

CONTRACT DOCUMENTS
FOR
AMES ST. STREETScape LIGHTING

VILLAGE OF ELK RAPIDS

Project Address:
Ames St. (US-31 to Bass St.), Elk Rapids, MI 49692
Antrim County, MI

Prepared by:
GOSLING CZUBAK ENGINEERING SCIENCES, INC.
1280 Business Park Drive
Traverse City, MI 49686
231-946-9191
Job #250457
December, 2025

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ADVERTISEMENT FOR BIDS
VILLAGE OF ELK RAPIDS
ELK RAPIDS, MI
AMES STREET STREETScape LIGHTING

General Notice

The VILLAGE OF ELK RAPIDS (Owner) is requesting Bids for the construction of the following Project:

AMES STREET STREETScape LIGHTING
GCES PROJ. NO.: 250457

Bids for the construction of the Project will be received at the Village of Elk Rapids Offices located at 315 Bridge St, Elk Rapids, MI 49629, until Thursday, January 22nd at 11:00 am local time. At that time the Bids received will be publicly opened and read.

The Project includes the following Work:

Provide final electrical design, project plans, and installation of a complete streetscape lighting package for Ames St. (US-31 to Bass St.). Includes final design and production of electrical construction plans for review and approval, supplying project materials, installation of Owner provided crosswalk signage, and restoration of the project area. Includes Alternates for supplying pole banner arms and 20' light poles.

Information and Bidding Documents for the Project can be found at the following designated websites:

Builders Exchange of Northwest Michigan at: <https://bxtvc.com/>

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

The Issuing Office for the Bidding Documents is:

Gosling Czubak Engineering Sciences, Inc
1280 Business Park Dr., Traverse City, MI, 49686

Prospective Bidders may obtain or examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of 8:00am to 5:00pm, and may obtain copies of the Bidding Documents from the Issuing Office as described below. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office.

Printed copies of the Bidding Documents may be obtained from the Issuing Office by paying a fee of \$75 for each set. Make fee checks for Bidding Documents payable to Gosling Czubak Engineering Sciences, Inc.

Pre-bid Conference

A mandatory pre-bid conference for the Project will be held on Tuesday, January 6th at 10:00 am Village of Elk Rapids Offices, 315 Bridge St, Elk Rapids, MI 49629. Bids will not be accepted from Bidders that do not attend the mandatory pre-bid conference.

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

This Advertisement is issued by:

Owner: Village of Elk Rapids

By: Leah Moskovitz

Title: Village Clerk

Date: December 22nd, 2025

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—BIDDING DOCUMENTS

- 1.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 1.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances. rooms to obtain the Bidding Documents.
- 1.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 1.04 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 1.05 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf). It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

- C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.
 1. Electronic Documents that are available in native file format include:
 - a. AutoCAD existing conditions plan and proposed lighting location drawings
 2. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.
 3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.
 4. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 2—PRE-BID CONFERENCE

- 2.01 A mandatory pre-bid conference will be held on Tuesday, January 6th at 10:00 am Village of Elk Rapids Offices, 315 Bridge St, Elk Rapids, MI 49629. The project site is open and available for viewing at your convenience.
- 2.02 Information presented prior to bidding does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents prior to bid due date. Information presented, and statements made prior to bid due date will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 3—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

3.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

3.02 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. Bidders visiting the Site are required to arrange their own transportation to the Site.

- C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- D. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- E. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- F. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

ARTICLE 4—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

4.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 5—INTERPRETATIONS AND ADDENDA

- 5.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 5.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
 - A. Submit questions to Kevin Krogulecki, PLA Gosling Czubak Engineering, via email at kskrogulecki@goslingczubak.com
- 5.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 5.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract

Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 6—BID SECURITY

- 6.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT. Such Bid bond will be issued in the form included in the Bidding Documents.
- 6.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 6.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 6.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 7—CONTRACT TIMES

- 7.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement. Bidder must also set forth in the Bid its commitments regarding the achievement of Milestones and readiness for final payment.
- 7.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 8—SUBSTITUTE AND "OR EQUAL" ITEMS

- 8.01 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 9—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 9.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective

Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

- 9.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors.
- 9.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 9.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT.

ARTICLE 10—PREPARATION OF BID

- 10.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 10.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 10.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 10.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.

- 10.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 10.06 A Bid by an individual must show the Bidder's name and official address.
- 10.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 10.08 All names must be printed in ink below the signatures.
- 10.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 10.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 10.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 10.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 11—BASIS OF BID

11.01 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity", which Owner or its representative has set forth in the Bid Form, for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

11.02 *Allowances*

- A. For cash allowances the Bid price must include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT.

ARTICLE 12—SUBMITTAL OF BID

- 12.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 12.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 12.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 13—MODIFICATION AND WITHDRAWAL OF BID

- 13.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 13.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 13.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid,

and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 14—OPENING OF BIDS

- 14.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.
- 14.02 Bids will be opened publicly.

ARTICLE 15—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 15.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 16—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 16.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 16.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 16.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 16.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 16.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.
- 16.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for

those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

- 16.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 17—BONDS AND INSURANCE

- 17.01 EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation. Owner may waive the requirement to deliver bonds and insurance prior to executing the Contract. In this event, the Contractor must deliver bonds and insurance within the required timeframe.
- 17.02 Article 6, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 18—SIGNING OF AGREEMENT

- 18.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Successful Bidder must execute and deliver the required number of counterparts of the Agreement within 1 week and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner Within 15 days. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT.

ARTICLE 19—SALES AND USE TAXES

- 19.01 Owner is exempt from State of Michigan sales and use taxes on materials and equipment to be incorporated in the Work. (Exemption Certificate provided in Appendix). Said taxes must not be included in the Bid.

ARTICLE 20—SUPPLEMENTARY INSTRUCTIONS

- 20.01 Davis-Bacon prevailing wage rates do not apply to this project.

BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: Village of Elk Rapids Offices, 315 Bridge St, Elk Rapids, MI 49629. Bids will be received until Thursday, January 22nd at 11:00am local time. At that time the Bids received will be publicly opened and read.
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - D. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - E. Preliminary project schedule indicating:
 - 1. Project design and plan production stage though Owner approvals
 - 2. Materials procurement
 - 3. Project installation and final completion date

ARTICLE 3—BASIS OF BID—UNIT PRICE BID

3.01 *Unit Price Bids*

- A. Bidder will perform the following Work at the indicated unit prices:

Base Bid – 12' Light Installation

| Item No. | Description | Unit | Estimated Quantity | Unit Price | Extended Price |
|----------|-------------------------------------|------|--------------------|------------|----------------|
| 1.01 | General Conditions and Mobilization | Ls | 1 | | |
| 1.02 | Final Design and Project Plans | Ls | 1 | | |

| | | | | | |
|--|--|----|----|--|----|
| 1.03 | Electrical Distribution | Ls | 1 | | |
| 1.04 | 12' Light, Luminaire, Post, and Foundation | Ea | 43 | | |
| 1.05 | Crosswalk Signage Installation | Ls | 1 | | |
| 1.06 | Restoration and Establishment | Ls | 1 | | |
| Total of all extended prices for Estimated Quantities of Work (Base Bid) | | | | | \$ |

Alternate #1 Bid – Banner Arms

| Item No. | Description | Unit | Estimated Quantity | Unit Price | Extended Price |
|--|----------------------------------|------|--------------------|------------|----------------|
| A1.01 | Banner Arms (Pair - Supply Only) | Ea | 43 | | |
| Total of all extended prices for Estimated Quantities of Work (Alternate #1) | | | | | \$ |

Alternate #2 Bid – 20' Light Installation

| Item No. | Description | Unit | Estimated Quantity | Unit Price | Extended Price |
|--|--|------|--------------------|------------|----------------|
| A2.01 | Electrical Distribution | Ls | 1 | | |
| A2.02 | 20' Light, Luminaire, Post, and Foundation | Ea | 3 | | |
| Total of all extended prices for Estimated Quantities of Work (Alternate #2) | | | | | \$ |

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with the EJCDC® C 522, CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT on or before the dates or within the number of calendar days indicated in the Agreement.
- 4.02 Bidder agrees that the Work will be substantially complete on or before July 31, 2026, and will be completed and ready for final payment in accordance with the EJCDC® C 522, CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT on or before August 16th, 2026.
- 4.03 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 *Instructions to Bidders*

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda:

| Addendum Number | Addendum Date |
|-----------------|---------------|
| | |
| | |
| | |

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Bidder’s Representations*

- A. In submitting this Bid, Bidder represents the following:
 1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 4. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.
 5. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 6. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

7. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
8. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
9. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

_____ *(typed or printed name of organization)*

By: _____ *(individual's signature)*

Name: _____ *(typed or printed)*

Title: _____ *(typed or printed)*

Date: _____ *(typed or printed)*

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____ *(individual's signature)*

Name: _____ *(typed or printed)*

Title: _____ *(typed or printed)*

Date: _____ *(typed or printed)*

Address for giving notices:

Bidder's Contact:

Name: _____ *(typed or printed)*

Title: _____ *(typed or printed)*

Phone: _____

Email: _____

Address: _____

Bidder's Contractor License No.: (if applicable) _____

BID BOND (DAMAGES FORM)

| | |
|---|---|
| Bidder Name: Address <i>(principal place of business)</i> : | Surety Name: Address <i>(principal place of business)</i> : |
| Owner Name: Address <i>(principal place of business)</i> : | Bid Project <i>(name and location)</i> : Bid Due Date: |
| Bond Bond Amount: Date of Bond: | |
| Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative. | |
| Bidder | Surety |
| _____ <i>(Full formal name of Bidder)</i> | _____ <i>(Full formal name of Surety) (corporate seal)</i> |
| By: _____ <i>(Signature)</i> | By: _____ <i>(Signature) (Attach Power of Attorney)</i> |
| Name: _____ <i>(Printed or typed)</i> | Name: _____ <i>(Printed or typed)</i> |
| Title: _____ | Title: _____ |
| Attest: _____ <i>(Signature)</i> | Attest: _____ <i>(Signature)</i> |
| Name: _____ <i>(Printed or typed)</i> | Name: _____ <i>(Printed or typed)</i> |
| Title: _____ | Title: _____ |
| Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary. | |

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid, as determined by Owner, for the work required by the Contract Documents, provided that:
 - 1.1. If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the bond amount set forth on the face of this Bond, and
 - 1.2. In no event will Bidder's and Surety's obligation hereunder exceed the bond amount set forth on the face of this Bond.
 - 1.3. Recovery under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions will not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond must be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

NOTICE OF AWARD

Date of Issuance:

Owner: Village of Elk Rapids Owner's Project No.: N/A
Engineer: Gosling Czubak Engineering Engineer's Project No.: 250457
Project: Ames Street Streetscape Lighting
Contract Name:
Bidder: Bidder's Address:

You are notified that Owner has accepted your Bid dated [date] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Provide final electrical design, project plans, and installation of a complete streetscape lighting package for Ames St. (US-31 to Bass St.). Includes final design and production of electrical construction plans for review and approval, supplying project materials, installation of Owner provided crosswalk signage, and restoration of the project area.

The Contract Price of the awarded Contract is \$[Contract Price]. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

One unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

- 1. Deliver to Owner One counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT.
3. Other conditions precedent (if any): None

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in EJCDC® C 522 CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT.

Owner: Village of Elk Rapids

By (signature): _____

Name (printed): _____

Title: _____

Copy: Engineer

CONTRACT FOR CONSTRUCTION OF A SMALL PROJECT

This Contract is by and between Village of Elk Rapids and _____ (Contractor). Owner and Contractor hereby agree as follows:

ARTICLE 1—THE WORK

1.01 *Work*

- A. Work includes all labor, materials, equipment, services, and documentation necessary to construct the Project defined herein. The Work may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
- B. The Contractor shall complete all Work as specified or indicated in the Contract Documents. The Project is generally described as follows:
 - 1. Provide final electrical design, project plans, and installation of a complete streetscape lighting package for Ames St. (US-31 to Bass St.). Includes final design and production of electrical construction plans for review and approval, supplying project materials, installation of Owner provided crosswalk signage, and restoration of the project area.
 - 2. The Site of the Work includes property, easements, and designated work areas described in greater detail in the Contract Documents but generally located Ames St. (US-31 to Bass St.), Elk Rapids, MI 49629.

ARTICLE 2—CONTRACT DOCUMENTS

2.01 *Intent of Contract Documents*

- A. It is the intent of the Contract Documents to describe a functionally complete Project. The Contract Documents do not indicate or describe all of the Work required to complete the Project. Additional details required for the correct installation of selected products are to be provided by the Contractor and coordinated with Owner and Engineer. This Contract constitutes the entire agreement between Owner and Contractor, and supersedes prior negotiations, representations, and agreements, whether written or oral. The Contract Documents are complementary; what is required by one part of the Contract Documents is as binding as if required by other parts of the Contract Documents.
- B. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work under the Contract Documents. During the performance of the Work and until final payment, Contractor and Owner shall submit to Engineer all matters in question concerning the requirements of the Contract Documents, or relating to the acceptability of the Work. Engineer will render a written clarification, interpretation, or decision on the issue submitted, or initiate a modification to the Contract Documents.
- C. Contractor, and its subcontractors and suppliers, shall not have or acquire any title to or ownership rights to any of the Drawings, Specifications, or other documents (including copies or electronic media versions) prepared by Engineer or its consultants.

- D. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- E. Nothing in the Contract Documents creates any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity.

2.02 *Contract Documents Defined*

- A. The Contract Documents consist of the following documents:
 - 1. This Contract for Construction of a Small Project.
 - 2. Performance bond.
 - 3. Payment bond.
 - 4. Specifications as listed in the Specifications Table of Contents.
 - 5. Drawings as listed on the Drawing Sheet Index.
 - 6. Addenda.
 - 7. Exhibits to this Contract (enumerated as follows):
 - a. [NONE]
 - 8. The following which may be delivered or issued on or after the Effective Date of the Contract:
 - a. Notice to Proceed (EJCDC® C-550).
 - b. Work Change Directives (EJCDC® C-940).
 - c. Change Orders (EJCDC® C-941).
 - d. Field Orders (EJCDC® C-942).

ARTICLE 3—ENGINEER

3.01 *Engineer*

The Engineer for this Project is Gosling Czubak Engineering Sciences, Inc.

ARTICLE 4—CONTRACT TIMES

4.01 *Contract Times*

- A. The Work will be substantially complete on or before July 31st, 2026 and completed and ready for final payment on or before August 16th, 2026.

4.02 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence in the performance of the Contract, and that Owner will incur damages if Contractor does not complete the Work according to the requirements of Paragraph 4.01. Because such damages would be difficult

and costly to determine, Owner and Contractor agree that as liquidated damages for delay in completion (but not as a penalty) Contractor shall pay Owner \$600 for each day that expires after the Contract Time for substantial completion.

4.03 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times or Contract Price.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor or its subcontractors or suppliers.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times.
- D. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor or Contractor's subcontractors or suppliers.

4.04 *Progress Schedules*

- A. Contractor shall develop a progress schedule and submit it to Engineer for review and comment before starting Work. Contractor shall modify the schedule in accordance with Engineer's comments.
- B. Contractor shall update and submit the progress schedule to Engineer each month if requested. Owner may withhold payment if Contractor fails to submit the schedule.

ARTICLE 5—CONTRACT PRICE

5.01 *Payment*

- A. The Contract Price of the Contract is \$ _____ and includes [ALTERNATES AS ACCEPTED]. Owner shall pay Contractor, in accordance with the Contract Documents, at the following unit prices for each unit of Work completed:

Base Bid – 12' Light Installation

| Item No. | Description | Unit | Estimated Quantity | Unit Price | Extended Price |
|----------|--|------|--------------------|------------|----------------|
| 1.01 | General Conditions and Mobilization | Ls | 1 | | |
| 1.02 | Final Design and Project Plans | Ls | 1 | | |
| 1.03 | Electrical Distribution | Ls | 1 | | |
| 1.04 | 12' Light, Luminaire, Pole, and Foundation | Ea | 43 | | |

| | | | | | |
|--|--------------------------------|----|---|--|----|
| 1.05 | Crosswalk Signage Installation | Ls | 1 | | |
| 1.06 | Restoration and Establishment | Ls | 1 | | |
| Total of all extended prices for Estimated Quantities of Work (Base Bid) | | | | | \$ |

Alternate #1 Bid – Banner Arms

| Item No. | Description | Unit | Estimated Quantity | Unit Price | Extended Price |
|--|----------------------------------|------|--------------------|------------|----------------|
| A1.01 | Banner Arms (Pair - Supply Only) | Ea | 43 | | |
| Total of all extended prices for Estimated Quantities of Work (Alternate #1) | | | | | \$ |

Alternate #2 Bid – 20' Light Installation

| Item No. | Description | Unit | Estimated Quantity | Unit Price | Extended Price |
|--|--|------|--------------------|------------|----------------|
| A2.01 | Electrical Distribution | Ls | 1 | | |
| A2.02 | 20' Light, Luminaire, Pole, and Foundation | Ea | 3 | | |
| Total of all extended prices for Estimated Quantities of Work (Alternate #2) | | | | | \$ |

Payment will be made in an amount equal to the total of all extended prices for actual Work completed. The extended price is determined by multiplying the unit price times the actual quantity of that Work item completed. Actual quantities installed will be determined by the Engineer.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Bonds*

- A. When Contractor delivers the signed counterparts of the Contract to Owner, Contractor shall also deliver the performance bond and payment bond to Owner. Each bond must be in an amount equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds must remain in effect until the completion of the correction period specified in Paragraph 7.12 but, in any case, not less than one year after the date when final payment becomes due.
- B. Upon request, Owner will provide a copy of the payment bond to any person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work.

6.02 *Insurance*

- A. When Contractor delivers the signed counterparts of the Contract to Owner, Contractor shall furnish certificates, endorsements, and any other evidence of insurance requested by Owner. Insurance is to be provided by companies that are duly licensed or authorized in the

2. Blanket contractual liability coverage to the extent permitted by law;
 3. Broad form property damage coverage; and
 4. Severability of interest; underground, explosion, and collapse coverage; personal injury coverage.
- E. The Contractor's commercial general liability and automobile liability, umbrella or excess, and pollution liability policies will include and list Owner and Engineer and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each as additional insureds; and the insurance afforded to these additional insureds will provide primary coverage for all claims covered thereby (including, as applicable, those arising from both ongoing and completed operations) on a non-contributory basis.
1. Additional insured endorsements will include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
 2. Contractor shall provide ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent for design professional additional insureds.
- F. Umbrella or excess liability insurance will be written over the underlying employer's liability, commercial general liability, and automobile liability insurance. The coverage afforded must be at least as broad as that of each and every one of the underlying policies. Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy.
- G. The Contractor shall provide property insurance covering physical loss or damage during construction to structures, materials, fixtures, and equipment, including those materials, fixtures, or equipment in storage or transit.
- H. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 15.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services,

(2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. 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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without notice to and approval by the Owner and Engineer except under extraordinary circumstances.
- C. Contractor shall maintain good discipline and order at the Site.
- D. Except as otherwise required for the safety or protection of the Work or persons or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday.

7.03 *Other Work at the Site*

- A. In addition to and apart from the Work of the Contractor, other work may occur at or adjacent to the Site. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
- B. Contractor shall notify Owner, the owners of adjacent property, the owners of underground facilities and other utilities (if the identity of such owners is known to Contractor), and other contractors and utility owners performing work at or adjacent to the Site when Contractor knows that prosecution of the Work may affect them; and Contractor shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for everything necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work must be new and of good quality, and be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable supplier, except as otherwise may be provided in the Contract Documents.

7.05 *Subcontractors and Suppliers*

- A. Just as Contractor is responsible for its own acts and omissions, Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of suppliers and subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work. The Contractor's retention of a subcontractor or supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

7.06 *Licenses, Fees and Permits*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to performing the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others.
- B. Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy, unless otherwise provided in the Contract Documents.

7.07 *Laws and Regulations; Taxes*

- A. Contractor shall give all notices required by, and shall comply with, all local, state, and federal laws and regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any laws or regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to laws or regulations, Contractor shall bear all resulting costs and losses, and to the fullest extent permitted by law Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all such claims, costs, losses, and damages.
- C. Contractor shall pay all applicable sales, consumer, use, and other similar taxes.

7.08 *Record Documents*

- A. Contractor shall maintain one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved shop drawings in a safe place at the Site. Contractor shall annotate them to show changes made during construction. Contractor shall deliver these record documents to Engineer upon completion of the Work.

7.09 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. All persons on the Site or who may be affected by the Work;
 - 2. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. Other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, or anyone for whose acts the Contractor may be liable, will be remedied by

Contractor at its expense (except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of Owner or Engineer and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor).

- E. Contractor shall be responsible for coordinating any exchange of safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with laws or regulations.
- F. In emergencies affecting the safety or protection of the Work or persons or property at the Site or adjacent thereto, Contractor shall act to prevent damage, injury, or loss. Contractor shall give Engineer prompt notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.10 *Submittals*

- A. Contractor shall review and coordinate shop drawings, samples, and other submittals with the requirements of the Work and the Contract Documents, and shall verify all related field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information. Contractor shall confirm that the submittal is complete with respect to all related data included in the submittal.
- B. Shop drawings and samples must bear a stamp or specific written certification that Contractor has satisfied its obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
- C. With each shop drawing or sample submittal, Contractor shall give Engineer specific written notification, in a communication separate from the shop drawing or sample, of any variations that the shop drawing or sample may have from the requirements of the Contract Documents.
- D. Engineer will provide timely review of submittals. Engineer's review and approval of submittals will not extend to the means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs.
- E. Engineer's review of shop drawings and samples will be only to determine if the items covered will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole.
- F. Engineer's review and approval of a separate item in a shop drawing or sample does not indicate approval of the assembly in which the item functions.
- G. Contractor shall make corrections required by Engineer, return the required number of corrected copies of shop drawings, and submit new samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
- H. Shop drawings are not Contract Documents.

7.11 *Warranties and Guarantees*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its consultants are entitled to rely on Contractor's warranty and guarantee.

7.12 *Correction Period*

- A. If within one year after the date of substantial completion, any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, or other adjacent areas used by Contractor as permitted by laws and regulations, is found to be defective, then Contractor shall promptly correct any such defective Work and repairs, at no cost to Owner.

7.13 *Indemnification*

- A. To the fullest extent permitted by law, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from all losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any subcontractor, any supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

ARTICLE 8—OWNER'S RESPONSIBILITIES

8.01 *Responsibilities*

- A. Except as otherwise provided in the Contract Documents, Owner shall issue all communications to Contractor through Engineer.
- B. Owner shall make payments to Contractor as provided in this Contract.
- C. Owner shall provide the Site and easements required to construct the Project.
- D. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- E. Owner shall furnish copies of any applicable Owner safety programs to Contractor.
- F. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, unless stated elsewhere in the Contract Documents, Owner shall have sole authority and responsibility for such coordination.
- G. Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or for related safety precautions and programs, or for any failure of Contractor to comply with laws

and regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

ARTICLE 9—ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Engineer's Status*

- A. Engineer will be Owner's representative during construction.
- B. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility, or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, its subcontractors, suppliers, or sureties, or to any employee or agent of any of them.
- C. Engineer will make visits to the Site at intervals appropriate to the various stages of construction. Engineer will not be required to make exhaustive or continuous inspections to check the quality or quantity of the Work.
- D. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or for related safety precautions and programs, or for any failure of Contractor to comply with laws and regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

ARTICLE 10—CHANGES IN THE WORK

10.01 *Authority to Change the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work.

10.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. Changes in the Work which are: (a) ordered by Owner or (b) agreed to by the parties or (c) resulting from the Engineer's decision, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 - 3. Changes in the Contract Price or Contract Times or other changes which embody the substance of any final binding results under Article 12.
- B. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.03 *Work Change Directive*

- A. A Work Change Directive may be issued to Contractor ordering an addition, deletion, or revision in the Work. A Work Change Directive will not change the Contract Price or Contract Times, but is evidence that the parties expect that the modification ordered or documented by the Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on Contract Price or Contract Times.

10.04 *Field Orders*

- A. Engineer may issue a Field Order to authorize minor changes in the Work, provided that the changes do not involve an adjustment in the Contract Price or Contract Times.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then Contractor shall request such adjustment before proceeding with the Work.

ARTICLE 11—DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS

11.01 *Differing Site Conditions Process*

- A. If Contractor believes that any subsurface or physical condition (including but not limited to utilities or other underground facilities) that is uncovered or revealed at the Site either (1) differs materially from that shown or indicated in the Contract Documents, or (2) is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents, then Contractor shall promptly notify Owner and Engineer about such condition. Contractor shall not further disturb such condition or perform any Work in connection with the condition (except with respect to an emergency) until receipt of authorization to do so.
 - 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if Contractor knew of, or should have known of, the existence of the condition prior to entry into the Contract.
- B. After receipt of notice regarding a possible differing subsurface or physical condition, Engineer will promptly:
 - 1. Review the condition in question;
 - 2. Determine if it is necessary for Owner to obtain additional exploration or tests with respect to the condition;
 - 3. Determine whether the condition falls within one of the two differing site condition categories described in Paragraph 11.01.A.;
 - 4. Obtain any pertinent cost or schedule information from Contractor;
 - 5. Advise Owner of Engineer's findings, conclusions, and recommendations, including recommendations to Owner regarding the Contractor's resumption of Work in

connection with the subsurface or physical condition in question, the need for any change in the Drawings or Specifications, and possible Contract Price or Contract Times adjustments.

- C. After receipt of Engineer's findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part, and granting any equitable adjustment in Contract Times or Contract Price to which Contractor is entitled.

ARTICLE 12—CLAIMS AND DISPUTE RESOLUTION

12.01 *Claims Process*

- A. The party submitting a claim shall deliver it directly to the other party to the Contract and the Engineer promptly (but in no event later than 10 days) after the start of the event giving rise thereto.
- B. The party receiving a claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the claim through the exchange of information and direct negotiations. All actions taken on a claim must be stated in writing and submitted to the other party.
- C. If efforts to resolve a claim are not successful, the party receiving the claim may deny it by giving notice of denial to the other party. If the receiving party does not take action on the claim within 45 days, the claim is deemed denied.
- D. If the dispute is not resolved to the satisfaction of the parties, Owner or Contractor shall give notice to the other party of the intent to submit the dispute to a court of competent jurisdiction unless the Owner and Contractor both agree to an alternative dispute resolution process.

ARTICLE 13—TESTS AND INSPECTIONS; CORRECTION OF DEFECTIVE WORK

13.01 *Tests and Inspections*

- A. Owner and Engineer will have access to the Site and the Work at reasonable times for observation, inspection, and testing. Contractor shall provide proper and safe conditions for such access.
- B. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- C. Except as otherwise provided in the Contract Documents, Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required: (1) by the Contract Documents; (2) by codes, laws, or regulations; (3) to attain Owner's and Engineer's acceptance of materials or equipment; and (4) to obtain Engineer's approval prior to purchase of materials, mix designs, or equipment.

- D. If any Work that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense.

13.02 *Defective Work*

- A. Contractor warrants that the Work is not defective.
- B. Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. The Contractor shall promptly correct all defective Work.
- E. When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's warranty and guarantee on said Work.
- F. If the Work is defective or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

ARTICLE 14—PAYMENTS TO CONTRACTOR

14.01 *Progress Payments*

- A. Contractor shall prepare a schedule of values that will serve as the basis for progress payments. The schedule of values will be in a form acceptable to Engineer. Lump sum items will be broken into units that allow for measurement of Work in progress. For unit price work, the unit price breakdown in Article 5 will be used as the schedule of values.

14.02 *Applications for Payments*

- A. Contractor shall submit signed applications for payment to Engineer monthly, in a form acceptable to the Engineer. Contractor shall provide supporting documentation required by the Contract Documents. Owner will pay for Work completed as of the date of the application for payment.
- B. Beginning with the second application for payment, each application must include an affidavit of Contractor stating that all previous progress payments have been applied to discharge Contractor's obligations associated with the prior applications for payment.

14.03 *Retainage*

- A. The Owner shall retain 10% of each progress payment until the Work is substantially complete.

14.04 *Review of Applications*

- A. Within 15 days after receipt of each application for payment, Engineer will either recommend payment and present the application for payment to Owner, or return the application for payment to Contractor indicating Engineer's reasons for refusing to recommend payment. The Contractor will make the necessary corrections and may resubmit the application for payment.

- B. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
- C. Engineer will recommend reductions in payment (set-offs) which, in the opinion of the Engineer, are necessary to protect Owner from loss because the Work is defective and requires correction or replacement.
- D. The Owner is entitled to impose set-offs against payment based on any claims that have been made against Owner, or any incurred costs, losses, or damages, on account of Contractor's conduct in the performance of the Work; for defective Work; or for liquidated damages that have accrued as a result of Contractor's failure to complete the Work.

14.05 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

14.06 *Substantial Completion*

- A. When Contractor considers the Work ready for its intended use, Contractor shall request that Engineer issue a certificate of substantial completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's request, Engineer will inspect the Work with Owner and Contractor to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor and Owner of the reasons for Engineer's decision.
- C. If Engineer considers the Work substantially complete, or upon resolution of all reasons for non-issuance of a certificate, Engineer will deliver to Owner and Contractor a certificate of substantial completion that will fix the date of substantial completion and include a punch list of items to be completed or corrected before final payment.

14.07 *Final Inspection*

- A. Upon notice from Contractor that the entire Work is complete, Engineer will promptly make a final inspection with Owner and Contractor, and will notify Contractor 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 complete such Work and remedy such defects.

14.08 *Final Payment*

- A. Contractor may make application for final payment after satisfactorily completing all Work, including providing all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents, and other documents.
- B. The final application for payment must be accompanied (except as previously delivered) by:
 - 1. All documentation called for in the Contract Documents;
 - 2. Consent of the surety to final payment;
 - 3. Satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any liens or other title defects, or will so pass upon final payment;
 - 4. A list of all pending claims; and
 - 5. Complete and legally effective releases or waivers (satisfactory to Owner) of all lien rights arising out of the Work, and of liens filed in connection with the Work.
- C. The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

14.09 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding claim, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a claim.

ARTICLE 15—SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 60 consecutive days by notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or Contract Times, to the extent directly attributable to any such suspension.

15.02 *Owner May Terminate for Cause*

- A. Contractor's failure to perform the Work in accordance with the Contract Documents or other failure to comply with a material term of the Contract Documents will constitute a default by Contractor and justify termination for cause.
- B. If Contractor defaults in its obligations, then after giving Contractor and any surety 10 days' notice that Owner is considering a declaration that Contractor is in default and the termination of the Contract, Owner may proceed to:

1. Declare Contractor to be in default, and give Contractor and any surety notice that the Contract is terminated; and
 2. Enforce the rights available to Owner under any applicable performance bond.
- C. Owner may not proceed with termination of the Contract under Paragraph 15.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- D. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- E. In the case of a termination for cause, if the cost to complete the Work, including related claims, costs, losses, and damages, exceeds the unpaid contract balance, Contractor shall pay the difference to Owner.
- F. If Contractor has provided a performance bond, the provisions of that bond will govern over any inconsistent provisions of Paragraph 15.02.

15.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for the following, without duplication of any items:
1. Completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, less any set-offs, and including fair and reasonable sums for overhead and profit on such Work;
 2. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 3. Other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits, or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 60 consecutive days by Owner or under an order of court or other public authority, or (2) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' notice to Owner, and provided Owner does not remedy such suspension or failure within that time, either stop the Work until payment is received, or terminate the Contract and recover payment from the Owner.

ARTICLE 16—CONTRACTOR'S REPRESENTATIONS

16.01 *Contractor Representations*

- A. Contractor makes the following representations when entering into this Contract:
 - 1. Contractor has examined and carefully studied the Contract Documents.
 - 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 - 4. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that, without exception, all prices in the Contract are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 17—MISCELLANEOUS

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of notice to Owner, Engineer, or Contractor, such notice must be in writing, and delivered in person (by commercial courier or otherwise); by registered or certified mail; or by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

17.02 *Cumulative Remedies*

- A. The duties and obligations expressly imposed by this Contract, and the rights and remedies expressly available to the parties under this Contract, are in addition to, and are not to be construed in any way as a limitation of, any duties, obligations, rights, or remedies otherwise imposed or available by laws or regulations, by warranty or guarantee, or by other provisions of the Contract.

17.03 *Limitation of Damages*

- A. Neither Owner, Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

17.04 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

17.05 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

17.06 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or entering into the Contract.

17.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

The Effective Date of the Contract is _____.

Owner:

Contractor:

(typed or printed name of organization)

(typed or printed name of organization)

By: _____
(individual's signature)

By: _____
(individual's signature)

Date: _____
(date signed)

Date: _____
(date signed)

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Address for giving notices:

Designated Representative:

Designated Representative:

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Address:

Phone: _____

Phone: _____

Email: _____
Agreement.)

Email: _____

License No.: _____
(where applicable)

State: _____

NOTICE TO PROCEED

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [date Contract Times are to start] pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement: [Select one of the following two alternatives, insert dates or number of days, and delete the other alternative.]

The date by which Substantial Completion must be achieved is [date for Substantial Completion, from Agreement], and the date by which readiness for final payment must be achieved is [date for readiness, from Agreement].

[or]

The number of days to achieve Substantial Completion is [number of days, from Agreement] from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of [date, calculated from commencement date above]; and the number of days to achieve readiness for final payment is [number of days, from Agreement] from the commencement date of the Contract Times, resulting in a date for readiness for final payment of [date, calculated from commencement date above].

Before starting any Work at the Site, Contractor must comply with the following:

[Note any access limitations, security procedures, or other restrictions]

Owner: _____ [Full formal name of Owner]

By (*signature*): _____

Name (*printed*): _____

Title: _____

Date Issued: _____

Copy: Engineer

PERFORMANCE BOND

| | |
|---|--|
| <p>Contractor Name: [Full formal name of Contractor] Address (<i>principal place of business</i>): [Address of Contractor's principal place of business]</p> | <p>Surety Name: [Full formal name of Surety] Address (<i>principal place of business</i>): [Address of Surety's principal place of business]</p> |
| <p>Owner Name: [Full formal name of Owner] Mailing address (<i>principal place of business</i>): [Address of Owner's principal place of business]</p> | <p>Contract Description (<i>name and location</i>): [Owner's project/contract name, and location of the project] Contract Price: [Amount from Contract] Effective Date of Contract: [Date from Contract]</p> |
| <p>Bond Bond Amount: [Amount] Date of Bond: [Date] <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p> | |
| <p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.</p> | |
| <p>Contractor as Principal</p> | <p>Surety</p> |
| <p><i>(Full formal name of Contractor)</i></p> | <p><i>(Full formal name of Surety) (corporate seal)</i></p> |
| <p>By: _____ <i>(Signature)</i></p> | <p>By: _____ <i>(Signature)(Attach Power of Attorney)</i></p> |
| <p>Name: _____ <i>(Printed or typed)</i></p> | <p>Name: _____ <i>(Printed or typed)</i></p> |
| <p>Title: _____</p> | <p>Title: _____</p> |
| <p>Attest: _____ <i>(Signature)</i></p> | <p>Attest: _____ <i>(Signature)</i></p> |
| <p>Name: _____ <i>(Printed or typed)</i></p> | <p>Name: _____ <i>(Printed or typed)</i></p> |
| <p>Title: _____</p> | <p>Title: _____</p> |
| <p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p> | |

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

- 5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- 6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
- 7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- 8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
- 9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
- 10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
- 11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
- 12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
- 13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

- 14.1. *Balance of the Contract Price*—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
16. Modifications to this Bond are as follows: None

PAYMENT BOND

| | |
|--|--|
| Contractor Name: [Full formal name of Contractor] Address (<i>principal place of business</i>): [Address of Contractor's principal place of business] | Surety Name: [Full formal name of Surety] Address (<i>principal place of business</i>): [Address of Surety's principal place of business] |
| Owner Name: [Full formal name of Owner] Mailing address (<i>principal place of business</i>): [Address of Owner's principal place of business] | Contract Description (<i>name and location</i>): [Owner's project/contract name, and location of the project] Contract Price: [Amount, from Contract] Effective Date of Contract: [Date, from Contract] |
| Bond Bond Amount: [Amount] Date of Bond: [Date] (<i>Date of Bond cannot be earlier than Effective Date of Contract</i>) Modifications to this Bond form: <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18 | |
| Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative. | |
| Contractor as Principal | Surety |
| _____ (<i>Full formal name of Contractor</i>) | _____ (<i>Full formal name of Surety</i>) (<i>corporate seal</i>) |
| By: _____ <i>(Signature)</i> | By: _____ <i>(Signature)(Attach Power of Attorney)</i> |
| Name: _____ <i>(Printed or typed)</i> | Name: _____ <i>(Printed or typed)</i> |
| Title: _____ | Title: _____ |
| Attest: _____ <i>(Signature)</i> | Attest: _____ <i>(Signature)</i> |
| Name: _____ <i>(Printed or typed)</i> | Name: _____ <i>(Printed or typed)</i> |
| Title: _____ | Title: _____ |
| Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable. | |

1. The Contractor 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 Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the 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 Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. *Claim*—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. *Claimant*—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: [Describe modification or enter "None"]

Contractor's Application for Payment

| | |
|--------------------------------|---------------------------------|
| Owner: _____ | Owner's Project No.: _____ |
| Engineer: _____ | Engineer's Project No.: _____ |
| Contractor: _____ | Contractor's Project No.: _____ |
| Project: _____ | |
| Contract: _____ | |
| Application No.: _____ | Application Date: _____ |
| Application Period: From _____ | to _____ |

| | | |
|--|----|---|
| 1. Original Contract Price | \$ | - |
| 2. Net change by Change Orders | \$ | - |
| 3. Current Contract Price (Line 1 + Line 2) | \$ | - |
| 4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total) | \$ | - |
| 5. Retainage | | |
| a. _____ X \$ _____ Work Completed | \$ | - |
| b. _____ X \$ _____ Stored Materials | \$ | - |
| c. Total Retainage (Line 5.a + Line 5.b) | \$ | - |
| 6. Amount eligible to date (Line 4 - Line 5.c) | \$ | - |
| 7. Less previous payments (Line 6 from prior application) | | |
| 8. Amount due this application | \$ | - |
| 9. Balance to finish, including retainage (Line 3 - Line 4) | \$ | - |

Contractor's Certification
 The undersigned Contractor certifies, to the best of its knowledge, the following:
 (1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
 (2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and
 (3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: _____
 Signature: _____ Date: _____

| | |
|--|---|
| <p>Recommended by Engineer</p> <p>By: _____</p> <p>Title: _____</p> <p>Date: _____</p> | <p>Approved by Owner</p> <p>By: _____</p> <p>Title: _____</p> <p>Date: _____</p> |
| <p>Approved by Funding Agency</p> <p>By: _____</p> <p>Title: _____</p> <p>Date: _____</p> | <p>By: _____</p> <p>Title: _____</p> <p>Date: _____</p> |

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:
Engineer:
Contractor:
Project:
Contract Name:

Owner's Project No.:
Engineer's Project No.:
Contractor's Project No.:

This Preliminary Final Certificate of Substantial Completion applies to:

All Work The following specified portions of the Work:

[Describe the portion of the work for which Certificate of Substantial Completion is issued]

Date of Substantial Completion: [Enter date, as determined by Engineer]

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities: None As follows:

[List amendments to Owner's Responsibilities]

Amendments to Contractor's Responsibilities: None As follows:

[List amendments to Contractor's Responsibilities]

The following documents are attached to and made a part of this Certificate:

[List attachments such as punch list; other documents]

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By (signature): _____

Name (printed): _____

Title: _____

NOTICE OF ACCEPTABILITY OF WORK

Owner: _____ Owner's Project No.: _____
Engineer: _____ Engineer's Project No.: _____
Contractor: _____ Contractor's Project No.: _____
Project: _____
Contract Name: _____
Notice Date: _____ Effective Date of the Construction Contract: _____

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract's Contract Documents ("Contract Documents") and of the Agreement between Owner and Engineer for Professional Services dated [date of professional services agreement] ("Owner-Engineer Agreement"). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer's professional opinion.
3. This Notice has been prepared to the best of Engineer's knowledge, information, and belief as of the Notice Date.
4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner's reservations of rights with respect to completion and final payment.

Engineer

By (*signature*): _____
Name (*printed*): _____
Title: _____

CHANGE ORDER NO.: [Number of Change Order]

Owner: _____ Owner's Project No.: _____
 Engineer: _____ Engineer's Project No.: _____
 Contractor: _____ Contractor's Project No.: _____
 Project: _____
 Contract Name: _____
 Date Issued: _____ Effective Date of Change Order: _____

The Contract is modified as follows upon execution of this Change Order:

Description:

[Description of the change]

Attachments:

[List documents related to the change]

| Change in Contract Price | Change in Contract Times [State Contract Times as either a specific date or a number of days] |
|--|--|
| Original Contract Price: \$ _____ | Original Contract Times: Substantial Completion: _____ Ready for final payment: _____ |
| [Increase] [Decrease] from previously approved Change Orders No. 1 to No. [Number of previous Change Order]: \$ _____ | [Increase] [Decrease] from previously approved Change Orders No.1 to No. [Number of previous Change Order]: Substantial Completion: _____ Ready for final payment: _____ |
| Contract Price prior to this Change Order: \$ _____ | Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____ |
| [Increase] [Decrease] this Change Order: \$ _____ | [Increase] [Decrease] this Change Order: Substantial Completion: _____ Ready for final payment: _____ |
| Contract Price incorporating this Change Order: \$ _____ | Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____ |

| | |
|---------------------------------------|--|
| Recommended by Engineer (if required) | Accepted by Contractor |
| By: _____ | _____ |
| Title: _____ | _____ |
| Date: _____ | _____ |
| Authorized by Owner | Approved by Funding Agency (if applicable) |
| By: _____ | _____ |
| Title: _____ | _____ |
| Date: _____ | _____ |

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS INDEX

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SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

Project includes action as necessary and/or required to provide labor and materials to perform the final design, plan production, permitting, securing of materials, and installation of a complete lighting system for streetscape lighting per project plans and contract documents.

1.02 CONTRACTS

All work will be awarded under one contract for a complete project from final design through construction.

1.03 ALTERNATES

Alternate #1 includes supplying pairs of banner arms for Owner installation on 12' light poles. Alternate #2 includes extended electrical distribution and supplying 20' light poles.

1.04 WORK BY OTHERS

Previous work includes preliminary project electrical system design (products, distribution, photometrics, etc.) and preliminary plan production. Previous work by others includes placement of 2" electrical conduit on north side of Ames St. and multiple conduit crossings along Ames St. for use by the Contractor. Previous work includes installation of crosswalk signage concrete foundations with anchor bolts and conduit. Work by others include Owner/Utility provided power source to electrical panels per approved Contractor plans.

1.05 FUTURE WORK

Future work includes Owner installation of banner arms if accepted. Future work may include extension of streetscape lighting system north-east along Ames St. beyond Bass St.

1.06 WORK SEQUENCE

It is anticipated that final design and electrical plan production will begin immediately after contract award with delivery of plans for approval as soon as possible. Securing of material and installation is anticipated to begin shortly after plan and permitting approvals with project completion July/August 2026.

1.07 COORDINATION

Work to be coordinated with Owner, Engineer, utility providers, and other entities involved in installation of the complete project.

1.08 AVAILABILITY OF LANDS

Work will take place on property owned or controlled by the OWNER or within the public right-of-way.

1.09 PRE-ORDERED ITEMS

Crosswalk signage posts, signs, & push button electronics

1.10 OWNER FURNISHED ITEMS

Owner is providing preliminary electrical design and previously placed 2" electrical conduit on north side of Ames St. and multiple conduit crossings along Ames St. for use by the Contractor. Owner will furnish crosswalk signage posts, signs, push button electronics for Contractor installation on owner provided post foundations.

1.11 PROJECT IDENTIFICATION AND SIGNS

Project identification signs are not required as part of the project.

1.12 AUDIO-VIDEO ROUTE SURVEY

No audio or video survey is required for the project.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Refer to form EJCDC® C-522 Contract for Construction of a Small Project
- B. Bid price includes all labor, tools, equipment, materials, transportation, and applicable fees, use tax, and sales tax necessary to complete the work in accordance with the Plans and Specifications.
- C. All measurement and payment will be based on completed work, ready for use, performed in strict accordance with the Plans and Specifications.
- D. Bid quantities listed in EJCDC® C-522 Contract for Construction of a Small Project: Article 5 – Contract Price have been estimated and are only for the purpose of comparing, on a uniform basis, the Bids offered for the Work. Completed quantities for payment will be based on field measurements.
- E. Neither the Owner nor his agents shall be held responsible should any of the estimated quantities be found incorrect.
- F. Payment will be made only on items listed in the in EJCDC® C-522 Contract for Construction of a Small Project: Article 5 – Contract Price. All other work not listed in the in this section shall be considered incidental to the performance of the Work.
- G. Owner reserves the right to delete any line item or quantity on the in EJCDC® C-522 Contract for Construction of a Small Project: Article 5 – Contract Price

1.02 APPLICATION FOR PAYMENT

- A. Pay period: 30 days.
- B. Payment requests shall be submitted on the forms included in the Specifications.

1.03 SUBMITTALS

- A. Refer to form EJCDC® C-522 Contract for Construction of a Small Project

1.04 ITEMS OF THE BID FORM

BASE BID – 12' LIGHT INSTALLATION**Item No. 1.01 – General Conditions and Mobilization**

- 1. Payment includes obtaining bonds, insurance riders, preparatory work and operation, for the movement of personnel, equipment, supplies, and incidentals to the project site; establishment temporary facilities needed to undertake the work as specified for contract close out. Item includes securing and payment for all permits require for the installation of the project including Antrim County electrical permit.
- 2. Unit of measure: Lump Sum

Item No. 1.02 – Final Design and Project Plans

- 1. Payment includes providing final project electrical design and producing electrical construction plans sealed by registered professional. Plans are to advance and follow existing preliminary electrical design project layout. Includes sealed plan submittal for

review by the Owner, revisions, and approvals by the Owner once accepted. Plans to include area from US-31 to Bass St. and include both 12' & 20' (alternate) lights and distribution.

2. Unit of measure: Lump Sum

Item No. 1.03 – Electrical Distribution

1. Payment includes supply and installation of all lighting system distribution equipment and materials including but not limited to panels, enclosures, system timing and controls, service receptacles, conductors, conduits and all other items required to provide service to streetscape lighting and crosswalk signage from point of utility provider power supply meter.
2. Unit of Measure: Lump Sum

Item No. 1.04 – 12' Light, Luminaire, Post, and Foundation

1. Payment includes supply of material and installation of specified 12' light pole foundations, aluminum poles and bases, pole mounted GFCI receptacles, post top luminaires, and all components for a complete installed 12' light assembly
2. Unit of Measure: Each

Item No. 1.05 – Crosswalk Signage Installation

1. Payment includes installation of owner provided electrified crosswalk blinker signage and electrical push button controls on existing Owner provided sign post foundations. Includes modification of crosswalk signage poles to receive power wiring and mounting of controls. Includes complete erection of signage, connection of signs opposite side of road with provided cable, and complete startup operations at each crosswalk sign location.
2. Unit of Measure: Lump Sum

Item No. 1.06 – Restoration and Establishment

1. Payment includes restoration of areas disturbed by construction activities to pre-construction conditions. Includes removal of excess soils from the site, rough grading of disturbed areas, topsoil placement, final grading to match adjacent grade, seeding and placement of straw mulch.
2. Unit of Measure: Lump Sum

ALTERNATE #1 BID – BANNER ARMS

Item No. A1.01 – Banner Arms (Pair – Supply Only)

1. Payment includes supply of cast band mount banner arm pairs for 12' light poles with delivery to the Owner storage facility adjacent to the project site
2. Unit of Measure: Each (two arms)

ALTERNATE #2 BID – 20' LIGHT INSTALLATION

Item No. A2.01 – Electrical Distribution

3. Payment includes supply and installation of all lighting system distribution equipment and materials including but not limited to panels, enclosures, system timing and controls, service receptacles, conductors, conduits and all other items required to provide service to streetscape lighting from point of utility provider power supply meter or from base bid power distribution network.
4. Unit of Measure: Lump Sum

Item No. A2.03 – 20' Light, Luminaire, Post, and Foundation

1. Payment includes supply of material and installation of specified 20' light pole foundations, aluminum poles and bases, post top luminaires, and all components for a complete installed 20' light assembly
2. Unit of Measure: Each

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1 GENERAL

1.01 STAKEOUT AND SURVEYING

A. Owner's responsibility:

1. Provide benchmarks and control points as shown on plans.

B. Contractors responsibilities:

1. Provide construction staking for layout and grades (paid for by contractor). Contact Gosling Czubak Engineering Sciences, Inc – Mike Stocking, P.S. – (231) 933-5115.

1.02 SOIL BORINGS

- A. No soil borings were completed for this project.

1.03 EXISTING UTILITIES

- A. Approximate utilities and locations shown on plans. All utilities are not shown and should be verified by the Contractor prior to construction.
- B. The Owner will not be responsible for omissions or variations from the locations shown.
- C. Contact Miss Dig (1-800-482-7171) 72 hours prior to any excavation to locate existing buried utilities.
- D. Preserve and protect existing utilities from damage. Repair all damage to existing utilities at no cost to the Owner. Work stoppages resulting from damaged utilities will not entitle the Contractor to additional payment.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 PERMITS AND FEES

- A. Owners responsibility: The owner will obtain the following permits where applicable.
 - 1. None

- B. Contractors' responsibility:
 - 1. The Contractor will obtain the following permits:
 - a. Antrim Co. Electrical Permit
 - 2. Provide required bonding for permits as required and be named as contractor on all Owner secured permits.
 - 3. Meet provisions and requirements of all permits obtained by the Owner.
 - 4. All local or state permits and fees required that are not listed in Section 01060 1.01.A.

- C. All permits obtained to date are attached at the end of the specifications.

1.02 APPLICABLE CODES

- A. All references to codes, specifications, and standards shall refer to the latest edition, amendment, or revision of the reference in effect on the BID due date.

PART 2 PRODUCT - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 CONSTRUCTION SCHEDULE

- A. Preparation:
 - 1. Prepare in the form of a horizontal bar chart, CPM network, or other form previously approved by the Engineer.
 - 2. Provide a separate horizontal bar column or path for each trade or operation.
 - 3. Prepare the schedule in the chronological order of the beginning of each item of work.
 - 4. Allow space for updating.
 - 5. The schedule sheets shall be 11" x 17" unless otherwise approved by the Engineer.
- B. Content of schedule:
 - 1. Provide a complete sequence of construction by activity.
 - 2. For Shop Drawings, project data, and samples show the following:
 - a. Submittal dates.
 - b. Dates review copies will be required.
 - 3. Show product procurement and delivery dates.
 - 4. Show dates for beginning and completion of each element of construction.
 - 5. Show projected percentage of completion for each item of work as of the first day of each month.
- C. Updating Schedule:
 - 1. Show all changes occurring since previous submission of the updated schedule.
 - 2. Indicate progress of each activity and show completion dates.
 - 3. Other items required in schedule updates are:
 - a. Major changes in scope.
 - b. Activities modified since previous updating.
 - c. Revised projections due to changes
 - d. Other identifiable changes.
- D. Submittals:
 - 1. Submit initial schedule within 15 days after receipt of a Notice to Proceed.
 - 2. Submit updated schedules accurately depicting progress to the first day of each month.
 - 3. Progress schedules shall be included with the Contractor's monthly application for payment

1.02 APPLICATION FOR PAYMENT

- A. Preparation:
 - 1. Applications for payment to be submitted in accordance with the Contract.
 - 2. Application for payment shall be made on forms provided by or approved by the Engineer.
- B. Schedule of Values:
 - 1. Contractor shall submit a schedule of values for all lump sum items in the Bid Schedule.
 - 2. A preliminary schedule of values shall be submitted to the Engineer for review and approval prior to the preconstruction meeting.
 - 3. Schedule of values will be used only as the basis for the Contractor's application for payment.

- C. Submittals
 1. Contractor shall submit three signed copies to the Engineer for review.
 2. Application for payment shall be submitted to the Engineer as agreed to at the preconstruction meeting.

1.03 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. General:
 1. Provide shop drawings in accordance with the Contract.
 2. Shop Drawings are to be scaled drawings large enough to show all pertinent features of the item and its method of connection to the Work.
 3. Literature from manufacturers that includes data not pertinent to this submittal, shall be clearly marked to indicate which portion of the contents is being submitted for the Engineer's review.
 4. Samples shall illustrate materials, equipment, or workmanship and establish standards by which completed work is judged.
 5. Unless otherwise specifically directed by the Engineer, all samples shall be of the precise article proposed to be furnished.
- B. Submittals:
 1. Submit the number of copies that the Contractor requires to be returned, plus three copies that will be retained by the Engineer.
 2. All submittals are to be accompanied with a transmittal form that will be provided by or approved by the Engineer.
 3. Contractor to thoroughly check Shop Drawings for compliance with the Contract Documents and verify field dimensions and construction criteria:
 - a. Indicate approval by stamping "Approved", with Contractor's signature and date on all copies submitted.
 - b. Shop Drawings submitted without stamped approval of the Contractor will be returned without review.
 4. Clearly indicate all deviations in the Shop Drawings from the requirements in the Contract Documents.
 5. Make submittals in groups containing all associated items.
 6. Provide submittals in advance of scheduled dates of installation to allow time for Engineer review, possible revision, and re-submittal; and for placing orders and securing delivery.
 7. Allow 15 working days for Engineer review after receipt of submittal.
 8. Cost of delays caused by late submittals shall be the responsibility of the Contractor.
- C. Review of submittals:
 1. Submittals will be returned marked with Engineer's review comments.
 2. Rejected submittals shall be revised by the Contractor and resubmitted.
 3. Engineer's checking of Shop Drawings does not relieve the Contractor of responsibility for errors or omissions.

1.04 OPERATION AND MAINTENANCE MANUALS

- A. General:
 1. Manuals shall be in durable plastic binders approximately 8½ " x 11" in size with at least the following:
 - a. Identification on, or readable through, the front cover stating general nature of the manual;
 - b. Neatly typewritten index near the front of the manual;
 - c. Complete instructions regarding operation and maintenance of all equipment involved;
 - d. Complete nomenclature of all replaceable parts, their part numbers, and name and

address of nearest vendor of parts;

- e. Copies of all guarantees and warranties issued;
 - f. Copy of the approved Shop Drawing and all data concerning all changes made during construction.
2. Manuals that include manufacturer's catalog pages shall, clearly indicate the precise items included in this installation and delete or otherwise clearly indicate all manufacturers' data with which this installation is not concerned.

B. Submittals:

- 1. Provide 3 copies of the manual to the Engineer unless indicated otherwise in pertinent Sections.
- 2. Submit operation and maintenance manuals prior to initial equipment startup.

PART 2 PRODUCT - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 SUMMARY

- A. Furnish all labor, facilities, and materials necessary to properly transport, handle, store and protect all materials and equipment necessary for the performance of the work until arrival on site.
- B. All materials shall be new.

1.02 TRANSPORTATION AND HANDLING

- A. Properly protect all materials and equipment to prevent damage during transportation and handling.
- B. Detailed special handling requirements are specified under the appropriate specification section for the products handled.

1.03 STORAGE AND PROTECTION

- A. Store all materials and equipment to insure the preservation of their quality and fitness for the work.
- B. Store packaged materials in their original containers until ready for use.
- C. Protect all materials and equipment before and during delivery to site.
- D. Provide suitable weather tight storage sheds with raised floors to store and protect materials and equipment that could be damaged by exposure to weather.
- E. Repair or replace all damaged materials and equipment, subject to Engineer approval.
- F. No damaged material shall be used in the work.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01650
START-UP SERVICES

PART 1 GENERAL

1.01 TEST OPERATION AND RUN-IN:

- A. Notify the Engineer and test operate the equipment to the Engineer's satisfaction.
- B. Test operate all equipment including controls and associated items, after completion of the electrical and mechanical work.
- C. Run-in and make ready for operation all equipment after test operations.
- D. "Run-in" shall mean sufficient operation to wear in gears, motors, bearings, and any other items in accordance with the manufacturer's recommendations.
- E. "Ready for operation" shall mean fully aligned, tested under full load, adjusted, cleaned, and ready for use.
- F. "Completely installed" shall mean that the installation is complete and ready for final payment.

1.02 FIELD SERVICES:

- A. Secure the services of a qualified equipment manufacturer representative to assist in erection, inspection, make necessary adjustments, initiate the start-up and resolve start-up problems.
- B. Provide a qualified equipment manufacturer's representative for instruction of Owner's personnel in the proper operation and maintenance of the equipment.
- C. Coordinate the training of personnel through the Engineer after "test operation" and "run-in."
- D. Furnish written reports from the equipment manufacturer for each visit. The report shall contain the findings, recommendations, and any pertinent comments, with a signature and title of the representative. At least three (3) copies of the report shall be furnished to the Engineer.

PART 2 PRODUCT - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 01700
CONTRACT CLOSE-OUT

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes contract close-out requirements.
- B. Contract close-out shall be done in accordance with the Contract Documents before final payment will be released.

1.03 PROJECT RECORD DOCUMENTS

- A. Provide materials certifications as specified by the Engineer. Include all product information and warranties to be transferred to the Owner.

1.04 GUARANTEES

- A. Provide in accordance with form EJCDC® C-522 Contract for Construction of a Small Project.
- B. Manufacturer's Guarantee:
 - 1. For each item of equipment, furnish the guarantee of the manufacturer.
 - 2. Guarantee that the equipment will perform its intended service and that any defective design or workmanship shall be corrected or replaced at no expense to the OWNER.
 - 3. The guarantee period of the manufacturer's guarantee shall be one year from the date of final payment of the project by the Owner, unless specified otherwise.

1.05 SUBSTANTIAL COMPLETION

- A. Certification that the work is substantially complete shall be in accordance with form EJCDC® C-522 Contract for Construction of a Small Project.

1.06 FINAL INSPECTION AND PAYMENT

- A. The final inspection, final application for payment and acceptance shall be in accordance with form EJCDC® C-522 Contract for Construction of a Small Project.
- B. Final inspection will occur after complete assembly of lighting system securing of final permit approvals by installation contractor.

1.07 BID AMOUNTS

- A. Contract closeout should be included in bid items identified in bid form and Measurement and Payment.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 02110

SITE CLEARING AND PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Clearing site of trees, roots, stumps, brush, and other vegetation that inhibit the proper placement of project components.
2. Removing rocks, boulders, and other debris.
3. Removal and disposal of existing improvements.

B. Related Sections:

Section 01025 MEASUREMENT AND PAYMENT

1.02 UNIT PRICES

All work under this section shall be considered incidental to construction, unless specifically indicated on the EJCDC® C-522 Contract for Construction of a Small Project form and referred to in Section 01025 MEASUREMENT AND PAYMENT.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 SITE CLEARING

A. General:

1. Clear areas as approved by owner for performance of the work.
2. Remove designated trees, stumps, roots, brush, and rocks that inhibit the proper placement of project components.
3. Work carefully around trees and overhanging branches.
4. Trees greater than 6" DBH shall not be removed without permission of owner.

3.03 DISPOSAL OF MATERIALS

- A. All concrete, trees, asphalt, gravel, etc. resulting from removal shall become the property of the Contractor.
- B. All removed materials shall be removed from the project site and disposed of properly. This shall include underground and aboveground electrical, sanitary, storm and other utilities encountered and within the influence of new construction.
- C. Burning is not permitted.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes but not limited to:
 - 1. Excavating, shaping, and grading surface for aggregate trail placement
 - 2. Salvaging and stockpiling select material
 - 3. Disposal of surplus or unsuitable material
 - 4. Other earthwork indicated on the plans for site modification or placement of structures.

- B. Related Sections
 - 01025 MEASUREMENT AND PAYMENT
 - 02270 EROSION CONTROL
 - 02900 SITE RESTORATION

1.02 QUALITY ASSURANCES

- A. Materials:
 - 1. All materials used as fill or sub-base shall be approved by the Engineer.

- B. Compaction:
 - 1. Determine maximum density using the Modified Proctor Method, ASTM D-1557.
 - 2. Engineer may approve other field determinations of maximum density, such as Michigan Cone.
 - 3. Field determination of in place density shall be by Nuclear Density Method, ASTM D-2922, or other approved method.

- C. Except as modified by this Section, perform earthwork in accordance with Division 2, MDOT Standard Specifications.

1.03 SITE CONDITIONS

- A. Soil Borings
 - 1. No soil borings were conducted as part of the project.

1.04 UNIT PRICES

Refer to Section 01025 MEASUREMENT AND PAYMENT.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. All fill material shall be approved by the Engineer prior to placement.
 - 2. Fill material shall be free from clay, organic matter, roots, debris, and frozen soil.
 - 3. Obtain fill material from on-site excavations, or from an approved borrow area.
 - 4. Provide Testing Laboratory with access to material source.

- D. Topsoil:
 - Dark brown or black loam, clay loam, or sandy loam, of a fertile, humus soil origin.

PART 3 EXECUTION

3.01 DUST CONTROL

- A. Control dust at the Work area at all times to prevent dust from becoming a nuisance to the public, neighbors, or the work of others on the site.
- B. Provide moisture or otherwise treat surfaces to control dust.

3.02 TOPSOIL

- A. Removal:
 - 1. Remove all topsoil from areas to be occupied by structures, improved surfaces, or where new grades are to be established.
 - 2. Stockpile topsoil for future use in finish grading at a site approved by the Engineer.
- B. Application:
 - 2. Spread the stockpiled topsoil over the prepared rough grade to a minimum depth of 4 inches.
 - 3. Provide additional topsoil as required to complete the Work.
 - 4. Finish grade, and rake the topsoil to remove all stones, sticks, roots, and debris in preparation for seeding.
 - 5. Excess topsoil may be used for fill in non critical areas.

3.03 EXCAVATING, BACKFILLING, AND COMPACTING

- A. Over-excavation:
 - 1. In the event clay or stone is encountered at the bottom of the excavation, undercut bottom a minimum of 12 inches.
 - 2. If muck or other deleterious material is encountered, remove this material to a depth where suitable subgrade soil is encountered, unless otherwise instructed by the Engineer.
 - 3. Backfill to proposed subgrade elevation with Class II material.
 - 4. Compact backfill in lifts not exceeding 9 inches.
- B. Backfilling:
 - 1. Remove all debris from excavation prior to backfilling.
 - 2. Compact excavation bottom to a depth of 2 feet prior to placing backfill.
 - 3. Backfill material shall be Class II sand.
 - 4. Compact backfill in lifts not exceeding 9 inches.

3.08 GRADING

- A. Conform to lines, contours, and spot elevations shown on the plans.
- B. Perform finish grading on ground surfaces to an accuracy of plus or minus 0.1 feet.
- C. Perform finish grading on improved surfaces to an accuracy of plus or minus 0.05 feet.

END OF SECTION

SECTION 02270
EROSION CONTROL

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes, work necessary for effective temporary and permanent soil erosion and sedimentation control.
- B. Related Sections:
 - 1. Section 01025 MEASUREMENT AND PAYMENT
 - 2. Section 02200 EARTHWORK

1.02 UNIT PRICES

Temporary and permanent erosion control measures will be considered incidental to the construction, unless specifically indicated on the EJCDC® C-522 Contract for Construction of a Small Project form and referred to in Section 01025 MEASUREMENT AND PAYMENT.

1.03 QUALITY ASSURANCES

Perform all Work in accordance with the Michigan Soil Erosion and Sedimentation Control Act, Part 91 of Act 451, P.A. 1994, and with the requirements of the local agencies having jurisdiction over the Work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Seed, fertilizer, and mulch: Provide as specified in Section 02900 SITE RESTORATION.
- B. Provide temporary and permanent structures and materials in accordance with the Michigan Department of management and Budget Keying System. See Figure 1 at the end of this section.
- C. Mulch blanket:
 - 1. Materials: 100% straw sewn into a lightweight, photo degradable netting.
 - 2. Model: S75.
 - 3. Straw content: 0.5 pounds per square yard.
 - 4. Manufacturer: North American Green.
- D. Geotextile filter fabric:
 - 1. Materials: Mechanically bonded, non-woven geotextile.
 - 2. Manufacturer: Amoco
 - 3. Model: CEF 4553
 - 4. Tensile strength: 203 lbs. (ASTM D-4632).
 - 5. Tensile elongation: 50% min. (ASTM D-4632).
 - 6. Tear strength: 80 lbs. (ASTM D-4533).
 - 7. Puncture strength: 130 lbs. (ASTM D-4833).
 - 8. Apparent opening size: 100 sieve (ASTM D-4751).
- G. Silt fence:

1. Conforming to Michigan Department of Transportation Standard Specifications.

PART 3 EXECUTION

3.01 GENERAL

Conduct site evaluation with the Engineer prior to starting work.

3.02 TEMPORARY EROSION CONTROL

- A. Minimize the area of earth disturbed at any one time.
- B. Provide berms or ditches to divert storm runoff from the construction area when steep slopes or highly erodible soils are present.
- C. Contain all sedimentation on site by using straw bales, filter fence, or sedimentation basins.

3.03 PERMANENT EROSION CONTROL

- A. When final grades have been established, provide topsoil, seed, fertilizer, and mulch.
- B. Water all seeded areas as necessary to establish proper vegetative cover.
- C. Should erosion occur within the guarantee period, regrade and reseed the disturbed area at no additional cost to the Owner.

3.04 MULCH BLANKET

- A. Provide mulch blanket on all slopes 3:1 or steeper, that are disturbed during construction or as indicated on the plans.
- B. Prepare soil prior to placing mulch blanket with topsoil, seed and fertilizer.
- C. Place mulch blanket from top of slope down so overlap seams run parallel to slope.
- D. Overlap seams a minimum of 2" on parallel seams, and six inches, shingle style, on perpendicular splices.

END OF SECTION

SECTION 02900
SITE RESTORATION

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
1. Work necessary to restore all disturbed surfaces and areas. Final seed bed preparation (raking) shall be conducted by contractor and be approved by ENGINEER prior to seeding and mulching.
 2. Work necessary to complete seeding for disturbed areas.
 3. Provide, establish, and maintain seed, mulch, and erosion control materials.
- B. Related Sections
- 01025 MEASUREMENT AND PAYMENT
 - 02200 EARTHWORK
 - 02270 EROSION CONTROL

1.02 UNIT PRICES

Refer to in Section 01025 MEASUREMENT AND PAYMENT.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil: Provide topsoil as specified in Section 02200 EARTHWORK.
- B. Common Restoration seed mix for disturbed areas: Provide seed information, mix specifications and seeding rate prior to approval and purchase of material. Provide seed mixture per direction and approval of the Owner
- D. Mulching: Provide straw mulch conforming to MDOT Specification 8.21.11
- F. Netted mulch blanket - refer to section 02270 EROSION CONTROL

PART 3 EXECUTION

3.01 TOPSOIL PREPARATION

- A. General:
1. Strip, screen, and stockpile topsoil for all irrigated lawn areas as called for in the plans.
 2. Prepare topsoil after finish grading of surfaces.
 3. Prepare soil to a friable condition by tilling, disking, harrowing, or otherwise loosening the soil to a depth of 4 inches.
 4. Break up all lumps of soil.
 5. Rake out all stones, rocks and debris larger than $\frac{3}{4}$ ".
 6. Drill or broadcast method, placed no deeper than 1 inch.

3.03 SOWING TURF GRASS AND NO-MOW SEED

- A. Sow turf grass at a minimum rate of 150-175 pounds per acre, low maintenance at a minimum rate of 220 pounds per acre, or per suppliers recommendations as approved by the Professional.
- B. Method:
1. Sow only while soil is in a friable condition.
 2. Do not sow through mulch.

3. Sow seed mixture by mechanical broadcast method.
 4. Float seed sown by broadcast method so that 50% of the seed is mixed with the top ½” inch of the soil.
- C. Hydro-seeding:
1. Apply in 2-step process:
 - a. Apply seed with water and work into top inch of soil.
 - b. Apply wood fiber mulch after seeding with tackifier, final mulching method to be approved by LANDSCAPE ARCHITECT prior to installation.
 - c. Apply fertilizer with seed or before seeding. Work fertilizer into the top 2” of topsoil.
 2. Apply at a rate of 1440 pounds per acre for wood fiber mulch.
- D. Watering:
1. Water all seeded areas to establish a smooth and full vegetative cover. **IMPORTANT:** water application must occur to keep seed in a damp condition until germination takes place.
 2. Should erosion occur or the seed not grow within the guarantee period, re-grade and reseed the disturbed area at no additional cost.
- E. Seasonal limitations:
1. Apply seed between May 1 and September 1.
 2. Dormant seeding:
 - a. Permitted in limited areas to complete a project.
 - b. Apply after October 1, but not on frozen ground.
- 3.04 MULCHING
- A. Apply at a rate of 2 bales per 1000 square feet.
- B. Method:
1. Apply immediately after seeding.
 2. Apply evenly and loose enough to allow sunlight and air to penetrate, but thick enough to reduce the rate of evaporation and erosion.
 3. Apply mulch adhesive as necessary at a rate of 150 gallons per acre.

END OF SECTION

SECTION 03102
CONCRETE FORMWORK (MDOT)

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
Construction and removal of all cast-in-place concrete forms.
- B. Related Sections:
1. Section 01025 - MEASUREMENT AND PAYMENT
 2. Section 03202 - CONCRETE REINFORCEMENT
 3. Section 03252 - CONCRETE ACCESSORIES
 4. Section 03302 - CAST-IN-PLACE CONCRETE

1.02 QUALITY ASSURANCE

- A. Codes and standards:
Perform all work in accordance with the following sections of the MDOT Standard Specifications for Construction as they apply to the work being performed:
- | | |
|-------------------|---------|
| Concrete Pavement | 4.50.06 |
| Curb and Gutter | 6.09.04 |
| Concrete Sidewalk | 6.11.04 |
- B. Design:
The design, engineering and construction of formwork shall be the responsibility of the Contractor.
- C. Notifications:
Notify the Engineer at least 24 hours in advance of placing concrete.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Formwork materials:
Form materials shall comply with the following sections of the MDOT Standard Specifications for Construction as they apply to the work being performed:
- | | |
|-------------------|---------|
| Concrete Pavement | 4.50.04 |
| Curb and Gutter | 6.09.04 |
| Concrete Sidewalk | 6.11.04 |
- B. Form release agent:
1. Chemically neutral agent that will effectively prevent absorption of moisture and prevent bond with the concrete.
 - a. "Magic Kote" 43000 by Symons; or approved equal.
 2. Submit the name and sufficient documentation of the proposed form coating agent material to the Engineer for review.

PART 3 - EXECUTION

3.01 FORM CONSTRUCTION

- A. General:
 - 1. Provide all required materials in sufficient quantities so as not to delay the work.
 - 2. Use forms rigid enough to maintain specified tolerances.
 - 3. Design forms for the loads, lateral pressure, and allowable stresses outlined in ACI 347, Design of "Recommended Practice for Concrete Formwork" and in accordance with local building codes.
- B. Formwork Facing
 - 1. Arrange in an orderly and symmetrical manner
 - 2. Keep the number of seams to a practical minimum
- C. Forms
 - 1. Install forms sufficiently tight to prevent loss of mortar from the concrete.
 - 2. Provide positive means of adjustment (wedge or jacks) of shores and struts.
 - a. Take up all settlement during the concrete placing operation.
 - b. Securely brace forms against lateral deflections.
 - c. Camber the formwork to compensate for anticipated deflection.
 - 3. Hold forms against the hardened concrete to maintain a true surface and to prevent offsets or loss of mortar at the construction joint.
 - 4. Adjust wedges if necessary to align forms.
 - 5. Anchor formwork to prevent upward or lateral movement .
 - 6. Form surfaces:
 - a. Cover with an approved coating material in accordance with the manufacturer's recommendations.
 - b. Do not allow coating to come in contact with reinforcing steel or hardened concrete.
- D. Field quality control:
 - 1. Clean and repair surfaces of forms to be re-used in the work.
 - 2. Do not use "patched" forms for exposed concrete surfaces.
 - 3. Inform Engineer 24 hours to placing concrete to allow for formwork inspection.

3.02 REMOVAL OF FORMS AND SUPPORTS

Remove when the concrete has hardened sufficiently to prevent damage.

END OF SECTION

SECTION 03202 (MDOT)
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
The furnishing and installation of all concrete reinforcement.
- B. Related Sections:
 - 1. Section 01025 - MEASUREMENT AND PAYMENT
 - 2. Section 01300 - SUBMITTALS
 - 3. Section 03102 - CONCRETE FORMWORK
 - 4. Section 03252 - CONCRETE ACCESSORIES
 - 5. Section 03302 - CAST-IN-PLACE CONCRETE

1.02 SUBMITTALS

- A. Make all submittals in accordance with Section 01300 - SUBMITTALS
- B. Shop Drawings:
 - 1. Submit Shop Drawings showing the number, size, length, mark, location, and bending diagrams for all reinforcement.
 - 2. Prepare Shop Drawings in accordance with "Manual of Standard Practice for Detailing Reinforced Concrete Structures" of the ACI.

1.03 DELIVERY AND STORAGE

- A. Store bars on racks clear of the ground.
- B. Protect bars from weather, dirt, grease, etc.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. Deliver reinforcement free from rust, scale, paint, oil, and structural defects.
 - 2. Size: As shown on the MDOT Standard Plans
 - 3. Type: As indicated in the MDOT Standard Specifications

2.02 FABRICATION

- A. General:
 - 1. Fabricate reinforcement accurately to the dimensions indicated on MDOT Standard Plans.

PART 3 - EXECUTION

3.01 PLACING

- A. Installation:
 - 1. Place in accordance with MDOT Specifications 4.50.09 (for concrete pavement) and 6.09.05 (for curb and gutter).
 - 2. Clean reinforcement of materials which adversely affect or reduce the bond.
 - 3. Reinforcement with rust and/or mill scale which meets the applicable ASTM standard is acceptable.
 - 4. Support and fasten reinforcement to prevent displacement by construction loads or concrete placement.

3.02 FIELD QUALITY CONTROL

- A. Notify Engineer at least 24 hours prior to placement of concrete and when reinforcing is in place
- B. Sort bars at the job.
- C. Store bars on racks clear of the ground.
- D. Arrange bars in the order of their use.
- E. Protect bars from weather, dirt, grease, etc.

END OF SECTION

SECTION 03252
CONCRETE ACCESSORIES (MDOT)

PART 1 GENERAL

1.01 DESCRIPTION:

- A. Section Includes:
Furnish and install all concrete accessories
- B. Related Sections:
 - 1. Section 01025 - MEASUREMENT AND PAYMENT
 - 2. Section 01300 - SUBMITTTALS
 - 3. Section 03102 - CONCRETE FORMWORK (MDOT)
 - 4. Section 03202 - CONCRETE REINFORCEMENT (MDOT)
 - 5. Section 03302 - CAST-IN-PLACE CONCRETE (MDOT)

1.02 SUBMITTALS

- A. Make submittals in accordance with Section 01300

PART 2 PRODUCTS

2.01 MATERIALS:

- A. Water stops:
 - 1. Polyvinyl chloride waterstops
 - a. 6 inches by $\frac{3}{8}$ inches
 - b. ribbed or serrated with center bulb (1.2 lbs/ft minimum)
 - 2. Meet or exceed the physical property requirements set forth in the U.S. Corps of Engineers specification CRD-C572-74, or latest revision.
 - 3. Greenstreak 705; Vinylex RB6-38; A. C. Horn Type 5; or equal.
- B. Inserts for general trades:
 - 1. Malleable iron, strength as required.
 - 2. Include bolts, nuts, and washers.
 - 3. Heckman Building Products, Hohmann & Barnard, Inc.; or equal.
- C. Premolded expansion strips:
 - 1. W.R. Meadows, Inc.; Celotex Corporation; or equal.
 - 2. Asphalt impregnated fiberboard, ASTM D-1751.
- D. Expansion joint filler:
 - 1. Neoprene NN2 semi-rigid closed cell
 - 2. Use bond breaker between joint filler and joint sealant.
 - 3. Williams Products Inc. Everlastic; or equal
- E. Construction joint form for building floor slabs on grade:
 - 1. Sixteen gauge, tongue and groove galvanized metal by Superior Concrete Accessories, Inc., Heckman Building Products Company; or equal.
- F. Control joint form for building floor slabs on grade:

1. Twenty gauge galvanized steel.
 2. Depth: $\frac{1}{4}$ the slab thickness or more.
 3. Heckman Building Products Company, Superior Concrete Accessories, Inc.; or equal.
- G. Concrete stair nosings on cast-in place concrete stairs:
1. Abrasive cast aluminum 4" wide, 6" shorter than tread
 2. Wooster type 101 with cast on anchors; or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. As indicated on the Drawings, specified in various other Sections, and as necessary for the proper and complete performance of this Work.
- B. Waterstops:
1. Install according to manufacturer's recommendations.
 2. Perform all splices in length or at intersections by heat sealing in accordance with manufacturer's recommendations.
 3. Hold in place with hog rings and wire tie as required.
- C. Piping, mechanical and electrical equipment support:
1. Inserts for hangers
 - a. Supplied by the trade whose work is supported
 2. Location
 - a. Given to the General Contractor by the various trades.
 3. Installation
 - a. By the General Contractor.

END OF SECTION

SECTION 03302
CAST-IN-PLACE CONCRETE (MDOT)

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Section Includes:
Furnish, place and finish all cast-in-place concrete and accessories.
- B. Related Sections:
1. Section 01025 - MEASUREMENT AND PAYMENT
 2. Section 01410 - TESTING LABORATORY SERVICES
 3. Section 03102 - CONCRETE FORMWORK (MDOT)
 4. Section 03202 - CONCRETE REINFORCEMENT (MDOT)
 5. Section 03252 - CONCRETE ACCESSORIES (MDOT)

1.02 QUALITY ASSURANCE

- A. Codes and standards:
1. Michigan Department of Transportation, Standard Specifications for Construction.
 2. ASTM C 94 - "Standard Specifications for Ready-Mixed Concrete".
 3. ACI 318 - "Building Code Requirements for Reinforced Concrete".
- B. Tests:
1. Performed in accordance with Section 01410 - TESTING LABORATORY SERVICES and this Section.
 2. Slump tests
 - a. Per ASTM C 143 and C 172.
 - b. Frequency: Once per truck
 3. Compression cylinder tests
 - a. Make and cure specimens per ASTM C 31
 - b. Four specimens per test.
 - c. Frequency: Once per day or every 50 cubic yards for each strength or type
 4. Air-entraining test
 - a. In accordance with ASTM C 231
 - b. Frequency: Each truckload.
 5. Acceptance and evaluation
 - a. Based on ACI 301 "Specifications for Structural Concrete for Buildings".
 - b. Hardened Concrete Testing
 - i. May be required by Owner or Engineer
 - ii. Per ASTM C 42 or other load test
 - iii. In accordance with the ACI "Building Code for Reinforced Concrete" (ACI -318), Section 4.7.

1.03 SUBMITTALS

- A. General
Make submittals in accordance with Section 01300.
- B. Mix designs:
1. ACI 211.1 - "Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete."
 2. Furnish mix design(s) with test report(s) by an independent testing laboratory for each mix.

3. Furnish the following material content per cubic yard of each class of concrete furnished:
 - a. Dry weight of cement.
 - b. Saturated surface and dried weights of fine and coarse aggregates.
 - c. Quantities, type and name of admixtures.
 - d. Weight of water.
 4. Provide product information on all components of mix design
- C. Test reports:
1. Provide at 7 days and 28 days test reports in accordance with Section 01410.
 2. Immediately notify the Engineer if any test specimen fails to meet the required specification tolerances.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cement:
1. Portland cement, in compliance with MDOT Specification 8.01.
 2. Do not use different manufacturers of cement interchangeably without Engineer's approval.
- B. Fine and coarse aggregates: Conform to MDOT Specification 8.02.
- C. Water: Conform to MDOT Specification 8.11.
- D. Admixtures: Conform to MDOT Specification 8.24.
- E. Membrane curing compounds: Conform to MDOT Specification 8.24.06.

2.02 CONCRETE MIX

- A. Proportioning:
1. In accordance with MDOT Specification 7.01 requirements for Grade 35P concrete.
 2. Selected and documented in accordance with ACI-318 - "Building Code Requirements for Reinforced Concrete."
 - a. The required average compressive strength (f'_{cr}) of the concrete shall exceed the specified compressive strength (f'_c).
 - b. The amount by which the required average compressive strength (f'_{cr}) must exceed the specified compressive strength (f'_c) shall be determined by one of the following:
 - i. If the concrete production facility has 15 or more consecutive tests for concrete composed of similar materials and within specified strengths within 1000 psi of specified, calculate a standard deviation.
 - (a). This standard deviation is a measure of the variability of strength produced by the production facility for concrete of similar proportions.
 - (b). The required average compressive strength (f'_{cr}) shall be calculated using this standard deviation along with appropriate formulas as given in ACI-318.
 - ii. If the concrete production facility does not have test records meeting the required criteria:
 - (a). The required average compressive strength (f'_{cr}) must exceed specified compressive strength (f'_c) by a minimum of 1200 psi.
 - c. Documentation that the proposed concrete proportions will produce an average compressive strength equal to or greater than the required average compressive strength (f'_{cr}) shall consist of one of the following:

- i. Where the concrete production facility has 10 or more field strength tests for concrete produced with similar materials and under similar conditions:
 - (a). These tests may be used to demonstrate that the proposed concrete proportions will produce the required average strength (f'_{cr}).
 - ii. Where the concrete production facility does not have test records meeting the required criteria
 - (a). Concrete proportions shall be established based on trial mixtures.
 - (b). Such trial mixtures shall consist of the same combination of materials as for proposed work and shall consist of at least three different water-cement ratios or cement contents that will produce a range of strengths encompassing the required average strength (f'_{cr}).
 - (c). Tests of the concrete from these trial mixtures will be used to determine the maximum water-cement ratio or minimum cement content required to produce the required average compression strength (f'_{cr}).
 - d. Provide mix design, test records, calculations and other documentation to Engineer at least 14 days prior to placement. Also state type of mixing to be used as listed in Item 10, ASTM C94.
- B. Specified compressive strength (f'_c): 3500 psi.
- C. Maximum water-cement ratio by weight shall be as noted in MDOT Specification 7.01.04.
- D. Cement factor shall be based on Table 7.01-1 from MDOT Specification 7.01.
- E. All concrete shall be air entrained.
- 1. Total air content shall be 6.5% \pm 1.5% for all concrete.
- F. Maximum slump limits shall be as listed in MDOT Table 7.01-1:
- | | |
|---------------------------------|----|
| Without admixtures | 3" |
| With Type A or D admixtures | 3" |
| With Type F or G admixtures | |
| Prior to addition of admixtures | 3" |
| After addition of admixtures | 7" |

2.03 PRODUCTION AND MIXING

- A. Production:
- 1. Ready mixed concrete
 - a. Batched, mixed, and transported in accordance with ASTM C- 94.
 - 2. Use only transit mixed concrete from Engineer approved mixing plant(s)
 - 3. Ready-mix delivery tickets: Furnish with each batch of concrete before unloading at the site with the following information:
 - a. Name of ready-mix batch plant.
 - b. Serial number of ticket.
 - c. Date and truck number.
 - d. Name of Contractor.
 - e. Job name and location.
 - f. Specific class or designation of concrete.
 - g. Amount of concrete (cubic yards).
 - h. Time loaded or of first mixing of cement and aggregates.
 - i. Type, name and amount of admixture.
 - j. Type, brand and amount of cement.
 - k. Total water content by producer (or W/C ratio).
 - l. Maximum size of aggregate.

- m. Weights of fine and coarse aggregates.
- B. Mixing:
1. In compliance with MDOT Specification 7.01.08.
 2. Add water at the job site only if the total amount of water is equal to or less than that specified by the concrete mix design and slump remains within allowable limits.
 3. Mix 30 additional revolutions of the drum if water is added to mixed concrete at the job site.
 4. Discharge concrete within the time limits listed in MDOT Specification 7.01.08e.
 5. Do not retemper concrete that has partially set
- C. Adjustments for weather conditions:
1. Cold weather:
 - a. In accordance with MDOT Specification 7.01.09a.
 - b. Use concrete accelerators in accordance with MDOT Specification 7.01.09b when the air temperature is below 45°F.
 - c. Do not place concrete unless the air temperature away from artificial heat is at least 25°F and rising.
 2. Hot weather (ambient temperature 90°F or above)
 - a. Do not place concrete when the temperature of the concrete at the point of placement is above 90°F.

PART 3 - EXECUTION

3.01 PLACING

- A. Pre-placement inspection:
1. Inspect and complete
 - a. Formwork
 - b. Reinforcing Steel
 - c. Embedded or Cast-in Items.
 2. Place all concrete in accordance with the following MDOT specifications:

| | |
|-------------------|---------|
| Concrete Pavement | 4.50.08 |
| Curb and Gutter | 6.09.06 |
| Concrete Sidewalk | 6.11.05 |
 3. Notify Engineer at least 24 hours in advance of pouring
 4. Thoroughly wet wood forms immediately before placing concrete as required where form coating is not used.
 5. Clean all mixing and transporting equipment
 6. Remove all debris, water and ice before placing concrete.
- B. Handling:
Prevent separation or loss of ingredients while transporting concrete.
- C. Method and rate:
1. To avoid segregation:
 - a. Deposit concrete as nearly as practical in its final position
 - b. Avoid excess handling
 - c. Prevent flowing
 2. Concrete at such a rate that there is flow between the bars
 3. Do not deposit concrete during rain unless adequately protected
 4. Concrete continuously until the placing of the panel or section is complete.
 5. Do not deposit fresh concrete on hardened concrete
 6. The top surface should be generally level
 7. Where conditions make compacting difficult, or where the reinforcement is congested:

- a. Deposit batches of mortar containing the same proportions of cement to sand as used in the concrete in the forms to a depth of at least 1 inch.
 - 8. Place the concrete at such a rate that all concrete surfaces not yet to grade shall not have reached their initial set before additional concrete is placed.
 - 9. Protect new concrete from rain until it has hardened sufficiently to prevent damage.
- D. Compaction:
- 1. Mechanically vibrate as concrete is placed for a sufficient duration to accomplish thorough compaction and complete embedment of reinforcement and fixtures.
 - 2. Do not vibrate long enough to cause segregation of mix.
 - 3. Vibrators: Comply with ACI 309 - "Standard Practice for Consolidation of Concrete"
 - 4. Do not use vibrators to transport concrete inside of forms.
 - 5. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine.
 - 6. Do not insert vibrators into lower layers of concrete that have begun to set.
 - 7. Make at least two vibrators, all in good working condition, available for use during all pouring operations.
 - 8. For large pours in excess of 50 cubic yards, three vibrators shall be available.

3.02 PROTECTION AND CURING

- A. Protection:
 - 1. Protect in accordance with MDOT Specification 4.50.23.
- B. Curing:
 - 1. As soon as possible after finishing or removing forms, treat all surfaces in conformance with MDOT Specification 4.50.16.

3.03 JOINTS AND EMBEDDED ITEMS

- A. Construction joints:
 - 1. Joints not shown in the Contract Documents must be approved by the Engineer
 - 2. Continue all reinforcement across joints
 - 3. Before placing adjoining concrete:
 - a. Thoroughly clean the joint surface
 - b. Remove all laitance
 - 4. Roughen the concrete surface in an approved manner to obtain bond
 - a. Expose the aggregate uniformly without leaving laitance, loosened particles or damaged concrete.
 - 5. Refer to MDOT standard Plans for construction joint details.
- B. Control joints:
 - 1. Construct control joints identical to the procedures outlined in Section 3.03A, and as detailed on MDOT Standard Plans.
- C. Expansion joints:

Construct expansion joints in accordance with the appropriate section of the MDOT Standard Specifications for Construction and the MDOT Standard Plans.
- D. Other embedded items:
 - 1. Controlling the placing of all embedded pipe, conduit and other fixtures is the responsibility of the Contractor.
 - 2. Conform to ACI 318, Section 6.3.
 - 3. Place all sleeves, inserts, anchors, and embedded items required for adjoining work or for its

- support prior to concreting.
4. Position and support expansion joint material, waterstops, and other embedded items against displacement.
 5. Temporarily fill voids in sleeves, inserts, and anchor slots with readily removable material to prevent the entry of concrete into the voids.

3.04 SURFACE TREATMENT

Finish surfaces of concrete pavement, curb and gutter, and sidewalks in accordance with the appropriate sections of the MDOT Standard Specifications.

END OF SECTION

SECTION 16010
BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes providing the electrical work required by the plans and detailed in these specifications. It is the intent of these specifications to provide a complete, fully operational, and ready to use electrical system. Minor omissions, discrepancies, or errors in the plans or specifications shall not relieve the Contractor from his responsibilities to provide a complete and ready to use system.
- B. Summary of work:
Provide all the labor, tools, and equipment necessary to complete the electrical system for the project. The electrical work includes:
Final electrical system design, construction plan production, and installation of distribution and products for streetscape lighting project.
- C. Related sections:
 - 1. Section 01025 Measurement and Payment
 - 2. Section 01300 Submittals

1.02 UNIT PRICES

Refer to Section 01025 - Measurement and Payment.

1.03 QUALITY ASSURANCE

- A. Contractor shall be a certified electrician, licensed to do work in the state of Michigan.
- B. Contractor shall obtain permits for his work. Cost of the permit shall be included in the price bid.
- C. Inspection and approval:
 - 1. All material and manner of installation used shall be strictly in accordance with Local and State requirements, the latest National Electrical Code, and manufacturer's recommended instructions.
 - 2. Installation shall be subject to approval of the Owner and the electrical authority having jurisdiction, from whom a Certificate of Final Inspection covering all work will be required before final payment.

1.04 SUBMITTALS

- A. Shop drawings:
 - 1. Submit shop drawings of any work proposed that deviates from that described in the Plans and specifications in accordance with Section 01300 Submittals.
 - 2. Shop drawings shall show routing of all feeders, conduits, and details of installation of all equipment.
 - 3. No changes in the circuit arrangement will be permitted without written permission of the Engineer.
 - 4. Submit digital copies of the following for review by Engineer:
 - a. Complete project construction drawings for layout, distribution, products and other items for a complete streetscape lighting project.
- B. As built:
 - 1. Provide the Owner with a copy of as built electrical drawings.
 - 2. All drawings shall be neatly made.
 - 3. Submittal of as built drawings shall be made prior to final payment.

1.05 WARRANTY

- A. Provide Owner, in writing, a statement of guarantee that all work is in accordance with the plans and specifications, and is free from defective workmanship. All work covered by this Contract that is shown to be defective within a period of two years shall be repaired by the Contractor at no additional cost to the Owner.

PART 2 PRODUCTS

2.01 GENERAL

- A. Rigid conduit:
 - 1. Metallic: Hot dipped galvanized steel.
 - 2. Non-metallic: Schedule 40 PVC with water tight joints.
- B. Electrical metallic tubing:
 - 1. Standard weight with U.L. listing on each length. Maximum size - 2" diameter.
 - 2. Fittings: compression.
- C. Liquid tight flexible metallic conduit:
 - 1. Manufacturer:
 - a. Lighting: Greenfield, or equal, with separate grounding conductor.
 - b. Other: Greenfield, or equal, with separate grounding conductor and jacked with plastic outer cover and terminated with appropriate factory installed U.L. labeled fittings.
 - 2. Maximum length: 6 feet.
 - 3. Minimum size: ½" diameter
 - 4. Fittings: Insulated throat, flex-steel connectors.
- D. Non-metallic conduit:
 - 1. Manufacturer: Carlon, Condux, or equal
 - 2. Description: NEMA TC2, Schedule 40 PVC

2.02 WIRE AND CABLE

- A. General:
 - 1. All conductors shall be copper with 600 volt insulation, unless noted otherwise.
 - 2. Branch circuit wire shall be TW, THWN or THHN.
 - 3. Feeder circuit wire shall be THW, THWN, THHN or XHHW.
 - 4. Direct burial cable shall use type USE or UF.
 - 5. Wire #8 and larger will be stranded. Minimum size will be #14.
 - 6. Grounding conductors shall be insulated THW and shall be green.

2.03 DISTRIBUTION EQUIPMENT

- A. Panel shall be circuit breaker type with main lugs or switches as specified on the Plans.
- B. Panels shall be manufactured by Square-D type QO, or equal.
- C. All prepackaged panels shall be U.L. labeled or they shall be field assembled by an electrician licensed to do business in the State of Michigan. U.L. labeling of only individual components of any prepackaged panel will not meet the intent of the specification.
- D. Available utility electrical fault current information is not available at this time. Contractor shall be responsible for obtaining this data from the utility company.

2.04 OUTLET BOXES

- A. Interior: Standard galvanized steel boxes, 3 $\frac{1}{8}$ " deep, masonry.
- B. Exterior: Non-metallic box
- C. Ceiling boxes, 4" octagon, 1 $\frac{1}{2}$ " deep, supported to withstand 35 pound load.

2.05 JUNCTION AND PULL BOXES

- A. Galvanized steel box interior, non-metallic exterior, with flat covers fastened with screws.
- B. Sized to meet NEC Standards based on conduit and conductor sizes.
- C. Provide gasketed cover in damp and exterior locations (NEMA 3R or NEMA 12).
- D. Provide identifying labels on each box.

2.06 WIRING DEVICES

- A. Receptacles: Specification grade as manufactured by Hubbell, Arrow Hart, or P and S, equal to the following P and S models:
 1. 15 amp, 125 volt, duplex, GFI, weatherproof, (NEMA 5-15R): 1591-FI with Bell #2357 cover.
 2. 15 amp, 125 volt, duplex, GFI, (NEMA 5-15R): 1591-FI.
 3. 15 amp, 125 volt, single, (NEMA 5-15R): 5261-I.
 4. 15 amp, 125 volt, duplex,(NEMA 5-15R): 5252-I.
- B. Wall switches:
 1. Specification grade as manufactured by Hubbell, Arrow Hart, or P and S.
 2. Binding screw type, totally enclosed molded composition.
 3. Silent type with spring action contacts.
 4. 20 amp switches rated at 277 volts AC.

2.07 SAFETY SWITCHES

- A. Switches shall be NEMA heavy duty type "HD" fusible and U.L. approved, as manufactured by Square-D.
- B. Enclosure:
 1. General purpose: NEMA 1.
 2. Exterior or raintight: NEMA 3R.
- C. Switches shall be horsepower rated with interlocking provision to prevent opening of the switch cover in the "ON" position.
- D. Motor toggle switches shall be installed on all fractional horsepower 120 volt single phase motors. Switch shall have overload heater sized for load and have a lockout device.

2.08 SUPPORTS AND HANGERS

Provide necessary brackets, rods, clamps, supports, and hangers as required to meet NEC code and safety requirements.

2.09 SLEEVES AND INSERTS

Provide all sleeves, chases openings, and inserts as required for the completion of the work.

PART 3 EXECUTION

3.01 GENERAL

- A. Method of carrying on work:
 - 1. Consult with the Owner as to method of carrying on work , including scheduling, ordering materials in advance, storing materials on site, and access to the work.
 - 2. Conduct work to avoid conflicts with other trades.
 - 3. Repair any damage caused by the execution of the work to the satisfaction of the Owner and at no additional cost to the Owner.
 - 4. Maintain the work area in a clean and orderly fashion.
- B. Field measurements:

Take field measurements as necessary for proper fitting and placement of materials.

3.02 INSTALLATION

- A. Cutting and repairing:

Cutting into walls, floors, decking, and supports shall be neatly and carefully done. Repair or any cutting shall be subject to the approval of the Owner. No cutting into structural members will be allowed without prior approval of the Owner.
- B. Damage to other work:

Contractor shall be responsible for damage to other work caused by his actions. All patching and repairing of damage shall be done by the Contractor who installed the work, but the cost of repair shall be paid for by the Electrical Contractor.
- C. Sleeves and inserts:

Contractor shall provide all openings and sleeves in walls and floors required.
- D. Pull boxes:

Install pull boxes where indicated on the plans or where required.
- E. Supports:

Install supports, braces, and framing where required for proper installation of conduits, and other equipment.
- F. Structural difficulties:

Structural difficulties or the location of equipment that prevent installation of equipment or conduit where shown, shall be brought to the immediate attention of the Owner. Any changes to the plans must be approved in advance.
- G. Cable and wire connectors:

Connection of conductors to terminal parts or other conductors, including lugs in panels and transformers, shall provide a solid connection without damaging conductors. Connections shall be made with compression high pressure, solderless type connectors. UL listed Cu/Al type. All connections shall be torqued to manufacturer's recommendations and in accordance with NEC.
- H. Branch wiring:

Install all wire, conduit, fittings, supports, hangers, and necessary items required for branch wiring from distribution panel to power pedestals.
- I. Conduit:
 - 1. Install all branch wiring through PVC conduit.
 - 2. Install joints to be water tight with standard couplings and fittings.
 - 3. All ends of conduit shall be cut square and reamed.
 - 4. Conduit fitting shall be compression type.

- J. Mounting panels and equipment:
Mount panels and equipment where shown on the plans. The Electrical Contractor shall provide plywood mounting boards or floor base as required.
- K. Grounding:
 - 1. All conduits, boxes, and equipment shall be permanently and effectively grounded in accordance with the 1990 NEC.
 - 2. All equipment grounding conductors shall be insulated copper conductors of the sizes shown on the plans.

3.03 DISTRIBUTION EQUIPMENT

- A. Summary of work:
 - 1. Install, mount, and wire all electrical distribution equipment and switch gear required for the project.
 - 2. Contractor shall install all conduit, pull all cable, and wire all connections for this equipment.

3.04 ELECTRICAL SERVICE

- A. Contractor shall arrange for and install any necessary equipment and materials for the electrical service.
- B. Contractor shall connect and pull wire from the meter base to the distribution equipment.
- C. Contractor shall coordinate his work with the Owner and the power company.
- D. Owner will pay all charges by power company for service installation.

3.05 TESTING

- A. Upon completion, test the entire installation of work for grounds, open, and short circuits.
- B. Provide 2 hours training for Owner and personnel. Coordinate with Owner 72 hours prior to training.

END OF SECTION

APPENDIX

APPENDIX INDEX

APPENDIX 01 – PRELIMINARY STREETScape LIGHTING DESIGN PLANS

APPENDIX 02 – CROSSWALK SIGNAGE PRODUCT & INSTALLATION INFORMATION

APPENDIX 01

PRELIMINARY STREETScape LIGHTING DESIGN PLANS

AMES STREET STREETScape IMPROVEMENTS

VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



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ELECTRICAL SHEET INDEX

| | |
|------|---|
| E-0 | - GENERAL NOTES AND DETAILS |
| ES1 | - OVERALL STREET LIGHTING LAYOUT |
| E-1 | - STREET LIGHTING ELECTRICAL - AREA 'A' |
| E-2 | - STREET LIGHTING ELECTRICAL - AREA 'B' |
| E-3 | - STREET LIGHTING ELECTRICAL - AREA 'C' |
| E-4 | - STREET LIGHTING ELECTRICAL - AREA 'D' |
| E-5 | - STREET LIGHTING ELECTRICAL - AREA 'E' |
| E-6 | - STREET LIGHTING ELECTRICAL - AREA 'F' |
| E-7 | - STREET LIGHTING ELECTRICAL - AREA 'G' |
| E-8 | - PHOTOMETRIC PLAN & LUMINAIRE SCHEDULE |
| E-9 | - TYPICAL ONE-LINE DIAGRAM, SCHEDULES & DETAILS |
| E-10 | - PROPOSED CROSSWALK SYSTEM SAMPLES |

PRELIMINARY
NOT FOR CONSTRUCTION
Rev. 12.24

**AMES STREET
STREETSCAPE IMPROVEMENTS**
VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|--------------------|----------|
| 1 | PRELIMINARY REVIEW | 10.18.24 |
| 2 | C.D. REVIEW | 11.03.24 |

PROJECT NO. 139072

| | |
|--------------------------|---------------|
| DRAWN BY: WINDY | DATE: 10.4.24 |
| REVIEWED/SIGN-OFF BY: JN | DATE: 11.5.24 |

SCALE:

FOREMAN SIGN OFF:

ISSUED FOR:

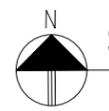
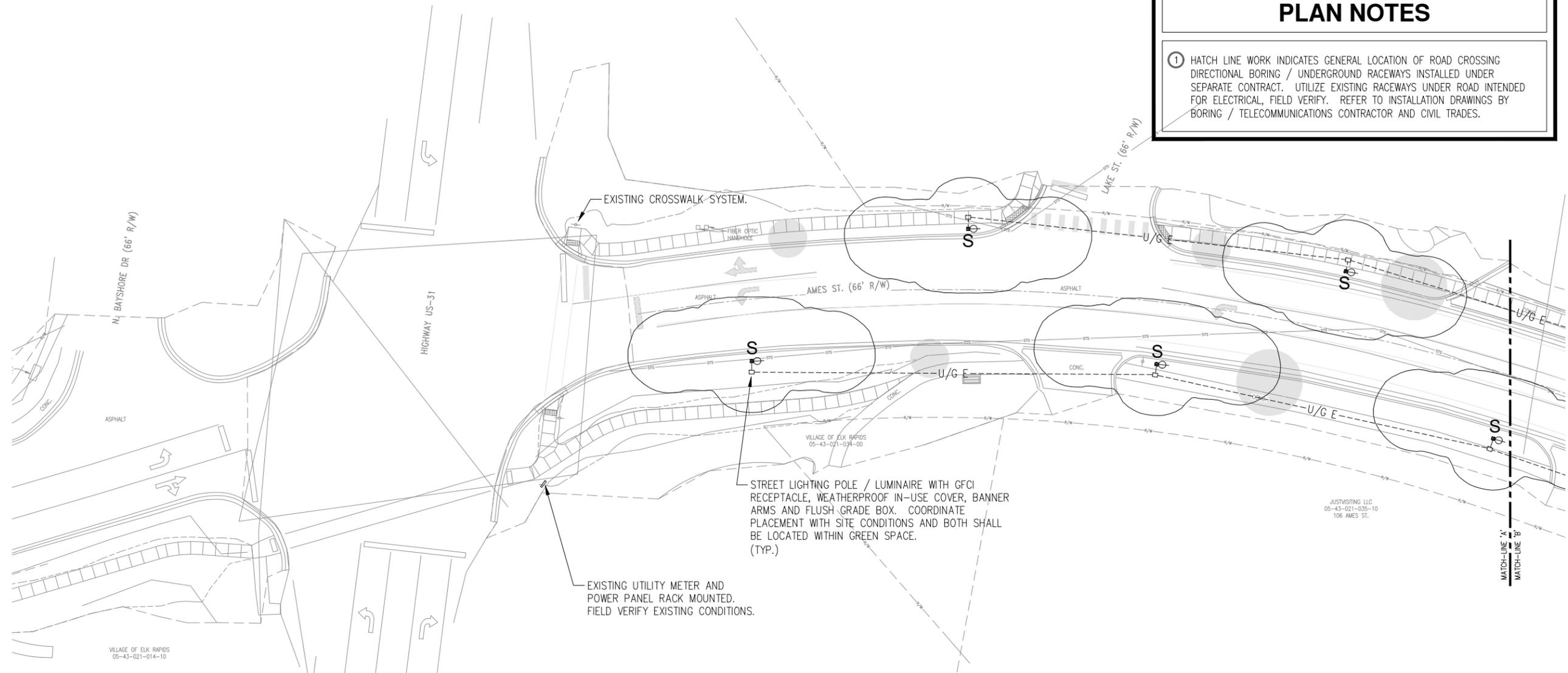
- PRE-CONSTRUCTION
- CONSTRUCTION
- AS-BUILT DRAWINGS

DRAWING TITLE
STREET LIGHTING ELECTRICAL - AREA 'A'

DRAWING NUMBER

PLAN NOTES

① HATCH LINE WORK INDICATES GENERAL LOCATION OF ROAD CROSSING DIRECTIONAL BORING / UNDERGROUND RACEWAYS INSTALLED UNDER SEPARATE CONTRACT. UTILIZE EXISTING RACEWAYS UNDER ROAD INTENDED FOR ELECTRICAL, FIELD VERIFY. REFER TO INSTALLATION DRAWINGS BY BORING / TELECOMMUNICATIONS CONTRACTOR AND CIVIL TRADES.



STREET LIGHTING ELECTRICAL - AREA 'A'

SCALE: 1" = 20'-0"



**AMES STREET
STREETSCAPE IMPROVEMENTS**
VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|--------------------|----------|
| 1 | PRELIMINARY REVIEW | 10.18.24 |
| 2 | C.D. REVIEW | 11.03.24 |

PRELIMINARY
NOT FOR CONSTRUCTION

| | |
|-----------------------|---------|
| PROJECT NO. | 139072 |
| DRAWN BY: | WINDY |
| DATE: | 10.4.24 |
| REVIEWED/SIGN-OFF BY: | JN |
| DATE: | 11.5.24 |

FOREMAN SIGN OFF:

ISSUED FOR:

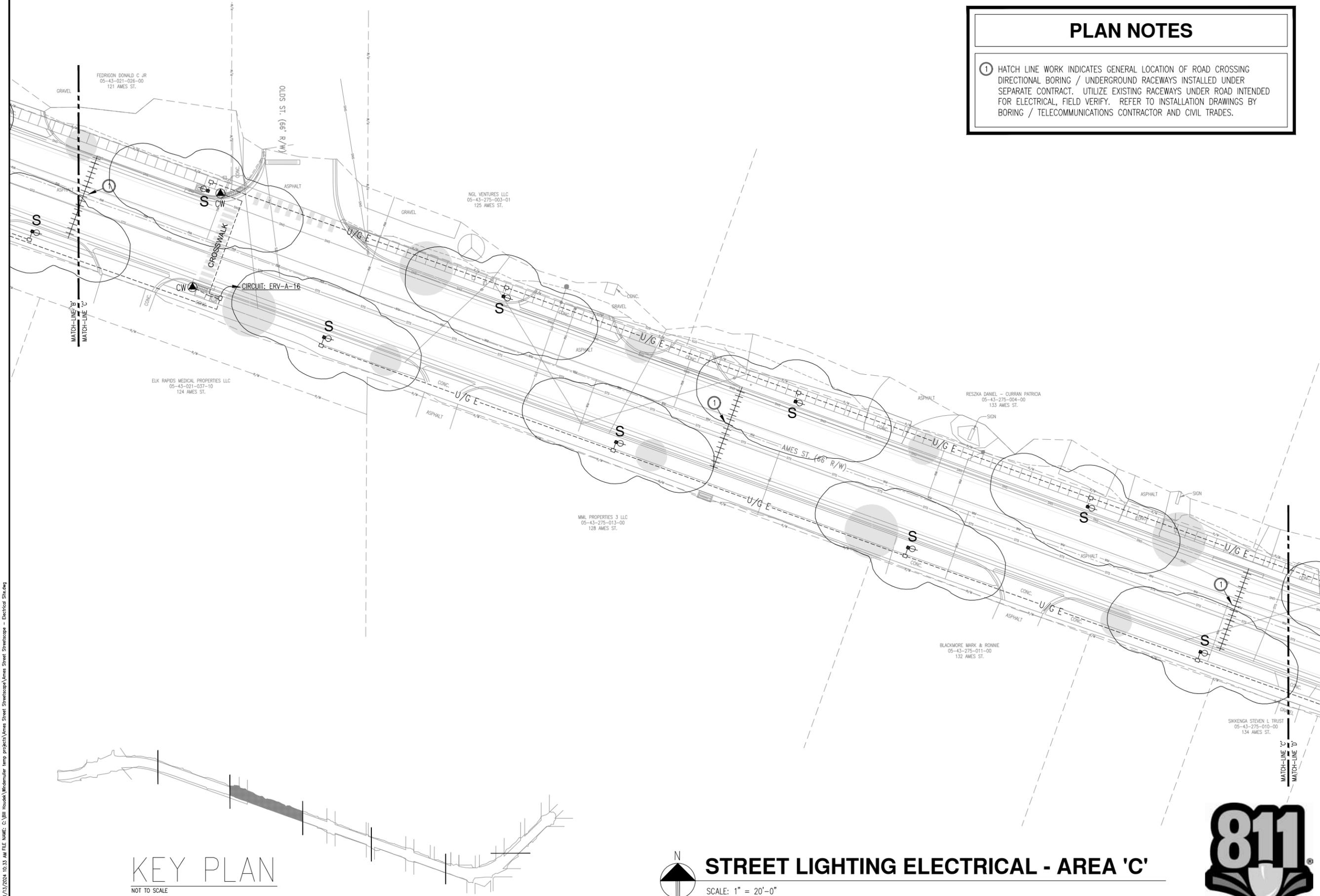
- PRE-CONSTRUCTION
- CONSTRUCTION
- AS-BUILT DRAWINGS

DRAWING TITLE
STREET LIGHTING ELECTRICAL - AREA 'C'

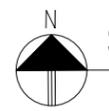
DRAWING NUMBER
E-3

PLAN NOTES

- HATCH LINE WORK INDICATES GENERAL LOCATION OF ROAD CROSSING DIRECTIONAL BORING / UNDERGROUND RACEWAYS INSTALLED UNDER SEPARATE CONTRACT. UTILIZE EXISTING RACEWAYS UNDER ROAD INTENDED FOR ELECTRICAL, FIELD VERIFY. REFER TO INSTALLATION DRAWINGS BY BORING / TELECOMMUNICATIONS CONTRACTOR AND CIVIL TRADES.



KEY PLAN
NOT TO SCALE



STREET LIGHTING ELECTRICAL - AREA 'C'

SCALE: 1" = 20'-0"





REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|--------------------|----------|
| 1 | PRELIMINARY REVIEW | 10.18.24 |
| 2 | C.D. REVIEW | 11.03.24 |

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT NO. 139072

| | |
|--------------------------|---------------|
| DRAWN BY: WINDY | DATE: 10.4.24 |
| REVIEWED/SIGN-OFF BY: JN | DATE: 11.5.24 |

SCALE:

FOREMAN SIGN OFF:

ISSUED FOR:

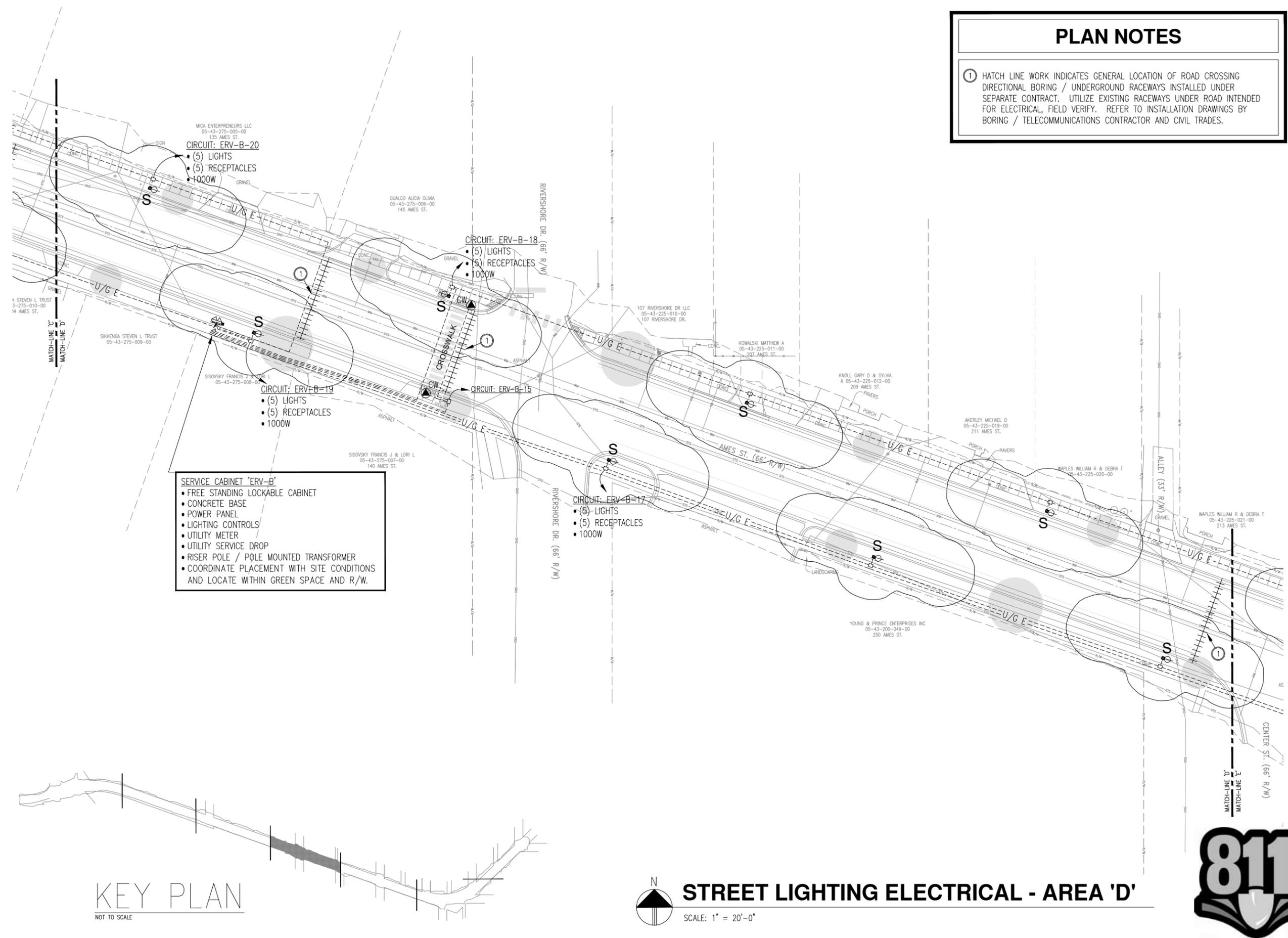
- PRE-CONSTRUCTION
- CONSTRUCTION
- AS-BUILT DRAWINGS

DRAWING TITLE
STREET LIGHTING ELECTRICAL - AREA 'D'

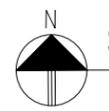
DRAWING NUMBER

PLAN NOTES

- HATCH LINE WORK INDICATES GENERAL LOCATION OF ROAD CROSSING DIRECTIONAL BORING / UNDERGROUND RACEWAYS INSTALLED UNDER SEPARATE CONTRACT. UTILIZE EXISTING RACEWAYS UNDER ROAD INTENDED FOR ELECTRICAL, FIELD VERIFY. REFER TO INSTALLATION DRAWINGS BY BORING / TELECOMMUNICATIONS CONTRACTOR AND CIVIL TRADES.



KEY PLAN
NOT TO SCALE



STREET LIGHTING ELECTRICAL - AREA 'D'

SCALE: 1" = 20'-0"



**AMES STREET
STREETSCAPE IMPROVEMENTS**
VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|--------------------|----------|
| 1 | PRELIMINARY REVIEW | 10.18.24 |
| 2 | C.D. REVIEW | 11.03.24 |

PRELIMINARY
NOT FOR CONSTRUCTION

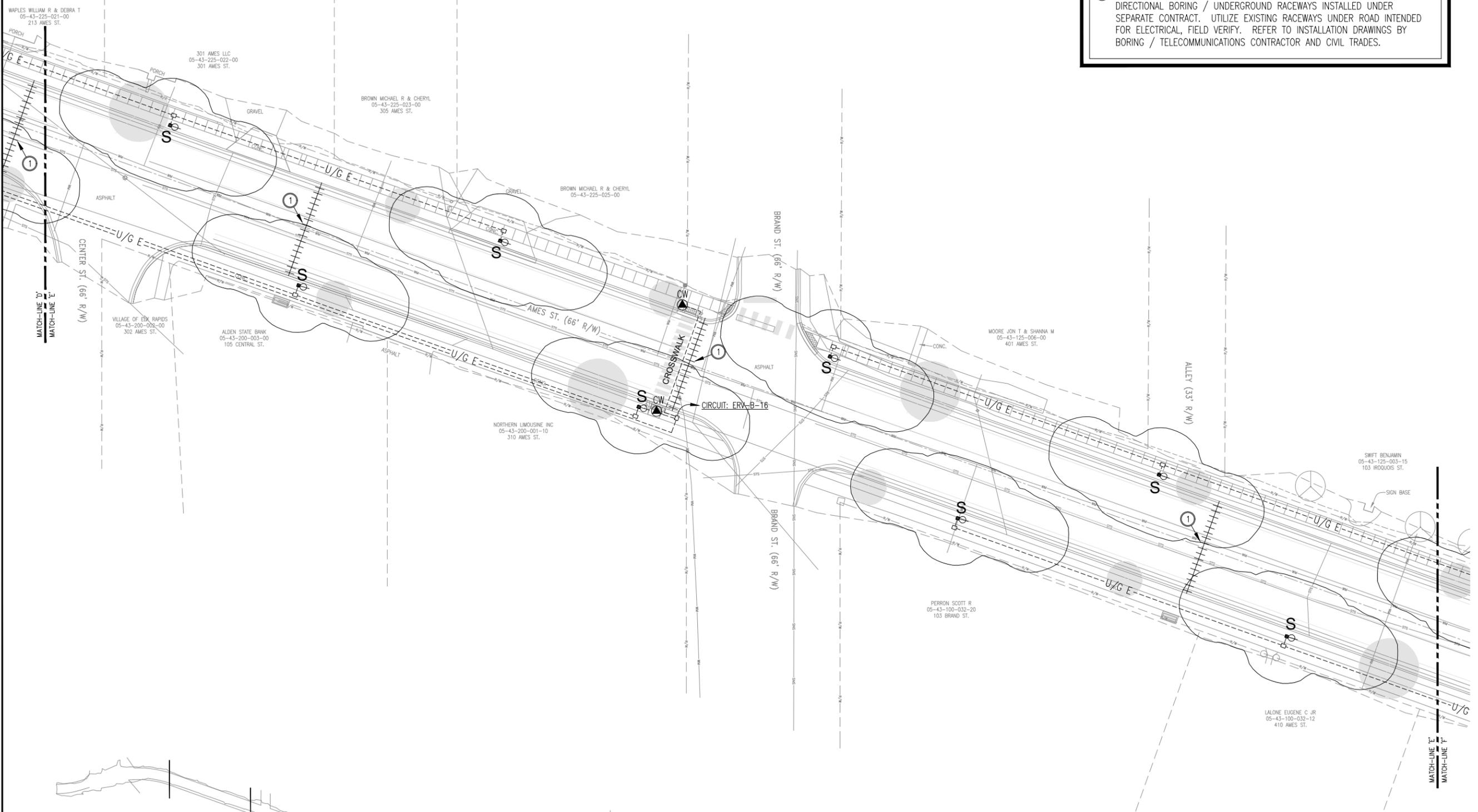
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|---|---------|
| PROJECT NO. | 139072 |
| DRAWN BY: | WINDY |
| DATE: | 10.4.24 |
| REVIEWED/SIGN-OFF BY: | JN |
| DATE: | 11.5.24 |
| SCALE: | |
| FOREMAN SIGN OFF: | |
| ISSUED FOR: | |
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DRAWING TITLE
STREET LIGHTING ELECTRICAL - AREA 'E'

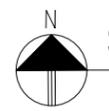
DRAWING NUMBER
E-5

PLAN NOTES

① HATCH LINE WORK INDICATES GENERAL LOCATION OF ROAD CROSSING DIRECTIONAL BORING / UNDERGROUND RACEWAYS INSTALLED UNDER SEPARATE CONTRACT. UTILIZE EXISTING RACEWAYS UNDER ROAD INTENDED FOR ELECTRICAL, FIELD VERIFY. REFER TO INSTALLATION DRAWINGS BY BORING / TELECOMMUNICATIONS CONTRACTOR AND CIVIL TRADES.



KEY PLAN
NOT TO SCALE



STREET LIGHTING ELECTRICAL - AREA 'E'

SCALE: 1" = 20'-0"



**AMES STREET
STREETSCAPE IMPROVEMENTS**
VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



REVISIONS:

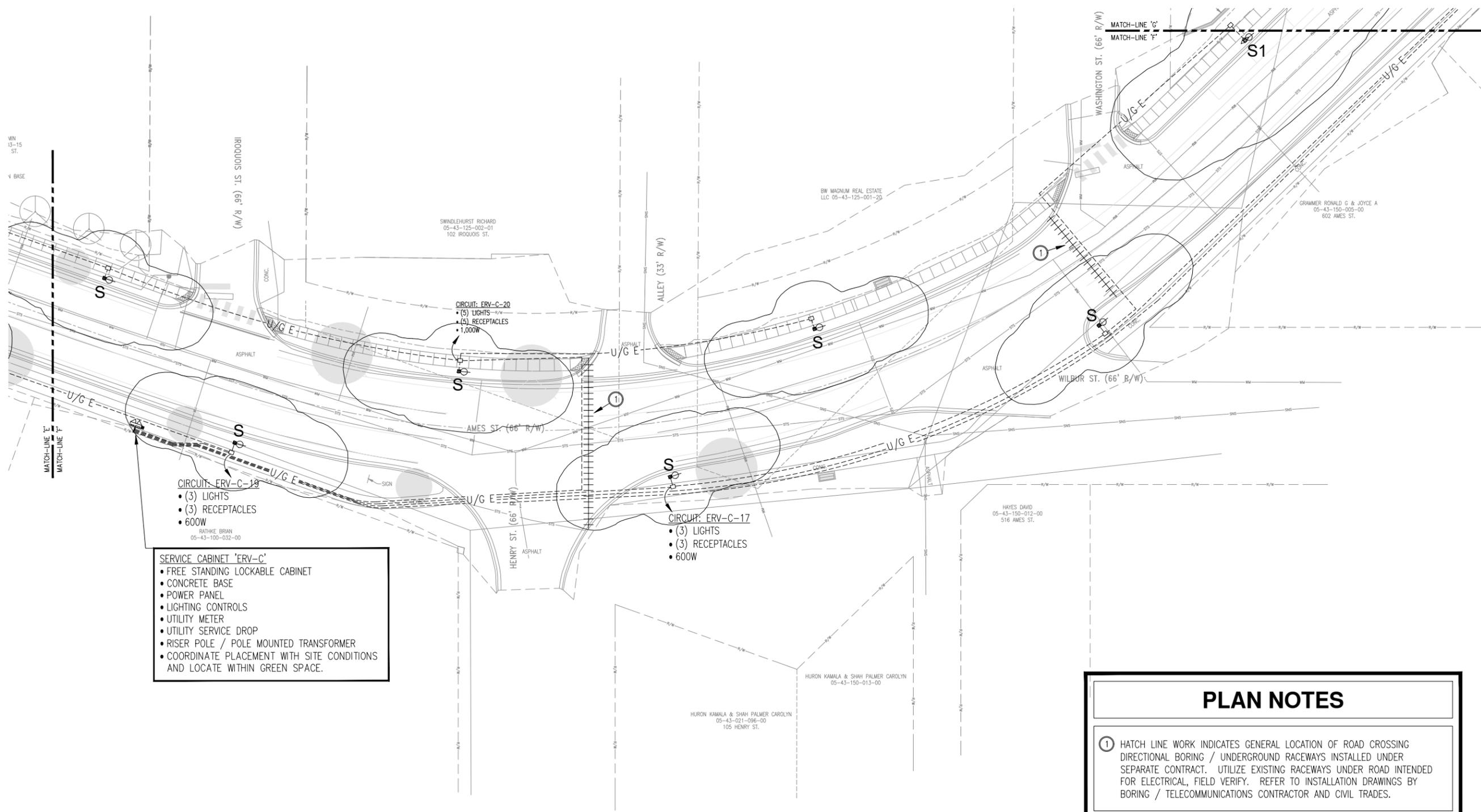
| NO. | DESCRIPTION | DATE |
|-----|--------------------|----------|
| 1 | PRELIMINARY REVIEW | 10.18.24 |
| 2 | C.D. REVIEW | 11.03.24 |

PRELIMINARY
NOT FOR CONSTRUCTION
Nov 13, 24

| | |
|-----------------------|---|
| PROJECT NO. | 139072 |
| DRAWN BY: | WINDY |
| DATE: | 10.4.24 |
| REVIEWED/SIGN-OFF BY: | JN |
| DATE: | 11.5.24 |
| SCALE: | |
| FOREMAN SIGN OFF: | |
| ISSUED FOR: | <input checked="" type="checkbox"/> PRE-CONSTRUCTION <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS-BUILT DRAWINGS |

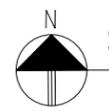
DRAWING TITLE
STREET LIGHTING ELECTRICAL - AREA 'F'

DRAWING NUMBER
E-6



PLAN NOTES

① HATCH LINE WORK INDICATES GENERAL LOCATION OF ROAD CROSSING DIRECTIONAL BORING / UNDERGROUND RACEWAYS INSTALLED UNDER SEPARATE CONTRACT. UTILIZE EXISTING RACEWAYS UNDER ROAD INTENDED FOR ELECTRICAL, FIELD VERIFY. REFER TO INSTALLATION DRAWINGS BY BORING / TELECOMMUNICATIONS CONTRACTOR AND CIVIL TRADES.



STREET LIGHTING ELECTRICAL - AREA 'F'

SCALE: 1" = 20'-0"



**AMES STREET
STREETSCAPE IMPROVEMENTS**
VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|--------------------|----------|
| 1 | PRELIMINARY REVIEW | 10.18.24 |
| 2 | C.D. REVIEW | 11.03.24 |

PRELIMINARY
NOT FOR CONSTRUCTION

| | |
|-----------------------|---------|
| PROJECT NO. | 139072 |
| DRAWN BY: | WINDY |
| DATE: | 10.4.24 |
| REVIEWED/SIGN-OFF BY: | JN |
| DATE: | 11.5.24 |
| SCALE: | |

FOREMAN SIGN OFF:

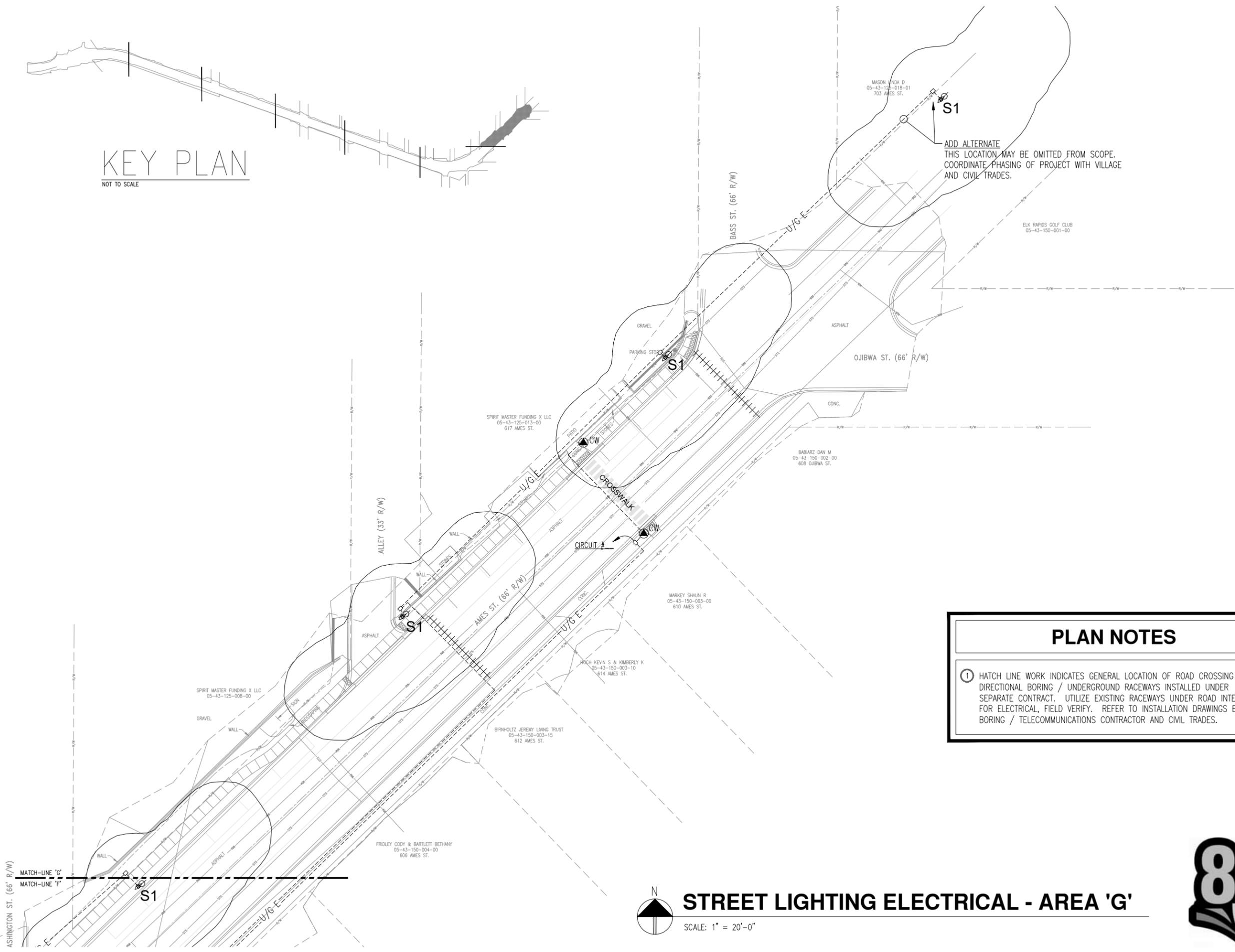
ISSUED FOR:

- PRE-CONSTRUCTION
- CONSTRUCTION
- AS-BUILT DRAWINGS

DRAWING TITLE
STREET LIGHTING ELECTRICAL - AREA 'G'

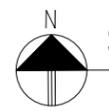
DRAWING NUMBER

KEY PLAN
NOT TO SCALE



PLAN NOTES

① HATCH LINE WORK INDICATES GENERAL LOCATION OF ROAD CROSSING DIRECTIONAL BORING / UNDERGROUND RACEWAYS INSTALLED UNDER SEPARATE CONTRACT. UTILIZE EXISTING RACEWAYS UNDER ROAD INTENDED FOR ELECTRICAL, FIELD VERIFY. REFER TO INSTALLATION DRAWINGS BY BORING / TELECOMMUNICATIONS CONTRACTOR AND CIVIL TRADES.

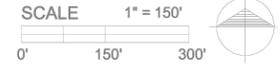
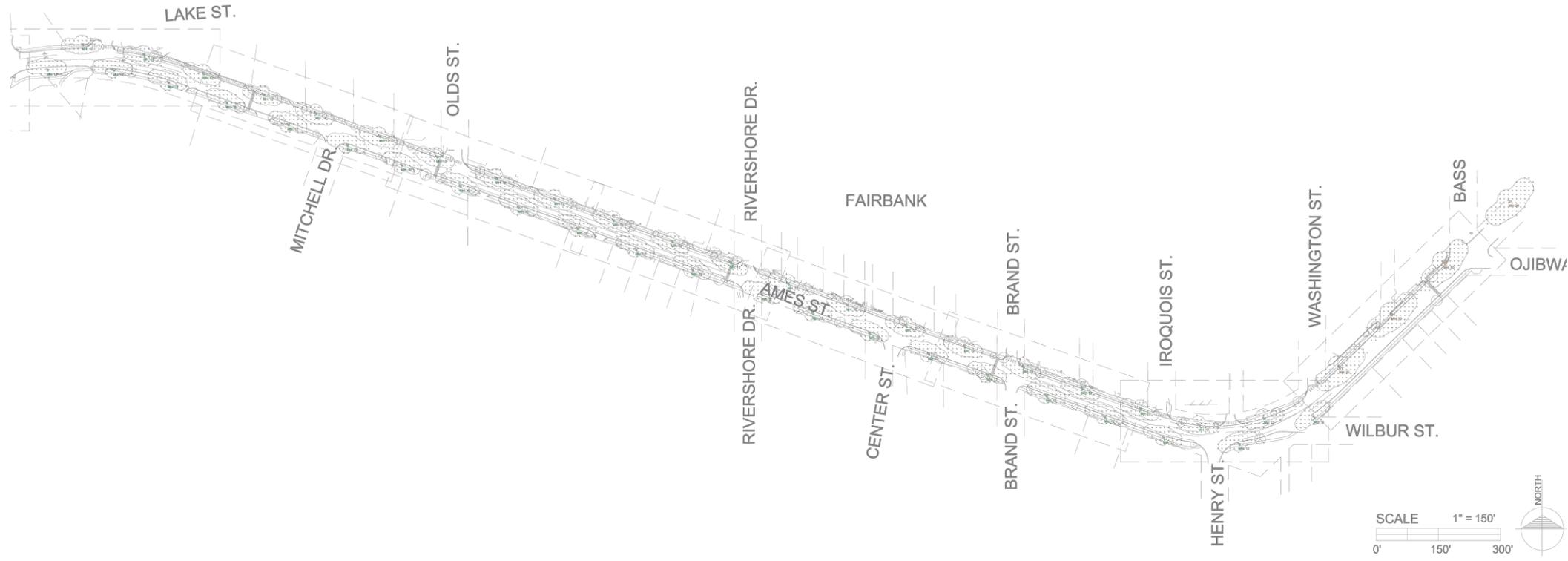


STREET LIGHTING ELECTRICAL - AREA 'G'

SCALE: 1" = 20'-0"



**AMES STREET
STREETSCAPE IMPROVEMENTS**
VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



Luminaire Schedule

Scenario: GEN

| SYMBOL | QTY | LABEL | ARRANGMENT | LLF | [MANUFAC] | DESCRIPTION | MNT HEIGHT | MNT TYPE | TLT WATTS | LUMENS |
|---|-----|-------|------------|-------|----------------------|------------------------|------------|----------|-----------|--------|
|  | 43 | S | Single | 0.921 | COOPER - STREETWORKS | UTLD-PA1-50-730-U-T2U | 12 | POLE | 2322 | 6107 |
|  | 4 | S1 | Single | 0.921 | COOPER - STREETWORKS | UTLD-PA1-100-730-U-T2U | 20 | POLE | 384 | 9419 |

Calculation Summary

Scenario: GEN

| Label | CalcType | Units | Avg | Max | Min | Avg/Min | Max/Min |
|---------|-------------|-------|------|-----|-----|---------|---------|
| ROADWAY | Illuminance | Fc | 1.26 | 8.2 | 0.2 | 6.30 | 41.00 |

NOTES:
- CALC AT GRADE

REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|--------------------|----------|
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PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT NO. 139072

| | |
|--------------------------|---------------|
| DRAWN BY: WINDY | DATE: 10.4.24 |
| REVIEWED/SIGN-OFF BY: JN | DATE: 11.5.24 |

SCALE:

FOREMAN SIGN OFF:

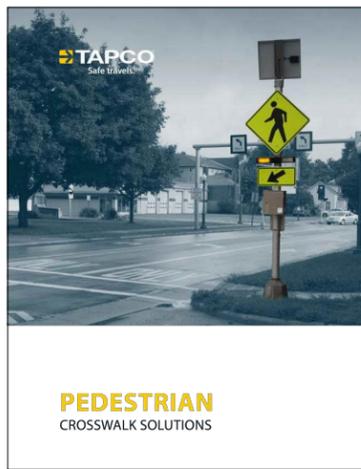
ISSUED FOR:

- PRE-CONSTRUCTION
- CONSTRUCTION
- AS-BUILT DRAWINGS

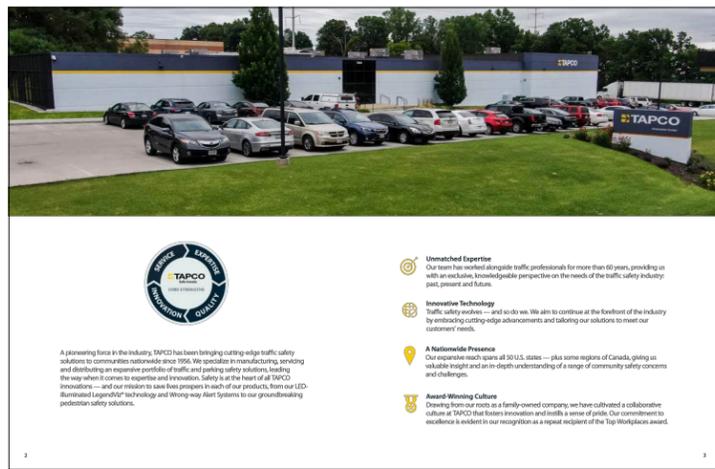
DRAWING TITLE
**PHOTOMETRIC
PLAN &
LUMINAIRE
SCHEDULE**

DRAWING NUMBER

DATE PRINTED: 11/13/2024 10:33 AM FILE NAME: C:\Users\Hood\OneDrive\Temp\Projects\Ames Street Streetscape\Ames Street Streetscape - Electrical.dwg

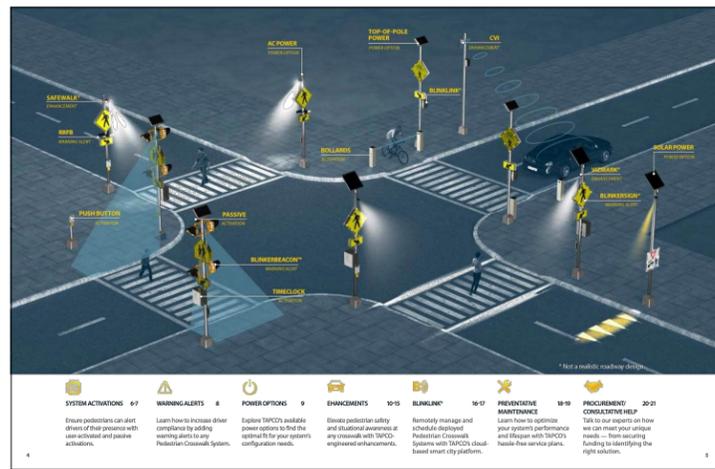


PEDESTRIAN CROSSWALK SOLUTIONS



- Unmatched Expertise**
Our team has worked alongside traffic professionals for more than 60 years, providing us with an exclusive, knowledgeable perspective on the needs of the traffic safety industry past, present and future.
- Innovative Technology**
Traffic safety evolves — and so do we. We continue to be at the forefront of the industry by embracing cutting-edge advancements and tailoring our solutions to meet our customer needs.
- A Nationwide Presence**
Our expertise reaches across all 50 U.S. states — plus some regions of Canada, giving us valuable insight and an in-depth understanding of a range of community safety concerns and challenges.
- Award-Winning Culture**
Drawing from our roots as a family-owned company, we have cultivated a collaborative culture at TAPCO that fosters innovation and meets a sense of pride. Our commitment to excellence is evident in our recognition as a top Workplace Award.

A pioneering force in the industry, TAPCO has been bringing cutting-edge traffic safety solutions to communities nationwide since 1956. We specialize in manufacturing, engineering and distributing an expansive portfolio of traffic and parking safety solutions, leading the way when it comes to expertise and innovation. Safety is the heart of all TAPCO innovations — and our mission is to lead the way in providing the best products, from our LED Illuminated Lightpole™ technology and Wing-way Alert Systems to our groundbreaking pedestrian safety solutions.



- SYSTEM ACTIVATIONS** 6-7
- WARNING ALERTS** 8
- POWER OPTIONS** 9
- ENHANCEMENTS** 10-15
- BLINKLINK™** 16-17
- PREVENTATIVE MAINTENANCE** 18-19
- PROCUREMENT** 20-21



SYSTEM ACTIVATIONS

TAPCO Pedestrian Crosswalk Systems offer a variety of user-activated and passive activation options, all designed to heighten driver awareness when pedestrians are present. Not only do our activations enhance pedestrian safety, but they also give pedestrians the ability to navigate confidently through any crosswalk.

Push Buttons
Keep pedestrian accessibility top of mind with user-activated push buttons. The push button activation offers ease of use, along with audible and visual confirmation of its activation.

- ADA compliant
- API systems available
- Wireless options available

Infrared Bollards
Simplify pedestrian safety at any crosswalk with passive activation like infrared bollards. Vulnerable road users can simply pass between the bollards placed on either side of the crosswalk to activate the system's warning alerts.

- Ability to determine pedestrian direction
- Range of up to 400'
- AC, solar and battery-powered options

Time Clock
Ensure motorists always remain alert to the presence of pedestrians with alerts that operate on a scheduled basis. Ideal for locations with heavy foot traffic at recurring times, such as school zones.

- Compatible with PC and web-enabled devices
- Schedule up to 16 system activations per day
- Remote scheduling capabilities

Passive
Reliably detect vulnerable road users entering the crosswalk, regardless of external conditions. The passive detection camera ensures 24/7 detection to activate the alert system when pedestrians are present.

- Reliable detection in most weather conditions
- Easy integration with user-activated system options



WARNING ALERTS

From arterial roadways to trail crossings, crosswalk visibility is a pain point for many communities. With so much activity on the road, safe crosswalk signs can be difficult to see — especially from a distance. And even just one moment's delay to avoid to pedestrians can compromise the safety of all roadway users.

TAPCO's LED universal warning alerts are designed to increase roadway confidence and awareness by commanding driver attention. Our wide variety of alerts can be added to any system to heighten visibility and can be paired with any of our crosswalk activation options. TAPCO alert options include 360° beacons and edge-lit warning signs, all of which can be paired with any new or existing pedestrian crosswalk system. Common applications include mid-block, uncontrolled and lead zone crossings; however, alerts can be installed at any crosswalk location to enhance safety.

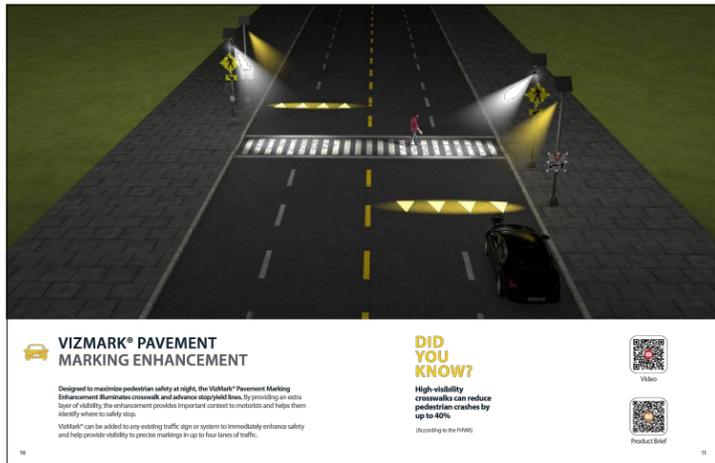
DID YOU KNOW?
80% increase yield rates as much as 98 percent

POWER OPTIONS

TAPCO offers various power options for flexible configuration, including Flex Power and Top-of-Pole Self-Contained Control Cabinets. Any system can be designed to fit your power or environmental needs.

Flex Power offerings include AC and solar power to provide flexible system configuration for multiple applications and power requirements, while also allowing easy access to control cabinets.

TAPCO's LED universal warning alerts are designed to increase roadway confidence and awareness by commanding driver attention. Our wide variety of alerts can be added to any system to heighten visibility and can be paired with any of our crosswalk activation options. TAPCO alert options include 360° beacons and edge-lit warning signs, all of which can be paired with any new or existing pedestrian crosswalk system. Common applications include mid-block, uncontrolled and lead zone crossings; however, alerts can be installed at any crosswalk location to enhance safety.



VIZMARK® PAVEMENT MARKING ENHANCEMENT

Designed to maximize pedestrian safety at night, the VIZMARK® Pavement Marking Enhancement illuminates crosswalk and advance stop/yield lines. By providing an extra layer of visibility, this enhancement provides important context to motorists and helps them identify where to safely stop.

VIZMARK® can be added to any existing traffic sign or system to immediately enhance safety and help provide visibility to greater roadways in up to four lanes of traffic.

DID YOU KNOW?
High-visibility markers can reduce pedestrian crashes by up to 40% (According to the FHWA)

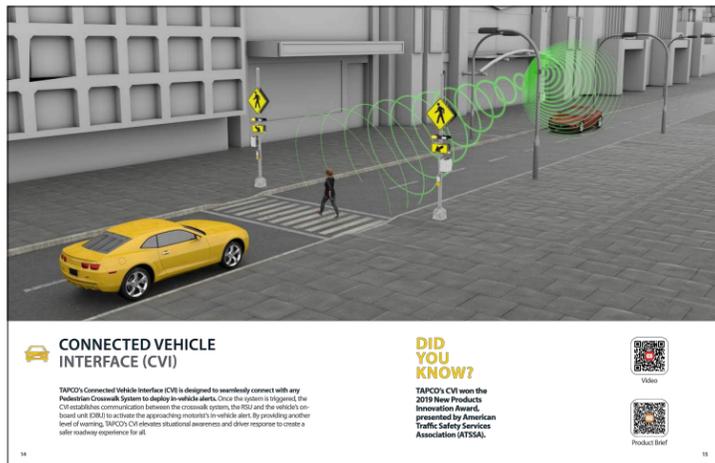


SAFEBALK® CROSSWALK ILLUMINATOR

Enhance any Pedestrian Crosswalk System with the SAFEBALK® Crosswalk Illuminator. The illumination technology drastically improves pedestrian visibility in poor weather conditions and evening hours.

SAFEBALK® can be paired with any crosswalk system and activates in tandem with the system's warning alerts. The Illuminator is ideal for highly-trafficked areas such as school zones, parks, libraries and shopping centers.

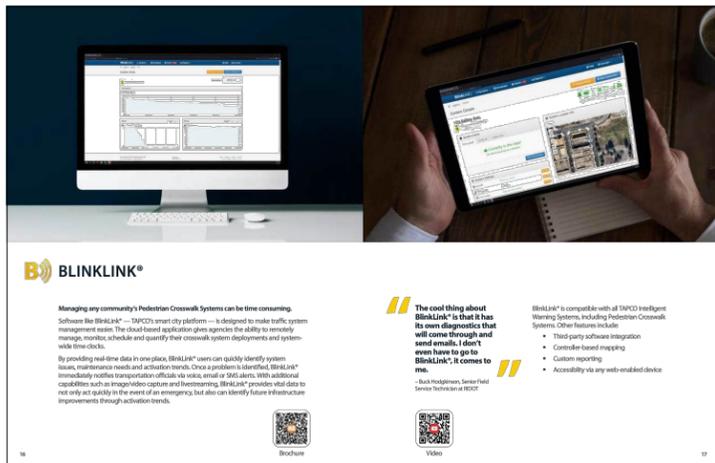
DID YOU KNOW?
77% percent of pedestrian fatalities occur in the dark (According to the FHWA)



CONNECTED VEHICLE INTERFACE (CVI)

TAPCO's Connected Vehicle Interface (CVI) is designed to seamlessly connect with any Pedestrian Crosswalk System to display in-vehicle alerts. Once the system is triggered, the CVI establishes communication between the crosswalk system, the CVI and the vehicle's onboard unit (OBU) to activate the approaching motorist's in-vehicle alert. By providing another level of warning, TAPCO's CVI develops situational awareness and driver response to create a safer roadway experience for all.

DID YOU KNOW?
TAPCO's CVI won the 2019 New Products Innovation Award, presented by American Traffic Safety Services Association (ATSSA).



BLINKLINK®

Managing any community's Pedestrian Crosswalk Systems can be time consuming. Software like BlinkLink™ — TAPCO's smart city platform — is designed to make traffic system management easier. The cloud-based application gives agencies the ability to remotely manage, monitor, check and quantify their crosswalk system deployments and system-wide data.

By providing real-time data in one place, BlinkLink™ users can quickly identify system issues, maintenance needs and activation trends. Once a problem is identified, BlinkLink™ immediately notifies transportation officials via email, text or SMS alerts. With additional capabilities such as image/video capture and live monitoring, BlinkLink™ provides vital data to not only act quickly in the event of an emergency, but also to identify future infrastructure improvements through activation trends.

The cool thing about BlinkLink is that it has its own diagnostics that will come through and send emails. I don't even have to go to BlinkLink, it comes to me.

BlinkLink™ is compatible with all TAPCO Intelligent Warning Systems, including Pedestrian Crosswalk Systems. Other features include:

- Third-party software integration
- Contract-based reporting
- Custom reporting
- Accessibility via any web-enabled device



PREVENTATIVE MAINTENANCE

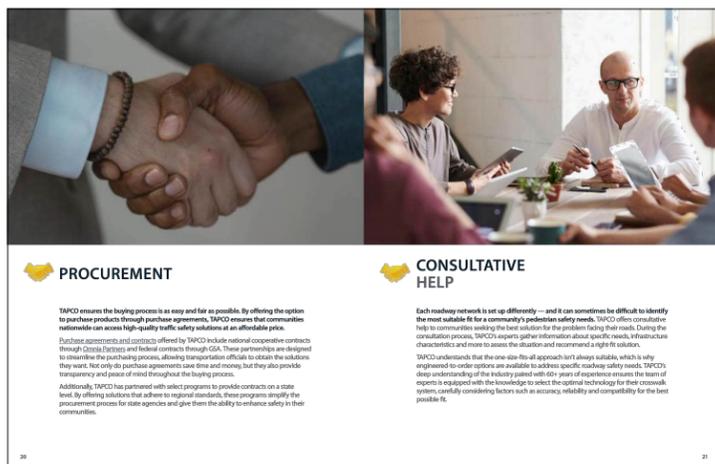
Caring for a Pedestrian Crosswalk System extends beyond procurement and installation. Servicing a system can optimize performance and extend lifespan, making it a vital step in maintaining any community's systems. TAPCO offers service agreements to accompany any crosswalk system installation or equipment warranty deployment.

TAPCO's preventative maintenance plans provide continued care of any traffic system, including scheduled visits and warranty extensions. Once a system is installed, TAPCO customers can "test and forget" with experienced service technicians available to provide next-level service for years to come.

Preventative maintenance contracts are available for any TAPCO Pedestrian Crosswalk System. Additionally, TAPCO offers customized contracts to supplement resources for non-TAPCO traffic systems and equipment, ensuring peace of mind for any deployed system. Standard services include scheduled visits to perform inspections and testing, complete system updates with provided comprehensive documentation after each visit.

Other benefits of a TAPCO service agreement include:

- Discounted BlinkLink™ subscription
- Discounted equipment package
- Maintenance contract technical support
- Customizable agreements



PROCUREMENT

TAPCO ensures the buying process is as easy and fair as possible. By offering the option to purchase products through purchase agreements, TAPCO ensures that communities nationwide can access high-quality traffic safety solutions at an affordable price.

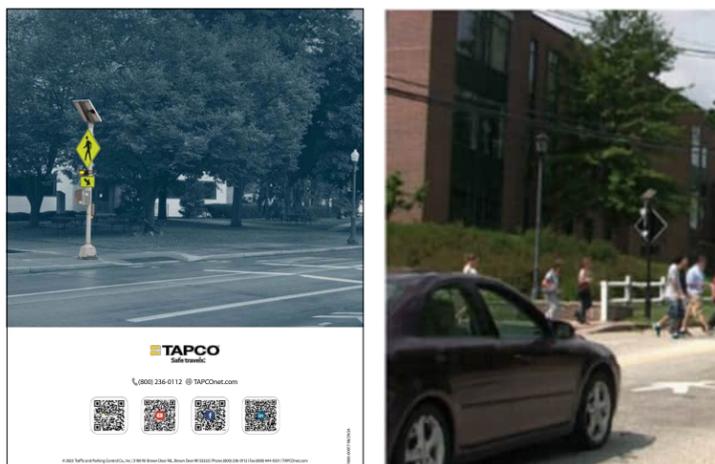
Purchase agreements and contracts offered by TAPCO include national cooperative contracts through CH2M Hill and federal contracts through GSA. These partnerships are designed to streamline the purchasing process, allowing transportation officials to obtain the solutions they want, but only do purchase agreements over time and money, but they also provide transparency and peace of mind throughout the buying process.

Additionally, TAPCO has partnered with select programs to provide contracts on a state level. By offering solutions that adhere to regional standards, these programs simplify the procurement process for state agencies and give them the ability to enhance safety in their communities.

CONSULTATIVE HELP

Each roadway network is set up differently — and it can sometimes be difficult to identify the most suitable fit for a community's pedestrian safety needs. TAPCO offers consultative help to communities seeking the best solution for the problem facing their needs. During the consultation process, TAPCO experts gather information about specific needs, infrastructure characteristics and to assess the situation and recommend a right-fit solution.

TAPCO understands that the one-size-fits-all approach isn't always suitable, which is why engineering or order options are available to address specific roadway safety needs. TAPCO's deep understanding of the industry paired with 60+ years of experience means the team of experts is equipped with the knowledge to select the optimal technology for their crosswalk system, carefully considering factors such as accuracy, reliability and compatibility for the best possible fit.



TAPCO Safe Traffic
1-800-236-6112 @TAPCO.com



SINGLE-SIDED

One BlinkerSign™ mounted on a single pole

SYSTEM COMPONENTS TO BE IDENTIFIED BY FACTORY REPRESENTATIVE / SYSTEM SALES AGENT, CIVIL TRADES, ELECTRICAL CONTRACTOR AND VILLAGE OF ELK RAPIDS PRIOR TO PURCHASE AND INSTALLATION.



AMES STREET STREETScape IMPROVEMENTS

VILLAGE OF ELK RAPIDS
ANTRIM COUNTY, MI



| NO. | DESCRIPTION | DATE |
|--------------------|-------------|----------|
| PRELIMINARY REVIEW | | 10.18.24 |
| C.D. REVIEW | | 11.13.24 |

PRELIMINARY NOT FOR CONSTRUCTION

| | |
|-----------------------|---|
| PROJECT NO. | 139072 |
| DRAWN BY: | WINDY |
| DATE: | 10.4.24 |
| REVIEWED/SIGN-OFF BY: | JN |
| DATE: | 11.5.24 |
| SCALE: | |
| FOREMAN SIGN OFF: | |
| ISSUED FOR: | <input checked="" type="checkbox"/> PRE-CONSTRUCTION <input type="checkbox"/> CONSTRUCTION <input type="checkbox"/> AS-BUILT DRAWINGS |

DRAWING TITLE
PROPOSED CROSSWALK SYSTEM SAMPLES
DRAWING NUMBER
E-10

APPENDIX 02

CROSSWALK SIGNAGE PRODUCT & INSTALLATION INFORMATION



**EXISTING CROSSWALK SIGNAGE
FOUNDATION INSTALLED ON SITE**



SALES ORDER

Traffic and Parking Control Co., LLC
 5100 West Brown Deer Rd
 Brown Deer, WI 53223
 United States of America
 Phone No.:800-236-0112
 E-Mail: customerservice@tapconet.com

SALES ORDER DATE

3/12/2025

SALES ORDER NUMBER

SO771199

CUSTOMER NO.

C99594

BILL TO

Elk Rapids Township
 Tom Stephenson
 315 Bridge St
 Elk Rapids, MI 49629
 United States of America

SHIP TO

Village of Elk Rapids
 Alex Pray
 117 Lake St
 Elk Rapids, MI 49629
 United States of America

| P.O. NO. | P.O. DATE | SHIP VIA | SALESPERSON | Est. Ship Date | TERMS |
|----------|-----------|---------------|-----------------|----------------|-------------|
| | 3/12/2025 | ABF, STANDARD | Aaron Guilbault | 4/30/2025 | Net 30 DAYS |

| Item/Description | U/M | Quantity | Unit Price | Total Price |
|--|------|----------|------------|-------------|
| 5x Crosswalks - 120VAC, SS, 36" FY W11-2 BlinkerSigns, 30" FY W16-7PL, Bulldog (Black), Hardwired, 4"x12' Decorative Black Poles, 2x Static Advance Warnings, using static signs until project is ready for 120VAC connection: | | | | |
| Current Static Crosswalks: | | | | |
| 105452 W11-2,36"x36"x.080 DG3 FY Pedestrian Crossing | Each | 10 | | |
| 373-05062 W16-7PL,30"x18"x.080,DG3 FY,Down Diagonal Left Arrow Sign,1.875" Radius (2) 3/8" Holes 3" In | Each | 10 | | |
| 151344 Pole, 12', 4"OD, Fluted, Surface Mount Base, 4 Bolt Pattern, Black Finish | Each | 10 | | |
| 151353 Decorative Base, Fits 4"OD Pole, Mini Americana, Single Piece, Black Finish | Each | 10 | | |
| 151362 Anchor Bolt, 5/8"x8", J-Bolt, For 4 Hole Surface Mount Poles, Includes Nuts, Washers, Template | Each | 40 | | |
| 111531BLK Sign Mounting Kit,Banded,Flared Leg,Anti-Vandal For Mounting 1 Blinker Sign To A Large Pole,BLK | Each | 20 | | |
| Permanent Static Advance Warning Poles: | | | | |
| 105452 W11-2,36"x36"x.080 DG3 FY Pedestrian Crossing | Each | 2 | | |
| 373-05064 W16-9P,30"x18"x.080,DG3 FY,Ahead 1.875" Radius (2) 3/8" Holes 3" In | Each | 2 | | |
| 151344 | Each | 2 | | |



SALES ORDER

Traffic and Parking Control Co., LLC
 5100 West Brown Deer Rd
 Brown Deer, WI 53223
 United States of America
 Phone No.:800-236-0112
 E-Mail: customerservice@tapconet.com

SALES ORDER DATE

3/12/2025

SALES ORDER NUMBER

SO771199

CUSTOMER NO.

C99594

Page: 2

BILL TO

Elk Rapids Township
 Tom Stephenson
 315 Bridge St
 Elk Rapids, MI 49629
 United States of America

SHIP TO

Village of Elk Rapids
 Alex Pray
 117 Lake St
 Elk Rapids, MI 49629
 United States of America

| P.O. NO. | P.O. DATE | SHIP VIA | SALESPERSON | Est. Ship Date | TERMS |
|--|-----------|---------------|-----------------|----------------|-------------|
| | 3/12/2025 | ABF, STANDARD | Aaron Guilbault | 4/30/2025 | Net 30 DAYS |
| Item/Description | U/M | Quantity | Unit Price | Total Price | |
| Pole, 12', 4"OD, Fluted, Surface Mount Base, 4 Bolt Pattern, Black Finish | | | | | |
| 151353 | Each | 2 | | | |
| Decorative Base, Fits 4"OD Pole, Mini Americana, Single Piece, Black Finish | | | | | |
| 151362 | Each | 8 | | | |
| Anchor Bolt, 5/8"x8", J-Bolt, For 4 Hole Surface Mount Poles, Includes Nuts, Washers, Template | | | | | |
| 151359 | Each | 2 | | | |
| Finial, 4"OD, Globe, Black Finish | | | | | |
| 111531BLK | Each | 4 | | | |
| Sign Mounting Kit,Banded,Flared Leg,Anti-Vandal For Mounting 1 Blinker Sign To A Large Pole,BLK | | | | | |
| Future Use 120VAC Cabinets & Push Buttons: | | | | | |
| 500096B | Each | 5 | | | |
| Controller, 120VAC, 108045-BLK, Hollow SO771199 | | | | | |
| 2180-BRKT-R-BLK | Each | 5 | | | |
| Cabinet Bracket Set, Black, Fits Round Poles 2-3/8 & Up, Standard Hardware, Brackets, & Snap Locks | | | | | |
| 2180-00218DF | Each | 10 | | | |
| BlinkerSign, W11-2, 36", Ped Xing, DG3, FY, Direct Fire, 8 Amb LEDs | | | | | |
| 115881 | Each | 10 | | | |
| Push Button Bulldog Add-On Option Kit Black, With LED | | | | | |
| 144081-300 | Each | 2 | | | |
| Cable, Bulk, 2C 18AWG Blk/Red, UL Rated, 300 foot pre-cut length | | | | | |

Estimated lead time: 6-8 Weeks
 Furnish only quote. Installation is not included.



SALES ORDER

Traffic and Parking Control Co., LLC
5100 West Brown Deer Rd
Brown Deer, WI 53223
United States of America
Phone No.:800-236-0112
E-Mail: customerservice@tapconet.com

SALES ORDER DATE

3/12/2025

SALES ORDER NUMBER

SO771199

CUSTOMER NO.

C99594

Page: 3

BILL TO

Elk Rapids Township
Tom Stephenson
315 Bridge St
Elk Rapids, MI 49629
United States of America

SHIP TO

Village of Elk Rapids
Alex Pray
117 Lake St
Elk Rapids, MI 49629
United States of America

| P.O. NO. | P.O. DATE | SHIP VIA | SALESPERSON | Est. Ship Date | TERMS |
|----------------------------|-----------|---------------|-----------------|----------------|-------------|
| | 3/12/2025 | ABF, STANDARD | Aaron Guilbault | 4/30/2025 | Net 30 DAYS |
| Item/Description | U/M | Quantity | Unit Price | Total Price | |
| 3200-0000 FREIGHT SALES | | 1 | | | |

Bulldog Push Button Installation Guide



General Notes:

- Drill and assemble the components in-shop instead of on-site. This eases installation, reduces time on-site, and minimizes traffic hazards.
- Consult FHWA MUTCD as well as state/local regulations and the engineers' plans to determine component locations on the pole and how to properly angle the device(s) to face traffic.
- Use drip loops and ties for cables where applicable.

▲ WARNING

- Accidents during installation can result in death or serious injuries.
- Always wear safety glasses, cut-proof gloves, hard hats, safety vests, steel-toed shoes, and any other required protection.
- At least two qualified installers must be on site.

RECOMMENDED TOOLS AND HARDWARE

- | | | |
|----------------------------------|--------------------|---|
| ■ Cordless Drill | ■ Masking Tape | ■ Cable/Sheathing Stripper |
| ■ 1/4 in. Insert Bit Screwdriver | ■ Permanent Marker | ■ Wire Stripper |
| ■ Driver Bit Set | ■ Tape Measure | ■ Hole Reamer (for holes between 13/64 in. and 2 in.) |
| ■ 1/4-20 Tap | ■ Fish Tape/Hook | |
| ■ 13/64 in. Drill Bit | ■ Spade Terminals | |
| ■ 5/8 in. Hole Saw or Step Bit | ■ Terminal Crimper | |

SUPPLIED TOOLS AND HARDWARE

- | | | |
|-------------|----------------------|------------------------|
| ■ Backplate | ■ Front plate/button | ■ Spade terminal forks |
| ■ Gasket | ■ 2-conductor wire | ■ Screws |

For additional information visit: <https://polara.com/bulldog-push-button>

Note:

- Consult with the appropriate state or local authority to verify ADA compliance.

NOTICE

No more than TWO buttons should be wired to a control board.



Figure 1



Figure 2

A. MOUNT THE BULLDOG PUSH BUTTON.

- A.1** Remove the fasteners to remove the push button cover from the mounting base (if applicable).
- A.2** Use the mounting base as a guide to mark two mounting holes (top and bottom) and one porting hole (center) between **42 in.** and **48 in.** from the ground. See Figure 1.



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10

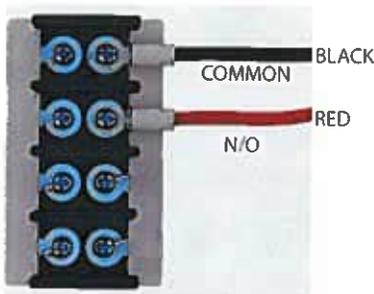


Figure 11

- A.3** Use a hole saw or step bit to drill the **5/8 in.** cable porting hole into the pole. See Figure 2.
- A.4** Ream and clean the porting hole to help prevent wiring damage.
- A.5** Insert a grommet into the cable porting hole.
- A.6** If the pole is aluminum, use the provided self-tapping screws to mount the push button base to the pole. See Figure 4. Go to Step 8.
- A.7** Drill and tap screw holes before mounting the push button base (if applicable).
 - a. Use a **13/64 in.** bit to drill the mounting holes. See Figure 3.
 - b. Thread with a 1/4-20 tap.
 - c. Mount the push button base. See Figure 4.
- A.8** Place the gasket behind the push button cover, so the holes align. See Figure 5.

B. WIRE THE BULLDOG PUSH BUTTON.

- B.1** Use a sheathing stripper to strip approximately 3 in. of the cable sheathing.
- B.2** Strip **3/8 in.** of insulation from the two individual wires. See Figure 6.
- B.3** Crimp a spade terminal fork onto the exposed portion of each wire. See Figure 7.
- B.4** Fasten the spade terminal forks to the two push button terminals in either order. See Figure 8 and Figure 9.

Note: The terminals are not polarized

- B.5** Feed the cable into the porting hole. See Figure 10.
- B.6** Use the tape and hook to fish the cable through the pole, so the cable end protrudes through the top or porting hole.
- B.7** Pull through the remaining cable slack.
- B.8** Mount the push button cover onto its base. Secure it with screws.

C. WIRE THE BULLDOG PUSH BUTTON IN THE CABINET.

- C.1** Use a sheathing stripper to strip **3 in.** of the cable sheathing.
- C.2** Strip **3/8 in.** of insulation from each of the wires. See Figure 6.
- C.3** Crimp a spade terminal fork onto the exposed portion of each wire. See Figure 7.
- C.4** Loosen the terminal block screws enough to accept the connections.
- C.5** Fasten the black and red wires to the two push button terminals in any order. See Figure 11.



(800) 236-0112 TAPCO.net.com



Basic Wiring Guide

Notes:

- Exploded view does not represent a typical system layout. It includes multiple intelligent warning devices that would not be used in conjunction with each other.
- Figures are for representation purposes only. Some details may vary among systems.
- For system installation instructions, see the appropriate installation guide.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

▲ WARNING

- Batteries can produce explosive gases causing death or serious injury.
 - Wear safety glasses, gloves, and other required protection when handling the battery.
 - Do not allow any flames near the battery.
 - Ensure the surrounding area has adequate ventilation.
- The DC conductors of this photovoltaic system are ungrounded and may become energized.

▲ CAUTION

- Improperly connecting a battery can result in sparks that may cause minor to moderate injuries.
- When connecting a battery, always connect the **Positive (+)** terminal first and then the **Negative (-)** terminal.

A. WIRE THE POWER SOURCE

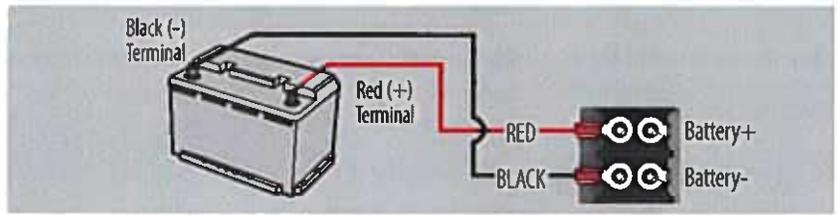


Figure 1 - Battery Wiring

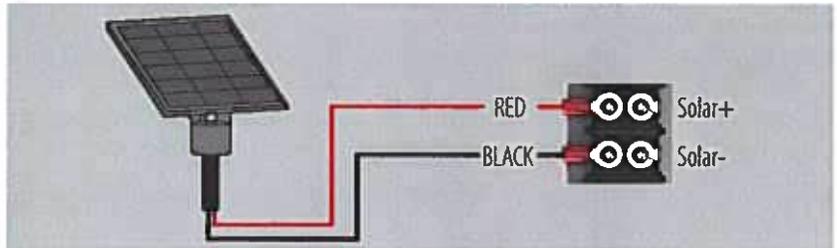


Figure 2 - Solar Panel Wiring



Figure 3 - Circuit Breaker

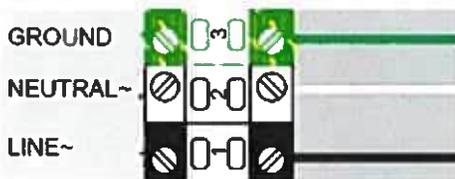


Figure 4 - AC Wiring

⚠ DANGER

High Voltage

- Contact with **AC** power results in death or serious injury.
- Disconnect the AC power source, and verify the circuit breaker is **OFF** before any wiring procedures or services. See Figure 3.
- **Only Qualified Electrical Technicians** should engage in wiring procedures.

B. WIRE THE ALERT SYSTEM COMPONENT.

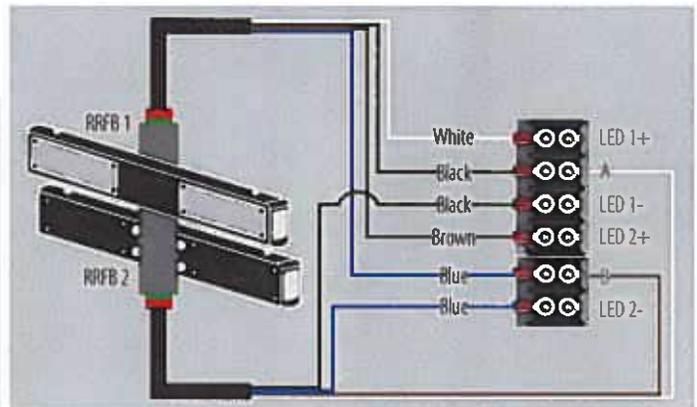
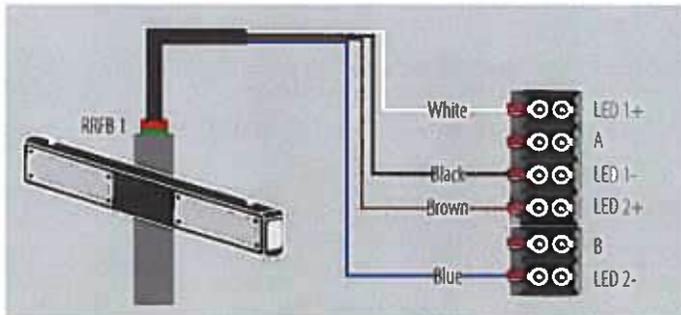


Figure 5 - RRFB Light Bars, Single and Back-to-Back Connections

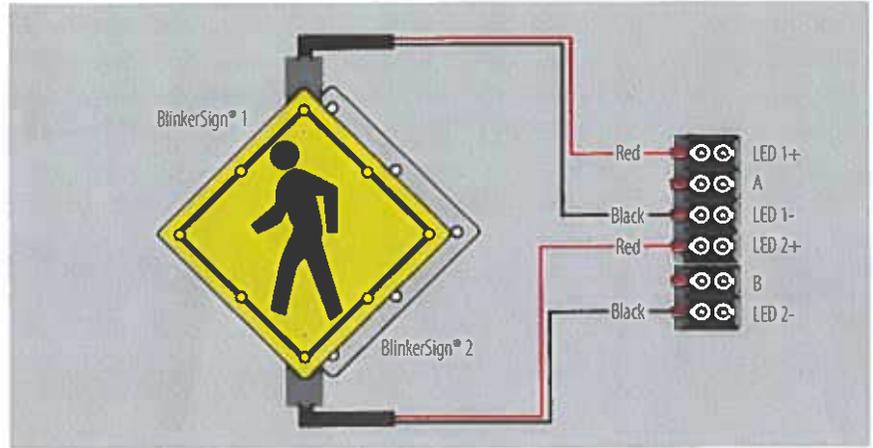


Figure 6 - BlinkerSigns

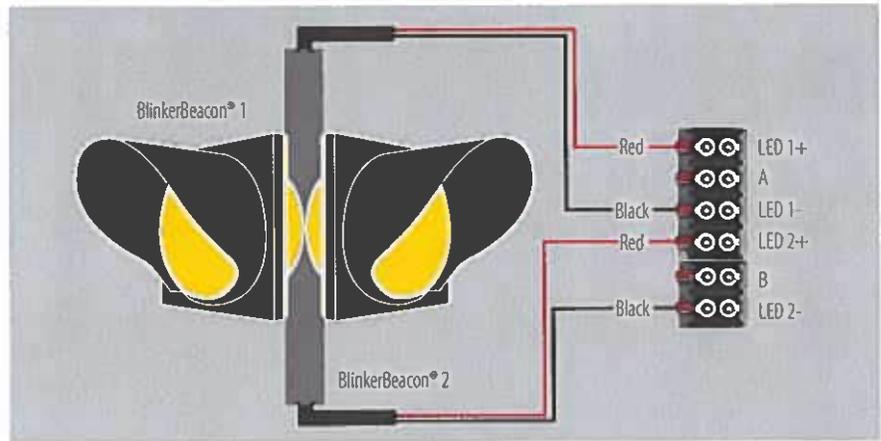


Figure 7 - BlinkerBeacons

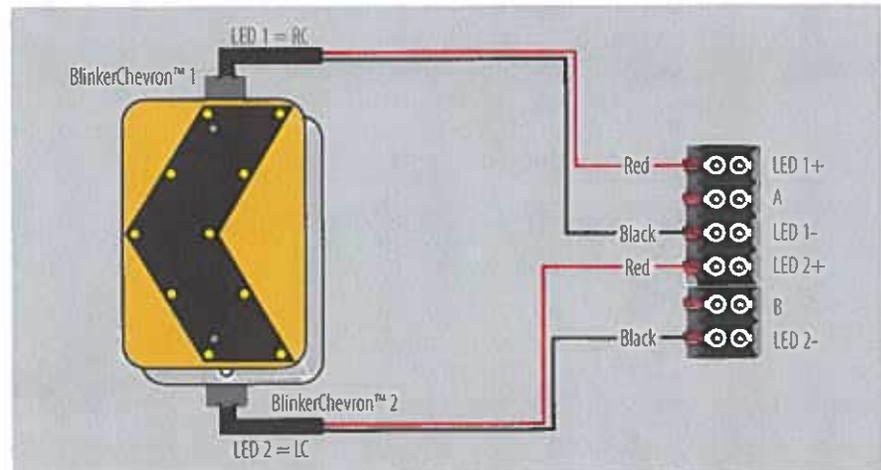


Figure 8 - Dynamic Curve Warning System (Chevrons)

NOTICE

- The flash pattern will be out of sequence or malfunction if wiring configuration is not followed.
- Ensure the Right Chevron is connected to LED 1, and the Left Chevron is connected to LED 2.

C. WIRE THE ACTIVATION DEVICE.

Note: If connecting a radar and **RAD IN** is not present on the terminal block, connect the green wire to **N/O or Input**.

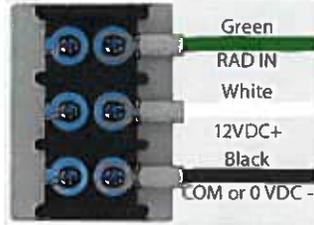


Figure 9 - Radar

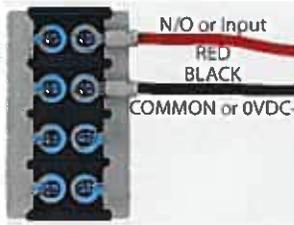


Figure 10 - BullDog Push Button

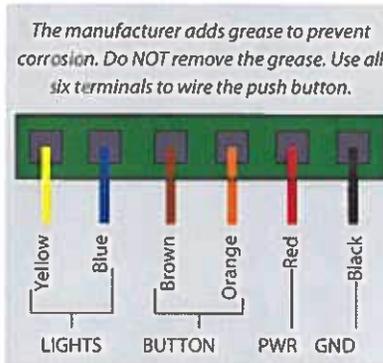


Figure 11 - iNX Push Button Terminations

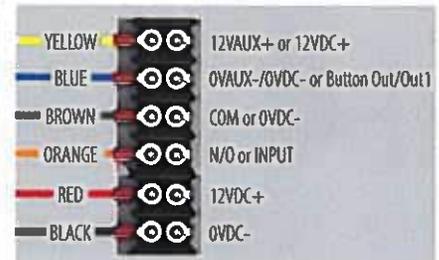


Figure 12 - iNX Push Button Cabinet Terminations

For technical support, call TAPCO® at 800-236-0112 or email customerservice@tapconet.com.

8 am–5 pm (CST)
Monday through Friday

For faster service, have the serial number on the TAPCO® cabinet label ready.



A TAPCO® label is placed on outside of each cabinet



(800) 236-0112

TAPCOnet.com



BlinkerSign® Pedestrian Crosswalk System Installation Guide

For systems employing:

- AC-Power
- Side-of-Pole Control Cabinet
- Push Button Operation

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Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Suggested Dimensions

Measurements may vary according to local, state, and federal regulations.

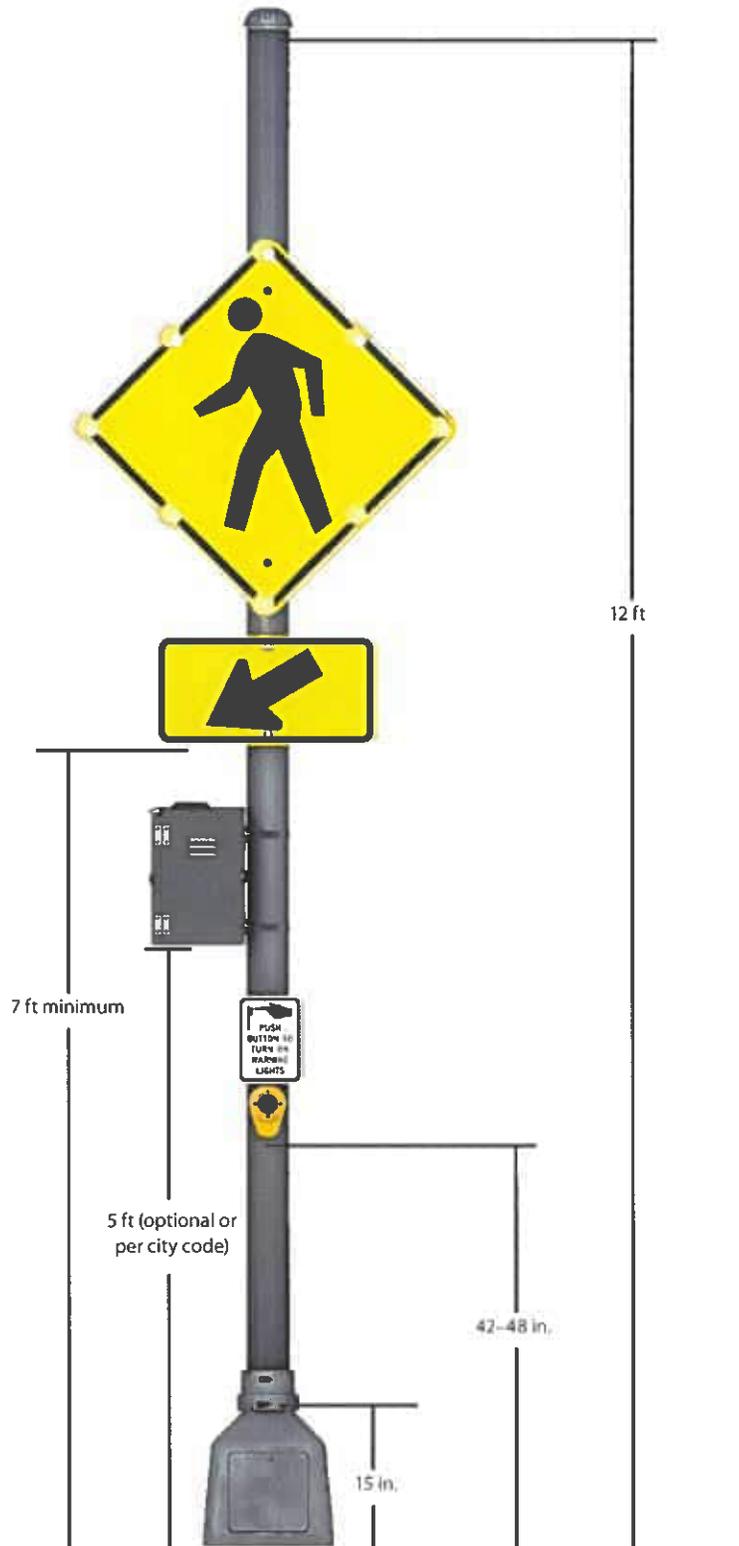
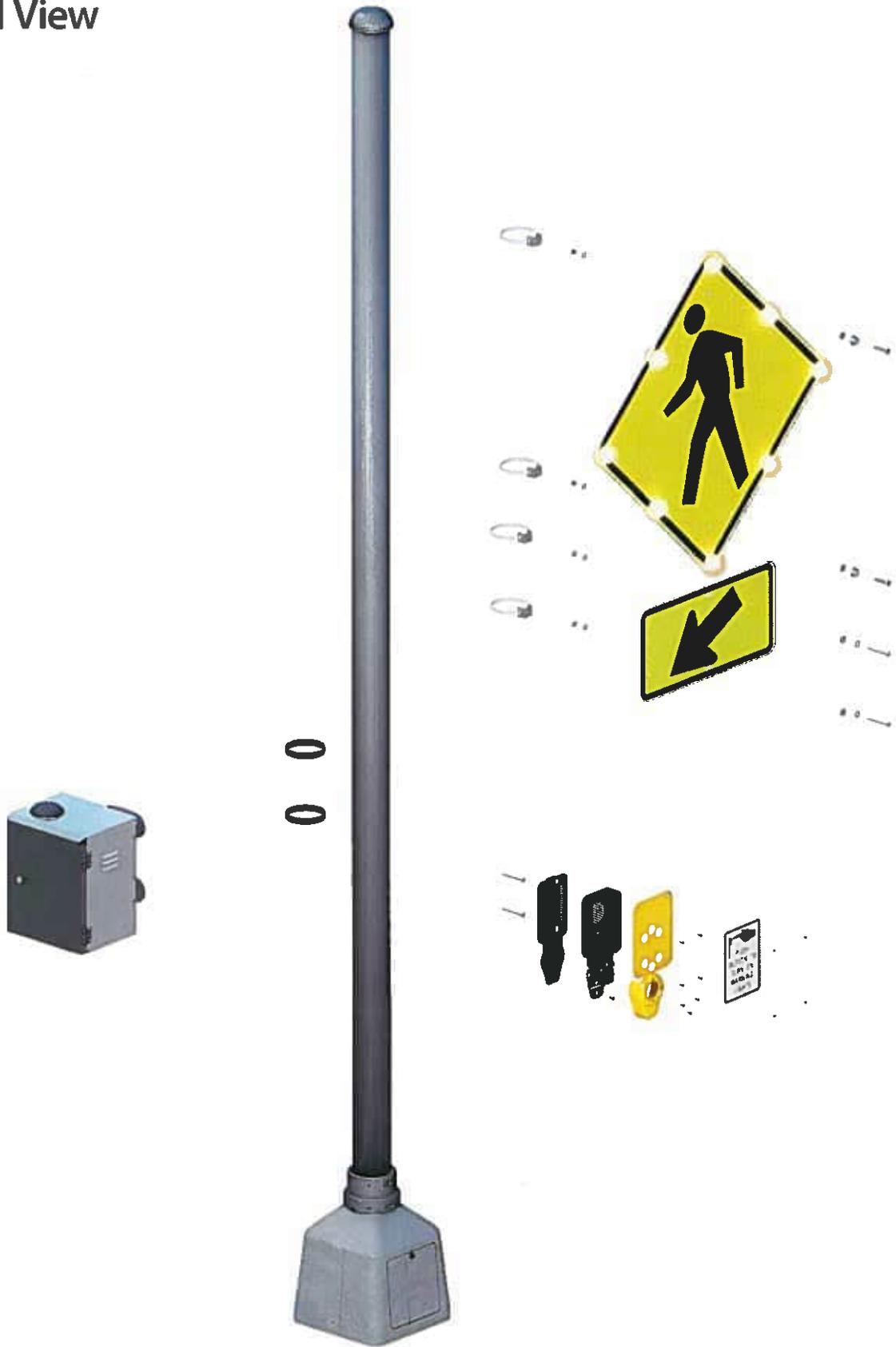


Illustration and corresponding dimensions reflect pole base at crosswalk grade.

Exploded View



System Notes:

- TAPCO® recommends a round pole with a pedestal base and locking collar (available from TAPCO®) for rotation control and wind resistance. This guide presumes a round pole is used. Measurements and procedures with square posts may vary.
- TAPCO® recommends IN-SHOP drilling and assembly of components onto the pole. It eases installation, reduces time on-site, and minimizes traffic hazards.
- Figures are for representation purposes only. Some details may vary among systems.
- Consult FHWA MUTCD as well as state/local regulations and the engineers' plans to determine component locations on the pole and how to properly angle the BlinkerSign(s) to face traffic. See also diagram on page 3 for suggested locations and measurements.
- TAPCO® recommends applying an anti-seize compound to bolts.
- TAPCO® recommends using drip loops and ties for cables where applicable.

▲ WARNING

- Accidents during installation can result in death or serious injuries.
- Always wear safety glasses, cut-proof gloves, hard hats, safety vests, steel-toed shoes, and any other required protection.
- At least two qualified installers must be on site.

RECOMMENDED TOOLS AND HARDWARE

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> ■ 10 ft Ladder or Bucket Truck ■ Safety Harness (for bucket truck activity) ■ Cordless Drill ■ Pole Strap Wrench (for poles with 4-1/2 in. OD) ■ Banding Tool-3/4 in. Wide ■ 3/4 in. (SS) Stainless Steel Banding and Banding Clips ■ Voltmeter/Multimeter ■ Screwdrivers ■ 1/4 in. Insert Bit Screwdriver ■ Sheathing Stripper, Wire Stripper, and Terminal Crimper ■ Masking Tape, Permanent Marker, and Tape Measure ■ Electrical Tape ■ Cable Ties | <ul style="list-style-type: none"> ■ Nut Driver Set ■ Driver Bit Set ■ Allen Wrench Set ■ 1 in. Wrench ■ Torque Wrench ■ Open/Box Wrench Set ■ Ratchet/Driver, Extension, Sockets/ Deep Sockets ■ 1/4-20 Tap ■ 1-3/4 in. or 2 in. Hole Saw ■ 13/64 in. Drill Bit ■ 5/8 in. Hole Saw or Step Bit ■ 1/2 in. Hole Saw or Step Bit for iNX/iDX Push Button if applicable ■ Fish Tape/Hook ■ Spade Terminals ■ Red Terminal Forks | <ul style="list-style-type: none"> ■ Leveler and Shims ■ Straight Bolts, Washers, Lock Washers, and Nuts ■ Lifetime Silicone Sealant and Duct Seal ■ Anti-Seize Compound ■ Hole Reamer (for holes between 13/64 in. and 2 in.) ■ Pedestal Hardware (sizes may vary) <ul style="list-style-type: none"> ■ Washers (4) <ul style="list-style-type: none"> ■ Minimum Outer Diameter of 2-1/2 in. ■ Minimum Inner Diameter of 1-1/16 in. ■ Lock Washers (4) <ul style="list-style-type: none"> ■ 1 in. ■ Nuts (4) <ul style="list-style-type: none"> ■ Varies according to J-bolt size |
|--|---|---|

SUPPLIED TOOLS AND HARDWARE

- Torx T15 Security Bit
- Grommet Kit(s)

Note: Conduit is not provided. Installation will vary when conduit is used. Call TAPCO® if conduit is needed.

Recommended Mounting Materials

Mounting materials for BlinkerSigns may vary according to state/local requirements and other factors, but TAPCO® recommends the proceeding materials according to assembly type and sign arrangement.

| Pole Assembly | Sign Arrangement | Materials |
|-------------------------|------------------------|---|
| Square, Perforated Post | 1 or More Signs | Through Bolts with Anti-Vandal Hardware (e.g., Tri-Groove) |
| | 1 Sign | Z-Bracket Single-Sided Round Pole Brackets with Anti-Vandal Hardware (e.g., Gator Lock) |
| | 2 or More Offset Signs | 2 Sets (1 for each sign) of Z-Bracket Single-Sided Round Pole Brackets with Anti-Vandal Hardware (e.g., Gator Lock) |
| | 2 Back-To-Back Signs | Worm Gear Clamps and Flared Leg Brackets with Anti-Vandal Hardware (e.g., Gator Lock) |

▲ DANGER

High Voltage

- Contact with AC power results in death or serious injury.
- Disconnect the AC power source, and verify the circuit breaker is OFF before any wiring procedures or services.

A. INSPECT THE LABELS.

- A.1** Remove cabinets from the packaging.
- A.2** Find the TAPCO® label on each cabinet. See Figure 1.
- A.3** Verify the serial numbers and binding code match the system. Binding code is located under **Transmitter / Receiver**. If they do not match, contact TAPCO® at 800-236-0112 or change the binding code (as noted in the radio guide).



Figure 1

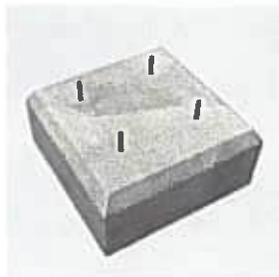


Figure 2

B. PREPARE THE SITE.

- B.1** Ensure local, state, and federal regulations are followed.
- B.2** Ensure power requirements are met.
- B.3** Ensure the concrete bases and hardware are ready for installation. See Figure 2.

NOTICE

- Concrete-embedded J-Bolts must be aligned to match the pedestal base.
- If setting J-Bolts, ensure each J-Bolt top protrudes from concrete by no more than **3 in.**

Anchor bolt hole templates for pole bases

| Standard aluminum pedestal base | 7¾ in. round base | 10 in. square pole base |
|---|----------------------|---|
| Recommended bolt circle = Ø12.75" Min. bolt circle = Ø12.00" Max. bolt circle = Ø14.50" | Bolt circle = Ø4.75" | Recommended bolt circle = Ø9.50" Min. bolt circle = Ø7.37" Max. bolt circle = Ø11.50" |
| | | |



Figure 3



Figure 4

C. MOUNT THE POLE TO THE PEDESTAL.

- C.1 Use a pole strap wrench to rotate the pole tightly into the pedestal base. See Figure 3.
- C.2 Apply the locking collar just above the pedestal base of the pole. See Figure 4.
- C.3 Position the assembly (rotate the pole/pedestal if necessary), so the pedestal door will be away from the street.

D. MARK AND DRILL THE POLE(S) FOR COMPONENTS

Note: If porting holes are not large enough, one can increase the diameters by up to **1/4 in.** in size.

- D.1 Mark the pole(s) for the BlinkerSign(s) and their porting hole(s).
 - a. Orient each sign in the intended location along the pole. Sign and pole sizes vary.
 - b. Use masking tape and a marking pen to indicate the top and bottom of each sign.

Note: TAPCO recommends drilling BlinkerSign® porting holes slightly above the intended locations of junction boxes to allow drip loops that help prevent water damage.

- c. Find the location corresponding to the junction box, and mark the pole **slightly above** it for the cable porting hole. For two signs, mark one hole on each side of the pole.

- D.2 Drill the pole for the cable porting hole(s) from the BlinkerSign(s).

NOTICE

- Burrs left after drilling can damage cables.
- Always ream out burrs after drilling.



Figure 5

- a. Use a hole saw or step bit to drill a **5/8 in.** cable porting hole(s). See Figure 5.

NOTICE

- Porting hole edges can damage cables.
- Insert grommets into porting holes.

- b. Insert a grommet into the porting hole.

- D.3 Mark and drill for the cabinet.

- a. Orient the cabinet along the pole.
- b. Position the cabinet, so the stub points to the pole.
- c. Mark the cabinet porting hole under the stub. See Figure 6.



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10

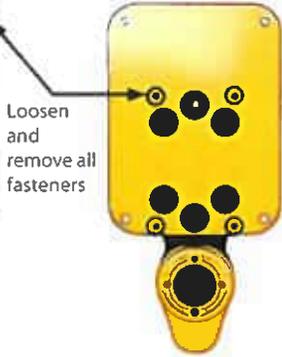


Loosen and remove all 3 fasteners

Figure 11



Figure 12



Loosen and remove all fasteners

Figure 13

- d. Use a **1-3/4 in.** or **2 in.** hole saw to drill the cable feed porting hole (large enough to accept the cabinet stub). See Figure 7.

D.4 Mark and drill for the Bulldog push button.

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

Note: Before mounting the push button, consult with the appropriate state or local authority to verify ADA compliance.

- a. Remove the fasteners if not already done to remove the push button cover from the mounting base.
- b. Use the mounting base as a guide to mark two mounting holes and one porting hole. The button should be between **42 in.** and **48 in.** from the ground. See Figure 8.
- c. Use a hole saw or step bit to drill the **5/8 in.** cable porting hole into the pole. See Figure 9.
- d. Insert a grommet into the porting hole.
- e. If the pole is aluminum, use the self-tapping screws to mount the base to the pole.
- f. Use a **13/64 in.** bit to drill the mounting holes into the pole. See Figure 10.
- g. Thread with a **1/4-20** tap.

D.5 Mark the position of the iNX or iDX Push Button.

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

NOTICE

The Polara Field Service app will be needed to finalize the installation.

- a. **Install and Configure the Polara Field Service App.** on a cellular phone.
- b. Measure and mark the pole to meet the following conditions:
 - Height of the push button from the ground should be between **42 in.** and **48 in.**
 - Sign is parallel to the crosswalk. Arrow points to travel direction.

D.6 Prepare the iNX Push Button.

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

- a. Remove the three fasteners to remove the lower cover. See Figure 11.
- b. Remove the four fasteners to remove the sign from the PBS module or the sign backplate (if applicable). See Figures 12 and 13.
- c. Remove the four fasteners to remove the sign backplate or PBS module and speaker (if applicable). See Figures 12 and 13.

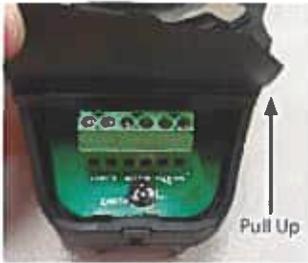


Figure 14



Figure 15



Figure 16

- d. Pull up the protective film within the push button enclosure to expose the terminal block and **EARTH** screw. See Figure 14.

Note: Removing the **EARTH** screw allows for the backplate and speaker to be detached.

- e. Remove and save the **EARTH** screw. See Figure 15.
- f. If the arrow is in the correct position, this step is not applicable. If the arrow in the PBS module is not correctly oriented, so it will be pointing to the associated crosswalk, adjust the orientation.

CAUTION

- The metal diaphragm assembly has sharp edges that can cut skin.
- Handle the diaphragm assembly with care.
- Use safety gloves if possible.

- Remove the two fasteners in the button diaphragm assembly. See Figure 16.
 - Rotate the button as needed.
 - Replace the two fasteners in the button diaphragm assembly.
- g. Ensure the fasteners securing the button diaphragm are tight.
 - h. Remove the PBS module and speaker (if applicable) from the backplate.

D.7 Mark and drill the **INX or iDX push button** mounting holes and porting hole on the pole.

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

NOTICE

- DO NOT drill while the push button System is open.
- Metal shavings can be pulled into the push button assembly when the cover is off and cause damage.

- a. Position the backplate on the pole at the correct height and orientation, so the arrow will point to the ending of the crosswalk on the opposite side of the street.
- b. Mark the pole for two **1/4–20** mounting holes that are **6 in.** apart.
- c. From the bottom mounting hole, measure **6-1/4 in.** downward, and mark that location for the porting hole.
- d. Use a hole saw or step bit to drill the **1/2 in.** cable porting hole into the pole. See Figure 17.
- e. Insert a grommet into the porting hole.
- f. Use a **13/64 in.** bit to drill the mounting holes into the pole. See Figure 18.
- g. Thread the holes with a **1/4–20** tap.



Figure 17



Figure 18



Figure 19



Figure 20



Figure 21



Figure 22



Figure 23



Figure 24



Figure 25



Figure 26



Figure 27

E. FEED THE CABLES, AND MOUNT THE PUSH BUTTON.

E.1 Feed cables for and mount the **BullDog** push button.

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

- a. Mount the push button base. See Figure 19.
- b. Place a gasket behind the push button cover, so the holes align. See Figure 20.
- c. Use a sheathing stripper to strip approximately **3 in.** of the cable sheathing.
- d. Strip **3/8 in.** of insulation from the two individual wires. See Figure 21.
- e. Crimp a spade terminal onto the exposed portion of each wire. See Figure 22.
- f. Fasten the lead connectors to the two push button terminals in either order. See Figure 23.
- g. Tighten the terminal block screws. See Figure 24.
- h. Feed the cable into the porting hole.
- i. Use the **tape and hook to fish the cable through the pole and back out through the cabinet porting hole.**
- j. Pull through the remaining cable slack.
- k. Mount the push button cover onto its base, and secure it with screws.

E.2 Feed cables for and mount the **iNX/iDX** push button.

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

- a. Feed the cable into the porting hole. See Figure 25.
- b. Use the **tape and hook to fish the cable through the pole, so the cable end protrudes through the top.**
 - Ensure that **4 in.** of wire is available at the bottom of the push button backplate.
- c. If the wires are not already exposed and stripped for connections to the push button, use a sheathing stripper to strip **1-1/2 in. to 2 in.** of sheathing from the push button cable's outer jacket.
- d. If not already done, strip approximately **1/4 in.** of insulation from each wire. See Figure 26.
- e. Orient the backplate along the pole, so the mounting holes align.
- f. Route the wires forward, so they are near the bottom end of the backplate.
- g. Use the provided **1/4-20** bolts and washers to fasten the backplate to the pole. See Figure 27.
- h. Replace the PBS module and speaker (if applicable).
- i. Replace the sign backplate (if applicable).
- j. Replace the sign.
- k. Replace the **EARTH** ground connection screw.



Figure 28

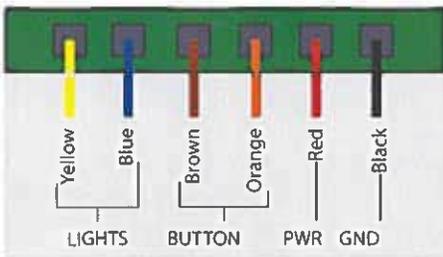


Figure 29

E.3 Wire the 6-Conductor Cable to the **INX/iDX push button**.

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

- a. Use a small flathead screwdriver to loosen the screws in the push button terminal block, so the slots can accept wire connections. See Figure 28.
- b. Insert the stripped portion (only) of each colored wire into the corresponding terminal. *The manufacturer adds grease to prevent corrosion. Do not remove the grease. Use all six terminals to wire the push button.* See Figure 29.

Note: **LIGHTS** (Yellow and Blue) and **BUTTON** (Brown and Orange) wires are not polarized.

- c. Tighten the terminal block screws.
- d. Replace the lower cover and secure the three fasteners.

F. INSTALL THE BLINKERSIGN®.

F.1 Use fish tape to feed any BlinkerSign® cables into their corresponding porting holes, through the pole(s), and out through the cabinet porting hole(s).

F.2 Use a hole punch or screwdriver to pierce the sheeting through the holes in the sign front.

See the subsection below corresponding to the desired sign arrangement.

One Sign Or Two Offset Signs

If mounting two Back-To-Back signs, skip to step F.5.

F.3 Use the Z-Brackets and anti-vandal hardware to fasten one sign to the pole. See Figure 30.

a. Orient the flat side of the larger bracket piece along the top spacer on the back of the sign, so the holes align. See Figure 31.

b. Insert the hex bolt into the back of the bracket, so the hex bolt protrudes through the spacer and bracket piece. See Figure 32.

c. Apply the clear nylon washer and the anti-vandal washer, so the hex bolt inserts through them. Fasten the nut. See Figure 33.

d. Repeat A-C with the lower sign bracket assembly.

e. Orient the sign bracket assembly, so the brackets curve around the pole, and the sign faces the intended location. See Figure 34.

f. Orient the smaller brackets around the other side of the pole, and slide the J-shaped ends into the larger brackets' grooves. See Figure 35.

g. Secure the brackets around the pole. Use carriage bolts, anti-vandal washers, lock bolts, and hex nuts to fasten (but not yet tighten) the larger brackets/sign to the smaller brackets around the pole. See Figure 36.

h. Ensure the sign is facing the intended location, and tighten the fasteners.

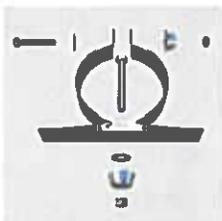


Figure 30



Figure 31



Figure 32



Figure 33



Figure 34



Figure 35



Figure 36



Figure 37



Figure 38



Figure 39

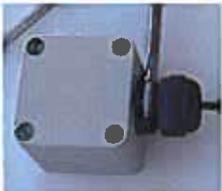


Figure 40



Figure 41



Figure 42



Figure 43

- i. Repeat F.3a-h if installing another offset sign.
- F.4** Wire the junction box(es).

If the BlinkerSign® cable will be routed through conduit, see separate instructions inside the optional conduit kit.

- a. Use a flathead screwdriver to loosen the fasteners and open the junction box. Uncoil the wires if necessary. See Figure 37.
- b. Find the BlinkerSign® LED end of each cable.
- c. Strip the wires (if not already stripped). Use a sheathing stripper to strip approximately **3 in.** of the cable sheathing to expose the individual wires. Strip **3/8 in.** of insulation from the two individual wires. See Figure 38.
- d. Feed the stripped ends of the wires into the junction box through its cord grip.
- e. To insert the wires into the pivot connectors, open the one unoccupied pivot connector attached to each cable. Insert the **RED** wire into the open pivot connector next to the **RED, WHITE** or **YELLOW** leads. The specific wire color lead varies dependent on the LED color utilized in the sign. Always insert the **BLACK** wire into the open pivot connector next to the **BLACK** leads. Close the pivot connectors. See Figure 39.
- f. Ensure the nut inside the junction box is tight.
- g. Ensure nothing sticks outside of the junction box.
- h. Replace the junction box cover, and tighten the fasteners.
- i. Use a **1 in.** wrench to tighten the outside nut closest to the junction box until snug. See Figure 40.
- j. Use a **1 in.** wrench to tighten the cord grip firmly onto the wire until the wire is unable to move. See Figure 41.

Repeat for a second offset sign if applicable, and skip to Section G.

Two Back-To-Back Signs

Note: Two worm gear clamps are used to fasten two Back-To-Back signs (one for the tops and one for the bottoms).

- F.5** Fasten the **top of the first sign** to the pole.
- a. Find a worm gear clamp and insert it through two flared leg brackets (one bracket will be for each sign).
 - b. Fasten the clamp/brackets around the pole for the **top of the sign**. Tighten the clamp. See Figure 42.
 - c. Insert a bolt through the clear nylon washer. Insert the bolt through the **front** of the sign's **top hole** and align the bolt with a bracket.
 - d. Use a wrench to tighten the bolt. Ensure the assembly matches Figure 43.



Figure 44



Figure 45

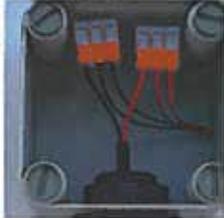


Figure 46

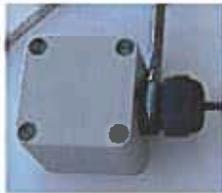


Figure 47



Figure 48



Figure 49



Figure 50



Figure 51

F.6 Wire the junction box of the **first sign**.

If the BlinkerSign® cable will be routed through conduit, see separate instructions inside the optional conduit kit.

- Use a flathead screwdriver to loosen the fasteners and open the junction box. Uncoil the wires if necessary. Figure 44.
- Find the BlinkerSign® LED end of each cable.
- Strip the wires (if not already stripped). Use a sheathing stripper to strip approximately **3 in.** of the cable sheathing to expose the individual wires. Strip **3/8 in.** of insulation from the two individual wires. See Figure 45.
- Feed the stripped ends of the wires into the junction box through its cord grip.
- To insert the wires into the pivot connectors, open the one unoccupied pivot connector attached to each cable. Insert the **RED** wire into the open pivot connector next to the **RED, WHITE** or **YELLOW** leads. The specific wire color lead varies dependent on the LED color utilized in the sign. Always insert the **BLACK** wire into the open pivot connector next to the **BLACK** leads. Close the pivot connectors. See Figure 46.
- Ensure the nut inside the junction box is tight.
- Ensure nothing sticks outside of the junction box.
- Replace the junction box cover, and tighten the fasteners.
- Use a **1 in.** wrench to tighten the outside nut closest to the junction box until snug. See Figure 47.
- Use a **1 in.** wrench to tighten the cord grip firmly onto the wire until the wire is unable to move. See Figure 48.

F.7 Prepare the hardware for the **bottom of the first sign**.

- Insert the clear nylon washer and a bolt through the **front** of the sign's **bottom hole**. Find another bracket. Align the bolt with the bracket. Use a wrench to tighten the bolt.
- Find another clamp for the **bottoms** of the signs, and insert it through the bracket's slots. See Figure 49.

F.8 Begin mounting the **second sign**.

- Find another bracket and insert the **bottom clamp** through it.
- Fasten the clamp around the pole for the **bottoms** of the signs, **but do not tighten it**. See Figure 50.
- Insert the clear nylon washer and a bolt through the **front** of the **second sign's top hole**. Align the bolt with the unoccupied bracket.
- Use a **wrench** to secure the bolt but leave slightly loose, so the sign can be rotated in the next step.

F.9 Rotate the **second sign** up and counterclockwise (for easier access to the junction box). See Figure 51.

F.10 Wire the junction box of the **second sign**.

- Repeat F.6.



Figure 52



Figure 53



Figure 54



Figure 55



Figure 56

- F.11** Rotate the **second sign** back down and clockwise. Tighten the top bolt.
- F.12** Align the **bottom hole** of the **second sign** with the unoccupied bracket on the **bottom clamp**.
- F.13** Insert the clear nylon washer and a bolt through the **front** of the **second sign's bottom hole**, and use a wrench to tighten it.
- F.14** Ensure the signs are parallel and oriented to face traffic.
 - a. If necessary, loosen the **top clamp** to reposition the signs.
 - b. Position signs as needed to face traffic.
 - c. Retighten the **top clamp**.
- F.15** Tighten the **bottom clamp**. See Figure 52.

G. FEED THE CABLES, AND MOUNT THE CABINET.

Note: TAPCO® recommends applying silicone or duct seal where the cabinet stub/port meets the pole for extra protection.

- G.1** Open the cabinet (if not already open).
- G.2** Ensure all component cables are fed into their porting holes, through the pole, and out through the cabinet porting hole. See Figure 53.
- G.3** Lift the cabinet, and feed the cables from the cabinet porting hole into the cabinet stub to enable connections. See Figure 54.
- G.4** Set the cabinet onto the pole by inserting the stub into the cabinet porting hole.
- G.5** Insert the worm gear clamp through the **upper** pair of slots. Wrap it around the pole. Tighten the clamp, and secure the fastener.
- G.6** Insert the worm gear clamp through the **lower** pair of slots. Wrap it around the pole. Tighten the clamp, and secure the fastener. See Figure 55.

H. WIRE THE BLINKERSIGN(S)

⚠ CAUTION

- Excess voltage causes injuries and damages.
- Use a voltmeter to measure incoming AC voltage, and ensure it does not exceed the acceptable range indicated on the transformer.

- H.1** Open the control cabinet (if not already open).
- H.2** Prepare the wires.
 - a. Use a sheathing stripper to strip **3 in.** of sheathing from the cables to expose the individual wires.
 - b. Strip **3/8 in.** of insulation from each of the wires. See Figure 56.

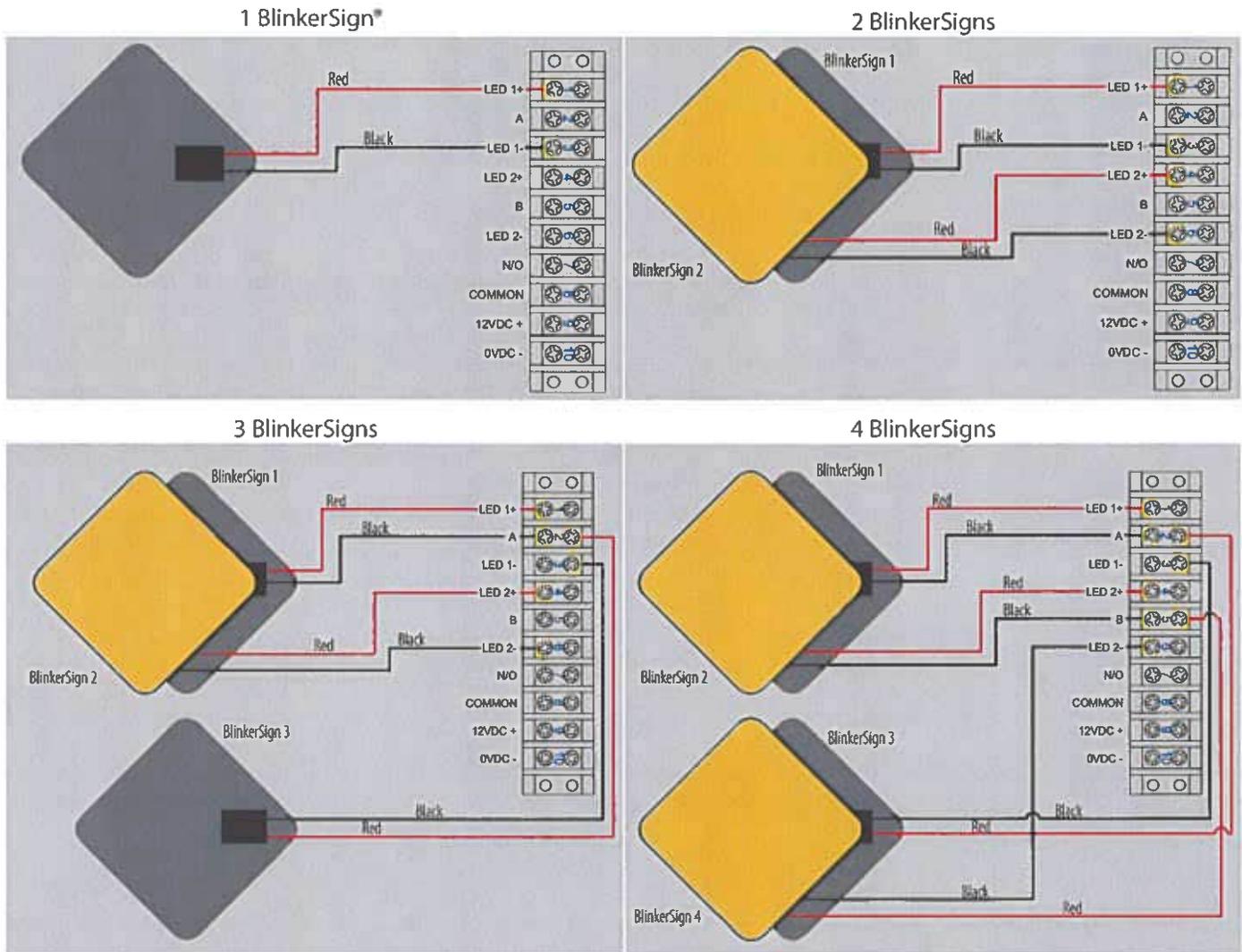


Figure 57

- c. Crimp a spade terminal onto the exposed portion of each wire. See Figure 57.

H.3 Connect the wires.

- a. Loosen each terminal block screw to accept terminal block connectors.
- b. Fasten the colored wires to the specified terminals. See Figure 58 according to quantity of signs.
- c. Tighten the terminal block screws.



NOTICE

Above figure depicts front and back of BlinkerSign(s). Signs that face the same direction should be wired to the same LED terminal number as shown.

Figure 58

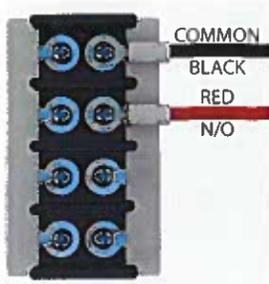


Figure 59

I. CONNECT THE PUSH BUTTON WIRES IN THE CABINET.

I.1 BullDog

Skip this subsection if not used.

Skip sub-steps A through C if the wires are already crimped.

For more information, see Polara's Website for their current User Manual.

- a. Use a sheathing stripper to strip **3 in.** of sheathing from the cables to expose the two individual wires.
- b. Strip **3/8 in.** of insulation from each of the wires.
- c. Crimp a spade terminal onto the exposed portion of each wire.
- d. Loosen the terminal block screws enough to accept the connections.
- e. Fasten the black and red wires to the two push button terminals in any order. See Figure 59.
- f. Tighten each terminal block screw.

I.2 INX/IDX

Skip this subsection if not used. For more information, see Polara's Website for their current User Manual.

- a. If the wires are not already exposed and stripped for connections in the cabinet, use a sheathing stripper to strip **4 in.** of sheathing from the cable.
- b. If not already done, strip **1/4 in.** of insulation from each of the six wires.
- c. Loosen the terminal block screws enough to accept the connections.
- d. Insert the exposed portion of each colored wire into the terminal block. See Figure 60 according to terminal locations in the drawing.
- e. Tighten each terminal screw.

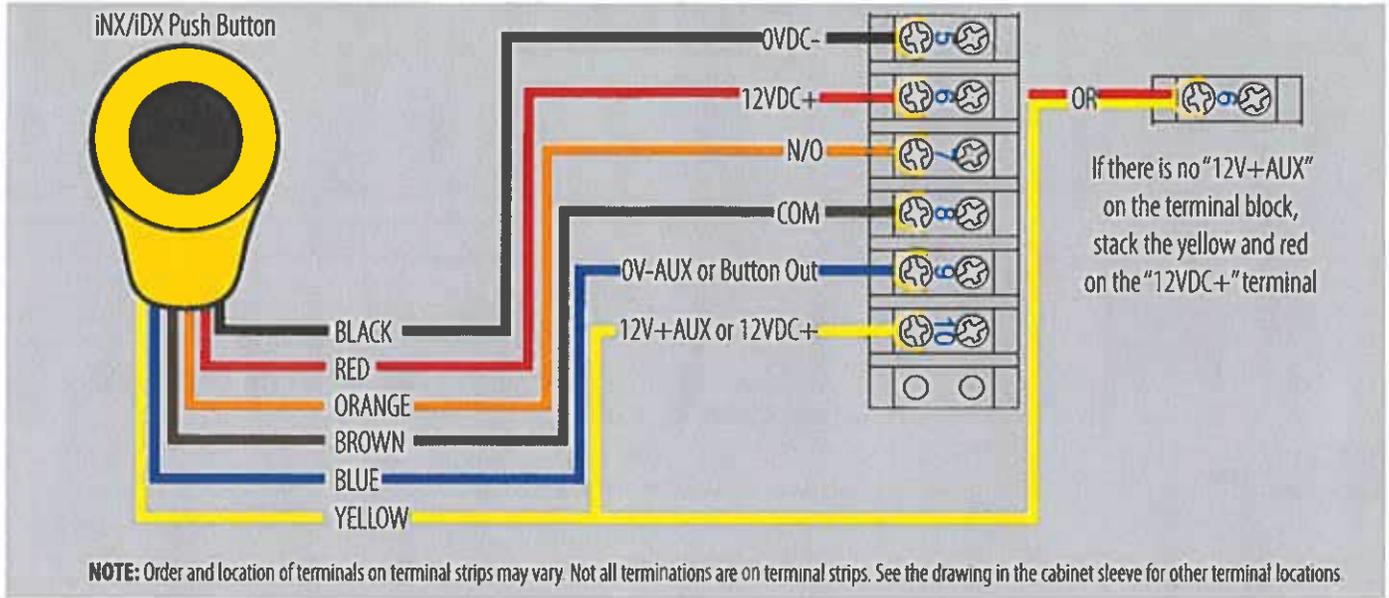


Figure 60

J. INSTALL THE ASSEMBLY

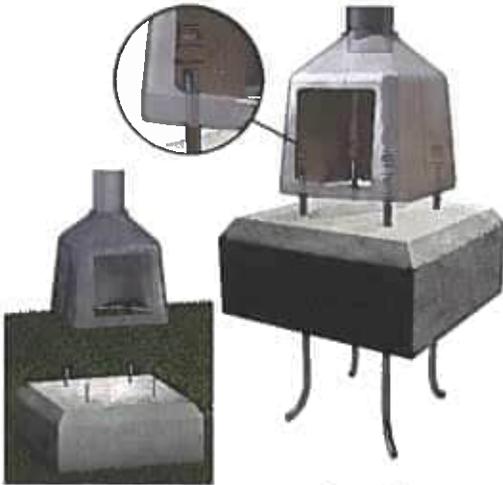


Figure 61

Figure 62

⚠ WARNING

- Assemblies can fall and cause death or serious injury if inadequate hardware is used to fasten the pedestal/pole.
- Consult AASHTO, The Manual for Assessing Safety Hardware, and AASHTO LRFD Specifications for Structural Supports for Highway Signs to determine which washers, lock washers, nuts, or other hardware are adequate for your particular application.

Note: For future maintenance safety, position the pedestal, so the door is opposite of traffic.

- J.1 Loosen and remove the pedestal base door fastener.
- J.2 Remove the pedestal base door.
- J.3 Lift the pole assembly, and carry it to the prepared concrete base. See Figure 61.
- J.4 Fit the assembly over the concrete base, and lower it, so the bolts in the concrete insert through the slots/holes in the pedestal.
- J.5 Thread washers, lock washers, and nuts onto the bolts. See Figure 62.
- J.6 Tighten the nuts snugly to secure the assembly.
- J.7 Level and plumb the pole. See Figure 63.
- J.8 Use a wrench to fully tighten the nuts.
- J.9 Replace the pedestal base door and fastener.



Figure 63

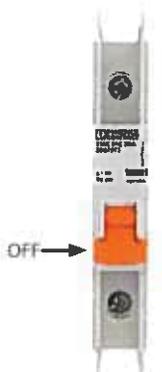


Figure 64

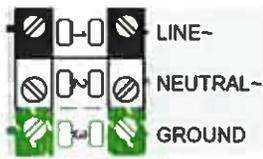


Figure 65



Figure 66

K. CONNECT AC POWER.

- K.1 Ensure assembly setup is complete.
- K.2 Verify connections are correct for all system components.
- K.3 Ensure the circuit breaker in the control cabinet is in the **OFF** position. See Figure 64.
- K.4 Direct a qualified, licensed electrician to make the required AC power connections according to state and local regulations. See Figure 65.
- K.5 After the connections are made, switch the circuit breaker(s) to the **ON** position(s). See Figure 66.

REPEAT PREVIOUS SECTIONS AS NEEDED FOR ADDITIONAL POLES/ASSEMBLIES.

L. FINALIZE THE INSTALLATION.

- L.1 Verify the system is powered by observing if the LED is illuminated on the power supplies.
- L.2 After power is verified, wait ten minutes for the radio network (if one is present) to activate.

Note: After the system is powered, a message to “Change password” will play every sixty seconds. The message will stop when the password is changed. The default password is “1234”. If the default password or previously set password does not work, see Polara’s Website for their manual or call Polara.

- a. For iNX/iDX push buttons, use the Polara Field Service app to change the password, update firmware, and adjust settings as needed.
 - b. Ensure the Wireless Sync function in the Polara Field Service app is set to OFF. See also the Polara iNX/iDX Push Button Station User Manual for more information.
- L.3 Press the push button, and confirm that the BlinkerSign® flashes on both sides of the street.
 - L.4 Repeat with the other push button.
 - a. If the signs do not flash, refer to the Troubleshooting section.
 - b. If the flash duration or other radio/controller settings need to be adjusted, refer to the BlinkerBeam® Radio Operation Guide.
 - L.5 Ensure all cabinets are closed and sealed.

M. TROUBLESHOOTING.

⚠ DANGER

High Voltage

- Contact with AC power results in death or serious injury.
- Disconnect the AC power source, and verify the circuit breaker is **OFF** before any wiring procedures or services.

TROUBLESHOOTING

| SYMPTOM | CHECK FOR ... | ACTION |
|--------------------------------|--|---|
| LED array does not flash. | No power | Check power source and circuit breaker for continuity. |
| | Disconnected power | Disconnect power source. Connect AC power feed to correct terminal. If a wire is broken, strip and splice it with a shielded connector. Reconnect power source. |
| | Loose or broken wires | Test each connection. If loose, tighten screw or nut. If a wire is broken, strip and splice it with a shielded connector. |
| | Disconnected or malfunctioning push button | Test each connection. If loose, tighten screw or nut. Run a continuity test on the terminals or leads from the device. |
| | Loose antenna | Make sure the antenna cable is securely attached to the controller. |
| Individual LED does not flash. | Loose wiring | Ensure leads are properly connected. |
| | Inoperative LED | Contact TAPCO* for a replacement. |

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800-236-0112 or email
customerservice@tapconet.com.**

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Monday through Friday**

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