS”	The current INDOT standard sheets with standard details.
“STANDARD SPECIFICATIONS”	The latest edition of the Indiana Department of Transportation Standard Specifications and current supplemental Technical Specifications.
“STOP ORDER or STOP WORK ORDER	Written order from OWNER or ENGINEER to stop all work covered by the Contract Documents.
"SUBCONTRACTOR"	An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.
“SUBSTANTIAL COMPLETION”	See Paragraph 12.5 of these General Conditions.
"SUPPLEMENTARY CONDITIONS"	The part of the Contract Documents which amends or supplements these General Conditions.
“SUBSTANTIAL COMPLETION”	See Paragraph 12.5 of these General Conditions.
"SURETY"	Financial guarantee that insures the CONTRACTOR’S obligation.
"UNDERGROUND FACILITIES"	All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments. In addition, any encasement containing such facilities that have been installed underground to furnish any of the following services or materials; electricity, gases, steam, liquid petroleum products, telephone or other communication means, cable television, sewage and drainage removal, traffic or other control systems or water.
"UNIT PRICE WORK"	Work to be paid for on the basis of unit prices.
"WORK"	Work to be done under this Contract at the site of the improvement.
"WORK DIRECTIVE CHANGE"	A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed.

"WRITTEN AMENDMENT"	A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly Work-related aspects of the Contract Documents

ARTICLE 1 - PRELIMINARY MATTERS

1.1 Delivery of Bonds

When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as called for in the Contract Documents.

1.2 Copies of Documents

OWNER shall furnish to CONTRACTOR up to three (3) copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

1.3 Contract Documents

These Contract Documents are complementary and what is called for in one shall be as binding as if called for in all. The intention of these Contract Documents is to include in the Contract Price the costs of all labor and materials, water, fuel, tools, plant, equipment, light, transportation, taxes, bonds, and all other expense and profit as may be necessary for the proper and complete execution of the work.

1.4 Commencement of Contract Time; Notice to Proceed

The Contract Time will commence when the Contractor receives the Notice to Proceed from the Engineer. CONTRACTOR shall not be paid for any work performed prior to receiving the Notice to Proceed from the Engineer.

1.5 Starting the Project

CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run unless such work is specifically approved by the owner/engineer.

1.6 Before Starting Construction

Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

1.7 Submission for Review

Within ten (10) days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for review:

1.7.1 An estimated progress schedule indicating the starting and completion dates of the various stages of the Work; and

1.7.2 A preliminary schedule of Shop Drawings and/or sample submissions.

1.7.3 CONTRACTOR shall provide an updated progress schedule at all scheduled progress meetings.

1.8 Delivery of Certificates

Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain.

1.9 Subcontracts

The Contractor shall not execute an Agreement with any Subcontractor or permit any Subcontractor to perform any work in this Contract until he has received written approval of such Subcontractor from the Owner or Owner's appointed designee.

1.10 Preconstruction Conference

Following the Effective Date of the Agreement, but before CONTRACTOR starts the Work at the site, a conference attended by CONTRACTOR, ENGINEER and others, as appropriate, will be held to discuss the schedules referred to in paragraph 1.7, as well as the Subcontractors proposed by Contractor for certain portions of the work, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

1.11 Non-Discrimination

In compliance with the Acts of Indiana General Assembly, 1933, Chapter 270, the Contractor hereby agrees:

1.11.1 That in the hiring of employees for the performance of work under this Contract or any Subcontract hereunder, no Contractor, Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor shall, by reason of race or color, discriminate against any citizen qualified to do work to which the employment relates;

1.11.2 That no Contractor, Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this Contract on account of race or color;

1.11.3 That there may be deducted from the amount payable to the Contractor by the Owner under this contract, a penalty of Five Dollars ($5.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of this Contract; and

1.11.4 That this Contract may be canceled or terminated by the Owner, and all money due or to become due hereunder may be forfeited for a second or any subsequent violation of the terms or conditions of this section of the Contract.

1.12 Insurance

1.12.1 Contractor's Liability Insurance:

a) The Contractor shall maintain such insurance as well as protect himself from claims under Workmen's Compensation Acts and other employee benefit acts; from claims for damages because of bodily injury, including death, to his employees and all others; and from claims for damages to property, any or all of which may arise out of or result from the Contractor's operation under the Contract, whether such operations be by himself or by any subcontractor, or anyone directly or indirectly employed by either of them. This insurance shall be written for not less than any limits of liability specified herein and shall name Elkhart County as an additional insured.

1.12.2 Contractor's Insurance:

The types and minimum amount of insurance to be provided for by the Contractor shall be as follows:

a) Workmen's Compensation and Occupational Disease Insurance

The Contractor shall provide Workmen's Compensation and Occupational Disease Insurance as required by law. Such policy shall specifically include coverage for the State of Indiana, and such adjoining states as required by the Contractor's operations.

b) Employer's Liability Insurance

The Contractor shall provide Employer's Liability with a minimum coverage of $1,000,000.

c) Comprehensive General Liability Insurance

The Contractor shall maintain a Comprehensive General Liability form of Insurance with bodily injury of not less than $1,000,000 for any one (1) occurrence, and $2,000,000 aggregate. The insurance policy shall include the following:

1. Premises Operations: The policy shall include coverage for the following special hazards when applicable to the project:

i) Property damage arising out of blasting or explosion.

ii) Property damage arising out of collapse of or structural injury to any building or structure due to grading of land, excavation, borrowing, filling, backfilling, tunneling, pile driving, cofferdam work or caisson work or to moving, shoring, underpinning, raising, or demolition of any building or structure or rebuilding of any structural support thereof.

iii) Injury to or destruction of wires, conduits, pipes, mains, sewers, and other similar property of any apparatus in connection therewith below the surface of ground, if caused by use of mechanical equipment.

2. Contractual (Broad Form Indemnification): The Contractor agrees to indemnify and save harmless the Owner and the Engineer, their agents and employees, from and against all loss or expense (including costs and attorneys' fees) by reason of liability imposed by law upon the Owner or the Engineer for damages because of bodily injury, including death, at any time resulting there from, sustained by any person or persons or an account of damage to property is due or claimed to be due to negligence of the Contractor, his Subcontractors, employees or agents.

3. Contractor's Protective: The Contractor shall maintain this type of coverage on a "Blanket" basis to cover the operations of any subcontractors.

d) Automobile Liability Insurance

The Contractor shall maintain Comprehensive Automobile Liability Insurance with bodily injury liability limits of not less than $1,000,000 for one (1) occurrence and $2,000,000 aggregate. This coverage may be provided either as a separate policy or as part of the Comprehensive General Liability Policy described previously. The automobile insurance must include coverage for all owned, non-owned and hired vehicles.

e) Furnish Indiana State Forms No. 19 (Workmen's Compensation) and No.105 (Occupational Disease Act).

f) Umbrella Policy Insurance

The Contractor shall maintain a minimum $3,000,000 Umbrella Policy in addition to their primary insurance.

1.13 Proof of Carriage Insurance

1.13.1 Contractor shall not commence work until he has obtained all insurance specified herein, has filed with the Owner one (1) copy of Certificate of Insurance, and such insurance has been approved by the Owner.

1.13.2 Should any Coverage approach expiration during the Contract period, it shall be renewed prior to its expiration, and certificate again filed with the Owner.

1.13.3 If any of such policies are canceled or are changed so as to reduce the coverage evidenced by the Certificate, at least ten (10) days prior written notice by registered mail of such cancellation or change shall be sent to the Owner.

1.13.4 All insurance provided for under this Section shall be written by Insurance Companies licensed to do business in Indiana and Countersigned by resident Indiana agent. The insurance company shall file with the Owner, one (1) copy of Affirmation of Authority, on the form furnished by the Engineer, as verification of the resident agent.

1.13.5 All insurance shall be maintained in full force and effect until the Contract has been fully and completely performed.

1.14 Performance and Payment Bond

The Contractor shall furnish a Performance and Payment Bond (form attached) equal to one hundred percent (100%) of the Contract Price.

ARTICLE 2 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

2.1 Intent

The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

2.1.1 It is the intent of the Contract Documents to describe a functionally complete

Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for.

2.1.2 If during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from ENGINEER; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

2.2 Amending and Supplementing Contract Documents:

The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

2.2.1 A formal Written Amendment,

2.2.2 A Change Order, or

2.2.3 A Work Directive Change (pursuant to paragraph 8.1).

In addition, the requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

2.2.4 A Field Order,

2.2.5 ENGINEER's approval of a Shop Drawing or sample, or

2.2.6 ENGINEER's written interpretation or clarification.

ARTICLE 3 - AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

3.1 Availability of Lands

OWNER shall indicate, as shown in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER's furnishing these lands, rights-of-way or easements

entitles CONTRACTOR to an extension of the Contract Time, CONTRACTOR may make a claim for an extension of Contract Time.

3.2 Physical Conditions - Underground Facilities

The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

3.2.1 OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and,

3.2.2 CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof, and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

3.3 Not Shown or Indicated

If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency) as permitted by paragraph 4.2.1, identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility.

3.4 Assignment of Contract

The Contractor shall not assign this Contract or any part hereof without prior consent of the Owner.

ARTICLE 4 - CONTRACTOR'S RESPONSIBILITIES

4.1 Supervision and Superintendence

4.1.1 CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

4.1.2 CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

4.2 Labor, Materials and Equipment

4.2.1 CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site, particularly in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents.

4.2.2 Unless otherwise specified in the General Conditions, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

4.2.3 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents.

4.3 Substitutes or "Or-Equal" Items

4.3.1 Whenever materials or equipment are specified or described in the Contract

Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by ENGINEER if sufficient information is submitted by CONTRACTOR to allow ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. The procedure for review by ENGINEER will include the following as supplemented in the General Conditions. Requests for review of substitute items of material and equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by ENGINEER in evaluating the proposed substitute. ENGINEER may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.

4.3.2 If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to ENGINEER, if CONTRACTOR submits sufficient information to allow ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents.

4.3.3 ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute. ENGINEER will record time required by ENGINEER and ENGINEER's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not ENGINEER accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's consultants for evaluating each proposed substitute.

4.4 Contractor Responsibility

CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractor, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any monies due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

4.5 Subcontractor Responsibility

All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER.

4.6 Permits

Unless otherwise provided in the General Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses.

4.7 Laws and Regulations

4.7.1 CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

4.7.2 If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 2.2. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

4.8 Taxes

CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be

paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

4.9 Use of Premises

4.9.1 CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR's performance of the Work.

4.9.2 During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

4.9.3 CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

4.10 Record Documents

CONTRACTOR shall maintain in a safe place at the site one (1) record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications issued in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work,

these record documents, samples and Shop Drawings will be delivered to ENGINEER for OWNER.

4.11 Safety and Protection

4.11.1 CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

a) All employees on the Work and other persons and organizations who may be affected thereby;

b) All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

c) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

4.11.2 CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 4.11.1(b) or 4.11.1(c) caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR.

4.11.3 CONTRACTOR shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's superintendent unless otherwise designated in writing by CONTRACTOR to OWNER.

4.12 Emergencies

In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the

Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

4.13 Shop Drawings and Samples

4.13.1 After checking and verifying all field measurements and after complying with applicable procedures specified in the General Conditions, CONTRACTOR shall submit to ENGINEER for review and approval three (3) copies of all Shop Drawings. All submissions will be identified as ENGINEER may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

4.13.2 CONTRACTOR shall also submit to ENGINEER for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents.

4.13.3 At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to ENGINEER for review and approval of each such variation.

4.13.4 ENGINEER will review and approve with reasonable promptness Shop Drawings and samples, but ENGINEER's review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction.

4.13.5 ENGINEER's review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission.

4.13.6 Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to ENGINEER's review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

4.14 Continuing the Work

CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 13.4 or as CONTRACTOR and OWNER may otherwise agree in writing.

4.15 Indemnification:

To the fullest extent permitted by Laws and Regulations CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and their consultants, agents and employees from and against all claims, damages, losses, and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineer, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense:

4.15.1 (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting there from and (b) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

4.15.2 In any and all claims against OWNER or ENGINEER or any of their consultants, agents or employees by any employee of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 1.12.2 (c)2 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

4.16 Sanitation

4.16.1 The Contractor shall introduce and enforce among his employees, such regulations in regard to cleanliness and the disposal of garbage and wastes as shall comply with the Local ordinances. The Contractor shall take such means as the Owner may direct to effectually prevent the creation of a nuisance at the work site or any part of the property of the Owner. Under no circumstances shall the Contractor create or maintain a nuisance. The Contractor shall construct toilets and maintain them in a sanitary condition, properly secluded from public observation at such points as shall be approved.

4.16.2 All waste, rubbish and debris – whether personal or from construction related processes – shall be removed from the job site and adjacent properties by hauling away and shall not be buried or discarded.

4.17 Road Closing Requirements

Work within the road right-of-way that necessitates a full closure of the road or any lane restrictions requires that the contractor notify **48 hours prior to the commencement of work** all that apply from the following list:

ROAD CLOSING – NOTIFICATION NUMBERS

Fax, call, or mail notification of road/bridge closing to the appropriate people

Please note date of successful notification

POLICE, FIRE, EMS
Elkhart County PSCC (911 Center) 533-4151

SCHOOLS

Baugo	293-8583	fax:
Concord	875-6577	fax: 875-1617
		fax: 875-8762
Elkhart	262-5695	fax: 262-5750
Fairfield	831-2188	fax:
Goshen	533-8631	fax:
Middlebury	825-9410	fax:
Northwood	574-773-3131	fax:

POST OFFICES

Bristol	848-4713	fax: 533-9998
Elkhart	293-5502	fax: 293-5501
Goshen	533-3915	fax: 533-8077
Middlebury	825-2505	fax:
Wakarusa	862-2010	fax:

NEWS MEDIA

Elkhart Truth	294-1661	fax: 294-3895
Goshen News	533-2151	fax: 534-8830
Channel 16	574-631-1616	fax: 293-3297
		fax: 631-1639
Channel 22	574-293-3148	fax: 289-0622
Channel 28	574-679-4545	fax: 522-7609

OTHERS:

Elkhart County Hwy	533-0538
Elkhart County Eng	533-0538

Elkhart County requires a written notification of the agencies notified, including time and date of successful notification. This notification must be given to Elkhart County Highway 24 hours prior to road closings or lane restrictions. This may be faxed to Elkhart County Highway.

The Contractor shall notify all applicable offices, agencies, media and schools, including Elkhart County Highway 24 hours prior to the removal of any lane restrictions or closures.

The Contractor shall coordinate the specific timing of the activation of any new signalization system, reopening, etc. When practical, the Contractor shall provide access through the site for emergency vehicle traffic.

ARTICLE 5 - OTHER WORK

5.1 Related Work at Site

OWNER may perform other work related to the Project at the site by OWNER's own forces, have work performed by utility owners, or let other direct contracts.

5.1.1 CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs, CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work.

ARTICLE 6 - OWNER'S RESPONSIBILITIES

6.1 Communication

OWNER shall issue all communications to CONTRACTOR through ENGINEER.

6.2 Appointment of Engineer

In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer whom CONTRACTOR makes no reasonable objection to, whose status under the Contract Documents shall be that of the former ENGINEER. Any dispute in connection with such appointment shall be subject to arbitration.

6.3 Payment

OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due.

6.4 Change Orders

OWNER is obligated to execute Change Orders as indicated in paragraph 8.4.

6.5 Inspection

OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 11.3.

6.6 Service Termination

In connection with OWNER's right to stop Work or suspend Work, see paragraphs 11.5 and 13.1. Paragraph 13.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

ARTICLE 7 - ENGINEER'S STATUS DURING CONSTRUCTION

7.1 Owner's Representative

ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

7.2 Visits to Site

ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations as an experienced and qualified design professional, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

7.3 Project Representation

If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in observing the performance of the Work.

7.4 Clarifications and Interpretations

ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

7.5 Authorized Variations in Work

ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents.

These may be accomplished by a Field Order and will be binding on OWNER, and also on CONTRACTOR who shall perform the Work involved promptly.

7.6 Rejecting Defective Work

ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, and will also have authority to require special inspection or testing of the Work at CONTRACTOR'S expense.

7.7 Decisions on Disputes

7.7.1 ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 9 and 10 in respect to changes in the Contract Price or Contract Time will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty (30) days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty (60) days after such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

7.7.2 When functioning as interpreter and judge under paragraphs 7.7.1 ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

7.8 Limitations on Engineer's Responsibilities

Neither ENGINEER's authority to act under this Article 7 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

7.8.1 ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

7.8.2 ENGINEER will not be responsible for the acts or omissions of

CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

ARTICLE 8 - CHANGES IN THE WORK

8.1 Work Modifications

Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Written Amendment, a Change Order, or a Work Directive Change. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

8.2 Disagreement

If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change, a claim may be made therefore as provided in Article 9 or Article 10.

8.3 Contract Price and Time

CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents.

8.4 Change orders

OWNER and CONTRACTOR shall execute appropriate Change Orders covering:

8.4.1 Changes in the Work which is ordered by OWNER.

8.4.2 Changes in the Contract Price or Contract Time which are agreed to by the parties.

8.4.3 Changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER.

8.5 Notification of Change

If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 9 - CHANGE OF CONTRACT PRICE

The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

9.1 Change Order

The Contract Price may only be changed by a Change Order or by a Written Amendment.

9.2 Determination of Contract Price

The value of any Work covered by a Change Order (extra work order) for an increase or decrease in the Contract Price shall be determined in one of the following ways:

9.2.1 Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.

9.2.2 On the basis of the actual Cost of the Work, plus the allowable Contractor's mark-up as per INDOT Specification 109.05 added thereon for overhead and profit.

9.3 Cost of the Work

The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. The term Cost of the Work shall **not** include any of the following:

9.3.1 Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, attorneys, auditors, accountants, purchasing and contracting agents, CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work.

9.3.2 Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

9.3.3 Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

9.3.4 Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same.

9.3.5 Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

ARTICLE 10 - CHANGE OF CONTRACT TIME

The Contract Time may only be changed by a Change Order or a Written Amendment. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than fifteen (15) days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty (30) days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by ENGINEER.

No extension of Contract Time shall be allowed for weather, changes in quantities placed, or ENGINEER review times set forth in this contract.

ARTICLE 11 - WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

11.1 Warranty and Guarantee

CONTRACTOR warrants and guarantees to OWNER and ENGINEER that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to CONTRACTOR. All defective Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 11.

11.2 Access to Work

ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access.

11.3 Tests and Inspections

CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

11.3.1 If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved, CONTRACTOR shall assume full responsibility therefore, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval.

11.3.2 The Contractor shall assume full responsibility for paying all costs in connection with testing or certification of materials required under INDOT Standard Specifications. In the case of failed or rejected materials or product used in construction of the project either by CONTRACTOR or SUBCONTRACTORS, independent third-party testing may be used at CONTRACTOR’S expense.

11.3.3 If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

11.3.4 Neither observations by ENGINEER nor inspections, tests or approvals by others shall relieve CONTRACTOR from CONTRACTOR's obligations to perform the Work in accordance with the Contract Documents.

11.4 Uncovering Work

11.4.1 If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

11.4.2 If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment.

11.5 Owner May Stop the Work

If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

11.6 Correction or Removal of Defective Work

If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with non-defective Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, attorneys and other professionals) made necessary thereby.

11.7 Three Years Correction Period

If, within three (3) years after the date of Final Acceptance, any Work is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions, either correct such defective Work, or, if it has been rejected by OWNER and/or Engineer remove it from the site and replace it with non-defective work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, attorneys and other professionals) will be paid by CONTRACTOR.

11.8 Maintenance Bond

Each Contractor shall furnish prior to Final Acceptance a Maintenance Bond (form attached) in an amount at least equal to ten percent (10%) of the Contract Price,

guaranteeing for a period of three (3) years after the date of acceptance by the Owner, that all workmanship and materials entered into the Contract are in accordance with the Plans and Specifications. Each Contractor shall remove any defects due to faulty workmanship and/or materials and shall pay for any damage to other work resulting there from which shall appear within the guarantee period. Should such quality assurance tests, as are called for in the contract Plans and Specifications (e.g., roll test, density, concrete strength, etc.), not be performed or if the work is not performed within reasonable conformity to the Plans and Specifications, the maintenance bond period may be extended to six (6) years.

11.9 Acceptance of Defective Work:

If instead of requiring correction or removal and replacement of defective Work, OWNER prefers to accept it, OWNER may do so. CONTRACTOR shall bear all direct, indirect and consequential costs attributable to OWNER's evaluation of and determination to accept such defective Work. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price.

11.10 OWNER May Correct Defective Work:

If CONTRACTOR fails within a reasonable time after written notice of ENGINEER to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 11.6, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven (7) days' written notice to CONTRACTOR, correct and remedy any such deficiency. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR in an amount approved as to reasonableness by ENGINEER, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price.

ARTICLE 12 - PAYMENTS TO CONTRACTOR AND COMPLETION

12.1 Schedule of Values

The schedule of values (itemized proposal) established at contract unit prices will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

12.2 Application for Progress Payment

At least fifteen (15) days before each regularly scheduled County Commissioners

Meeting, CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

12.3 Contractor's Warranty of Title

CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

12.4 Review of Applications for Progress Payment

12.4.1 ENGINEER will, within ten (10) days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Ten (10) days after presentation of the Application for Payment with ENGINEER's recommendation, the amount recommended will become due and when due will be paid by OWNER to CONTRACTOR. All progress payments will be subject to a ten Percent (10%) retainage that will not be released until Maintenance Bond is received.

12.4.2 ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's on-site observations of the Work in progress as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that, to the best of ENGINEER's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents and that CONTRACTOR is entitled to payment of the amount recommended. However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or OWNER to withhold payment to CONTRACTOR.

12.4.3 ENGINEER's recommendation of final payment will constitute an additional representation by ENGINEER to OWNER that the conditions precedent to CONTRACTOR's being entitled to final payment as set forth in paragraph 12.9 have been fulfilled.

12.4.4 ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make such

representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a) The Work is defective, or completed Work has been damaged requiring correction or replacement.

b) The Contract Price has been reduced by Written Amendment or Change Order.

c) OWNER has been required to correct defective Work or complete Work in accordance with paragraph 11.10, or

d) Of ENGINEER's actual knowledge of the occurrence of any of the events enumerated in paragraphs 13.2.1 through 13.2.9 inclusive.

OWNER may refuse to make payment of the full amount recommended by ENGINEER because claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work or Liens have been filed in connection with the Work or there are other items entitling OWNER to a set-off against the amount recommended, but OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action.

12.5 Substantial Completion

When CONTRACTOR considers the entire Work ready for its intended use (that is, use by the public) and all work items are complete, CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete and request that ENGINEER issue a certificate of Substantial Completion. Within seven (7) calendar days for a contract price under $1,000,000.00 and fourteen (14) calendar days otherwise, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefore. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be corrected before final payment.

The ENGINEER may recommend to the OWNER that a Waiver of Time be provided to the CONTRACTOR for the seven (7) or fourteen (14) calendar days listed herein if the CONTRACTOR has demobilized from the site, and there are no remaining defective or incomplete Work items. A Waiver of Time is a document that waives the Liquidated Damages for the seven (7) or fourteen (14) day time-frame. A Waiver of Time may be

given for part or the entirety of the seven (7) or fourteen (14) day period listed herein. The amount of time provided in the Waiver of Time is at the discretion of the OWNER.

12.6 Partial Utilization

Use by OWNER of any finished part of the Work, which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER and CONTRACTOR agree constitutes a separately functioning and useable part of the Work that can be used by OWNER without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

12.6.1 OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees, CONTRACTOR will certify to OWNER and ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefore. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 12.5 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

12.6.2 OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER and within a reasonable time thereafter OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such list to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial

Completion of such part of the Work, OWNER shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

12.7 Final Inspection

Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

12.8 Final Application for Payment

After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents and other documents--all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable, CONTRACTOR may make application for final payment following the procedure for progress payments.

12.9 Final Payment and Acceptance

12.9.1 If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation--all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten (10) days after receipt of final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 12.15. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. Thirty (30) days after presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance, and with ENGINEER's recommendation and notice of acceptability, the amount recommended by ENGINEER will become due and will be paid by OWNER to CONTRACTOR.

12.9.2 If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted.

12.10 Contractor's Continuing Obligation

CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by ENGINEER, nor any correction of defective Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 12.11).

12.11 Waiver of Claims

The making and acceptance of final payment will constitute:

12.11.1 A waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 12.10 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

12.11.2 A waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

ARTICLE 13 - SUSPENSION OF WORK AND TERMINATION

13.1 OWNER May Suspend Work

OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than one hundred eighty (180) days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the extension of the Contract Time directly attributable to any suspension.

13.2 Conditions of Termination by Owner

Upon the occurrence of any one or more of the following events:

13.2.1 If CONTRACTOR commences a voluntary case under any chapter of the

Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

13.2.2 If a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

13.2.3 If CONTRACTOR makes a general assignment for the benefit of creditors;

13.2.4 If a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR's creditors;

13.2.5 If CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

13.2.6 If CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 1.7 as revised from time to time);

13.2.7 If CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

13.2.8 If CONTRACTOR disregards the authority of ENGINEER; or

13.2.9 If CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

13.3 Termination by Owner

13.3.1 OWNER may, after giving CONTRACTOR and the surety, if there be one, seven (7) days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work

is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER will be approved as to reasonableness by ENGINEER and incorporated in a Change Order, but when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

13.3.2 Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

13.3.3 Upon seven (7) days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but not be limited to, direct, indirect and consequential costs (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

13.4 Conditions of Termination by Contractor

13.4.1 If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than one hundred eighty (180) days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty (30) days after it is submitted, or

13.4.2 If OWNER fails for thirty (30) days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven (7) days' written notice to OWNER and ENGINEER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven (7) days' written notice to OWNER and ENGINEER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of the obligations under paragraph 4.14 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with the OWNER.

ARTICLE 14 - MISCELLANEOUS

14.1 Giving Notice

Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

14.2 Computation of Time

When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

14.2.1 A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

14.3 Bid Submission

Each bidder who submits a proposal for any portion of the work included in the Project Manual must submit with its bid this form fully completed and signed by an authorized officer of the bidder and must provide the data requested by the form. Unless this form is fully completed and signed by the bidder, the proposal made by that bidder will be incomplete and will not be considered by the Board of County Commissioners.

BID FORM

1. Name of Bidder _____

2. Business Address _____

3. Number of years engaged in contracting business under present firm's name:___ years.

4. *Experience in the contracting work generally similar to this project, including list of complexes, locations and approximate contract cost thereof.

_____

_____

_____

5. Have you ever defaulted on a contract? _____Yes _____No
   If Yes, when, with whom and why? _____

_____

6. *It is a necessary requirement of this Specification that each Contractor show evidence for five (5) jobs guaranteed for one (1) year on workmanship, unconditionally, and where Contractor has agreed to return and repair this work at no expense to the Owner.

_____ _____

_____ _____

_____ _____

7. *Have you ever filed bankruptcy or been adjudged bankruptcy?
   _____Yes_____ No

8. Do you employ any black, Hispanic, female or oriental minority persons? If yes, please state the number of each of such minority persons you presently employ. _____Yes_____No

   If no, please state reasons.

_____

_____

9. Have you encouraged minority building subcontractors to submit proposals in connection with your bid? _____Yes _____ No. If yes, state the name(s) of the minority subcontractors who have been contacted by you for the purpose of submitting a bid/proposal. If no, please state reasons.

_____

_____

_____

10. Do you intend to use any minority subcontractors in performing the work or providing the materials contained within your bid? _____Yes _____No. If yes, please state the name of the subcontractor. If no, please state reasons.

_____

_____

_____

11 Have you been involved in any complaints or litigation relative to the use of minority subcontractors? _____Yes _____No. If yes, what is the status of the complaints of the litigation?

_____

_____

_____

12 Additional pertinent comments:

_____

_____

_____

BY: _____

_____
(Signature of official completing this form)

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned_____

_____

as PRINCIPAL, and _____

_____as SURETY, are held and firmly bound unto the Elkhart County Board of County Commissioners, hereinafter called the "Owner", in the penal sum of

_____ Dollars ($_____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents:

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Bid, dated_____

for: _____

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified herein after the opening of the same, or if no period be specified within or sixty (60) days after the said opening, and shall within the period specified therefore, or, if no period be specified within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the Owner in accordance with the bid as accepted, and give Bond for faithful performance and proper fulfillment of such Contract; or in the event of the withdrawal of said bid within the period specified, or the failure to enter into such Contract and give such Bond within the time specified if the Principal shall

pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work or suppliers or both, if the latter amount be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals this _____ day of _____, ____ the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

IN PRESENCES OF: INDIVIDUAL PRINCIPALS:

_____ _____ (SEAL)

_____ _____ (SEAL)

_____ _____ (SEAL)

_____ _____ (SEAL)

ATTEST: CORPORATE PRINCIPAL:

_____ _____ (SEAL)

_____ _____ (SEAL)

Business Address_____

By: _____

Title: _____

ATTEST: CORPORATE SURETY:

_____ _____ (SEAL)

_____ _____ (SEAL)

Business Address_____

By: _____

Title: _____

Power-of-Attorney for person signing for Surety Company must be attached to Bond.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____

certify that I am the_____

Secretary of the Corporation named as Principal in the within Bond; that _____

_____ who signed the said Bond on behalf of the Principal was then _____of the corporation, that I know his signature, and his signature thereto is genuine; and that said Bond was duly signed, sealed, and attested to, for and in behalf of said corporation by authority of its governing body.

_____ (SEAL)

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, That_____ _____as principal and _____ as surety, are firmly bound unto Elkhart County, Indiana, acting through its Board of County Commissioners (OWNER) in the penal sum of an amount equal to one hundred percent (100%) the amount of his bid or the contract price, if the proposal is accepted, for the payment of which, well and truly to be made, we bind ourselves, jointly and severally, and our joint and several heirs, executors, administrators, and assigns, firmly by these presents, this _____day of_____, ____.

THE CONDITIONS OF THE ABOVE OBLIGATION ARE SUCH That, Whereas, the principal is herewith submitting a bid and proposal for the erection, construction and completion of BRIDGE 193 REHABILITATION PROJECT in accordance with the plans and specifications approved and adopted by said OWNER, which are made a part of this bond.

NOW, THEREFORE, if the said OWNER awards said principal the contract for work and said principal promptly enter into a contract with said OWNER (“Construction Agreement”) for the said work and well and faithfully does and performs the same in all respects according to the plans and specifications provided by the said OWNER, and according to the time, terms, and conditions specified in the Construction Agreement, and in

accordance with all requirements of law, and promptly pays all debts incurred by him or any subcontractor in the construction of said work, including labor, service, and materials furnished, then this obligation shall be void; otherwise to remain in full force, virtue and effect.

IT IS AGREED that the principal and surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the OWNER for the performance of the Construction Agreement including compliance with all of the plans and specifications provided by the OWNER, and according to the time, terms, and conditions specified in the Construction Agreement, and in accordance with all requirements of law. Principal and surety further agree to defend, indemnify, and hold harmless OWNER from claims, demands, liens or suits by any person or entity seeking payment for Principal's failure to perform under the Construction Agreement.

IT IS AGREED that the principal and surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the OWNER to pay for labor, materials and equipment furnished for use in the performance of the Construction Agreement, which is incorporated herein by reference. Principal and surety further agree to defend, indemnify, and hold harmless OWNER from claims, demands, liens or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Agreement. The payment bond granted to OWNER is also for the benefit of the subcontractors, laborers, material suppliers, and those performing services.

IT IS AGREED that no modifications, omissions, or additions in or to the terms and conditions of the Construction Agreement, plans, specifications, drawings, or profile; defect in the Construction Agreement; or defect in the proceedings preliminary to the letting and awarding of the Construction Agreement will discharge or any wise affect the obligation of surety on these bonds.

IN WITNESS WHEREOF, we hereunto set our hands and seal this _____day of _____, ____.

NAME_____ NAME_____

ADDRESS_____ ADDRESS_____

BY_____ BY_____
Signature Title Signature Title

_____ _____
(Printed or Typed) (Printed or Typed)
Surety Principal

State of Indiana, County of _____ss:

Personally appeared before me,_____

as principal and_____

as surety and each acknowledged the execution of the above bond this_____ day

of _____, ____.

BY_____
Signature Notary Public

_____
(Printed or Typed)

Witness my hand and notarial seal the said last named date.

My Commission Expires _____, ____.

_____
(County of Residence)

Accepted and approved this _____day of_____, _____.

_____
Bradley D. Rogers, President

_____
Suzanne M. Weirick, Vice President

_____
Bob Barnes, Member

ATTEST: _____
Tiara Jackson, Auditor

MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENT: That we,_____

_____, as

Principal, and

_____

as Surety, are held and firmly bound to the _____

_____ in

the sum of_____

_____

_____Dollars ($_____)

for the payment of which sum well and truly to be made, we jointly and severally bind ourselves, our heirs, executors, administrators, and successors, firmly by these present.

THE CONDITIONS OF THE ABOVE OBLIGATION are that, whereas the Principal, entered into a contract with the Owner on the _____day of_____, _____, to construct _____according to the Plans and Specifications, and also warranting the work and materials as provided in the aforesaid Contract and Specifications, for a period of three (3) years from the date of final acceptance of work by the Owner.

Now, if the said Principal shall faithfully perform and fulfill all the requirements of said Warranty and Guaranty, and make all repairs required under said Guaranty and, in the manner provided for, then this Bond to be null and void, otherwise to be in full force and effect.

IN WITNESS WHEREOF, this statement is executed in two (2) counterparts, each one of which shall be deemed an original, this_____ day of_____, _____.

(SEAL) _____
Principal

ATTEST:

_____ BY:_____

_____ _____
Title Title

(SEAL)

ATTEST:

_____ BY:_____

_____ _____
Title Title

APPROVED this _____ day of_____, _____.

ELKHART COUNTY, INDIANA
By and Through Its
BOARD OF COUNTY COMMISSIONERS

_____
Bradley D. Rogers, President

_____
Suzanne M. Weirick, Vice President

_____
Bob Barnes, Member

ATTEST: _____
Tiara Jackson, Auditor

AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, ____, by and between _____ (a corporation organized and existing under the laws of the State of Indiana), hereinafter referred to as the "CONTRACTOR," and "ELKHART COUNTY, INDIANA," acting through the Board of Commissioners, hereinafter referred to as the "OWNER."

WITHESSETH, that the Contractor and the Owner, for the considerations stated herein, mutually agree as follows:

ARTICLE 1 -- STATEMENT OF WORK

The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, including utility and transportation services, and traffic control, and perform and complete all work required for BRIDGE 193 REHABILITATION PROJECT, in Elkhart County, Indiana, as more particularly described in the Specifications, Special Provisions, General Requirements, Supplementary Conditions, Terms for Bidding, plans and drawings, and other items contained therein prepared by Elkhart County ("ENGINEER") and referred to herein as the "Construction Documents." All such Construction Documents have been reviewed and approved by the parties hereto and all are incorporated herein by reference as a part of this Agreement consistent with Article 4 below. All undertakings, duties, obligations, and performance required of Contractor by the Construction Documents and this Agreement are hereinafter referred to as the "Work."

ARTICLE 2 -- CONTRACTOR REPRESENTATIONS

The Contractor represents to Owner that it is fully experienced and properly qualified as an expert to render the performance required for the Work, and that it is properly equipped, organized and financed for performance of this Agreement. Contractor further represents and acknowledges that it is an independent contractor, and that Contractor IS NOT, in any manner or form, an agent, employee, or representative of Owner.

CONTRACTOR INDEMNIFICATION

The Contractor agrees to indemnify and save harmless the Owner and Engineer, their agents and employees, from and against all loss or expense (including court costs and attorneys' fees of defense or enforcement) by reason of liability imposed by law or otherwise upon the Owner or Engineer, for (1) damages because of bodily injury, including death at any time resulting therefrom, sustained by any person or persons, or (2) on account of damage to property or property rights or interests, including loss of use thereof, arising out of or in consequence of the performance of the Work, provided such injury to persons or damage to property is due or claimed to be due to negligence of the Contractor, its subcontractors, employees or agents, or in violation of this Agreement.

REQUIREMENTS FOR CONTRACTORS ON PUBLIC WORKS PROJECTS

1) The provisions of Indiana Code Section 5-16-13 are hereby incorporated by reference including, but not limited to, the following specific provisions:
   a) Contractor must contribute in work performed by its employees, materials supplied directly by Contractor, and services supplied directly by its employees of at least fifteen percent (15%) of the total contract price.
   b) Contractor must maintain general liability insurance in the amounts provided in the Construction Documents but in no event less than One Million Dollars ($1,000,000.00) for each occurrence limit and Two Million Dollars ($2,000,000.00) for the general aggregate limit.
   c) Contractor must implement and comply with the requirements of Indiana Code Section 22-5-1.7 concerning the E-Verify system with respect to its employee hiring. Contractor must submit, before work begins on the Agreement, the E-Verify case verification number for each individual who is required to be verified under Indiana Code Section 22-5-1.7. An individual who is required to be verified under Indiana Code Section 22-5-1.7 whose final

case result is final non-confirmation may not be employed on this Work.

d) Contractor may not pay cash to any individual employed by the Contractor for work done by the individual on this Work.

e) Contractor must be in compliance with the Federal Fair Labor Standards Act of 1938, as amended (29 USC 201-209) and Indiana Code Section 22-2-2-1 through Indiana Code Section 22-2-2-8.

f) Contractor must be in compliance with Indiana Code Section 22-3-5-1 and Indiana Code Section 22-3-7-34.

g) Contractor must be in compliance with Indiana Code Section 22-4-1 through Indiana Code Section 22-4-39.5.

h) Contractor must be in compliance with Indiana Code Section 4-13-18-1 through Indiana Code Section 4-13-18-7.

2) Drug Testing of Employees. Indiana Code Section 4-13-18 regarding the drug testing of employees of public works contractors applies to the Agreement as the estimated cost hereof is at least One Hundred Fifty Thousand Dollars ($150,000.00) and has been awarded after June 30, 2015.

3) Nondiscrimination. Pursuant to Indiana Code Section 22-9-1-10, Contractor and its subcontractors, if any, shall not discriminate against any employee or applicant for employment to be employed in the performance of the Agreement with respect to hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of race, religion, color, sex, disability, national origin, ancestry, or veteran status. Breach of this covenant may be regarded as a material breach of the Agreement.

4) Anti-nepotism. Contractor is aware of the provisions of Indiana Code Section 36-1-21 et seq. with respect to anti-nepotism in contractual relationships with governmental entities. Contractor certifies that none of the owners of Contractor is a relative of any elected Council

Member or Commissioner of the County of Elkhart, Indiana.

5) Investment Activity. Pursuant to Indiana Code Section 5-22-16.5-13, Contractor certifies that Contractor is not engaged in investment activities in Iran.

ARTICLE 3 -- THE CONTRACT PRICE

The Owner will pay the Contractor for the performance of the Work subject to additions and deductions provided herein, in current funds, and per applicable Indiana law and the required procedures for payments by Owner, the sum of **$**_____. The Contractor shall start the Work on or after **Monday, August 3, 2026**, be substantially complete by **Wednesday, November 25, 2026** and receive final acceptance on or before **Wednesday, December 23, 2026**. Any Work remaining to be completed after **Wednesday, November 25, 2026** or Final Acceptance has not been received by **Wednesday, December 23, 2026** is subject to the following damages: For each and every day Work contemplated in this Agreement fails to achieve substantial completion, beyond the substantial completion date herein established (Wednesday, November 25, 2026) or final acceptance has not been received by the final acceptance date herein established (Wednesday, December 23, 2026), Contractor shall owe and pay to Owner the sum of $1,000.00 per day, as liquidated damages and not as penalty. In establishing said $1,000.00 sum per day as and for liquidated damages owed by the Contractor to Owner, the parties hereto stipulate and agree that the actual damages that would be suffered by Owner because of the failure of Contractor to timely complete the Work contemplated are indefinite and uncertain; however, the parties hereto stipulate that the sum herein established is a reasonable estimate by the parties of the probable damages to be suffered by the Owner upon the failure of the Contractor to timely complete the Work contemplated. The liquidated damages herein established shall be deducted daily from the Contract Price herein established, thereby reducing the same for the total amount of liquidated damages as herein stipulated, and hence reducing payments of the Contract Price Owner would otherwise make. If an intermediate date is specified for one or more of the items or phases of the contract, liquidated damages will apply for that particular item or phase as

if the intermediate date specified for said item or phase is conclusion of said portion of project or contract.

ARTICLE 4 -- CONTRACT DOCUMENTS

The Contract Documents forming a part of this Agreement by reference shall consist of the following:

a. This Agreement.

b. Memos:

c. Invitation for Bids.

d. Notice to Bidders.

e. Signed copy of Bid and Itemized Bid Form.

f. General Conditions and Supplementary Conditions.

g. Construction Specifications and Related Documents.

h. Plans.

i. Addendums

ARTICLE 5 -- PROJECT CONTROL

The Contractor will carry out this project and complete the Work under the direction of the Owner and the Owner's agents, the Engineer, or other consultant designated by the Owner. The Owner's designated representative during the construction period will make visits to the site at intervals appropriate to the various states of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents.

This Agreement, to include the Contract Documents enumerated in Article 4 above, constitutes the full agreement and understanding of the parties hereto, and save for change orders and procedures therefore set forth within the Contract Documents, shall not be amended by the parties, other than by instrument executed by each party hereto.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed

in various counterparts effective as of the date and year first above written.

CONTRACTOR:

By_____ Signature

_____ Printed Name

_____ Title

OWNER: **ELKHART COUNTY, INDIANA**, by and through its Board of County Commissioners

_____
Bradley D. Rogers, President

_____
Suzanne M. Weirick, Vice-President

_____
Bob Barnes, Member

ATTEST:_____
Tiara Jackson, Auditor

Division 2:

Supplemental Provisions

For

BRIDGE 193 REHABILITATION PROJECT

OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103

TABLE OF CONTENTS

SP1 – GENERAL INFORMATION

1. GENERAL

The Supplemental and Technical Provisions included herein are in addition to the latest edition of the Indiana Department of Transportation "STANDARD SPECIFICATIONS", which Standard Specifications shall apply to this contract. Where the words "Standard Specifications" and also where referenced, consisting of a number or numbers are used, they shall be construed as referring to the latest edition of the Indiana Department of Transportation Standard Specifications and current supplementary specifications and standard detail drawings.

The term “State” as used in the Standard Specifications shall be deleted and replaced with the term “County”.

The term “Engineer” as used in the Standard Specifications shall be the person, firm, or corporation named as such in the written Agreement between the OWNER and CONTRACTOR.

2. HIERARCHY

The hierarchy of governing authority in the contract Documents is as follows.

A. Division 1 provisions as modified by the Supplemental Provisions
B. Project Technical Provisions
C. Project Drawings
D. County Specifications
E. INDOT Standard Specifications
F. INDOT Standard Drawings

SP2 – CONTRACT QUESTIONS

1. GENERAL

   Submit all questions in writing to *SJCA Inc., 105 E. Jefferson Blvd., Suite 216, South Bend, IN 46601 or dmullaney@sjcainc.com,* prior to 5*:00 p.m. local time, June 26, 2026.* A written response will be posted to the Elkhart County Highway website, where the bid documents were posted. No questions will be answered by telephone.

SP3 – UTILITIES

1. GENERAL

   The Contractor shall determine the location of all underground and overhead utility lines within the project limits. If proper clearances cannot be obtained, affected planned structures shall be placed as otherwise directed and approved by the adjacent utility representatives (and as accepted by the Engineer).

2. COORDINATION WITH UTILITIES

   The Contractor shall be responsible for utility property and services in accordance with 107.20 of INDOT's Standard Specifications. All of the permanent and temporary utility appurtenances in their present or relocated positions shall have been considered in the bid. No additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from the said utility appurtenances or the operations of moving them.

   The prime contractor shall be ultimately responsible for the completeness and promptness of utility location(s) for subcontractors. Multiple locations of the same facilities may be required throughout the project time.

3. NIPSCO OVERHEAD ELECTRIC

   The facilities of NIPSCO Electric exist within the project limits and are expected to be affected by the project. The utility has wood poles, anchors, aerial bare 69kV and aerial bare 7.2kV wires located on the west side of CR 43. The existing 69 kV facilities will remain in place and energized. The 7.2 kV wire will be temporarily de-energized and cut down between poles 1061/747 and 1061/745. The utility is proposing new bare 7.2 kV wire re-installed between poles 1061/747 and 1061/745 upon completion of bridge construction. See their work plan provided with the contract letting documents for additional detail. The utility was given Notice to Proceed on 03/26/2026. It is anticipated that the utility will take approximately 180 calendar days to complete its work plan. If questions arise, Matthew Boyle of the utility may be contacted at 219-380-4136 or mboyle@nisource.com. The work plan was approved on 03/25/2026.

4. BRIGHTSPEED COMMUNICATIONS

   The facilities of Brightspeed exist within the project limits and are expected to be affected by the project. The utility has inactive underground 25pr copper cable located in the west right of way parallel to CR 43. The utility has inactive pedestal located on the north side of the bridge next to the utility pole on the west side of CR 43. The existing underground copper cable will be cut at each end of the bridge and retired in place. The existing pedestal will be removed. The utility is proposing no new facilities in the proposed construction area. See their work plan provided with the contract letting documents for additional detail. The utility was given Notice to Proceed on 03/26/2026. It is anticipated that the utility will take approximately 75 calendar days to complete its work plan. If questions arise, Jordon Howell of the utility may be contacted at 916-204-8802 or jhowell@bryler.com. The work plan was approved on 03/25/2026.

SP4 – STORAGE OF CONTRACTOR'S EQUIPMENT, MATERIALS AND TEMPORARY OFFICES

1. GENERAL

The Contractor will be permitted to store non-operating construction equipment, workmen's vehicles, materials and temporary offices within the limits of the Right-of-Way with approval from Owner.

In the event that the Right-of-Way is not available for storage, the Contractor shall procure an adequately secure operations site as an incidental item to the contract.

All areas within the limits of the Right-of-Way that are used by the Contractor for temporary storage, of any kind, shall be restored to their original condition by the Contractor at his own expense, when no longer required for that purpose.

The Contractor shall not use property adjacent to the project Right-of-Way for storage, parking or any other use without prior approval from the property owner.

SP5 – HAZARD COMMUNICATIONS PROGRAM

1. GENERAL

   Pursuant to the latest requirement of OSHA the bidder is obligated to inform his employees concerning the health and safety hazards of chemical substance that may be required in the performance of this contract.

SP6 – ENVIRONMENTAL RESTRICTIONS

1. GENERAL

   A. All trees or shrubs outside the construction limits shall not be disturbed.

   B. Construction limit is defined as the Right-of-Way line unless otherwise shown on the plans.

2. PERMITS

   No regulatory permits were required or obtained by the OWNER for this project.

   The CONTRACTOR is responsible for securing all other permits that may be required for this project in accordance with the Standard Specifications.

SP7 – CONTRACTOR'S RESPONSIBILITY FOR MATCHING OLD WORK

1. GENERAL

Where new work is to be fitted to old work, the Contractor shall check all leading dimensions and conditions in the field and report any errors or discrepancies to the Engineer and assume responsibility for their correctness and the fit of new parts to old. If such parts do not fit properly, the Contractor shall make and pay for such alterations or new parts as may be necessary to assure proper fits and connections meeting the approval of the Engineer.

SP8 – DUST AND AIR POLLUTION CONTROL

1. GENERAL

   Provision shall be made for prompt removal from traveled roadways of all dirt and other materials that have been deposited thereon by operations concerned with the project whenever the accumulation is sufficient to cause the formation of dust or mud, interfere with drainage, damage pavements, or create a traffic hazard.

2. CONSTRUCTION

   Construction methods and means shall be employed to keep flying dust and air pollution to a minimum. Provisions shall be made for the control of dust on the project and on the roads, streets and other areas affected by the project wherever traffic or buildings or construction materials are affected by such dust. The materials and methods used for dust control shall be subject to approval by the Engineer.

   The cost of controlling dust and air pollution shall be included in the costs of other pay items and no additional payment will be made.

SP9 – CONTAMINATION PRECAUTION

1. GENERAL

   Contractor shall take all precautions to avoid the spillage of construction-related liquids and fuels during the project. All portable stationary fuel tanks shall have secondary containment.

SP10 – RECORD DRAWINGS

1. GENERAL

Record Drawings shall be required for all major projects.

Record Drawings shall be required for minor projects if they include, but not limited to, the following elements: change in road elevations, profile, alignment, small structure improvement, intersection improvement, drainage pipe, structures, and water services.

The Contractor shall provide the Owner with two (2) neatly prepared and reproducible sets of record drawings and one (1) complete set in PDF format on a thumb drive.

Record drawing preparation shall be incidental to the contract.

SP11 – MATERIAL TESTING

1. LABORATORY INSPECTION AND TESTING

   A. All collection, laboratory inspection and testing of materials shall be performed as required under Article 106.02 of the Standard Specifications except as modified herein. It is the responsibility of the Contractor to see that all work is performed as required herein. The collection, laboratory inspection and testing of materials shall be performed by an independent testing laboratory.

   B. The minimum number of samples and/or tests will be in accordance with INDOT's "Manual for Frequency of Sampling and Testing and Basis for Use of Material" unless superseded by the Technical Provisions and Supplementary Specifications for this project. This manual is available for review at INDOT's Office of the Division of Materials and Tests.

   C. The cost of this work shall be included in the bid price of other items.

   D. The Engineer, or the Engineer's Authorized Representative, may require that collection, laboratory inspection and testing of materials be performed in addition to the minimum number of tests required as described above. A written order will be provided to the Contractor requesting the additional work. Payment for the additional collection, laboratory inspection and testing of materials will be made either by change order or under the item allowance for Inspection and Testing if included in the contract. All test results shall be given to the owner/inspector in a timely manner.

SP12 – VIDEO REQUIREMENTS FOR CONSTRUCTION CORRIDOR

1. GENERAL

   The Contractor shall provide video footage, including sound, of the entire project, but not limited to any off-site areas used for material storage, hauling, dumping, and other areas that may be affected by the construction process.

   The video shall provide a complete record of the physical conditions of the entire project BEFORE mobilization and AFTER cleanup. The video shall be cataloged by automobile odometer readings taken in one-tenth (1/10) of a mile increments for those areas accessible by automobile, or by project Stationing, either via on-screen text or audible notes. Time and date stamp shall be recorded throughout and clearly legible on the video.

2. QUALITY

   The video shall be 720p quality or better. The videos shall be in mpeg-4 or H.264 format. Should multiple individual files be used, each should overlap 100 feet with the one previous to it. The center of the road, driveways, landscaping, and lawn areas adjacent to the project should be clearly visible.

3. COST AND TIMELINE

   The cost of video recording shall be incidental to the other project items. However, no application for payment will be approved until after the pre-construction videos have been reviewed and accepted by both the Engineer and Owner. **The pre-construction videos shall be provided to the Engineer at least two (2) weeks prior to the application of initial progress payment.** Prior to final payment application to release retainage, the Contractor shall submit to the Engineer the post-construction video.

Division 3:

Project Technical Specifications

For

BRIDGE 193 REHABILITATION PROJECT

OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

HIGHWAY
ELKHART COUNTY

Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103

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TP1 - SPECIAL RIGHT-OF-WAY CONDITIONS

1. GENERAL

A. This item shall include any work necessary to address an unforeseen condition found during construction. If an unforeseen condition is encountered, the Contractor shall advise the Engineer of the condition. A method of resolving the condition will be provided to the Contractor so that the cost of the additional work can be determined. The Contractor must receive written approval from Elkhart County before proceeding with any additional work. This approval will define the amount of this bid item to be applied to the cost of the additional work. The Contractor will only receive payment for this item if extra work approved by Elkhart County is performed and then only the approved amount. Any unused portion of this item will be deleted from the contract upon completion of the project.

TP2 – SHEET PILING, STEEL

1. GENERAL

A. Steel sheet piling for the retaining wall in the northeast quadrant of the bridge shall be in accordance with 910.21. The minimum specifications for the sheeting shall be shown on the plans. Sheet pile sections with a larger section modulus may be used, as long as the minimum specifications are satisfied.

Steel sheet piling will be measured by the square foot of the neat line limits of the wall envelope shown on the plans.

Steel sheet piling will be paid for at the contract unit price per square foot for Sheet Piling, Steel.

The cost of using sheet pile sections exceeding the minimum specifications shown on the plans shall be included in the cost of Sheet Piling, Steel.

The cost of all materials, mobilization, installation, cutting of sheet piling to the elevation specified, and all necessary incidentals to install the sheet pile wall shall be included in the cost of Sheet Piling, Steel.

TP3 – HMA PAVEMENTS

1. GENERAL

   This work shall consist of constructing a Surface, Intermediate, or Base course of hot mix asphalt in a central plant and spread and compacted on a prepared surface in accordance with INDOT Standard Specification Section 402.

2. PAYMENT

   Payment will be made under:

Pay Item	**Pay Unit**
HMA Surface, Type B	TON
HMA Intermediate, Type B	TON
HMA Base, Type B	TON

TP4 – GUARDRAIL END TREATMENT

1. GENERAL

   Guardrail End Treatment MSKT TL-2 shall be used whenever TL-2 SKT-MGS End Treatment is specified on the plans.

2. PAYMENT

   Payment will be made under:

Pay Item	**Pay Unit**
Guardrail End Treatment MSKT TL-2	EACH

TP5 – GUARDRAIL TRANSITIONS

1. GENERAL

   Where specified on the plans, guardrail thrie-beam transition sections shall be in accordance with INDOT Standard Drawing 601-TBGC-02 and INDOT Standard Specifications Section 601. Post spacing shall be 3' – 1 ½".

2. PAYMENT

   Payment will be made under:

Pay Item	**Pay Unit**
Guardrail, Thrie-Beam Transition Section, Galvanized, Symmetric	EACH
Guardrail, Thrie-Beam Transition Section, Galvanized, Asymmetric	EACH

TP6 – SPRAY APPLIED BRIDGE DECK MEMBRANE SYSTEM

1. GENERAL

This work shall consist of preparation for and application of a spray-applied waterproofing membrane system on the top of the prestressed concrete box beams, down the ends of the beams, and on the reinforced concrete end bents in accordance with 105.03, at the locations shown on the plans. The spray-applied waterproofing membrane system shall consist of a primer, base coat membrane, topcoat membrane, aggregate topcoat, and tack coat.

2. MATERIALS

The primer, membrane, and ancillary items shall be supplied by the following:

Bridge Preservation, LLC “Bridge Deck Membrane”
686 S. Adams St.
Kansas City, KS 66105
(913) 321-9000
www.bridgepreservation.com

The Contractor may submit a request for an alternate material supplier to the Engineer for approval. Written approval of the substitute supplier by the Engineer is required prior to purchasing any substitute materials. No payment for any substitute materials will be made without written approval of the Engineer for the substitution.

The tack coat and broadcast aggregate shall be approved by the membrane manufacturer and shall be supplied by either the Contractor or the membrane manufacturer.

All materials shall be stored in a clean and dry location and shall be protected from exposure to direct sunlight. Materials shall be stored within the temperature range and humidity range specified by the manufacturer. All materials shall be delivered and stored in the manufacturer's original containers labeled with the manufacturer's name, product brand name, and batch/lot numbers.

A Type C Certification in accordance with 916, including the vendor’s name and product name shall be furnished for the spray-applied waterproofing membrane system.

3. CONSTRUCTION

A. Submittals

The spray-applied waterproofing membrane system shall be placed in accordance with the approved Quality Control Plan (QCP), which shall be prepared and submitted in accordance with Indiana Testing Method (ITM) 803. The QCP shall include the installer’s experience placing spray-applied membranes within the last three years, and the manufacturer’s technical representative’s experience placing spray-applied membranes within the last five years. The spray-applied membrane system manufacturer’s material information, written installation instructions, material safety data sheets, and descriptions of the equipment to be used shall be included with the QCP. The installer of the spray-applied waterproofing membrane system shall be approved by the membrane

manufacturer and the manufacturer's written approval of the installer shall be included in the QCP. The QCP shall be submitted to the Engineer at least 14 days prior to commencing membrane installation operations. Approval of the QCP by the Engineer is required prior to commencing membrane installation operations.

The spray-applied waterproofing membrane system manufacturer shall approve the tack coat and broadcast aggregate. The Contractor shall submit to the Engineer the manufacturer's written approval of the tack coat and broadcast aggregate materials at least seven days prior to the application of any system component.

B. Project Conditions and Testing Requirements

The spray-applied bridge deck membrane system manufacturer shall provide a representative to be on site at all times during the final surface preparation and all phases of the membrane installation.

The spray-applied waterproofing membrane system shall be installed at all locations shown on the plans. Pre-passes of membrane system primer shall be made over each longitudinal beam joint prior to installation of the primer over the entirety of the box beams to provide additional membrane thickness over the joints. Where the areas to receive the membrane are bounded by vertical surfaces, including but not limited to, bridge railings or expansion joints, the membrane system shall be continued up the vertical surface to a neat line finish that coincides with the top surface of the bituminous overlay. The membrane system shall be overlapped a minimum of 4 in. at all construction joints and the previously applied membrane shall be cleaned a minimum of 6 in. past the joint using a solvent approved by the spray-applied waterproofing membrane system manufacturer.

The spray-applied waterproofing membrane system shall be applied only when the ambient temperature is at least 40°F and rising and the concrete surface temperature exceeds the dew point by at least 10°F. The waterproofing membrane system may only be installed if the relative humidity is less than or equal to 85 percent.

The spray-applied waterproofing membrane system shall be applied only when the concrete surface, including any partial and full depth patches, has a moisture content of 5.0 percent or less. The moisture content shall be measured using a portable electronic surface moisture meter supplied by the Contractor and reported to the Engineer prior to installation of any system component. The spray-applied waterproofing membrane system shall not be installed more than 24 hours before the placement of the bituminous overlay unless approved by the Engineer.

Random tests shall be performed for adequate tensile bond strength between the substrate and primer and between the primer and membrane. Bond strength tests for the primer shall be performed in accordance with ASTM D7234 with the membrane acting as the adhesive between the primer and the test dolly. A minimum bond strength of 150 psi shall be required. The frequency of testing shall be at least 1 test per 5,000 square feet, with a minimum of three tests per bridge. The membrane system base coat shall meet the following criteria:

Solids Content……100%

Gel Time……10 seconds, maximum
Tack Free time……30 seconds, maximum
Shore Hardness……40D, minimum, per ASTM D2240
Adhesion to Concrete……150 psi, minimum, per ASTM D7234
Tensile Strength……2,000 psi, minimum, per ASTM D638
Tear Strength……300 lb/in, minimum, per ASTM D638
Elongation at Break……150%, minimum, per ASTM D638
Low Temperature Crack Bridging (1/8")……Pass @ 40 cycles, per ASTM C1305
Extensibility after Heat Aging (1/4")……Pass, per ASTM C1522

The membrane system top coat shall meet the following criteria:

Solids Content……100%
Gel Time……30 seconds, minimum
Tack Free time……60 seconds, minimum
Shore Hardness……40D, minimum, per ASTM D2240
Tensile Strength……2,000 psi, minimum, per ASTM D638
Tear Strength……300 lb/in, minimum, per ASTM D638
Elongation at Break……150%, minimum, per ASTM D638

The composite membrane system composed of Spray Applied Base Coat Membrane, Spray Applied Top Coat Membrane, and Manufacturer-approved aggregate broadcast into Top Coat Membrane shall meet the following criteria:

Low Temperature Crack Bridging (1/8")……Pass @ 40 cycles, per ASTM C1305

The wet film thickness of the membrane system shall be checked using a gage pin or comb type thickness gage. Thickness shall be measured at a frequency not to exceed one test per every 300 square feet. If the membrane cures too quickly for accurate wet film thickness measurements, the dry film thickness shall be measured using magnetic or ultrasonic gages. Magnetic or ultrasonic gages shall have been calibrated within the past year and a copy of the calibration certificate shall be submitted to the Engineer prior to the application of any system component.

A visual inspection of the membrane for holidays or other defects shall be performed throughout the membrane installation by the membrane manufacturer. All defects shall be marked and repaired using a procedure developed by the manufacturer and approved by the Engineer.

C. Surface Preparation

The bridge concrete surfaces to receive the spray-applied waterproofing membrane system shall be prepared in accordance with the membrane manufacturer's recommendations. The Contractor shall provide a clean, sound, and dry substrate free of dirt, dust, debris, or deleterious material. The Contractor shall prepare the concrete surfaces to receive the membrane in accordance with SSPC-SP13/NACE No. 6 Surface Preparation of Concrete and achieve a Concrete Surface Profile (CSP) of at least 3 measured using ICRI CSP chips.

After all surface preparation has been completed and prior to the primer installation on the completed surfaces, tensile bond strength shall be tested in accordance with section (b) of this provision. Application of the primer shall not be performed on the remaining portions of the bridge until tensile bond strength tests pass the acceptance criteria and the membrane manufacturer's representative has approved the surface preparation.

All areas that are not to receive the membrane shall be protected using masking, spray curtains, or other methods to prevent overspray.

D. Primer Application

The primer shall be installed only after the surface has been prepared, tensile bond strength tests pass the acceptance criteria, and the weather and surface moisture requirements specified in section (B) have been met. The primer shall be applied by spray, roller, or squeegee at a rate of no less than one gallon per 130 square feet and no more than one gallon per 200 square feet, and in accordance with the manufacturer's recommendations. A second coat of primer shall be required if the first coat is absorbed by the concrete. The primer shall be tack free prior to the membrane installation, but in no case shall the primer be installed more than 24 hours prior to the membrane installation.

E. Base Coat Membrane Installation

The base coat membrane shall be spray-applied using computer-controlled equipment capable of monitoring mix ratios and coverage rates. The minimum thickness of the base coat membrane shall be 80 mils. Additional coats shall be applied in all areas where the measured membrane thickness is less than the specified minimum. The base coat membrane shall be visually inspected, and the thickness tested in accordance with section (B) of this provision.

F. Topcoat Membrane and Aggregate Topcoat Installation

The topcoat membrane shall be spray-applied after the application of the base coat membrane. The minimum thickness of the topcoat membrane shall be 40 mils. The aggregate topcoat shall immediately be broadcast into the wet topcoat membrane at a rate of 0.33 to 0.50 lbs per square foot. The aggregate topcoat shall be uniformly applied and shall cover a minimum of 95% of the membrane. All excess or loose aggregate shall be removed after the topcoat membrane has cured in accordance with the manufacturer's recommendations. The topcoat membrane shall be visually inspected. The total thickness of the combined base and topcoats tested shall satisfy section (B) of this provision.

G. Tack Coat Installation

Asphalt tack coat shall be installed after the topcoat membrane has cured per the manufacturer's recommendations, but not less than 3 hours from topcoat installation, and the surface meets the requirements of 406.04. The tack coat shall be installed per the manufacturer's recommendations and in accordance with 406.05.

The completed spray-applied waterproofing membrane system shall be fully cured in accordance with the manufacturer's recommendations, but not less than one hour prior to the placement of the bituminous overlay.

4. MEASUREMENT

The spray-applied waterproofing membrane system will be measured by the square foot of actual surface area of spray-applied waterproofing membrane system, complete in place.

Tack coat will be measured in accordance with 406.06.

5. PAYMENT

The spray-applied waterproofing membrane system will be paid for at the contract unit price per square foot, complete in place.

Tack coat will be paid for in accordance with 406.07.

Payment will be made under:

Pay Item	**Pay Unit**
Spray Applied Bridge Deck Membrane System	SFT

The cost of the manufacturer’s representative oversight during all membrane system preparation and installation operations, overspray shielding, existing surface preparation, transportation, placement, primer, base coat membrane, topcoat membrane, aggregate topcoat, testing, labor, and all incidentals required to furnish and install the spray-applied waterproofing membrane system shall be included in the cost of the Spray Applied Bridge Deck Membrane System.

TP7 – UNDISTRIBUTED ITEMS

1. GENERAL

Quantities of undistributed items needed in addition to those shown on the itemized proposal and approved by the Engineer will be paid for at the contract unit price for the quantity used on the project. There shall be no adjustment in the contract unit price if quantities are less than those shown on the itemized proposal and the item can be deleted entirely without impact to the contract amount. All work involving undistributed items shall be performed only at the direction of the Engineer.

TP8 – RIGHT OF ENTRIES SECURED

1. GENERAL

No right-of-way was purchased for this project. The Owner has secured right-of-entries for this project. All work performed by the Contractor shall be undertaken within the construction limits. The Contractor shall repair any disturbance of areas outside construction limits to the satisfaction of the Engineer and the affected property owner(s) at the Contractor's expense.

TP9 – ROAD CLOSURE

1. GENERAL

The Contractor shall limit the time the road is closed to traffic to a maximum of 75 calendar days without written approval of an extension to this time limit from the Owner.

The Contractor and the Owner acknowledge and agree that the time allotted by this agreement for the performance and completion of the work is reasonable and takes into account any and all risks and adverse conditions assumed by the Contractor hereunder.

TP10 – TS-1 RAILING

1. GENERAL

   This work shall consist of supplying and installing all necessary rail panels, posts, concrete anchors, and hardware for the fabrication and installation of the Railing, Steel TS-1 at the locations shown on the plans and in accordance with INDOT Recurring Special Provision 706-B-140d.

   Payment for the “Railing, Steel, TS-1” will be made at the contract unit price per Linear Foot. See Appendix “D” for additional information.

Division 4:

Bid Documents

For

BRIDGE 193 REHABILITATION PROJECT

OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

HIGHWAY
ELKHART COUNTY

Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103

NOTICE TO BIDDERS

Notice is hereby given that the Board of County Commissioners of Elkhart County, Indiana, will receive bids up to **9:00 AM on Monday, June 29, 2026** for the **BRIDGE 193 REHABILITATION PROJECT.** It is the responsibility of the bidder to ensure that its bid is delivered on time to the Office of the Elkhart County Commissioners, County Administration Building, 117 N. Second Street, Goshen, IN 46526.

Plans, Specifications and bidding documents may be obtained from the **Elkhart County Highway Department website** at www.elkcohwy.org starting at **9:00 AM** on **Friday, June 5, 2026**. Plans, Specifications and Bidding Documents may not be obtained prior to this date.

Plans, Specifications and Bidding Documents will be available for inspection at the Elkhart County Highway Department Office, 610 Steury Ave, Goshen, Indiana starting on **Friday, June 5, 2026**. A pre-bid meeting will be held at the Elkhart County Highway Department Office, 610 Steury Ave, Goshen, Indiana at **9:00 AM** on **Thursday, June 18, 2026.**

Proposals shall be properly and completely executed on proposal forms furnished by the County in accordance with Revised Indiana Form 96 and shall be accompanied by the Contractor's Financial Statement form taken from Form 96 for any proposal of $5,000 or more.

The Contractor shall submit an itemized proposal of the approximate quantities and components of labor and materials to complete the contract. Said proposal shall be upon the standard bid sheets used by Elkhart County, said sheet must contain an authorized signature of the Contractor, and sheet must be the first page of the submittal, or the bid of the Contractor may, at the discretion of Elkhart County, be rejected and declared invalid. Each proposal shall be accompanied by a non-collusion affidavit as required by the Statutes of Indiana. Bids shall be enclosed in a sealed envelope, bearing the title of the project and name and address of bidder.

Bids will be accepted only from bidders who are sufficiently and currently pre-qualified by the Indiana Department of Transportation. Proof of pre-qualifications must be submitted with the bid.

A current Contractor's Financial Statement taken from Form 96 and the Indiana Department of Transportation prequalification certificate may be placed on file with the Board of County Commissioners of Elkhart County at the Highway Division annually in lieu of executing these documents for each project.

All work may begin on **Monday, August 3, 2026** and shall be completed by **Wednesday, November 25, 2026**. Delays in completion beyond that date shall result in liquidated damages levied against the Contractor by Elkhart County. The damage charges shall be $1,000.00 per day beyond the above-stated date and any intermediate completion dates noted in the specifications.

A satisfactory bid bond (10% of bid), payable to the Board of County Commissioners of Elkhart County, Indiana executed by the bidder shall be submitted with each bid.

No bids shall be withdrawn after the opening of the bids without the consent of the Board of Commissioners of Elkhart County for a period of thirty (30) days after the scheduled time of closing.

Said work shall be subject to all the provisions of the plans and specifications therefore herein above referred to including the completion date thereof and penalty clause as therein set forth.

The Board of County Commissioners reserves the right to reject any and all Bids or to waive any informalities in the bidding.

Dated this **26th day of May, 2026**
Board of County Commissioners of Elkhart County
By Tiara Jackson, Auditor

Advertise: **Wednesday, June 3, 2026** and **Wednesday, June 10, 2026** - Elkhart Truth and Goshen News

The approximate quantities for this contract are as shown on the itemized bid tabs included on the attached pages. If extra work is necessary due to shifting of any of the items of construction or if additional work is called for in accordance with these specifications, such work shall be paid for on the basis of the following itemized unit prices. In addition to the above, the said unit prices shall also be the basis of payment to the Contractor for actual quantities placed. **The attached sheet (s) must be completely filled out, submitted with the sealed bid, and must be the first pages of the bid package submittal, or Elkhart County may at its discretion, reject the bid and declare the same invalid**. An authorized signature of the Contractor is mandatory upon the bid sheets. All other items necessary to properly complete this project or specifically outlined, shall be included within the line items provided and will be considered as incidental. The award of this contract will be based on the sum of the items listed below.

NOTE: Any Item may be withdrawn by Elkhart County at any time prior to performing the work.

ELKHART COUNTY

BID TOTAL _____ dollars

($_____)

Acknowledge Receipt of Addenda No.(s) _____.

Submitted by: _____
Company

_____
Authorized Signature

Date: _____ Phone:_____

ATTEST: _____

ELKHART COUNTY, INDIANA

BOARD OF COUNTY COMMISSIONERS

BRIDGE 193 REHABILITATION PROJECT

ITEMIZED PROPOSAL

NO.	SPEC. SECTION	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
1	105	CONSTRUCTION ENGINEERING	1	LS		
2	110	MOBILIZATION AND DEMOBILIZATION	1	LS		
3	201	CLEARING RIGHT OF WAY	1	LS		
4	202	PRESENT STRUCTURE, REMOVE PORTIONS	1	LS		
5	202	SIGN, REMOVE	1	EACH		
6	203	EXCAVATION, COMMON	45	CYS		
7	205	STORMWATER MANAGEMENT BUDGET	8,937	DOL	$1.00	$8,937.00
8	205	STORMWATER MANAGEMENT IMPLEMENTATION	1	LS		
9	206	EXCAVATION, FOUNDATION, UNCLASSIFIED	15	CYS		
10	206, TP2	SHEET PILING, STEEL	593	SFT		
11	207	SUBGRADE TREATMENT, TYPE IC	231	SYS		
12	211	B BORROW	2	CYS		
13	211	AGGREGATE FOR END BENT BACKFILL	8	CYS		
14	213	FLOWABLE BACKFILL, REMOVABLE	1	CYS		
15	214	GEOTEXTILE FOR PAVEMENT, TYPE 2B	268	SYS		
16	303	COMPACTED AGGREGATE, NO. 53	25	TON		
17	402, TP3	HMA SURFACE, TYPE B	45	TON		
18	402, TP3	HMA INTERMEDIATE, TYPE B	29	TON		
19	402, TP3	HMA BASE, TYPE B	35	TON		

ELKHART COUNTY, INDIANA

BOARD OF COUNTY COMMISSIONERS

BRIDGE 193 REHABILITATION PROJECT

ITEMIZED PROPOSAL

NO.	SPEC. SECTION	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
20	401	JOINT ADHESIVE	500	LFT		
21	406	ASPHALT FOR TACK COAT	563	SYS		
22	601	GUARDRAIL, TERMINAL SYSTEM, W-BEAM CURVED, TYPE 3, MODIFIED	1	EACH		
23	601	GUARDRAIL, REMOVE	65	LFT		
24	601	GUARDRAIL, STEEL CURVED TERMINAL END SECTION	2	EACH		
25	601, TP4	GUARDRAIL, END TREATMENT, MSKT TL-2	2	EACH		
26	601, TP5	GUARDRAIL, THRIE-BEAM TRANSITION SECTION, GALVANIZED, SYMMETRIC	2	EACH		
27	601, TP5	GUARDRAIL, THRIE-BEAM TRANSITION SECTION, GALVANIZED, ASYMMETRIC	2	EACH		
28	601	GUARDRAIL, W-BEAM, 6 FT 3 IN SPACING	13	LFT		
29	615	MONUMENT, TYPE B	2	EACH		
30	621	MOBILIZATION AND DEMOBILIZATION FOR SEEDING	1	EACH		
31	621	EROSION CONTROL BLANKET	230	SYS		
32	621	MULCHED SEEDING, TYPE R	230	SYS		
33	621	WATER	1	KGAL		
34	621	SODDING	41	SYS		
35	702	FIELD DRILLED HOLE IN CONCRETE	36	EACH		
36	706, TP10	RAILING, STEEL TS-1	91	LFT		
37	707	STRUCTURAL MEMBER, CONCRETE BOX BEAM, 21 IN. X 36 IN.	450	LFT		
38	TP6	SPRAY APPLIED BRIDGE DECK MEMBRANE SYSTEM	1400	SFT		

ELKHART COUNTY, INDIANA

BOARD OF COUNTY COMMISSIONERS

BRIDGE 193 REHABILITATION PROJECT

ITEMIZED PROPOSAL

NO.	SPEC. SECTION	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION
39	715	PIPE, END BENT DRAIN, DIAMETER 6 IN.	76	LFT		
40	726	BEARING ASSEMBLY, ELASTOMERIC	18	EACH		
41	801	ROAD CLOSURE SIGN ASSEMBLY	4	EACH		
42	801	DETOUR ROUTE MARKER ASSEMBLY	32	EACH		
43	801	CONSTRUCTION SIGN, A	23	EACH		
44	801	MAINTAINING TRAFFIC	1	LS		
45	801	BARRICADE, III-A	48	LFT		
46	801	BARRICADE, III-B	48	LFT		
47	802	SIGN, GROUND MOUNTED, RESET	3	EACH		
					TOTAL BID:	

Appendix A
Existing Plans

For

BRIDGE 193 REHABILITATION PROJECT

OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

HIGHWAY
ELKHART COUNTY

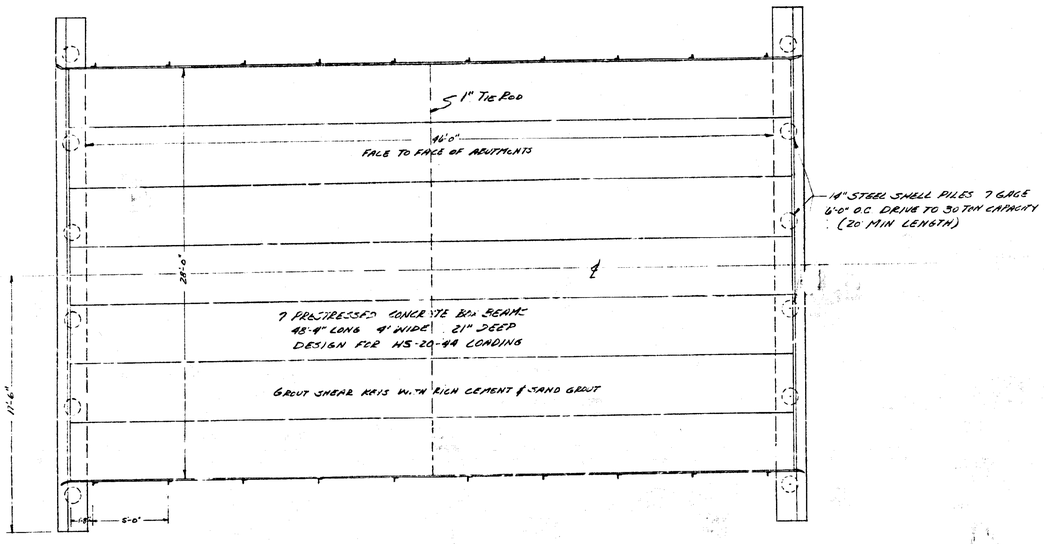
Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103

DRAWING NUMBER
A3-C1-36-193

PLAN HOLD CORPORATION - TORRANCE - CALIFORNIA
REORDER BY NO. 0799-24

FOR PROTECT UP TO EXPOSE ADHESIVE POSITION FOLD OF PRINT ON THIS LINE AND PULL TO ADHERE

PLAN HOLD



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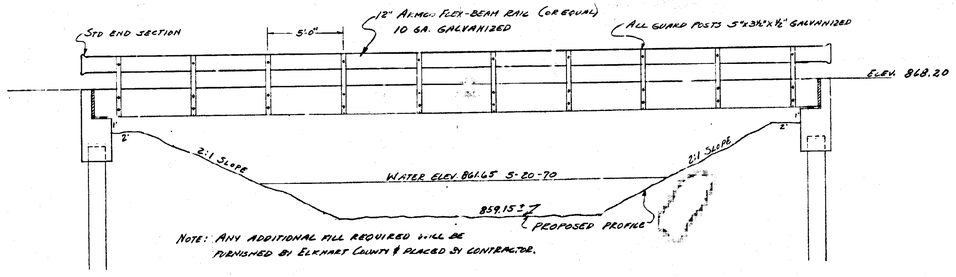

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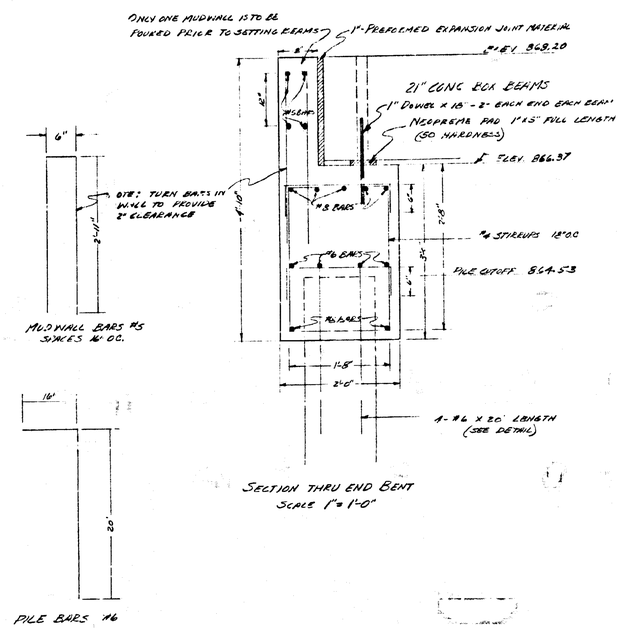

SECTION THRU END BENT
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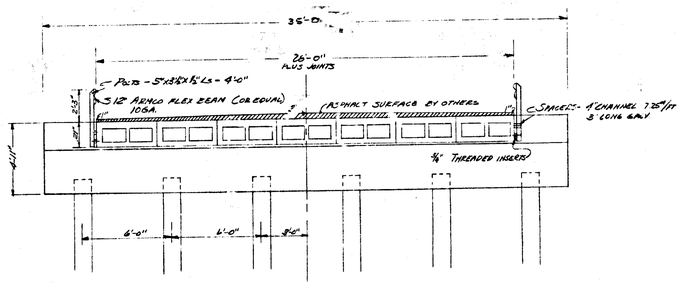


CROSS SECTION
Scale 1/4"=1'-0"

BENCH MARK - PK NAIL IN P.P. (27'N & 1'S W of N END EXISTING BRIDGE)
ELEVATION 866.44

COUNTY HIGHWAY DEPARTMENT
ELKHART COUNTY, INDIANA

BRIDGE PLANS
Co. Rd #43 NORTH of Co. Rd #42 OVER
STONEY CREEK

SCALE AS SHOWN	DRAWN BY D.E.D.
DATE JUNE 3, 1970	CHECKED BY F.B.R.

This plan certified by:
Frank B. Rupe, Jr., P.E.
County Highway Engineer

FRANK B. RUPE, JR. — No. 3181 — STATE OF INDIANA — REGISTERED ENGINEER

Appendix B
Geotechnical Report

For

BRIDGE 193 REHABILITATION PROJECT

OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

HIGHWAY
ELKHART COUNTY

Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103

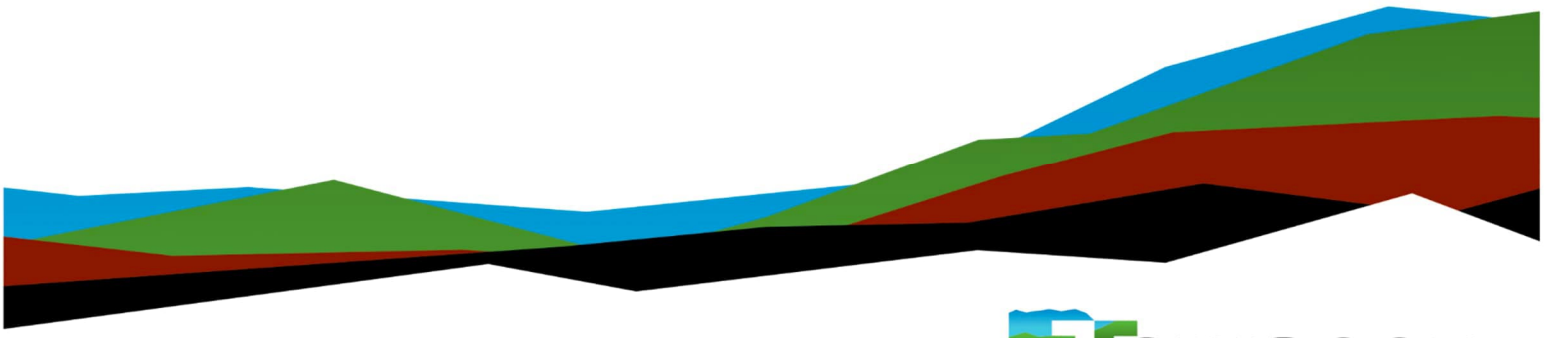
CR 43 over Stony Creek Sheet Pile Wall

Geotechnical Engineering Report

April 30, 2026 | CJ265029

Prepared for:

Elkhart County Highway Department
610 Steury Avenue
Goshen, Indiana 46528



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Indianapolis, IN 46214
P (317) 273-1690
Terracon.com

April 30, 2026

Elkhart County Highway Department
610 Steury Avenue
Goshen, Indiana 46528

Attn: Mario Soto Luna
P: (574)-533-0538
E: msotoluna@elkcohwy.org

Re: Geotechnical Engineering Report
CR 43 over Stony Creek Sheet Pile Wall
Elkhart County, Indiana
Structure No. 20-00193 B
Terracon Project No. CJ265029

Dear Mario,

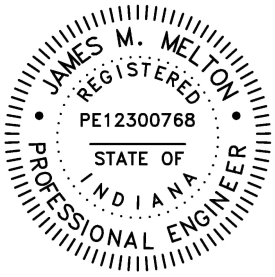
We have completed the scope of Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. PCJ265029 dated January 26, 2026. The opinions and recommendations herein are based, in part, on our interpretation of the subsurface information at the exploratory location as indicated on the attached Test Boring Location Plan (Drawing No. CJ265029.B1). This report does not reflect variations in subsurface conditions between or beyond this location. Variations in these conditions should be expected, and fluctuation of the groundwater levels will occur with time. Other important limitations of a geotechnical report are attached.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon Consultants, Inc.

William D. Hurdle, E.I.
Staff Engineer



James Matt Melton, P.E.
Senior Engineer

Table of Contents

Attachments

Refer to each individual Attachment for a listing of contents.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed CR 43 over Stony Creek sheet pile wall project. The purpose of our services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions,
- Groundwater conditions, and
- Sheet pile wall considerations.

Our scope of services for this project included the advancement of one soil boring, laboratory testing, engineering analysis, and preparation of this report.

Drawings showing the site and boring locations are shown on the Test Boring Location Plan. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs and/or as separate graphs in the Exploration and Laboratory Results section.

Project Description

We understand that the Commissioners of Elkhart County are planning to replace the superstructure of the existing structure carrying CR 43 over Stony Creek (Structure No. 20-00193 B) using local funds. As a part of this project, a sheet pile wall is planned in the northeast corner of the structure. Based on Stage 1 plans provided by SJCA, Inc., the sheet pile wall is planned from near Sta. 42+25 to Sta. 42+60, Line “PR-PR”, for a total length of about 35 ft. Based on the cross sections included in the Stage 1 plans, the maximum retained (i.e., exposed) height is planned to be approximately 7 ft. This height conservatively neglects the slope in front of the wall due to the potential for scouring from the waterway. As such, these slopes have been conservatively neglected in our analysis. Additionally, slopes as steep as 1.4H:1V are planned at the backslope of the wall.

The scope of this report is to provide geotechnical discussion and recommendations for the sheet pile wall only. At this time, other information such as the construction schedule is not known. In the event that the nature, design or location of the proposed construction changes, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions are modified or confirmed in writing.

Discussion of Observations

Surface and Subsurface Conditions

The subsurface conditions observed at the test boring location consisted of A-4 cohesive fill soils to a depth of approximately near El. 858 underlain by natural A-4 cohesive soils to near El. 837. Granular soils were observed below the cohesive soils to the maximum depths explored. The consistency of the cohesive fill was described as soft to medium stiff. Moisture contents in the cohesive fill typically ranged from approximately 7 to 23 percent. The cohesive soil below the fill was typically described as very stiff to hard, with moisture contents typically in the range of 7 to 10 percent. An isolated moisture content of 35 percent was observed near a depth of 11 ft. The consistency of the cohesive soils is based on the hand-penetrometer (q_p) readings. Hand penetrometer readings were typically near 1 tsf (ton/sq ft) in the fill and greater than 4 tsf below the fill The granular soil observed below El. 837 were observed to be very loose to very dense in density based on SPT N-value criteria established by INDOT.

Unconfined compressive tests performed on split spoon samples of cohesive soil indicated an undrained shear strength of about 2¾ ksf (kips/sq ft) near a depth of 9 ft and an undrained shear strength of about 8 ksf near a depth of 14 ft. The dry density of the selected samples of very stiff to hard cohesive soil were typically in the range of 131 to 135 pcf (lbs/cu ft). The dry density of a selected sample of soft to medium stiff cohesive soil was approximately 102 pcf. Atterberg limit testing on selected split spoons of cohesive soil indicated the cohesive soil is of slight to medium plasticity with a liquid limit of 19 and 23 and a plasticity index of 6 and 8. It is worth noting that the cohesive soil has a sand content of approximately 45 percent. For additional details on the subsurface conditions observed at the test boring locations and laboratory testing, refer to the Exploration and Laboratory Results section.

Groundwater Conditions

Groundwater was observed during drilling and at the completion of drilling at El. 860 and El. 862, respectively. Based on our review of the Soil Survey of Elkhart County, Indiana, the majority of the soils indicated the potential for seasonal groundwater levels at the natural occurring ground surface. It should be recognized that groundwater levels will fluctuate due to changes in precipitation, infiltration, surface run-off, flow in the creek, and other hydrogeological factors.

Discussion and Recommendations

Based on our understanding of the planned improvements and information obtained from the exploratory locations, it is our opinion that the subsurface conditions are conducive to the support of the proposed sheet pile wall. The following section provides additional discussion and recommendations regarding potential risks.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the Exploration and Laboratory Results), engineering analyses, and our current understanding of the proposed project. The General Comments section provides an understanding of the report limitations.

Sheet Pile Wall Considerations

Although sheet pile walls are typically employed in cut wall applications, based on the plans we understand that the sheet pile wall for this project will be constructed as a fill wall (i.e., backfill placed against wall). For this application, we recommend that fill placed behind the wall consist of B borrow. The limits of the B borrow should extend from the back of the wall at a 1H:1V slope or flatter.

The lateral analysis for the proposed sheet pile wall was performed using the soil-structure interaction (i.e., “p-y”) approach. Earth pressures were approximated using Coulomb active earth pressure theory and were based on ground water levels near the flowline of the creek (i.e., El. 861). These assumptions are reasonable provided that water levels change concurrently on opposing sides of the wall. Consequently, we recommend that be used and weep holes be included in the sheeting to avoid the potential for unbalanced hydrostatic loads. We recommend that weep holes be installed 10 ft center to center along the wall alignment located at least 1 ft above the finished ground line or ordinary high-water level. Maintenance of the weep holes will be required to prevent the retained soil from being eroded from behind the sheet piles. This can be accomplished by installing a geosynthetic across the weep hole or using a commercially available product such as the JET Filter System. Subsequent inspection and maintenance will be required to ensure that the weep holes do not become clogged.

As previously discussed, the maximum retained height was evaluated to be approximately 7 ft. We have conservatively neglected the soil in the slope in front of the wall due to the risk of scour. The top of the wall is planned between El. 863 and El. 867. A uniform surcharge was applied to the retained soil to account for the traffic load from the roadway. The attached analysis was performed based on the sheet pile section and properties in the table below. Analysis results are also summarized in the table.

Table 1: Sheet Pile Recommendations

Parameter	Property
Recommend Sheet Pile Section	PZ-22
Yield Strength (ksi)	50
Section Modulus (in^3/ft)	18.1
Moment of Inertia (in^4/ft)	84.4
Estimated Corrosion Rate (in/yr)[1]	0.001
Design life (yr)	75
Sheet pile thickness (in)	0.375
Section Modulus considering Section Losses (in^3/ft)	11.5
Moment of Inertia considering Section Losses (in^3/ft)	52
Recommended Minimum Tip Elevation (ft)	849
Estimated deflection at the top of wall (in)	< 1

1. Per CalTrans Memo to Designers 3-1

Based on the planned wall application, we anticipate that that the estimated deflection is acceptable.

We anticipate that contractors may propose alternative sheet pile sections. Provided the proposed sheet pile has properties equivalent to or better than those in Table 1, we do not take exception with the use of alternative sheet pile sections. However, we recommend that Terracon be afforded the opportunity to review any proposed sheet pile sections.

Our analysis considers that the wall will be constructed in accordance with the Indiana Department of Transportation Standard Specifications (ISS). Note that ISS 734 typically used for sheet pile walls is tailored to cut wall applications requiring a contractor design. As a result, we recommend that consideration be given to developing a unique special provision (USP) that modifies the ISS to reflect the proposed application as a fill wall and a specified sheet pile section. We recommend that Terracon, be afforded the opportunity to review and comment on the USP prepared by you.

As previously mentioned, A-4 cohesive soils below the fill were described as very stiff to hard with hand penetrometer values greater than 3½ tsf. These conditions will present a challenge when driving the sheet piling. We recommend that the contractor evaluate driveability of the selected sheet pile section in conjunction with their selected hammer and anticipated subsurface conditions. It is the responsibility of the contractor to select a sheet pile section that can be driven to the required tip elevation based on their means and methods.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the geotechnical engineer to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development and/or vibration monitoring.

Attachments

- Exploration and Testing Procedures
- Test Boring Location Plan
- Exploration and Laboratory Results
- Supporting Information

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (ft)	Location
1	30	Near Sheet Pile Wall

These exploratory locations were selected by Terracon. The field activities were performed on March 19, 2026.

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ±8 ft). Elevations estimated based on LIDAR data.

Subsurface Exploration Procedures: We advanced the borings with a truck mounted rotary drill rig using continuous hollow stem flight augers. Representative samples of the soil conditions were obtained using Standard Penetration Test (SPT) procedures. After obtaining groundwater observations, each borehole was backfilled with auger cuttings and bentonite chips and the pavement was repaired with a patch.

Following the field activities, the soil samples were visually classified by a Terracon assistant geologist and were reviewed by a Terracon engineer. After visually classifying the soils, representative samples were selected for index property and strength testing.

The boring logs represent our interpretation of the individual samples, field logs, and results of the laboratory tests. The stratification lines on the boring logs represent the approximate boundary between soil types; although, the transition may be gradual.

Laboratory Testing

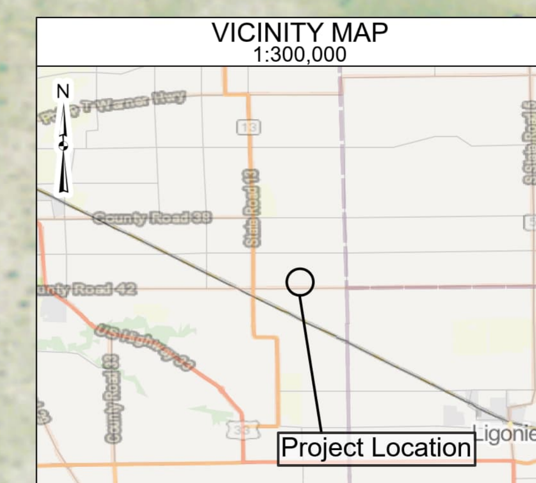
Soil descriptions on the boring logs are in general accordance with the AASHTO Soil Classification System [AASHTO designation, e.g. A-4(0)] and the ISS (textural classification, e.g. sandy loam).

Our laboratory testing program included the following:

- Hand penetrometer readings,
- Natural moisture content,
- Atterberg limits,
- Unit weight,
- Grain size analyses, and
- Unconfined compression tests.

Test Boring Location Plan

Contents:



LEGEND	NOTES	TEST BORING LOCATION PLAN	
Test Boring Location and Designation	1. Base map developed using aerial imagery from Indiana Geological and Water Survey. Aerial imagery may not reflect current site conditions. 2. Vicinity map generated using data from Indiana Geological and Water Survey and Esri. 3. Test boring locations marked in the field by Terracon Consultants, Inc. 4. Test boring locations are approximate.	PROJECT: CR 43 over Stony Creek Sheet Pile Wall LOCATION: Elkhart County, IN CLIENT: Elkhart County Highway Department STRUCTURE NO.: 20-00193 B TCI PROJECT NO.: CJ265029 SCALE: 1 in. = 50 ft	PROJECT ENG.: WH REVIEWED BY: JMM DRAWN BY: MA DATE: 04/22/2026 DRAWING NO.: CJ265029.B1

Terracon

Exploration and Laboratory Results

Contents:

Test Boring Log
Grain Size Distribution
Unconfined Compression Tests (2)

Note: All attachments are one page unless noted above

LOG OF TEST BORING

BORING NO.: **RW-1**
SHEET 1 OF 2

CLIENT : Elkhart County Highway Department
DES NO. : ---
STRUCTURE #: 20-00193 B
PROJECT TYPE: New Retaining Wall
LOCATION : CR 43 Over Stony Creek
COUNTY : Elkhart
PROJECT NO.: CJ265029

LATITUDE : 41.52587
LONGITUDE : -85.67405
DATUM : WGS 84
DATE STARTED : 03-19-26
DATE COMPLETED : 03-19-26

ELEVATION	: 867.0	BORING METHOD	: Hollow Stem Auger	HAMMER	: Auto
STATION	: ---	RIG TYPE	: CME 75	DRILLER/INSP	: G.L.
OFFSET	: ---	CASING DIA.	: ---	TEMPERATURE	: 38 °F
LINE	: ---	CORE SIZE	: ---	WEATHER	: Cloudy
DEPTH	: 40.0 ft				

GROUNDWATER: ▽ Encountered at 7.0 ft ▼ At completion 5.0 ft ▨ Caved in at 32.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
		Asphaltic Concrete 0.5											
		Granular Subbase 0.7											
865.0	2.5	**Sandy Loam**, medium stiff, moist, brown, with some gravel, (fill) 2.5	SS 1	5-3-3	50	7.8 7.3		0.75					
	5.0		SS 2	3-2-2	56	24.5 16.0	101.5	1.0 0.75					
860.0	7.5	**Sandy Loam**, soft to medium stiff, moist, brown, (fill), A-4(0), Lab No. 41946	SS 3	1-2-5	44	23.0		1.5		23	17	6	
	10.0	9.0	SS 4	2-4-6	61	10.6	131.1	4.0	2.71				
855.0	12.5		SS 5	13-16-17	78	35.0		>4.5		19	11	8	
	15.0		SS 6	10-13-19	89	8.3	132.7	>4.5	8.09				
850.0	17.5		SS 7	9-12-20	100	9.7		4.25					
	20.0	**Sandy Loam**, very stiff to hard, moist, gray, with clay loam seam near 25 ft, A-4(1), Lab No. 41945	SS 8	8-12-17	78	9.2		>4.5					
845.0	22.5												
	25.0		SS 9	10-13-17	83	10.0	134.6	3.5					
840.0	27.5												
	30.0	30.0	SS 10	8-13-16	89	7.3		>4.5					

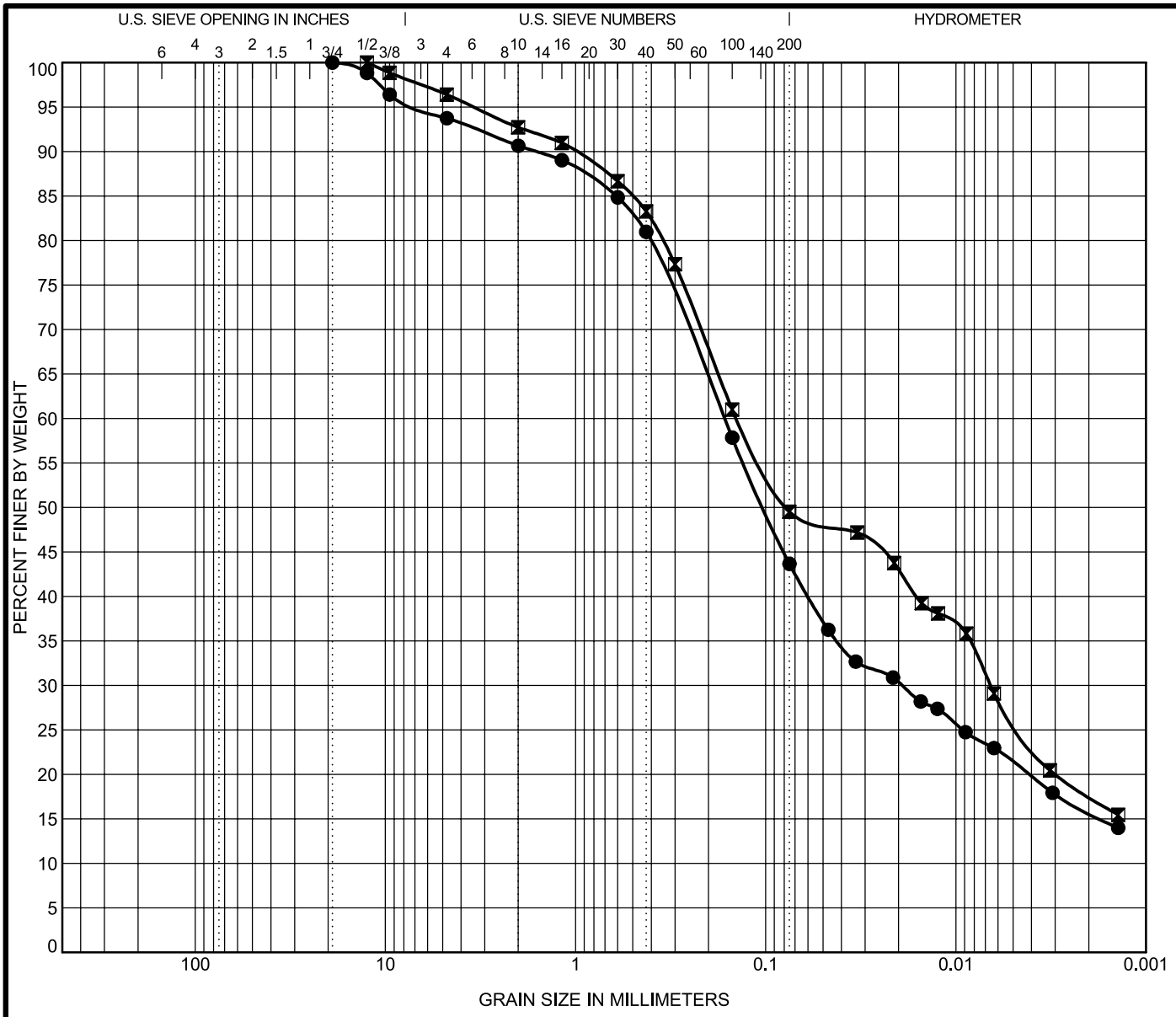
Continued on next page

LOG OF TEST BORING

BORING NO.: **RW-1**
SHEET 2 OF 2
LATITUDE : 41.52587
LONGITUDE : -85.67405
DATUM : WGS 84

CLIENT : Elkhart County Highway Department
DES NO. : ---
STRUCTURE #: 20-00193 B
PROJECT TYPE: New Retaining Wall

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS LL	PL	PI	REMARKS
835.0	32.5												
	35.0	**Sand**, very loose to very dense, moist, brown	SS 11	0-0-0	0								
830.0	37.5												
	40.0	40.0	SS 12	10-26-50/5	95								
		Bottom of Boring at 40.0 ft											
825.0	42.5												
	45.0												
820.0	47.5												
	50.0												
815.0	52.5												
	55.0												
810.0	57.5												
	60.0												
805.0	62.5												
	65.0												



COBBLES	GRAVEL	SAND		SILT	Clay
		coarse	fine		

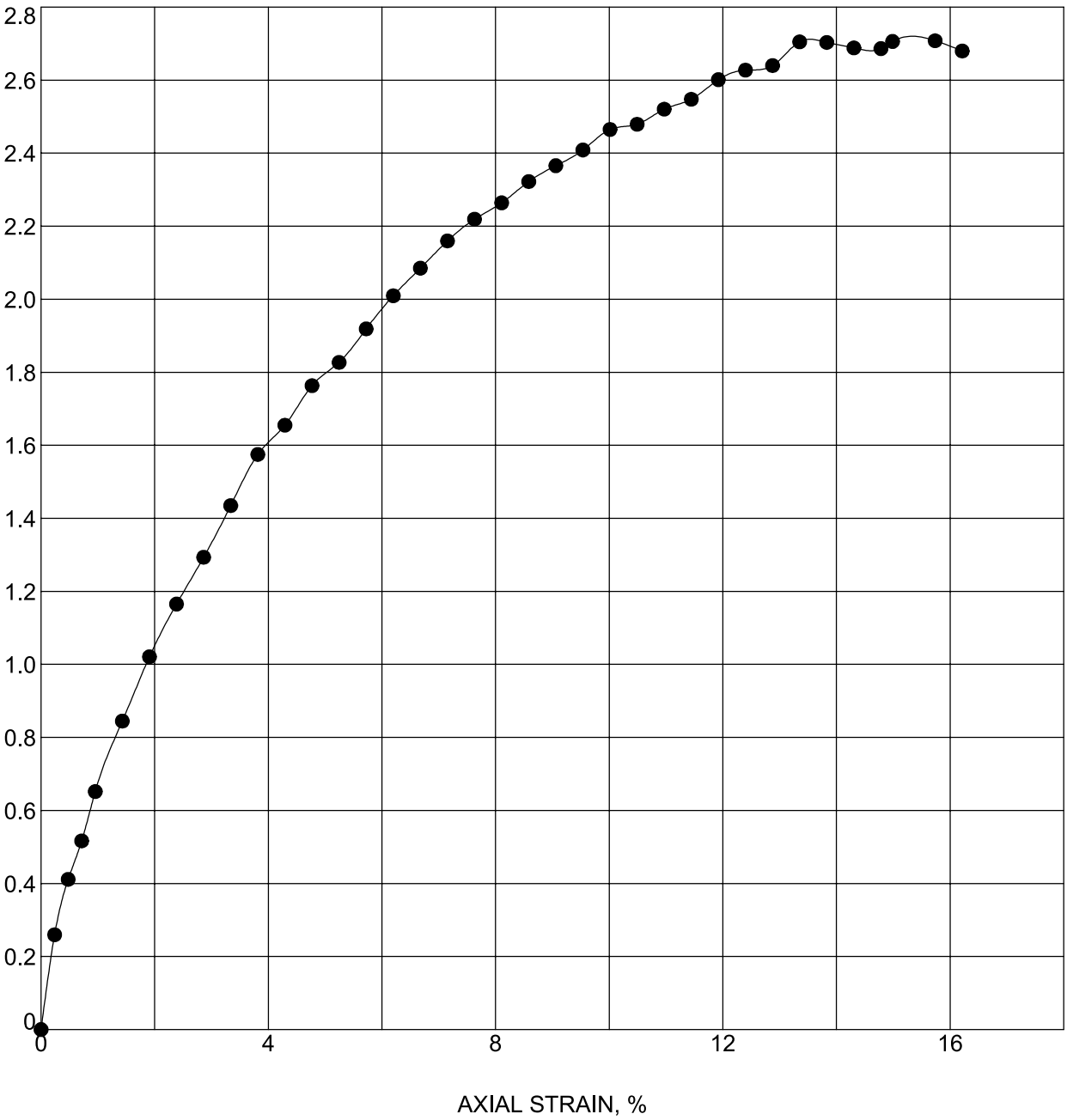
	Specimen Identification			Lab #	Textural Classification	LL	PL	PI	Cc	Cu
●	RW-1	SS-3	6.0	41946	A-4 (0) SANDY LOAM	23	17	6		
⊠	RW-1	SS-5	11.0	41945	A-4 (1) SANDY LOAM	19	11	8		

	Specimen Identification			D60	D30	D10	LOI	pH	%Gravel	%Sand	%Silt	%Clay	SG
●	RW-1	SS-3	6.0	0.165	0.019				9.3	47.0	27.9	15.8	
⊠	RW-1	SS-5	11.0	0.141	0.007				7.3	43.2	31.9	17.6	

Terracon Consultants, Inc
7770 West New York Street
Indianapolis, IN 46214
Telephone: (317) 273-1690
Fax: (317) 273-2250

GRAIN SIZE DISTRIBUTION TEST REPORT

DES #: ---
Structure #: 20-00193 B
Project #: CJ265029
County: Elkhart
Location: CR 43 Over Stony Creek



Boring	Sample	Depth	Classification
RW-1	SS-4B	8.5 - 10	SANDY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
10.6	144.9	131.1	2.71	1.0	15.0
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
1.35	98	0.295	34.87	74.57	2.1

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Indianapolis, IN 46214
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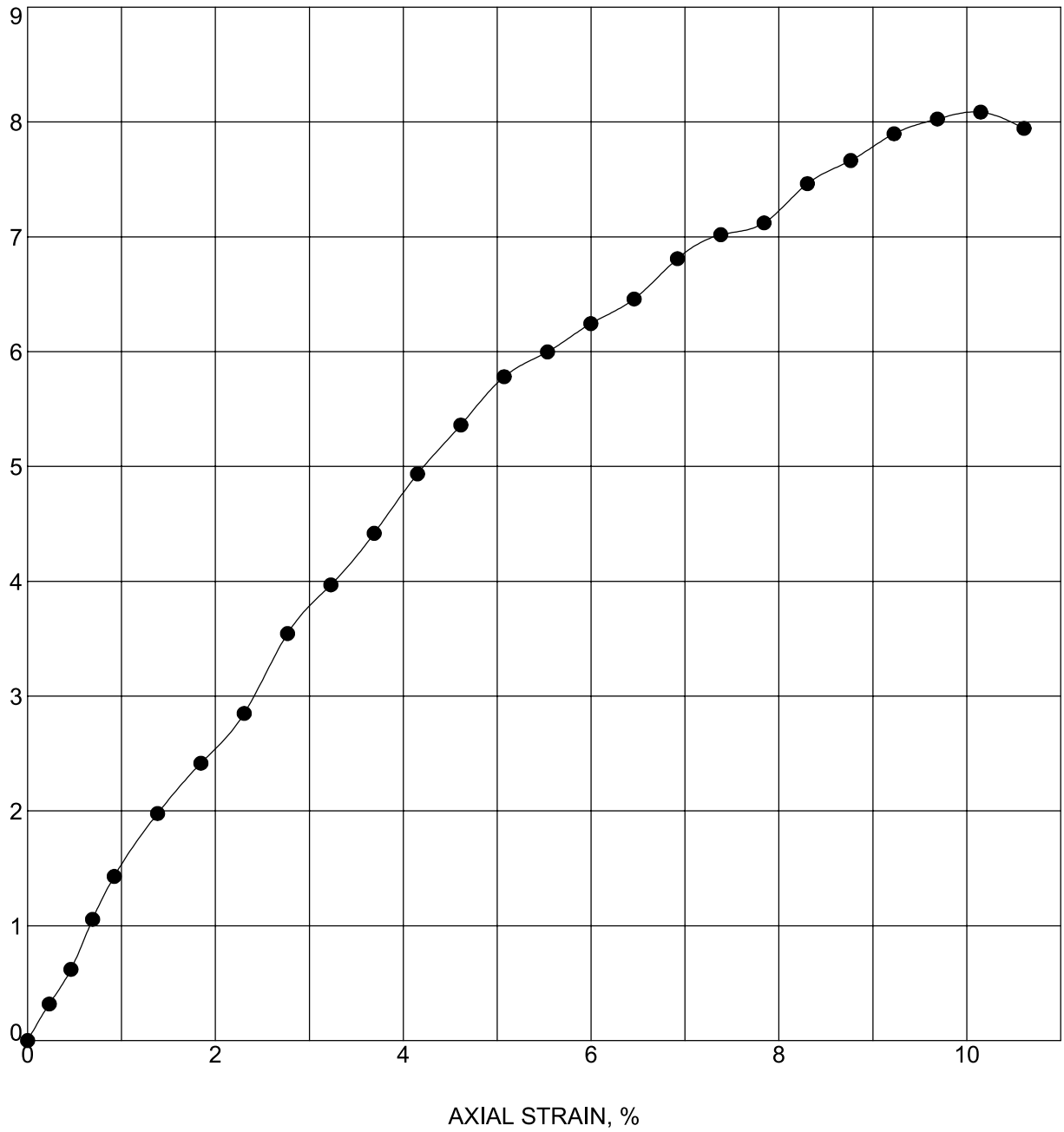
UNCONFINED COMPRESSION TEST

DES #: ---
Structure #: 20-00193 B
Project #: CJ265029
County: Elkhart
Location: CR 43 Over Stony Creek



Boring	Sample	Depth	Classification
RW-1	SS-6B	13.5 - 15	SANDY LOAM

Moisture Content (%)	Moist Density (pcf)	Dry Density (pcf)	Unconfined Strength (tsf)	Strain Rate (%)	Failure Strain (%)
8.3	143.7	132.7	8.09	1.0	10.1
Shear Strength (tsf)	**Saturation (%)**	**Void Ratio**	**Specimen Diameter (mm)**	**Specimen Height (mm)**	**Height/Diameter Ratio**
4.04	81	0.279	35	77.09	2.2

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UNCONFINED COMPRESSION TEST

DES #: ---
Structure #: 20-00193 B
Project #: CJ265029
County: Elkhart
Location: CR 43 Over Stony Creek

Supporting Information

Contents:

Note: All attachments are one page unless noted above.

FIELD METHODS FOR EXPLORING AND SAMPLING SOILS AND ROCK

A. Boring Procedures Between Samples

The boring is extended downward, between samples, by a hollow stem auger (AASHTO* Designation T251), continuous flight auger, driven and washed-out casing, or rotary boring with drilling mud or water.

B. Standard Penetration Test and Split-Barrel Sampling of Soils

(AASHTO* Designation: T206)

This method consists of driving a 2-in. outside diameter split-barrel sampler using a 140-lb weight falling freely through a distance of 30 in. The sampler is first seated 6 in. into the material to be sampled and then driven 12 in. The number of blows required to drive the sampler the final 12 in. is recorded on the Log of Test Boring and known as the Standard Penetration Resistance or N-value. Recovered samples are first classified as to texture by the field personnel. Later in the laboratory, the field classification is reviewed by a geotechnical engineer or a qualified person under their direction who observes each sample.

C. Thin-walled Tube Sampling of Soils

(AASHTO* Designation: T207)

This method consists of hydraulically pushing a 2-in. or 3-in. outside diameter thin wall tube into the soil, usually cohesive types. Relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings

(ASTM Designation: D1452)

This method consists of augering a hole and removing representative soil samples from the auger flight or bucket at 5-ft intervals or with each change in the substrata. Relatively disturbed samples are obtained, and its use is therefore limited to situations where it is satisfactory to determine the approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation

(AASHTO* Designation: T225)

This method consists of advancing a hole in rock or other hard strata by rotating downward a single tube or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings. Normally, a 3-in. outside diameter by 2-in. inside diameter coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and laboratory. Cores are stored in partitioned boxes and the length of recovered material is expressed as a percentage of the actual distance penetrated.

* American Association of State Highway and Transportation Officials, Washington D.C.
** American Society for Testing and Materials

LOG OF TEST BORING – GENERAL NOTES

DESCRIPTIVE CLASSIFICATION

GRAIN SIZE TERMINOLOGY

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 75 mm	Larger than 3”
Gravel	2.0 mm to 75 mm	#10 to 3"
Sand: Coarse	0.42 to 2.0 mm	#40 to #10
Fine	0.075 to 0.42 mm	#200 to #40
Silt	0.002 to 0.075 mm	Smaller than #200
Clay	Smaller than 0.002 mm	Smaller than #200

GENERAL TERMINOLOGY

Physical Characteristics
- Color, moisture, grain shape fineness, etc.

Major Constituents
- Clay silt, sand, gravel

Structure
- Laminated, varved, fibrous, stratified, cemented, fissured, etc.

Geologic Origin
- Glacial, alluvial, eolian, residual, etc.

RELATIVE PROPORTIONS OF COHESIONLESS SOILS

Term	Defining Range by % of Weight
Trace	1 – 10%
Little	11 – 20%
Some	21 – 35%
And	36 – 50%

ORGANIC CONTENT BY COMBUSTION METHOD

Soil Description	LOI
w/ organic matter	4 – 15 %
Organic Soil (A-8)	16 – 30%
Peat (A-8)	More than 30%

RELATIVE DENSITY

Term	“N” Value
Very loose	0 – 5
Loose	6 – 10
Medium dense	11 – 30
Dense	31 – 50
Very Dense	51+

CONSISTENCY

Term	“q_p”
Very soft	0.0 – 0.25
Soft	0.25 – 0.5
Medium	0.5 – 1.0
Stiff	1.0 – 2.0
Very Stiff	2.0 – 4.0
Hard	4.0+

PLASTICITY

Term	Plastic Index
None to slight	0 – 4
Slight	5 – 7
Medium	8 – 22
High/Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6-in. penetrations of the 2-in. split-barrel sampler. The sampler is driven with a 140-lb weight falling 30 in. and is seated to a depth of 6 in. before commencing the standard penetration test.

SYMBOLS

DRILLING AND SAMPLING

AS	–	Auger Sample
BS	–	Bag Sample
C	–	Casing Size 2½”, NW, 4”, HW
COA	–	Clean-Out Auger
CS	–	Continuous Sampling
CW	–	Clear Water
DC	–	Driven Casing
DM	–	Drilling Mud
FA	–	Flight Auger
FT	–	Fish Tail
HA	–	Hand Auger
HSA	–	Hollow Stem Auger
NR	–	No Recovery
PMT	–	Borehole Pressuremeter Test
PT	–	3” O.D. Piston Tube Sample
PTS	–	Peat Sample
RB	–	Rock Bit
RC	–	Rock Coring
REC	–	Recovery
RQD	–	Rock Quality Designation
RS	–	Rock Sounding
S	–	Soil Sounding
SS	–	2” O.D. Split-Barrel Sample
2ST	–	2” O.D. Thin-Walled Tube Sample
3ST	–	3” O.D. Thin-Walled Tube Sample
VS	–	Vane Shear Test
WPT	–	Water Pressure Test

LABORATORY TESTS

q_p	–	Penetrometer Reading, tsf
q_u	–	Unconfined Strength, tsf
W	–	Moisture Content, %
LL	–	Liquid Limit, %
PL	–	Plastic Limit, %
PI	–	Plasticity Index
SL	–	Shrinkage Limit, %
LOI	–	Loss on Ignition, %
γ_d	–	Dry Unit Weight, pcf
pH	–	Measure of Soil Alkalinity/Acidity

WATER LEVEL MEASUREMENT

BF	–	Backfilled upon Completion
NW	–	No Water Encountered

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

Load Case 1 (Service)

$LS := 240\ psf$ — IDM 410-7.01(02)

$LF := 1.0$ — Service loading

$q_s := LS \cdot LF = 240\ psf$

$\phi := 30\ deg$ — Assume friction angle of retained backfill = 30 deg

$\delta := 17\ deg$ — AASHTO LRFD Table C3.11.5.3-1

$\beta := 0\ deg$ — Assume level fill at maximum retained height

$\theta := 90\ deg$ — Assume vertical wall

$$\Gamma := \left(1 + \sqrt{\frac{\sin(\phi+\delta)\cdot\sin(\phi-\beta)}{\sin(\theta-\delta)\cdot\sin(\theta+\beta)}}\right)^2 = 2.619$$ — AASHTO LRFD 3.11.5.3-1

$$k_a := \frac{\sin(\theta+\phi)^2}{\Gamma\cdot\left(\sin(\theta)^2\cdot\sin(\theta-\delta)\right)} = 0.299$$ — AASHTO LRFD 3.11.5.3-2

$$EP_0 := k_a \cdot q_s \cdot 1\ ft = 5.989\ \frac{lbf}{in}$$ — AASHTO LRFD 3.11.6.1-1

$\gamma := 120\ psf$

$H := 7\ ft$ — Retained height = 6.5 ft

$EH := 1$ — Service Loading

$$EP_6 := (\gamma \cdot H \cdot k_a \cdot EH) + EP_0 = 26.949\ \frac{lbf}{in}$$

Load Case 2 (Factored)

$LS := 240\ psf$ — IDM 410-7.01(02)

$LF := 1.75$ — AASHTO LRFD 3.4.1-1

$q_s := LS \cdot LF = 420\ psf$

$\phi := 30\ deg$ — Assume friction angle of retained backfill = 30 deg

$\delta := 17\ deg$ — AASHTO LRFD Table C3.11.5.3-1

$\beta := 0\ deg$ — Assume level fill at maximum retained height

$\theta := 90\ deg$ — Assume vertical wall

$$\Gamma := \left(1 + \sqrt{\frac{\sin(\phi+\delta)\cdot\sin(\phi-\beta)}{\sin(\theta-\delta)\cdot\sin(\theta+\beta)}}\right)^2 = 2.619$$ — AASHTO LRFD 3.11.5.3-1

$$k_a := \frac{\sin(\theta+\phi)^2}{\Gamma\cdot\left(\sin(\theta)^2\cdot\sin(\theta-\delta)\right)} = 0.299$$ — AASHTO LRFD 3.11.5.3-2

$$EP_0 := k_a \cdot q_s \cdot 1\ ft = 10.48\ \frac{lbf}{in}$$ — AASHTO LRFD 3.11.6.1-1

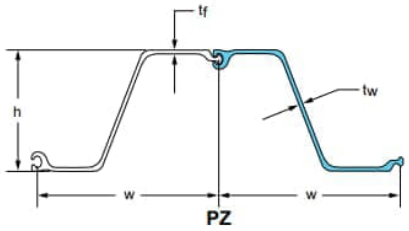
$\gamma := 120\ psf$

$H := 7\ ft$ — Retained height = 6.5 ft

$EH := 1.5$ — AASHTO LRFD 3.4.1-2 (Active)

$$EP_6 := (\gamma \cdot H \cdot k_a \cdot EH) + EP_0 = 41.921\ \frac{lbf}{in}$$

Evaluate the properties of PZ 22 sheeting after 75-yr design life. The table below from Nucor Steel provides the as-built properties.



SECTION	Width (w)	Height (h)	THICKNESS Flange (t_f)	THICKNESS Web (t_w)	Cross Sectional Area	WEIGHT Single Pile	WEIGHT Wall Area	SECTION MODULUS Elastic	SECTION MODULUS Plastic	Moment of Inertia	COATING AREA Both Sides	COATING AREA Wall Surface
	in mm	in mm	in mm	in mm	in²/ft cm²/m	lb/ft kg/m	lb/ft² kg/m²	in³/ft cm³/m	in³/ft cm³/m	in⁴/ft cm⁴/m	ft²/ft of single m²/m	ft²/ft² m²/m²
PZ 22	22.00 559	9.0 229	0.375 9.50	0.375 9.50	6.47 136.9	40.3 60.0	22.0 107.4	18.1 973	21.79 1171.4	84.38 11500	4.48 1.37	1.22 1.22

$t_f := 0.375\ in$ $\quad w := 22\ in$

$t_w := 0.375\ in$ $\quad h := 9\ in$

Assume angle of flange from the horizontal (not provided in table):

$\theta := 70\ deg$

Check the angle by calculating the moment of inertia and section modulus and comparing it to the table above:

$$b_w := \frac{h}{\tan(\theta)}$$ Width of web

$$b_f := \frac{w - b_w}{2}$$ Width of one flange (two per sheet)

$$I_w := \frac{t_w \cdot h^3}{12}$$ Contribution from the web

$$I_f := \frac{b_f \cdot t_f^{\,3}}{12} + b_f \cdot t_f \cdot \left(\frac{h - t_f}{2}\right)^2$$ Contribution from one flange

$$I := \frac{(I_w + 2 \cdot I_f)}{w} = 84\ \frac{in^4}{ft}$$ Total moment of inertia per 1 ft of sheet pile wall.

$$S_x := \frac{I}{\left(\frac{h}{2}\right)} = 18.6\ \frac{in^3}{ft}$$ Total section modulus per 1 ft of sheet pile wall.

Per table above, actual I is 84.4 in^4/ft and Sx is 21.8 in^3/ft. Reasonably close and slightly conservative - assume θ estimate is correct.

Apply corrosion loss:

Per CalTrans Memo to Designers 3-1, a reasonable corrosion rate for steel piling exposed to corrosive soil and water is 0.001 in./year. This rate applies to each face exposed to soil and/or water.

$$t_f := 0.375\ in - 2 \cdot \left(75\ yr \cdot 0.001\ \frac{in}{yr}\right) = 0.225\ in$$

$$t_w := 0.375\ in - 2 \cdot \left(75\ yr \cdot 0.001\ \frac{in}{yr}\right) = 0.225\ in$$

$$I_w := \frac{t_w \cdot h^3}{12}$$ Contribution from the web

$$I_f := \frac{b_f \cdot t_f^{\,3}}{12} + b_f \cdot t_f \cdot \left(\frac{h - t_f}{2}\right)^2$$ Contribution from one flange

$$I := \frac{\left(I_w + 2 \cdot I_f\right)}{w} = 52\ \frac{in^4}{ft}$$ Design moment of inertia

$$S_x := \frac{I}{\left(\frac{h}{2}\right)} = 11.5\ \frac{in^3}{ft}$$ Design section modulus

This model was prepared by:
wdhurdle

Files Used for Analysis

Path to file locations:
\Users\wdhurdle\OneDrive - Terracon Consultants Inc\CJ265029 CR 43 over Stony Creek - General\07 Working Files\02 Calculations\

Name of input data file:
CR 43 over Stony Creek Sheet Pile Wall.lp12d

Name of output report file:
CR 43 over Stony Creek Sheet Pile Wall.lp12o

Name of plot output file:
CR 43 over Stony Creek Sheet Pile Wall.lp12p

Name of runtime message file:
CR 43 over Stony Creek Sheet Pile Wall.lp12r

Date and Time of Analysis

Date: April 22, 2026 Time: 7:18:14

Problem Title

Project Name: CR 43 over Stony Creek Sheet Pile Wall

Job Number: CJ265029

Client: Elkhart County Highway Department

Engineer: W. Hurdle

Description: PZ-22 with Corrosive Losses

Program Options and Settings

Computational Options:
 - Conventional Analysis
Engineering Units Used for Data Input and Computations:
 - US Customary System Units (pounds, feet, inches)

Analysis Control Options:
 - Maximum number of iterations allowed = 500
 - Deflection tolerance for convergence = 1.0000E-05 in
 - Maximum allowable deflection = 100.0000 in
 - Number of pile increments = 100

Loading Type and Number of Cycles of Loading:
 - Static loading specified

 - Analysis uses p-y modification factors for p-y curves
 - Analysis uses layering correction (Method of Georgiadis)
 - Analysis includes loading by multiple distributed lateral loads acting on pile
 - Loading by lateral soil movements acting on pile not selected
 - Input of shear resistance at the pile tip not selected
 - Input of moment resistance at the pile tip not selected
 - Computation of pile-head foundation stiffness matrix not selected
 - Push-over analysis of pile not selected
 - Buckling analysis of pile not selected

Output Options:
 - Output files use decimal points to denote decimal symbols.
 - Values of pile-head deflection, bending moment, shear force, and
   soil reaction are printed for full length of pile.
 - Printing Increment (nodal spacing of output points) = 1
 - No p-y curves to be computed and reported for user-specified depths
 - Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined = 1
Total length of pile = 18.000 ft
Depth of ground surface below top of pile = 7.0000 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over
the length of the pile. A summary of values of pile diameter vs. depth follows.

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	12.0000
2	18.000	12.0000

Input Structural Properties for Pile Sections:

```
---------------------------------------------

Pile Section No. 1:

   Section 1 is an elastic pile
   Cross-sectional shape                          =     rectangular
   Length of section                              =    18.000000 ft
   Width of top of section                        =    12.000000 in
   Width of bottom of section                     =    12.000000 in
   Top Section Depth                              =     9.000000 in
   Bottom Section Depth                           =     9.000000 in
   Top Area                                       =     6.470000 sq. in
   Bottom Area                                    =     6.470000 sq. in
   Moment of Inertia at Top                       =    52.000000 in^4
   Moment of Inertia at Bottom                    =    52.000000 in^4
   Elastic Modulus                                =    29000000. psi
```

PZ-22 Section Properties on a per foot basis considering corrosive losses

```
-------------------------------------------------------------------------------
                     Soil and Rock Layering Information
-------------------------------------------------------------------------------

The soil profile is modelled using 3 layers

Layer 1 is stiff clay with water-induced erosion

   Distance from top of pile to top of layer      =     7.000000 ft
   Distance from top of pile to bottom of layer   =     9.000000 ft
   Effective unit weight at top of layer          =    50.000000 pcf
   Effective unit weight at bottom of layer       =    50.000000 pcf
   Undrained cohesion at top of layer             =  1000.000000 psf
   Undrained cohesion at bottom of layer          =  1000.000000 psf
   Epsilon-50 at top of layer                     =       0.0000
   Epsilon-50 at bottom of layer                  =       0.0000
   Subgrade k at top of layer                     =       0.0000 pci
   Subgrade k at bottom of layer                  =       0.0000 pci

   NOTE: Default values for Epsilon-50 will be computed for this layer.

   NOTE: Default values for subgrade k will be computed for this layer.

Layer 2 is stiff clay without free water

   Distance from top of pile to top of layer      =     9.000000 ft
   Distance from top of pile to bottom of layer   =    37.000000 ft
   Effective unit weight at top of layer          =    70.000000 pcf
   Effective unit weight at bottom of layer       =    70.000000 pcf
   Undrained cohesion at top of layer             =        4000. psf
   Undrained cohesion at bottom of layer          =        4000. psf
   Epsilon-50 at top of layer                     =       0.0000
   Epsilon-50 at bottom of layer                  =       0.0000

   NOTE: Default values for Epsilon-50 will be computed for this layer.

Layer 3 is sand, p-y criteria by Reese et al., 1974

   Distance from top of pile to top of layer      =    37.000000 ft
   Distance from top of pile to bottom of layer   =    47.000000 ft
   Effective unit weight at top of layer          =    60.000000 pcf
   Effective unit weight at bottom of layer       =    60.000000 pcf
   Friction angle at top of layer                 =    34.000000 deg.
   Friction angle at bottom of layer              =    34.000000 deg.
   Subgrade k at top of layer                     =       0.0000 pci
   Subgrade k at bottom of layer                  =       0.0000 pci

   NOTE: Default values for subgrade k will be computed for this layer.

 (Depth of the lowest soil layer extends 29.000 ft below the pile tip)
```

Summary of Input Soil Properties

Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Stiff Clay	7.0000	50.0000	1000.0000	--	default	default
	with Free Water	9.0000	50.0000	1000.0000	--	default	default
2	Stiff Clay	9.0000	70.0000	4000.	--	default	--
	w/o Free Water	37.0000	70.0000	4000.	--	default	--
3	Sand	37.0000	60.0000	--	34.0000	--	default
	(Reese, et al.)	47.0000	60.0000	--	34.0000	--	default

Modification Factors for p-y Curves

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	7.000	0.6400	1.0000
2	21.000	0.6400	1.0000

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Distributed Lateral Loading for Individual Load Cases

Distributed lateral load intensity for Load Case 1 defined using 2 points

Point No.	Depth X ft	Dist. Load lb/in
1	0.000	6.000
2	7.000	27.000

Distributed lateral load intensity for Load Case 2 defined using 2 points

Point No.	Depth X ft	Dist. Load lb/in
1	0.000	10.500
2	7.000	42.000

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 2

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs	Compute Top y vs. Pile Length	Run Analysis
1	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000	Yes	Yes
2	1	V = 0.0000 lbs	M = 0.0000 in-lbs	0.0000000	Yes	Yes

V = shear force applied normal to pile axis
M = bending moment applied to pile head
y = lateral deflection normal to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with
specified shear loading (Load Types 1, 2, and 3).
Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Moment-curvature properties were derived from elastic section properties

---

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	7.0000	0.00	N.A.	No	0.00	649.6109
2	9.0000	0.05387	No	No	649.6109	192475.
3	37.0000	30.0000	No	No	193125.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals
for Layer n. Layering correction equivalent depths are computed only
for soil types with both shallow-depth and deep-depth expressions for
peak lateral load transfer. These soil types are soft and stiff clays,
non-liquefied sands, and cemented c-phi soil.

Computed Values of Pile Loading and Deflection for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

El. 863 - 867

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness lb-in^2	Soil Res. p lb/inch	Soil Spr. Es*H lb/inch	Distrib. Lat. Load lb/inch
0.00	0.2395	-7.18E-08	0.00	-0.00252	8.28E-09	1.51E+09	0.00	0.00	6.1350
0.1800	0.2340	14.3117	13.6890	-0.00252	1.6514	1.51E+09	0.00	0.00	6.5400
0.3600	0.2286	59.1365	28.3986	-0.00252	6.8234	1.51E+09	0.00	0.00	7.0800
0.5400	0.2232	136.9937	44.2746	-0.00252	15.8070	1.51E+09	0.00	0.00	7.6200
0.7200	0.2177	250.4028	61.3170	-0.00252	28.8926	1.51E+09	0.00	0.00	8.1600
0.9000	0.2123	401.8831	79.5258	-0.00252	46.3711	1.51E+09	0.00	0.00	8.7000
1.0800	0.2068	593.9542	98.9010	-0.00252	68.5332	1.51E+09	0.00	0.00	9.2400
1.2600	0.2014	829.1354	119.4426	-0.00252	95.6695	1.51E+09	0.00	0.00	9.7800
1.4400	0.1959	1110.	141.1506	-0.00252	128.0707	1.51E+09	0.00	0.00	10.3200
1.6200	0.1905	1439.	164.0250	-0.00252	166.0276	1.51E+09	0.00	0.00	10.8600
1.8000	0.1851	1819.	188.0658	-0.00251	209.8309	1.51E+09	0.00	0.00	11.4000
1.9800	0.1796	2251.	213.2730	-0.00251	259.7712	1.51E+09	0.00	0.00	11.9400
2.1600	0.1742	2740.	239.6466	-0.00251	316.1393	1.51E+09	0.00	0.00	12.4800
2.3400	0.1688	3287.	267.1866	-0.00250	379.2258	1.51E+09	0.00	0.00	13.0200
2.5200	0.1634	3894.	295.8930	-0.00250	449.3215	1.51E+09	0.00	0.00	13.5600
2.7000	0.1580	4565.	325.7658	-0.00249	526.7171	1.51E+09	0.00	0.00	14.1000
2.8800	0.1526	5301.	356.8050	-0.00248	611.7032	1.51E+09	0.00	0.00	14.6400
3.0600	0.1473	6106.	389.0106	-0.00248	704.5706	1.51E+09	0.00	0.00	15.1800
3.2400	0.1419	6982.	422.3826	-0.00247	805.6100	1.51E+09	0.00	0.00	15.7200
3.4200	0.1366	7931.	456.9210	-0.00246	915.1121	1.51E+09	0.00	0.00	16.2600
3.6000	0.1313	8956.	492.6258	-0.00244	1033.	1.51E+09	0.00	0.00	16.8000
3.7800	0.1261	10059.	529.4970	-0.00243	1161.	1.51E+09	0.00	0.00	17.3400
3.9600	0.1208	11243.	567.5346	-0.00242	1297.	1.51E+09	0.00	0.00	17.8800
4.1400	0.1156	12511.	606.7386	-0.00240	1444.	1.51E+09	0.00	0.00	18.4200
4.3200	0.1105	13864.	647.1090	-0.00238	1600.	1.51E+09	0.00	0.00	18.9600
4.5000	0.1053	15306.	688.6458	-0.00236	1766.	1.51E+09	0.00	0.00	19.5000
4.6800	0.1003	16839.	731.3490	-0.00234	1943.	1.51E+09	0.00	0.00	20.0400
4.8600	0.09525	18466.	775.2186	-0.00231	2131.	1.51E+09	0.00	0.00	20.5800
5.0400	0.09029	20188.	820.2546	-0.00228	2329.	1.51E+09	0.00	0.00	21.1200
5.2200	0.08539	22009.	866.4570	-0.00225	2540.	1.51E+09	0.00	0.00	21.6600
5.4000	0.08056	23931.	913.8258	-0.00222	2761.	1.51E+09	0.00	0.00	22.2000
5.5800	0.07580	25957.	962.3610	-0.00218	2995.	1.51E+09	0.00	0.00	22.7400
5.7600	0.07113	28089.	1012.	-0.00215	3241.	1.51E+09	0.00	0.00	23.2800
5.9400	0.06654	30329.	1063.	-0.00210	3500.	1.51E+09	0.00	0.00	23.8200
6.1200	0.06204	32681.	1115.	-0.00206	3771.	1.51E+09	0.00	0.00	24.3600
6.3000	0.05764	35146.	1168.	-0.00201	4055.	1.51E+09	0.00	0.00	24.9000
6.4800	0.05336	37727.	1223.	-0.00196	4353.	1.51E+09	0.00	0.00	25.4400
6.6600	0.04919	40427.	1278.	-0.00190	4665.	1.51E+09	0.00	0.00	25.9800
6.8400	0.04514	43248.	1335.	-0.00184	4990.	1.51E+09	0.00	0.00	26.5200
7.0200	0.04123	46193.	1371.	-0.00178	5330.	1.51E+09	-3.167	165.8880	10.4592
7.2000	0.03747	49172.	1348.	-0.00171	5674.	1.51E+09	-28.773	1659.	0.00
7.3800	0.03385	52017.	1264.	-0.00164	6002.	1.51E+09	-49.393	3152.	0.00
7.5600	0.03039	54631.	1148.	-0.00156	6304.	1.51E+09	-57.470	4084.	0.00
7.7400	0.02711	56977.	1019.	-0.00148	6574.	1.51E+09	-62.586	4987.	0.00
7.9200	0.02400	59032.	879.4176	-0.00140	6811.	1.51E+09	-66.277	5965.	0.00
8.1000	0.02107	60777.	733.2870	-0.00131	7013.	1.51E+09	-69.029	7076.	0.00
8.2800	0.01833	62199.	582.2224	-0.00122	7177.	1.51E+09	-70.846	8347.	0.00
8.4600	0.01579	63292.	428.2347	-0.00113	7303.	1.51E+09	-71.736	9815.	0.00
8.6400	0.01344	64049.	273.3141	-0.00104	7390.	1.51E+09	-71.710	11528.	0.00
8.8200	0.01128	64472.	119.4224	-9.50E-04	7439.	1.51E+09	-70.783	13549.	0.00
9.0000	0.00933	64565.	-65.917	-8.58E-04	7450.	1.51E+09	-100.828	23340.	0.00
9.1800	0.00758	64188.	-355.012	-7.66E-04	7406.	1.51E+09	-166.852	47560.	0.00
9.3600	0.00602	63032.	-710.406	-6.75E-04	7273.	1.51E+09	-162.217	58174.	0.00
9.5400	0.00466	61119.	-1055.	-5.86E-04	7052.	1.51E+09	-156.556	72513.	0.00
9.7200	0.00349	58475.	-1385.	-5.00E-04	6747.	1.51E+09	-149.733	92593.	0.00
9.9000	0.00250	55134.	-1700.	-4.19E-04	6362.	1.51E+09	-141.536	122125.	0.00
10.0800	0.00168	51131.	-1995.	-3.43E-04	5900.	1.51E+09	-131.607	168778.	0.00
10.2600	0.00102	46515.	-2266.	-2.73E-04	5367.	1.51E+09	-119.228	251634.	0.00
10.4400	5.07E-04	41342.	-2505.	-2.10E-04	4770.	1.51E+09	-102.577	437436.	0.00
10.6200	1.17E-04	35691.	-2662.	-1.55E-04	4118.	1.51E+09	-42.642	783964.	0.00
10.8000	-1.61E-04	29841.	-2644.	-1.08E-04	3443.	1.51E+09	59.8798	802823.	0.00
10.9800	-3.47E-04	24270.	-2471.	-6.89E-05	2800.	1.51E+09	100.0352	622020.	0.00
11.1600	-4.59E-04	19166.	-2244.	-3.77E-05	2212.	1.51E+09	109.7277	516863.	0.00
11.3400	-5.10E-04	14574.	-2001.	-1.36E-05	1682.	1.51E+09	115.2559	487722.	0.00
11.5200	-5.17E-04	10520.	-1749.	4.39E-06	1214.	1.51E+09	118.1865	493558.	0.00

11.7000	-4.91E-04	7017.	-1493.	1.70E-05	809.6730	1.51E+09	119.2004	523881.	0.00
11.8800	-4.44E-04	4070.	-1236.	2.49E-05	469.6617	1.51E+09	118.6607	577264.	0.00
12.0600	-3.84E-04	1677.	-981.805	2.90E-05	193.5301	1.51E+09	116.7874	657029.	0.00
12.2400	-3.19E-04	-170.997	-732.850	3.01E-05	19.7304	1.51E+09	113.7268	770811.	0.00
12.4200	-2.54E-04	-1489.	-491.677	2.89E-05	171.7674	1.51E+09	109.5812	931988.	0.00
12.6000	-1.94E-04	-2295.	-277.218	2.62E-05	264.8126	1.51E+09	88.9921	991598.	0.00
12.7800	-1.41E-04	-2686.	-109.950	2.26E-05	309.9500	1.51E+09	65.8855	1010487.	0.00
12.9600	-9.61E-05	-2770.	10.6835	1.87E-05	319.6186	1.51E+09	45.8125	1029377.	0.00
13.1400	-6.00E-05	-2640.	91.6071	1.48E-05	304.6247	1.51E+09	29.1168	1048268.	0.00
13.3200	-3.20E-05	-2374.	140.1437	1.12E-05	273.9560	1.51E+09	15.8245	1067161.	0.00
13.5000	-1.14E-05	-2035.	163.4295	8.09E-06	234.7684	1.51E+09	5.7365	1086054.	0.00
13.6800	2.92E-06	-1668.	168.0135	5.44E-06	192.4927	1.51E+09	-1.492	1104949.	0.00
13.8600	1.21E-05	-1309.	159.6136	3.31E-06	151.0202	1.51E+09	-6.286	1123844.	0.00
14.0400	1.72E-05	-978.739	142.9999	1.67E-06	112.9314	1.51E+09	-9.097	1142740.	0.00
14.2200	1.93E-05	-691.082	121.9752	4.71E-07	79.7402	1.51E+09	-10.370	1161637.	0.00
14.4000	1.92E-05	-451.806	99.4241	-3.47E-07	52.1315	1.51E+09	-10.511	1180535.	0.00
14.5800	1.78E-05	-261.570	77.4086	-8.58E-07	30.1811	1.51E+09	-9.874	1199433.	0.00
14.7600	1.55E-05	-117.401	57.2884	-1.13E-06	13.5463	1.51E+09	-8.756	1218332.	0.00
14.9400	1.29E-05	-14.084	39.8512	-1.22E-06	1.6250	1.51E+09	-7.390	1237231.	0.00
15.1200	1.02E-05	54.7560	25.4412	-1.19E-06	6.3180	1.51E+09	-5.953	1256131.	0.00
15.3000	7.74E-06	95.8226	14.0778	-1.09E-06	11.0564	1.51E+09	-4.569	1275031.	0.00
15.4800	5.54E-06	115.5722	5.5587	-9.36E-07	13.3353	1.51E+09	-3.319	1293932.	0.00
15.6600	3.70E-06	119.8363	-0.454	-7.67E-07	13.8273	1.51E+09	-2.248	1312833.	0.00
15.8400	2.23E-06	113.6118	-4.365	-6.00E-07	13.1091	1.51E+09	-1.373	1331735.	0.00
16.0200	1.11E-06	100.9793	-6.597	-4.46E-07	11.6515	1.51E+09	-0.693	1350637.	0.00
16.2000	3.01E-07	85.1145	-7.551	-3.13E-07	9.8209	1.51E+09	-0.191	1369539.	0.00
16.3800	-2.43E-07	68.3599	-7.588	-2.03E-07	7.8877	1.51E+09	0.1563	1388442.	0.00
16.5600	-5.75E-07	52.3344	-7.014	-1.16E-07	6.0386	1.51E+09	0.3750	1407345.	0.00
16.7400	-7.46E-07	38.0583	-6.077	-5.17E-08	4.3913	1.51E+09	0.4926	1426248.	0.00
16.9200	-7.99E-07	26.0804	-4.968	-5.73E-09	3.0093	1.51E+09	0.5344	1445152.	0.00
17.1000	-7.71E-07	16.5955	-3.827	2.48E-08	1.9149	1.51E+09	0.5224	1464055.	0.00
17.2800	-6.91E-07	9.5480	-2.750	4.36E-08	1.1017	1.51E+09	0.4747	1482959.	0.00
17.4600	-5.83E-07	4.7151	-1.800	5.38E-08	0.5441	1.51E+09	0.4050	1501864.	0.00
17.6400	-4.59E-07	1.7720	-1.013	5.84E-08	0.2045	1.51E+09	0.3232	1520768.	0.00
17.8200	-3.30E-07	0.3370	-0.410	5.99E-08	0.03888	1.51E+09	0.2353	1539673.	0.00
18.0000	-2.00E-07	0.00	0.00	6.02E-08	0.00	1.51E+09	0.1445	779289.	0.00

El. 845 - 849

* The above values of total stress are combined axial and bending stresses.

Output Summary for Load Case No. 1:

```
Pile-head deflection              =     0.23949381 inches
Computed slope at pile head       =     -0.0025220 radians
Maximum bending moment            =         64565. inch-lbs
Maximum shear force               =         -2662. lbs
Depth of maximum bending moment   =     9.00000000 feet below pile head
Depth of maximum shear force      =    10.62000000 feet below pile head
Number of iterations              =             14
Number of zero deflection points  =              3
Pile deflection at ground         =     0.04166784 inches
```

Pile-head Deflection vs. Pile Length for Load Case 1

Boundary Condition Type 1, Shear and Moment

```
Shear      =              0. lbs
Moment     =              0. in-lbs
Axial Load =              0. lbs
```

Pile Length feet	Pile Head Deflection inches	Maximum Moment ln-lbs	Maximum Shear lbs

18.00000	0.23949381	64565.	-2662.
17.10000	0.23841100	64683.	-2670.
16.20000	0.23850757	64629.	-2699.
15.30000	0.23751145	64705.	-2683.
14.40000	0.23863179	64584.	-2693.
13.50000	0.23839628	64640.	-2683.
12.60000	0.23956305	64521.	-2676.
11.70000	0.29704091	62018.	-3141.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 0.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

El. 863 - 867

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness lb-in^2	Soil Res. p lb/inch	Soil Spr. Es*H lb/inch	Distrib. Lat. Load lb/inch
0.00	0.4340	-5.74E-07	0.00	-0.00445	6.62E-08	1.51E+09	0.00	0.00	10.7025
0.1800	0.4244	24.9668	23.7735	-0.00445	2.8808	1.51E+09	0.00	0.00	11.3100
0.3600	0.4148	102.7015	49.0779	-0.00445	11.8502	1.51E+09	0.00	0.00	12.1200
0.5400	0.4051	236.9833	76.1319	-0.00445	27.3442	1.51E+09	0.00	0.00	12.9300
0.7200	0.3955	431.5913	104.9355	-0.00445	49.7990	1.51E+09	0.00	0.00	13.7400
0.9000	0.3859	690.3047	135.4887	-0.00445	79.6505	1.51E+09	0.00	0.00	14.5500
1.0800	0.3763	1017.	167.7915	-0.00444	117.3349	1.51E+09	0.00	0.00	15.3600
1.2600	0.3667	1415.	201.8439	-0.00444	163.2881	1.51E+09	0.00	0.00	16.1700
1.4400	0.3571	1889.	237.6459	-0.00444	217.9463	1.51E+09	0.00	0.00	16.9800
1.6200	0.3476	2442.	275.1975	-0.00444	281.7455	1.51E+09	0.00	0.00	17.7900
1.8000	0.3380	3078.	314.4987	-0.00443	355.1217	1.51E+09	0.00	0.00	18.6000
1.9800	0.3284	3800.	355.5495	-0.00443	438.5110	1.51E+09	0.00	0.00	19.4100
2.1600	0.3188	4614.	398.3499	-0.00442	532.3494	1.51E+09	0.00	0.00	20.2200
2.3400	0.3093	5521.	442.8999	-0.00442	637.0731	1.51E+09	0.00	0.00	21.0300
2.5200	0.2998	6527.	489.1995	-0.00441	753.1180	1.51E+09	0.00	0.00	21.8400
2.7000	0.2903	7635.	537.2487	-0.00440	880.9202	1.51E+09	0.00	0.00	22.6500
2.8800	0.2808	8848.	587.0475	-0.00438	1021.	1.51E+09	0.00	0.00	23.4600
3.0600	0.2713	10171.	638.5959	-0.00437	1174.	1.51E+09	0.00	0.00	24.2700
3.2400	0.2619	11607.	691.8939	-0.00436	1339.	1.51E+09	0.00	0.00	25.0800
3.4200	0.2525	13160.	746.9415	-0.00434	1518.	1.51E+09	0.00	0.00	25.8900
3.6000	0.2432	14833.	803.7387	-0.00432	1712.	1.51E+09	0.00	0.00	26.7000
3.7800	0.2339	16632.	862.2855	-0.00429	1919.	1.51E+09	0.00	0.00	27.5100
3.9600	0.2246	18559.	922.5819	-0.00427	2141.	1.51E+09	0.00	0.00	28.3200
4.1400	0.2154	20617.	984.6279	-0.00424	2379.	1.51E+09	0.00	0.00	29.1300
4.3200	0.2063	22812.	1048.	-0.00421	2632.	1.51E+09	0.00	0.00	29.9400
4.5000	0.1972	25147.	1114.	-0.00418	2902.	1.51E+09	0.00	0.00	30.7500
4.6800	0.1882	27624.	1181.	-0.00414	3187.	1.51E+09	0.00	0.00	31.5600
4.8600	0.1793	30250.	1250.	-0.00410	3490.	1.51E+09	0.00	0.00	32.3700
5.0400	0.1705	33026.	1321.	-0.00405	3811.	1.51E+09	0.00	0.00	33.1800
5.2200	0.1618	35957.	1394.	-0.00400	4149.	1.51E+09	0.00	0.00	33.9900
5.4000	0.1533	39046.	1468.	-0.00395	4505.	1.51E+09	0.00	0.00	34.8000
5.5800	0.1448	42298.	1544.	-0.00389	4881.	1.51E+09	0.00	0.00	35.6100
5.7600	0.1364	45716.	1622.	-0.00383	5275.	1.51E+09	0.00	0.00	36.4200
5.9400	0.1283	49304.	1701.	-0.00376	5689.	1.51E+09	0.00	0.00	37.2300
6.1200	0.1202	53066.	1783.	-0.00369	6123.	1.51E+09	0.00	0.00	38.0400
6.3000	0.1123	57005.	1866.	-0.00361	6578.	1.51E+09	0.00	0.00	38.8500
6.4800	0.1046	61126.	1950.	-0.00352	7053.	1.51E+09	0.00	0.00	39.6600
6.6600	0.09711	65431.	2037.	-0.00343	7550.	1.51E+09	0.00	0.00	40.4700
6.8400	0.08980	69925.	2125.	-0.00333	8068.	1.51E+09	0.00	0.00	41.2800
7.0200	0.08271	74612.	2181.	-0.00323	8609.	1.51E+09	-6.352	165.8880	16.2721
7.2000	0.07584	79345.	2148.	-0.00312	9155.	1.51E+09	-40.075	1141.	0.00
7.3800	0.06922	83892.	2044.	-0.00300	9680.	1.51E+09	-55.762	1740.	0.00
7.5600	0.06286	88178.	1909.	-0.00288	10174.	1.51E+09	-69.429	2386.	0.00
7.7400	0.05678	92140.	1747.	-0.00275	10632.	1.51E+09	-81.137	3087.	0.00

7.9200	0.05098	95723.	1561.	-0.00262	11045.	1.51E+09	-90.947	3854.	0.00
8.1000	0.04547	98883.	1356.	-0.00248	11410.	1.51E+09	-98.875	4697.	0.00
8.2800	0.04027	101580.	1136.	-0.00233	11721.	1.51E+09	-104.765	5619.	0.00
8.4600	0.03539	103790.	906.7518	-0.00219	11976.	1.51E+09	-107.397	6555.	0.00
8.6400	0.03082	105498.	673.4668	-0.00204	12173.	1.51E+09	-108.607	7611.	0.00
8.8200	0.02659	106699.	438.8355	-0.00189	12311.	1.51E+09	-108.644	8827.	0.00
9.0000	0.02268	107393.	185.5437	-0.00173	12392.	1.51E+09	-125.886	11990.	0.00
9.1800	0.01910	107500.	-177.460	-0.00158	12404.	1.51E+09	-210.229	23771.	0.00
9.3600	0.01586	106627.	-627.664	-0.00142	12303.	1.51E+09	-206.627	28140.	0.00
9.5400	0.01295	104789.	-1069.	-0.00127	12091.	1.51E+09	-202.070	33709.	0.00
9.7200	0.01036	102008.	-1499.	-0.00113	11770.	1.51E+09	-196.472	40965.	0.00
9.9000	0.00809	98311.	-1917.	-9.82E-04	11344.	1.51E+09	-189.720	50674.	0.00
10.0800	0.00612	93729.	-2318.	-8.44E-04	10815.	1.51E+09	-181.649	64129.	0.00
10.2600	0.00444	88299.	-2700.	-7.14E-04	10188.	1.51E+09	-172.005	83685.	0.00
10.4400	0.00303	82067.	-3059.	-5.92E-04	9469.	1.51E+09	-160.357	114156.	0.00
10.6200	0.00188	75086.	-3389.	-4.79E-04	8664.	1.51E+09	-145.854	167339.	0.00
10.8000	9.63E-04	67425.	-3683.	-3.77E-04	7780.	1.51E+09	-126.382	283345.	0.00
10.9800	2.53E-04	59174.	-3920.	-2.87E-04	6828.	1.51E+09	-92.796	792848.	0.00
11.1600	-2.75E-04	50491.	-3916.	-2.08E-04	5826.	1.51E+09	96.3405	757438.	0.00
11.3400	-6.46E-04	42257.	-3680.	-1.42E-04	4876.	1.51E+09	122.1863	408506.	0.00
11.5200	-8.87E-04	34592.	-3402.	-8.66E-05	3991.	1.51E+09	135.2027	329368.	0.00
11.7000	-0.00102	27559.	-3102.	-4.21E-05	3180.	1.51E+09	143.0617	302886.	0.00
11.8800	-0.00107	21193.	-2788.	-7.18E-06	2445.	1.51E+09	147.7838	298739.	0.00
12.0600	-0.00105	15517.	-2466.	1.91E-05	1790.	1.51E+09	150.2246	308661.	0.00
12.2400	-9.86E-04	10542.	-2141.	3.78E-05	1216.	1.51E+09	150.8274	330416.	0.00
12.4200	-8.88E-04	6270.	-1816.	4.98E-05	723.4603	1.51E+09	149.8484	364455.	0.00
12.6000	-7.71E-04	2697.	-1495.	5.62E-05	311.2395	1.51E+09	147.4456	413178.	0.00
12.7800	-6.45E-04	-187.248	-1180.	5.80E-05	21.6056	1.51E+09	143.7188	481159.	0.00
12.9600	-5.20E-04	-2401.	-875.230	5.62E-05	277.0813	1.51E+09	138.7288	576124.	0.00
13.1400	-4.02E-04	-3968.	-582.298	5.16E-05	457.8740	1.51E+09	132.5045	711088.	0.00
13.3200	-2.97E-04	-4917.	-304.152	4.53E-05	567.3344	1.51E+09	125.0381	908917.	0.00
13.5000	-2.07E-04	-5282.	-56.698	3.79E-05	609.4821	1.51E+09	104.0858	1086054.	0.00
13.6800	-1.33E-04	-5162.	129.3139	3.05E-05	595.5963	1.51E+09	68.1475	1104949.	0.00
13.8600	-7.54E-05	-4724.	245.2789	2.34E-05	545.0241	1.51E+09	39.2275	1123844.	0.00
14.0400	-3.22E-05	-4102.	306.0343	1.71E-05	473.3342	1.51E+09	17.0274	1142740.	0.00
14.2200	-1.67E-06	-3401.	325.3926	1.17E-05	392.4777	1.51E+09	0.8970	1161637.	0.00
14.4000	1.83E-05	-2697.	315.5443	7.33E-06	311.1385	1.51E+09	-10.016	1180535.	0.00
14.5800	3.00E-05	-2038.	286.7500	3.93E-06	235.1910	1.51E+09	-16.646	1199433.	0.00
14.7600	3.53E-05	-1458.	247.2567	1.43E-06	168.2046	1.51E+09	-19.922	1218332.	0.00
14.9400	3.62E-05	-970.173	203.3748	-3.09E-07	111.9431	1.51E+09	-20.709	1237231.	0.00
15.1200	3.40E-05	-579.194	159.6628	-1.42E-06	66.8301	1.51E+09	-19.765	1256131.	0.00
15.3000	3.00E-05	-280.430	119.1736	-2.03E-06	32.3573	1.51E+09	-17.725	1275031.	0.00
15.4800	2.52E-05	-64.364	83.7266	-2.28E-06	7.4266	1.51E+09	-15.096	1293932.	0.00
15.6600	2.02E-05	81.2690	54.1800	-2.27E-06	9.3772	1.51E+09	-12.262	1312833.	0.00
15.8400	1.54E-05	169.6936	30.6833	-2.09E-06	19.5800	1.51E+09	-9.494	1331735.	0.00
16.0200	1.11E-05	213.8210	12.8998	-1.81E-06	24.6717	1.51E+09	-6.972	1350637.	0.00
16.2000	7.56E-06	225.4207	0.1924	-1.50E-06	26.0101	1.51E+09	-4.794	1369539.	0.00
16.3800	4.67E-06	214.6522	-8.228	-1.18E-06	24.7676	1.51E+09	-3.002	1388442.	0.00
16.5600	2.44E-06	189.8767	-13.190	-8.95E-07	21.9088	1.51E+09	-1.592	1407345.	0.00
16.7400	8.05E-07	157.6722	-15.483	-6.46E-07	18.1929	1.51E+09	-0.531	1426248.	0.00
16.9200	-3.47E-07	122.9891	-15.806	-4.45E-07	14.1911	1.51E+09	0.2321	1445152.	0.00
17.1000	-1.12E-06	89.3888	-14.737	-2.93E-07	10.3141	1.51E+09	0.7576	1464055.	0.00
17.2800	-1.61E-06	59.3233	-12.724	-1.86E-07	6.8450	1.51E+09	1.1068	1482959.	0.00
17.4600	-1.92E-06	34.4219	-10.084	-1.19E-07	3.9718	1.51E+09	1.3371	1501864.	0.00
17.6400	-2.13E-06	15.7586	-7.023	-8.33E-08	1.8183	1.51E+09	1.4977	1520768.	0.00
17.8200	-2.28E-06	4.0833	-3.648	-6.91E-08	0.4711	1.51E+09	1.6273	1539673.	0.00
18.0000	-2.43E-06	0.00	0.00	-6.62E-08	0.00	1.51E+09	1.7504	779289.	0.00

El. 845 - 849

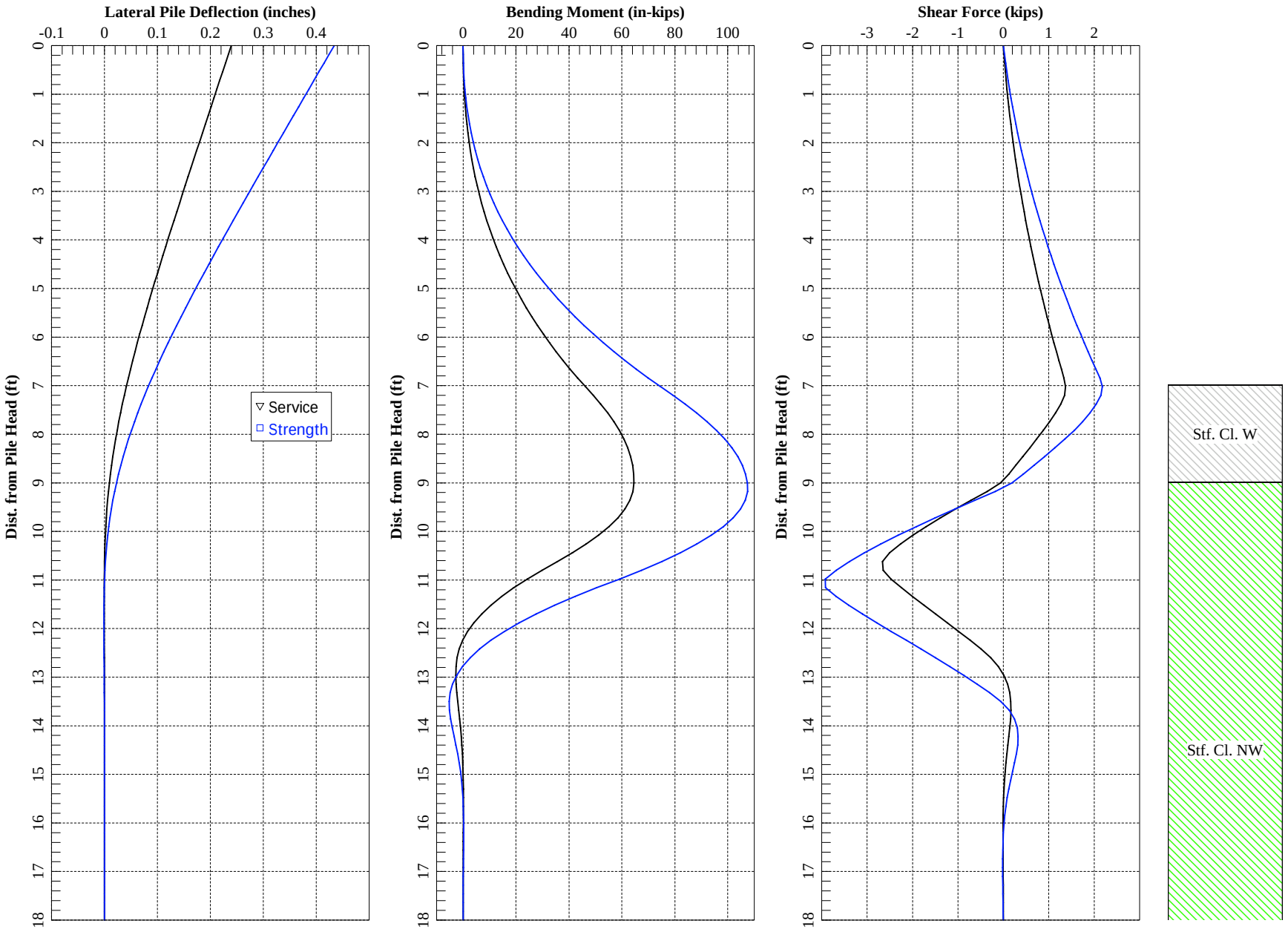
* The above values of total stress are combined axial and bending stresses.

Output Summary for Load Case No. 2:

Pile-head deflection = 0.43396626 inches
Computed slope at pile head = -0.0044473 radians
Maximum bending moment = 107500. inch-lbs
Maximum shear force = -3920. lbs
Depth of maximum bending moment = 9.18000000 feet below pile head
Depth of maximum shear force = 10.98000000 feet below pile head

```
Number of iterations             =            19
Number of zero deflection points =             3
Pile deflection at ground        =     0.08349474 inches



--------------------------------------------------------------------------------
            Pile-head Deflection vs. Pile Length for Load Case 2
--------------------------------------------------------------------------------

Boundary Condition Type 1, Shear and Moment

Shear      =              0. lbs
Moment     =              0. in-lbs
Axial Load =              0. lbs


    Pile       Pile Head       Maximum       Maximum
   Length      Deflection      Moment         Shear
    feet         inches        ln-lbs          lbs
------------  ------------  ------------  ------------
   18.00000    0.43396626       107500.        -3920.
   17.10000    0.43092175       107657.        -3922.
   16.20000    0.43059179       107450.        -3931.
   15.30000    0.42907428       107451.        -3934.
   14.40000    0.43120260       107403.        -3917.
   13.50000    0.43080590       107482.        -3870.
   12.60000    0.47742637       106115.        -4367.
   11.70000    7.14327675       125918.        -7502.

--------------------------------------------------------------------------------
            Summary of Pile-head Responses for Conventional Analyses
--------------------------------------------------------------------------------

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians


Load Load                Load                  Axial    Pile-head  Pile-head  Max Shear Max Moment
Case Type   Pile-head    Type     Pile-head   Loading  Deflection  Rotation    in Pile    in Pile
 No.  1      Load 1       2        Load 2       lbs      inches     radians      lbs      in-lbs
---- ----- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
  1  V, lb       0.00  M, in-lb        0.00       0.00     0.2395   -0.00252     -2662.     64565.
  2  V, lb       0.00  M, in-lb        0.00       0.00     0.4340   -0.00445     -3920.    107500.


 Maximum pile-head deflection = 0.4339662598 inches
 Maximum pile-head rotation   = -0.0044472561 radians = -0.254809 deg.

 The analysis ended normally.
```

Required Sx = 2.39 in^3 for Grade 50 steel
Available Sx = 11.5 in^3
OK


Lateral Pile Deflection (inches)
-0.1
0
0.1
0.2
0.3
0.4
Dist. from Pile Head (ft)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Service
Strength
Bending Moment (in-kips)
0
20
40
60
80
100
Shear Force (kips)
-3
-2
-1
0
1
2
Stf. Cl. W
Stf. Cl. NW

Supporting Information

Contents:

Note: All attachments are one page unless noted above.

Appendix C
Utility Work Plans

For

BRIDGE 193 REHABILITATION PROJECT

OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

HIGHWAY
ELKHART COUNTY

Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103

Brightspeed

Date: 11/26/2025

Subject:

Utility Relocation Work Plan for:	Brightspeed
Facility Type:	Telecommunications

Section 1: General Information

A. INDOT/LPA Project Information

1.	DES NO.:	N/A
2.	Route Number:	CR 43 over Stony Creek
3.	Location:	Bridge 193, 0.2 miles north of CR 42
4.	Work Type:	Superstructure Replacement
5.	Letting Date:	09/30/20025
6.	Date Work Plan Needed	07/31/2025
7.	Target Date for Utility to be out of conflict with INDOT Project	
	Intermediate Phase	
	Intermediate Phase	

B. Utility Designated Contact – Information

1.	Designated Contact Name:	Kristal Anspach
2.	Office telephone:	866-202-2284
3.	Mobile telephone:	502-851-5262
4.	Email address:	kanspach@bryler.com
5.	Agency name	Bryler
6.	Address:	6000 Fairview Rd. Ste 1200
7.	City, State, Zip Code:	Charlotte, NC 28210
8.	Construction Emergency Contact:	Brian Parker 574-526-1466
	Name:	Melissa Teague
	Number:	765-656-4663

C. By signing here, the Utility has determined to the best of their ability that they do not have facilities within the project area:

Signature of Utility Representative Print Name Date

Note: A signature by the utility representative at item "(C)" fulfills the requirement to complete the rest of this

form and affirms their contact information above is correct

D. INDOT/LPA Utility Coordinator Contact Information

1.	Utility Coordinator Name:	Josh Peach
2.	Office Telephone:	317-566-0629
3.	Mobile Telephone:	930-204-2089
4.	Email Address:	jpeach@sjcainc.com
5.	Agency Name:	SJCA Inc.
6.	Address:	9102 N Meridian Street, Suite 200
7.	City, State, Zip Code	Indianapolis, IN 46260

Section 2: A narrative description of existing facilities within the project limits and any facility relocation that will be required. [IAC 13-3-3(c)]

A. Describe what types of existing active and inactive facilities are present.

X1 – 25pr copper cable
X1 - Pedestal

B. Describe the location of existing active and inactive facilities.

X1 – 25pr copper cable – Buried in ROW parallel to CR 43 on the west side of the road.
X1 – Pedestal – North side of bridge next to a utility pole on the west side of CR 43.

C. Describe what will be done with existing active and inactive facilities.

X1 – 25pr copper cable – cable is inactive and will be cut at each side of the bridge and retired in place.
X1 – Pedestal – will be removed.

D. Describe the details of the proposed new facilities.

NA

E. Describe the proposed location of the new facilities.

NA

F. By signing here, the Utility has determined to the best of their ability that they have facilities within the project area and the facilities are not in conflict with the project based upon the plans received on <11/14/2025>

Signature of Utility Representative | Print Name | Date

Note: A signature by the utility representative at item "(F)" fulfills the requirement to complete the rest of this form and affirms their contact information above is correct.

Section 3: A statement whether the facility relocation is or is not dependent on the acquisition of additional property interests with a description of that work. [IAC 13-3-3(c) (2) (B)]

The work is not dependent on the acquisition of additional property interests.

Section 4: A statement whether the utility is or is not willing to allow the INDOT contractor to do the required work as part of the highway contract. [IAC 13-3-3(c) (3)]

The utility is not willing to allow the INDOT contractor to do the work.

Section 5: From the date the work plan is approved by both parties; please provide the Utility's pre-construction scheduling information. [IAC 13-3-3(c) (4), IAC 13-3-3(c) (5)]

A.	The expected lead time in calendar days to obtain required permits:	-
B.	The expected lead time in calendar days to obtain materials:	-
C.	The expected lead time in calendar days to schedule work crews:	45
D.	If the contractor is being selected by competitive bid what is the date of selection?	-
E.	The expected lead time in calendar days to obtain new property interests:	-
F.	The earliest date when the utility could begin to implement the pre-construction activities of the work plan:	1/30/2026
G.	The total number of calendar days for pre-construction activities: (accounting for concurrent activities)	45

Section 6: The Utility Construction Scheduling Information. [IAC 13-3-3(c) (4), IAC 13-3-3(c) (5)]

A. A statement whether the facility relocation is or is not dependent on work to be done by another utility with a description of that work. [IAC 13-3-3(c)(2)(A)(i)]

The work is not dependent on work to be done by another utility.

1. Utility A, with a description of the required work.

N/A

2. Utility B, with a description of the required work.

   N/A

3. Utility C, with a description of the required work.

   N/A

B. A statement whether the facility relocation is or is not dependent on work to be done by the department or the department's contractor with a description of that work. [IAC 13-3- 3(c)(2)(A)(ii)]

The work is not dependent on work to be done by the department.

1. Work item A

   N/A

2. Work item B

   N/A

3. Work item C

   N/A

   How many calendar days after the events identified in Sec 6 A and B are completed can the utility begin construction: **N/A**

C. The number of calendar days to complete the relocation work:15-30 days

Section 7: A drawing of sufficient detail with station, offset, elevations, and scale to show the proposed location of the facility relocation, which takes precedence over the narrative description of the work, needs to be on INDOT Construction drawings. [IAC 13-3-3(c) (6)]. Plans must be attached to this Work Plan Document.

See Attached

Section 8: For each work plan the utility shall include a cost estimate for the facility relocation. For reimbursable work the estimate will identify betterment and salvage which is not reimbursable. [IAC 13-3-3(d)]

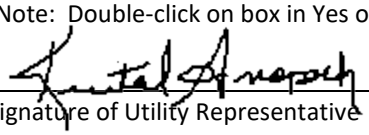
Per 105 IAC 13-3-3 (d), no estimate is required for non-compensable relocation costs.

Section 9: For work the utility is entitled to be compensated by the Department, the work plan shall include documentation of property interests and compensable land rights. [IAC 13-3-3(d)]
N/A

Section 10: The implementation of this approved work plan is dependent upon the issuance of: (a notice to proceed will be provided when items in Section 6 are accomplished)

Items Completed	Yes	Not Applicable
An executed reimbursement agreement with INDOT/LPA:	☐	☒
A relocation permit from INDOT/LPA:	☐	☒

(Note: Double-click on box in Yes or NA to mark it with an "X")



Signature of Utility Representative

11/26/2025
Date

Kristal Anspach
Utility Representative Name Printed

Utility Coordinator /LPA use only below this point ---------- Utility Coordinator/LPA use only below this point

Section 11: The Utility Coordinator shall review the work plan to ensure that it: [IAC 13-3-3(e)]
(This section is to be used by the assigned Utility Coordinator)

Description	Yes	N/A	Utility Coordinator Initials
is compatible with department permit requirements	☒	☐	JRP
(is compatible with the project plans	☒	☐	JRP
is compatible with the construction schedule	☒	☐	JRP
is compatible with other utility relocation work plans	☒	☐	JRP
has reasonable relocation scheme	☒	☐	JRP
has a reasonable cost for compensable work	☐	☒	JRP

(**Note**: Double-click on box under Yes or N/A to mark it with an "X")

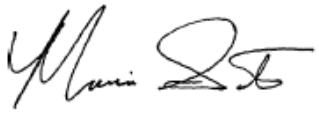
Section 12: Approved Work Plan. [IAC 13-3-3(f)]

☐ For State projects, the Utility Coordinator has verified that the INDOT Utility Oversight completed the UMS work plan approval process on Enter UMS Work Plan Approval Date.

State/LPA Project -Utility Coordinator Signature

03/24/2026
Date

Josh Peach
State/LPA Project Utility Coordinator Name Printed



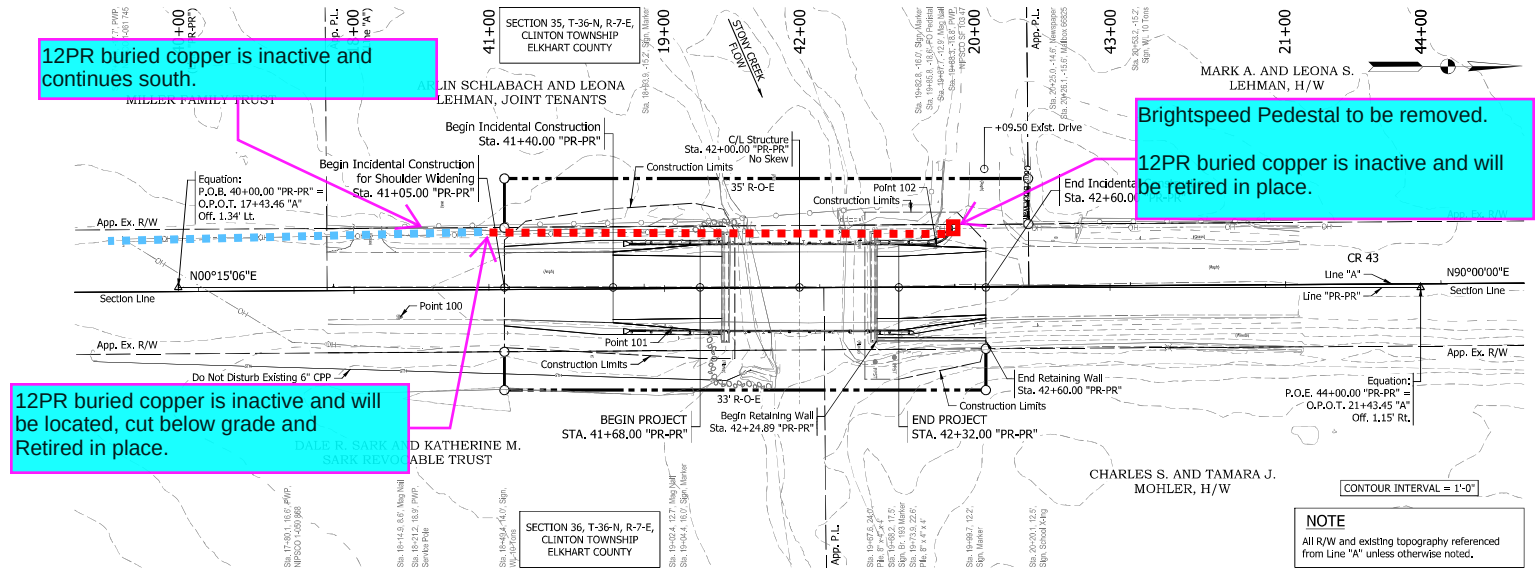
3/25/2026

LPA Project – ERC Signature

Date

Mario Soto Luna

LPA Project – ERC Name Printed)



UTILITIES

See Index Sheet For Information.

EXISTING STRUCTURE

Existing structure is a Single Span Prestressed Concrete Box Beam Bridge with no Skew on Bents. Existing Superstructure is to be Replaced, Substructure is to Remain.

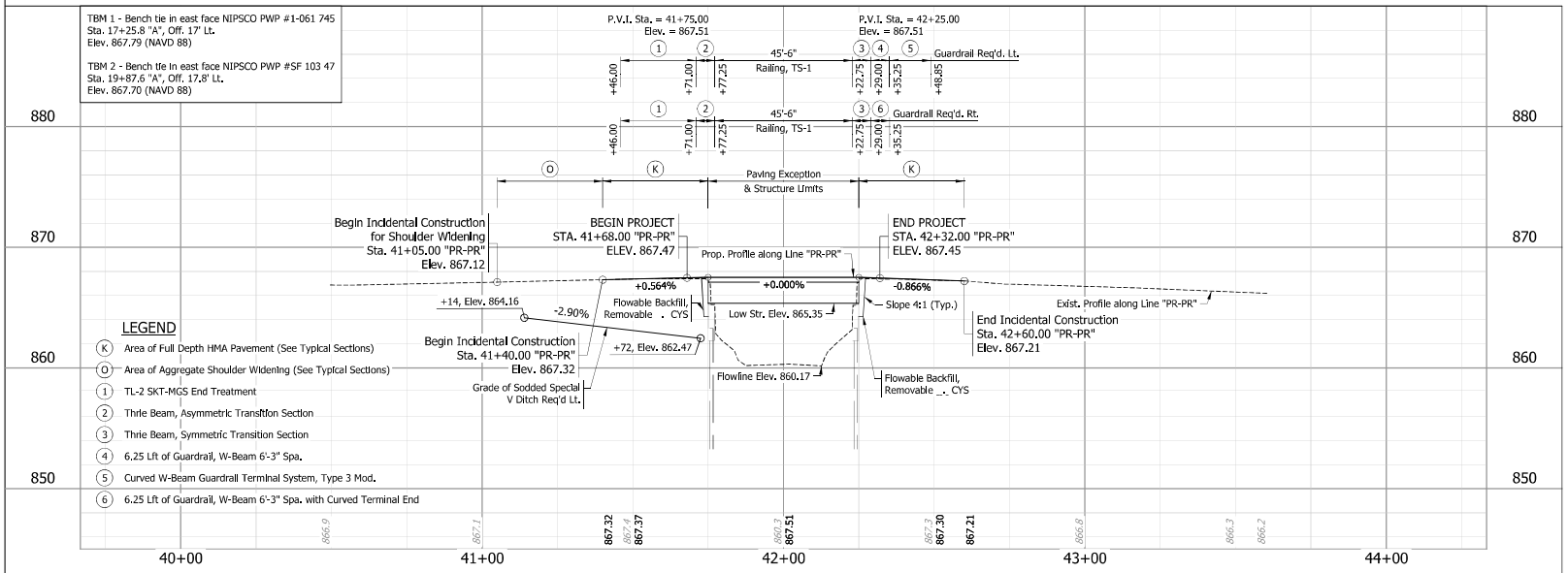
ALIGNMENT REFERENCE TIES

Point 100 - N:437131.8653, E:835591.2391, Elev. 866.79
Sta. 18+14.87 "A", 8.64' Rt.
Mag Nail with washer stamped "ELKHART CO. HIGHWAY FIRM 0159"

Point 101 - N:437219.3828, E:835595.1410, Elev. 867.05
Sta. 19+02.38 "A", 12.71' Rt.
Mag Nail with washer stamped "ELKHART CO. HIGHWAY FIRM 0159"

Point 102 - N:437304.6913, E:835569.3536, Elev. 867.09
Sta. 19+87.74 "A", 12.92' Lt.
Mag Nail with washer stamped "ELKHART CO. HIGHWAY FIRM 0159"

Point 103 - N:437504.5778, E:835570.4943, Elev. 866.21
Sta. 21+87.62 "A", 11.41' Lt.
Mag Nail with washer stamped "ELKHART CO. HIGHWAY FIRM 0159"



LEGEND

- (K) Area of Full Depth HMA Pavement (See Typical Sections)
- (O) Area of Aggregate Shoulder Widening (See Typical Sections)
- (1) TL-2 SKT-MGS End Treatment
- (2) Thrie Beam, Asymmetric Transition Section
- (3) Thrie Beam, Symmetric Transition Section
- (4) 6.25 Lft of Guardrail, W-Beam 6'-3" Spa.
- (5) Curved W-Beam Guardrail Terminal System, Type 3 Mod.
- (6) 6.25 Lft of Guardrail, W-Beam 6'-3" Spa. with Curved Terminal End

EARTHWORK SUMMARY

Fill +25%	- CYS
Common Excavation	- CYS
70% Foundation Excavation	- CYS
Borrow	- CYS
Common Excavation (Waste)**	- CYS
B Borrow**	- CYS

** Undistributed Quantity for Subgrade Stabilization (See Cross Sections)

ADJACENT PRESTRESSED CONCRETE BOX BEAM BRIDGE
SINGLE SPAN @ 48'-0"
27'-6" CLEAR ROADWAY; NO SKEW
COUNTY ROAD 43 OVER STONY CREEK
ELKHART COUNTY

SJCA

STAGE 1 PLANS NOT FOR CONSTRUCTION

RECOMMENDED FOR APPROVAL
DESIGN ENGINEER DATE

DESIGNED: MHF
DRAWN: MHF
CHECKED: DRM
CHECKED: AJK

ELKHART COUNTY HIGHWAY DEPARTMENT

LAYOUT

HORIZONTAL SCALE	BRIDGE FILE
1" = 20'	20-00193 B
VERTICAL SCALE	DESIGNATION
1" = 5'	

SHEETS
5 of 13
CONTRACT

Plot: 11/12/2025 3:01:46 PM
File: H:\Projects\2024\Engineering\24EN053_ELKHART_COUNTY_BRIDGE_193_SJCA\EN\CAD\Sheets\24EN053_Layout.dgn
Model: PR-PR - Plan [Sheet]

Date: 3/23/2026

Subject:

Utility Relocation Work Plan for:	NIPSCO
Facility Type:	Electric

Section 1: General Information

A. INDOT/LPA Project Information

1.	DES NO.:	N/A
2.	Route Number:	CR 43 over Stony Creek
3.	Location:	Bridge 193, 0.2 miles north of CR 42
4.	Work Type:	Superstructure Replacement
5.	Letting Date:	09/30/20025
6.	Date Work Plan Needed	07/31/2025
7.	Target Date for Utility to be out of conflict with INDOT Project	
	Intermediate Phase	
	Intermediate Phase	

B. Utility Designated Contact – Information

1.	Designated Contact Name:	Matthew Boyle
2.	Office telephone:	
3.	Mobile telephone:	219-380-4136
4.	Email address:	mboyle@nisource.com
5.	Agency name	NIPSCO
6.	Address:	300 E Kercher Rd
7.	City, State, Zip Code:	Goshen IN 46526
8.	Construction Emergency Contact:	
	Name:	NIPSCO
	Number:	1-800-464-7726

C. By signing here, the Utility has determined to the best of their ability that they do not have facilities within the project area:

_____ _____

Signature of Utility Representative Print Name Date

Note: A signature by the utility representative at item "(C)" fulfills the requirement to complete the rest of this form and affirms their contact information above is correct

D. INDOT/LPA Utility Coordinator Contact Information

1.	Utility Coordinator Name:	Josh Peach
2.	Office Telephone:	317-566-0629
3.	Mobile Telephone:	930-204-2089
4.	Email Address:	jpeach@sjcainc.com
5.	Agency Name:	SJCA Inc.
6.	Address:	9102 N Meridian Street, Suite 200
7.	City, State, Zip Code	Indianapolis, IN 46260

Section 2: A narrative description of existing facilities within the project limits and any facility relocation that will be required. [IAC 13-3-3(c)]

A. Describe what types of existing active and inactive facilities are present.

Wood Poles, Anchor, Aerial Bare 69kV Wires, and Aerial 7.2kV Bare Wire.

B. Describe the location of existing active and inactive facilities.

Traversing North and South on the West Side of County Road 43 through the project limits.

C. Describe what will be done with existing active and inactive facilities.

The poles and aerial bare 69kV wires will remain in place and energized. The 7.2kV wire will be cut down and removed between NIPSCO poles 1061/747 and 1061/745, to be reinstalled after the bridge project is complete.

D. Describe the details of the proposed new facilities.

The new facilities prior to the project are anchors and a switch. After the bridge project is complete a new bare 7.2kV wire will be strung across the project limits.

E. Describe the proposed location of the new facilities.

The anchors will be near existing NIPSCO poles 1061/747 and 1061/745. The new wire to be strung will be between NIPSCO poles 1061/747 and 1061/745.

F. By signing here, the Utility has determined to the best of their ability that they have facilities within the project area and the facilities are not in conflict with the project based upon the plans received on **<Enter Date Received Plans>**

_____ _____

Signature of Utility Representative Print Name Date

Note: A signature by the utility representative at item "(F)" fulfills the requirement to complete the rest of this form and affirms their contact information above is correct.

Section 3: A statement whether the facility relocation is or is not dependent on the acquisition of additional property interests with a description of that work. [IAC 13-3-3(c) (2) (B)]

It is not dependent on the acquisition of additional right of way.

Section 4: A statement whether the utility is or is not willing to allow the INDOT contractor to do the required work as part of the highway contract. [IAC 13-3-3(c) (3)]

NIPSCO is not willing to allow the INDOT contractor to do the required work.

Section 5: From the date the work plan is approved by both parties; please provide the Utility's pre-construction scheduling information. [IAC 13-3-3(c) (4), IAC 13-3-3(c) (5)]

A.	The expected lead time in calendar days to obtain required permits:	120 Days
B.	The expected lead time in calendar days to obtain materials:	100 Days
C.	The expected lead time in calendar days to schedule work crews:	45 Days
D.	If the contractor is being selected by competitive bid what is the date of selection?	N/A
E.	The expected lead time in calendar days to obtain new property interests:	N/A
F.	The earliest date when the utility could begin to implement the pre-construction activities of the work plan:	3/30/26
G.	The total number of calendar days for pre-construction activities: (accounting for concurrent activities)	165 Days

Section 6: The Utility Construction Scheduling Information. [IAC 13-3-3(c) (4), IAC 13-3-3(c) (5)]

A. A statement whether the facility relocation is or is not dependent on work to be done by another utility with a description of that work. [IAC 13-3-3(c)(2)(A)(i)]

1. Utility A, with a description of the required work.

N/A

2. Utility B, with a description of the required work.

3. Utility C, with a description of the required work.

B. A statement whether the facility relocation is or is not dependent on work to be done by the department or the department's contractor with a description of that work. [IAC 13-3- 3(c)(2)(A)(ii)]

1. Work item A

N/A

2. Work item B

3. Work item C

C. How many calendar days after the events identified in Sec 6 A and B are completed can the utility begin construction: N/A

D. The number of calendar days to complete the relocation work: 14 Days

Section 7: A drawing of sufficient detail with station, offset, elevations, and scale to show the proposed location of the facility relocation, which takes precedence over the narrative description of the work, needs to be on INDOT Construction drawings. [IAC 13-3-3(c) (6)]. Plans must be attached to this Work Plan Document.

See drawing dated 3/23/26 titled PIE-MDB-CR 43 Stony Creek Bridge-Ret 1PH Pri

Section 8: For each work plan the utility shall include a cost estimate for the facility relocation. For reimbursable work the estimate will identify betterment and salvage which is not reimbursable. [IAC 13-3-3(d)]

$75,000

Section 9: For work the utility is entitled to be compensated by the Department, the work plan shall include documentation of property interests and compensable land rights. [IAC 13-3-3(d)]

N/A

Section 10: The implementation of this approved work plan is dependent upon the issuance of: (a notice to proceed will be provided when items in Section 6 are accomplished)

Items Completed	Yes	Not Applicable
An executed reimbursement agreement with INDOT/LPA:	☐	☒
A relocation permit from INDOT/LPA:	☒	☐

(Note: Double-click on box in Yes or NA to mark it with an "X")

Signature of Utility Representative

3/23/26
Date

Matthew Boyle
Utility Representative Name Printed

Utility Coordinator /LPA use only below this point ---------- Utility Coordinator/LPA use only below this point

Section 11: The Utility Coordinator shall review the work plan to ensure that it: [IAC 13-3-3(e)]
(This section is to be used by the assigned Utility Coordinator)

Description	Yes	N/A	Utility Coordinator Initials
is compatible with department permit requirements	☒	☐	JRP
(is compatible with the project plans	☒	☐	JRP
is compatible with the construction schedule	☒	☐	JRP
is compatible with other utility relocation work plans	☒	☐	JRP
has reasonable relocation scheme	☒	☐	JRP
has a reasonable cost for compensable work	☐	☒	JRP

(**Note**: Double-click on box under Yes or N/A to mark it with an "X")

Section 12: Approved Work Plan. [IAC 13-3-3(f)]

☐ For State projects, the Utility Coordinator has verified that the INDOT Utility Oversight completed the UMS work plan approval process on Enter UMS Work Plan Approval Date.

State/LPA Project -Utility Coordinator Signature

03/24/2026
Date

Josh Peach
State/LPA Project Utility Coordinator Name Printed

LPA Project – ERC Signature

3/25/2026
Date

Mario Soto Luna
LPA Project – ERC Name Printed)

PIE-MDB-CR 43 Stony Creek Bridge-Ret 1PH Pri

PROJECT DESCRIPTION

Reframe 3 Poles. Install Cutout Switch and Anchor. Retire 504' of 1-#6ACW Primary.

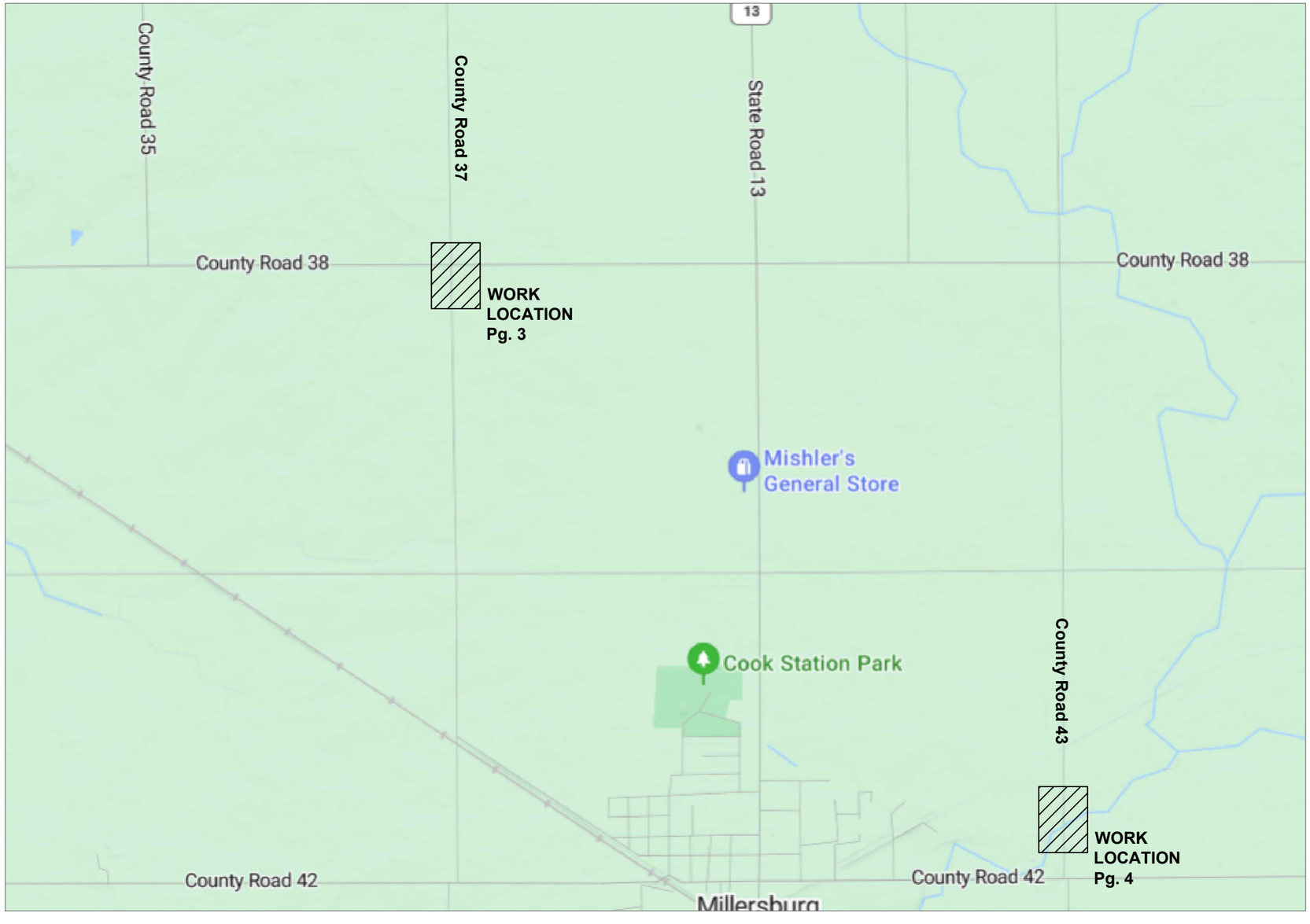
GENERAL INFO

NIPSCO to Close Road to Vehicles During Work -- Pedestrians and Bicycle Traffic to be Maintained

POTENTIAL SAFETY ISSUES AT JOB SITE

- ☐ CHILDREN AT PLAY (SCHOOL / PARK AREA)
- ☐ RESIDENTIAL AREA
- ☐ HIGH PEDESTRIAN TRAFFIC
- ☐ HIGH VEHICULAR TRAFFIC
- ☐ UNEVEN TERRAIN
- ☐ LIMITED SPACE FOR VEHICLE PARKING/MANEUVERING
- ☐ BURIED ELECTRIC/GAS IN VICINITY
- ☐ OTHER:_____

VICINITY/OVERVIEW MAP



SHEET INDEX

PERMIT INFORMATION

Elkhart County Road - Partial Closure

Electric System Data

Circuit #(s):
Substation:

All gas lines shown are for **reference use only** and shall only be used as a supplementary tool to assist during construction.
THOSE PERFORMING EXCAVATION WORK SHALL BE RESPONSIBLE FOR ENSURING PROPER LOCATES ARE COMPLETED.

AS BUILT

ID#: _____ DATE: _____
SIGN: _____
COMPANY: _____

Know what's below. Call before you dig.

LEGEND

- EXIST / PROP 1Ø OVH
- EXIST / PROP 2Ø OVH
- EXIST / PROP 3Ø OVH
- EXIST / PROP 69 KV
- EXIST / PROP SECONDARY
- EXIST / PROP 1Ø URG
- EXIST / PROP 2Ø URG
- EXIST / PROP 3Ø URG
- GAS / GAS GAS
- CABLE TERMINATION
- CAPACITOR
- FUSE SINGLE SHOT
- FUSE SOLID BLADE
- FUSE TRIPLE SHOT
- GUY DOWN EXISTING
- GUY DOWN PROPOSED
- GUY EXISTING ADDITIONAL
- GUY PROPOSED ADDITIONAL
- OPEN POINT
- PROPOSED POLE
- CUSTOMER OWNED POLE
- NIPSCO OWNED POLE
- FOREIGN OWNED POLE
- RETIREMENT SYMBOL
- PRIMARY METERING PADMOUNT
- PRIMARY METERING POLE MOUNT
- PRIMARY PEDESTAL
- RECLOSER
- REGULATOR
- SECONDARY PEDESTAL
- SECTIONALIZER
- STREET LIGHT
- SWITCH N.C. GROUND OPERATED
- SWITCH N.C. HOOK OPERATED
- SWITCH N.C. DISTRIBUTION AUTO
- SWITCH N.O. GROUND OPERATED
- SWITCH N.O. HOOK OPERATED
- SWITCH N.O. DISTRIBUTION AUTO
- XFRM POLE 1Ø
- XFRM POLE 2Ø BANK
- XFRM POLE 3Ø BANK
- XFRM PADMOUNT

DATE: 3/23/26
SCALE: None
DRAWN BY: MDB
ENGR.: Matthew Boyle
E-MAIL: mboyle@nisource.com
PHONE #:574-703-1088
APPROVED:
NIPSCO DRAWING
LOA: 110
TAXING UNIT: G15
PIE-MDB-CR 43 Stony Creek Bridge-Ret 1PH Pri
LOCATION: CR 37 & CR 38, Goshen And CR 43 N/o CR 42, Millersburg
COUNTY: COUNTY
TOWNSHIP: Clinton
SAP#: 40000XXXXX
Rel.SAP#: Related SAP
REV#: IFR-30%
SHEET: 1 of 5

TITLE OF PROJECT

Circuit Diagram

AS BUILT
ID#: _____ DATE: _____
SIGN: _____
COMPANY: _____

CIRCUIT DIAGRAM FOR REFERENCE ON THIS PROJECT ONLY. (DATE) FIELD VERIFY WITH DISPATCH

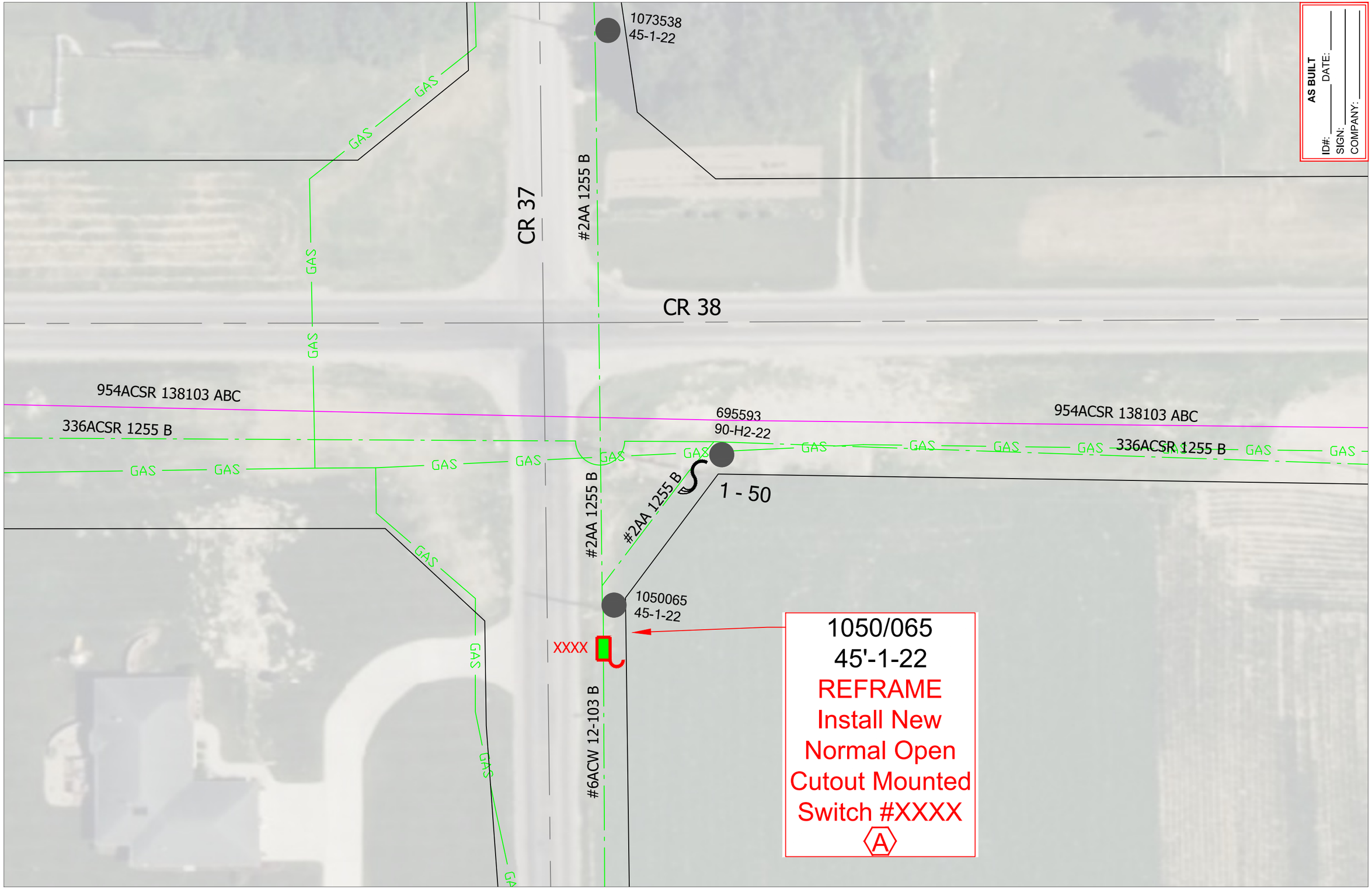
ENGR.: Matthew Boyle | DRAWN BY: MDB | DATE: 3/23/26
E-MAIL: mboyle@nisource.com | SCALE: None
PHONE #:574-703-1088 | NIPSCO DRAWING
APPROVED:

PIE-MDB-CR 43 Stony Creek Bridge-Ret 1PH Pri

LOCATION: CR 37 & CR 38, Goshen And CR 43 N/o CR 42, Millersburg
COUNTY: COUNTY | TOWNSHIP: Clinton | TAXING UNIT: G15

SAP#: 40000XXXXX | Rel.SAP#: Related SAP | REV#:IFR-30% | SHEET: 2 of 5

CIRCUIT DIAGRAM



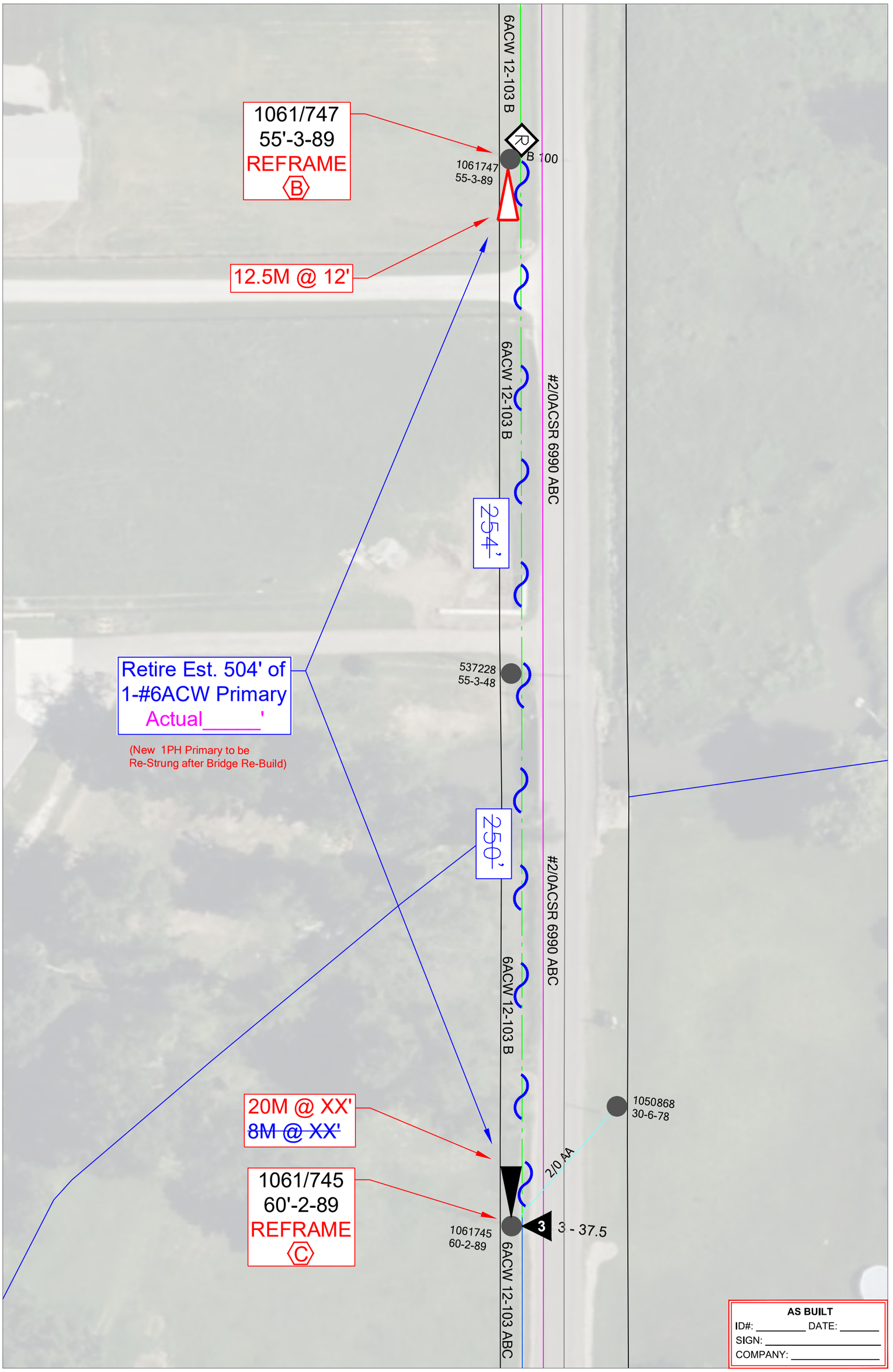
ENGR.: Matthew Boyle | DRAWN BY: MDB | DATE: 3/23/26
E-MAIL: mboyle@nisource.com | SCALE: None
PHONE #:574-703-1088 | NIPSCO DRAWING
APPROVED:

PIE-MDB-CR 43 Stony Creek Bridge-Ret 1PH Pri

LOCATION: CR 37 & CR 38, Goshen And CR 43 N/o CR 42, Millersburg
COUNTY: COUNTY | TOWNSHIP: Clinton | TAXING UNIT: G15

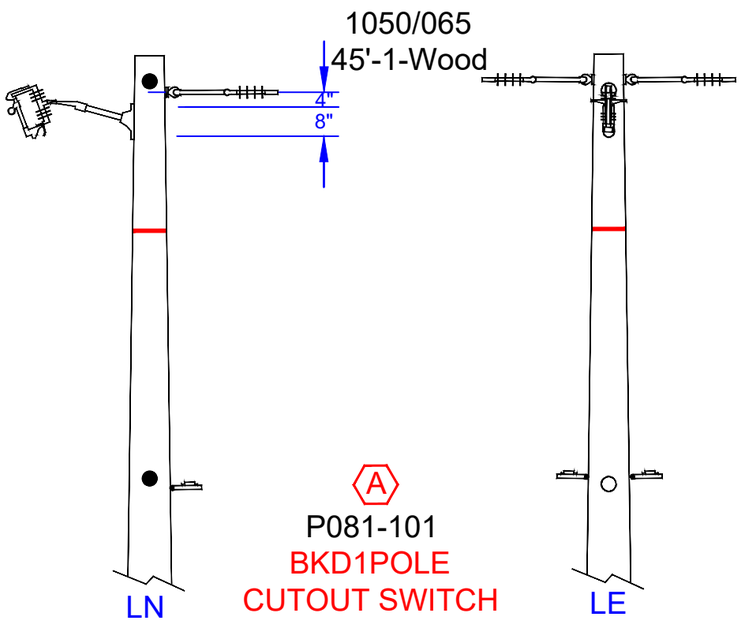
SAP#: 40000XXXXX
Rel.SAP#:Related SAP
REV#:IFR-30%
SHEET: 3 of 5

PLAN VIEW

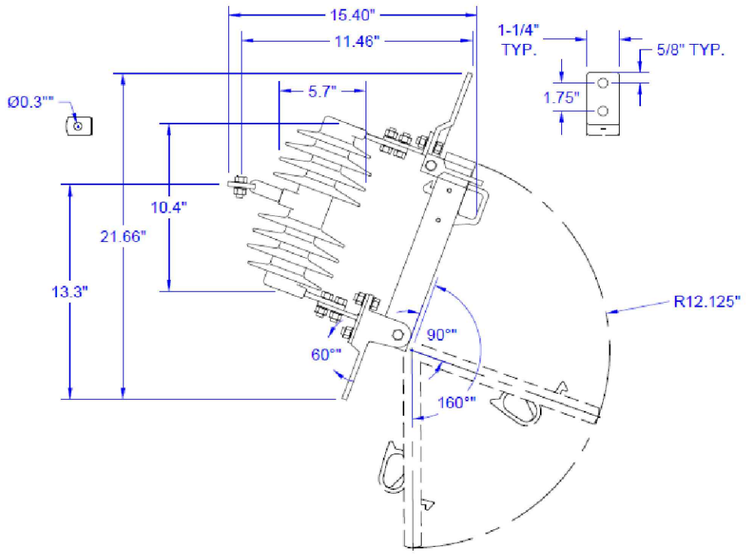


PLAN VIEW

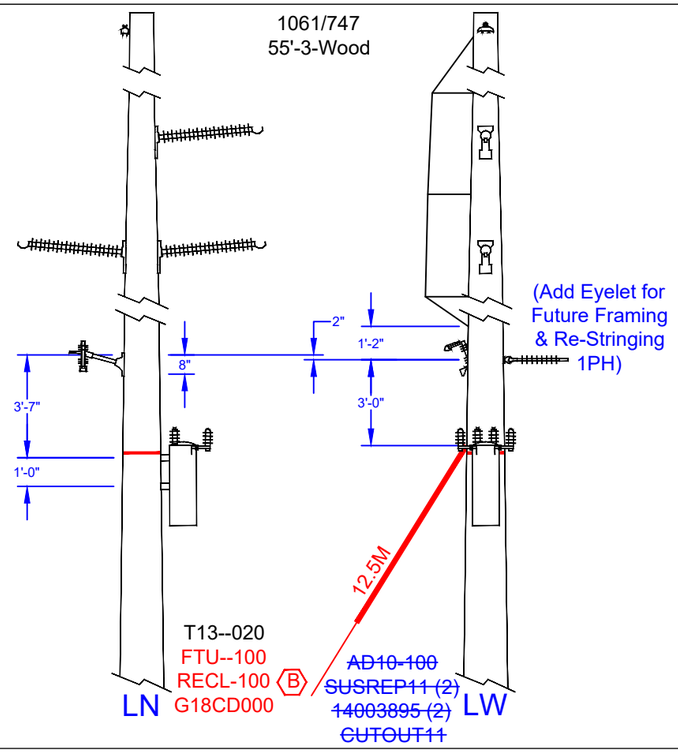
SAP#: 40000XXXXX	PIE-MDB-CR 43 Stony Creek Bridge-Ret 1PH Pri		ENGR.: Matthew Boyle	DRAWN BY: MDB	DATE: 3/23/26
Rel.SAP#: Related SAP			E-MAIL: mboyle@nisource.com		SCALE: None
REV#:IFR-30%	LOCATION: CR 37 & CR 38, Goshen And CR 43 N/o CR 42, Millersburg	LOA: 110	PHONE #:574-703-1088	NIPSCO DRAWING	NIPSCO
SHEET: 4 of 5	COUNTY: COUNTY TOWNSHIP: Clinton TAXING UNIT: G15		APPROVED:		



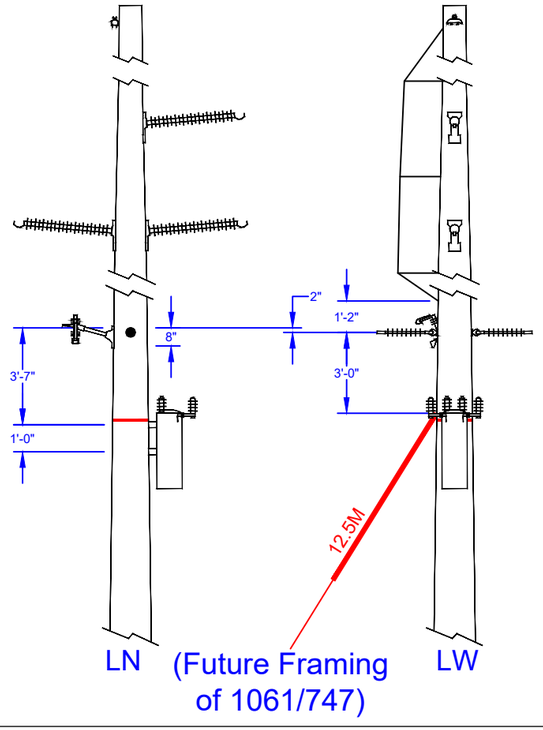
A
P081-101
BKD1POLE
CUTOUT SWITCH



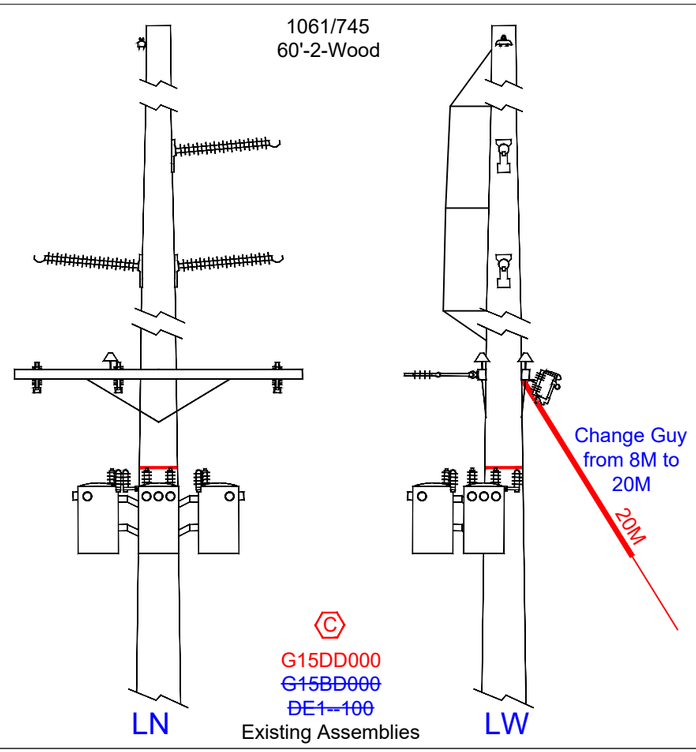
CUTOUT SWITCH DETAIL



T13--020
FTU--100
RECL-100 (B) G18CD000
~~AD10-100~~
~~SUSREP11 (2)~~
~~14003895 (2)~~
~~CUTOUT11~~



(Future Framing
of 1061/747)



(C)
G15DD000
~~G15BD000~~
~~DE1--100~~
Existing Assemblies

NIPSCO

DATE: 3/23/26
SCALE: None
DRAWN BY: MDB
NIPSCO DRAWING
ENGR.: Matthew Boyle
E-MAIL: mboyle@nisource.com
PHONE #:574-703-1088
APPROVED:
LOA: 110

PIE-MDB-CR 43 Stony Creek Bridge-Ret 1PH Pri
LOCATION: CR 37 & CR 38, Goshen And CR 43 N/o CR 42, Millersburg
COUNTY: COUNTY
TOWNSHIP: Clinton
TAXING UNIT: G15

SAP#: 40000XXXXX
Rel.SAP#:Related SAP
REV#:IFR-30%
SHEET: 5 of 5

POLE DETAIL

Appendix D
TS-1 Railing

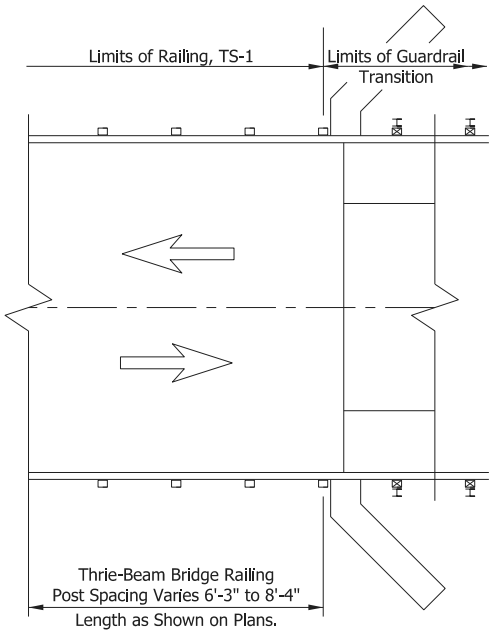
For

BRIDGE 193 REHABILITATION PROJECT

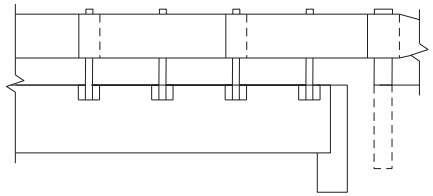
OWNERS: ELKHART COUNTY, INDIANA, ACTING THROUGH
ITS BOARD OF COUNTY COMMISSIONERS
ELKHART COUNTY HIGHWAY DEPARTMENT
ENGINEERING SECTION
610 STEURY AVENUE
GOSHEN, IN 46528

HIGHWAY
ELKHART COUNTY

Elkhart County Highway Department
610 Steury Avenue, Goshen, Indiana 46528
Phone: 574-533-0538 • Fax: 574-533-7103



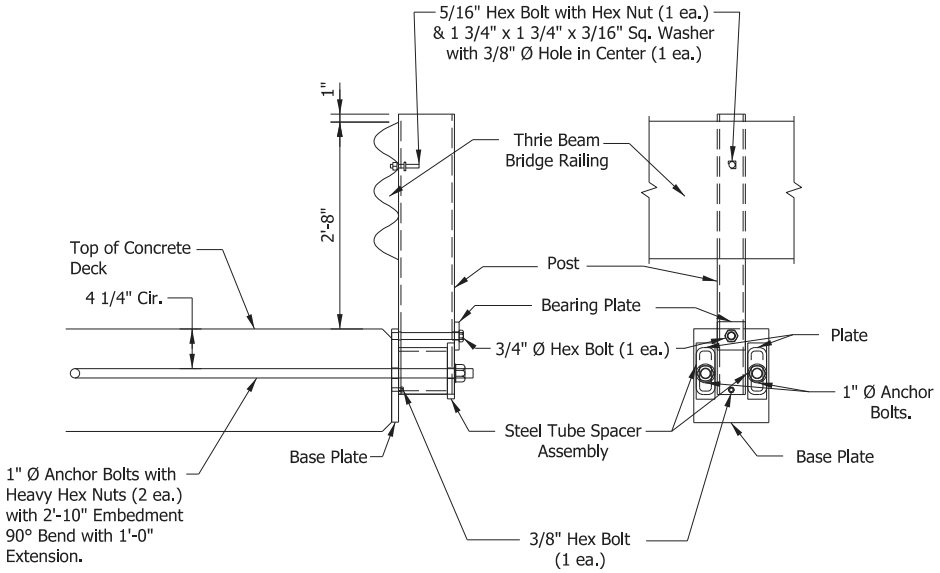
PLAN VIEW



ELEVATION VIEW

NOTES:

1. See Standard Drawings E 601-TBGC and -02 for thrie beam rail section.
2. TS-1 railing and TGS-1 transition details are acceptable as NCHRP Report 350 Test Level 2.



THRIE-BEAM BRIDGE RAILING
ASSEMBLY DETAILS

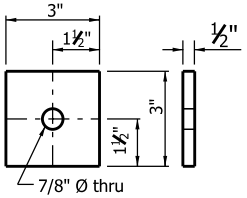
INDIANA DEPARTMENT OF TRANSPORTATION

RAILING, TS-1

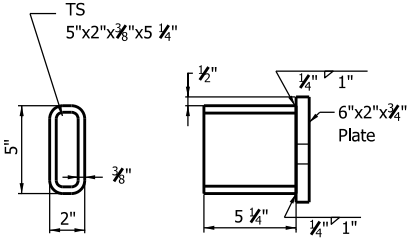
Eff. for Letting On or After 09-01-11

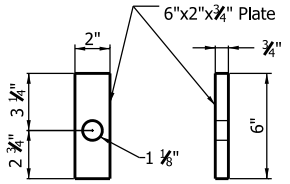
NOTES:

① Post length may vary. If the 1" * anchor bolts in the deck must be lowered to accommodate the deck reinforcing steel, the steel base plate shall be lowered and the post length increased.

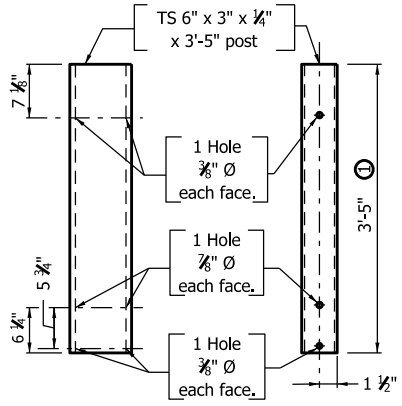


BEARING PLATE

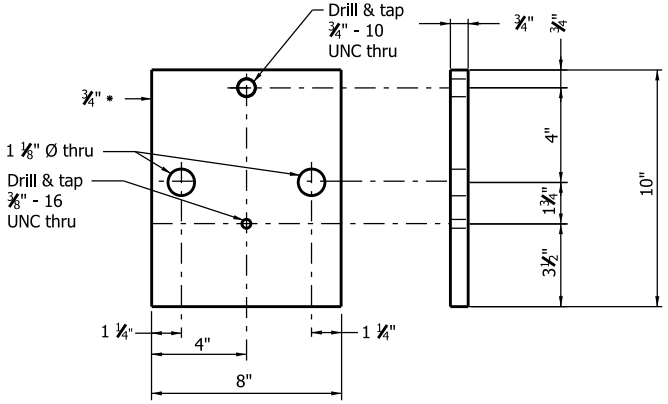




STEEL TUBE SPACER ASSEMBLY



SECTION REAR VIEW



BASE PLATE

BRIDGE STEEL POST DETAIL

INDIANA DEPARTMENT OF TRANSPORTATION

RAILING, TS-1

Eff. for Letting On or After 09-01-11