



**CITY OF TRAVERSE CITY
STANDARD
CONTRACT DOCUMENTS AND
SPECIFICATIONS**

2015 FUEL DEPOT IMPROVEMENTS

OWNER

**CITY OF TRAVERSE CITY
400 Boardman Avenue
Traverse City, Michigan 49684**

**Michael Estes, Mayor
Martin Colburn, City Manager
Benjamin C. Marentette, City Clerk**

ENGINEER

**TRAVERSE CITY ENGINEERING DEPARTMENT
Timothy J. Lodge, P.E., City Engineer**

The City of Traverse City

ENGINEERING DEPARTMENT

GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City MI 49684



September 11, 2015

Bidder:

The City of Traverse City will receive sealed bids at the City Engineering Dept., Second floor, Governmental Center, 400 Boardman Avenue, Traverse City, Michigan, 49684, until **Friday, October 2, 2015, at 2:00 p.m.** for the following:

2015 FUEL DEPOT IMPROVEMENTS
(Plans & Specifications attached)

If the specifications are obtained from the City's website at http://www.traversecitymi.gov/bids_and_rfps.asp it is the sole responsibility of the Bidder to check the website for updates and addendums prior to the bid being submitted. You may also register on the website to receive notifications when requests for proposals or bids, updates and addendums are posted.

The City of Traverse City reserves the right to accept or reject any or all bids, waive irregularities, and to accept the bids either on an entire or individual basis that is in the best interest of the City.

The City accepts no responsibility for any expense incurred by the Bidder in the preparation and presentation of a bid. Such expenses shall be borne exclusively by the Bidder.

Only the successful Bidder will be notified. If you so desire, you may call for results.

You must indicate on the outside of the sealed envelope that the bid is for the **“2015 Fuel Depot Improvements”**

You must submit **TWO (2) bids** to the City Engineer's Office prior to the above-indicated time and date or the bid will not be accepted. Telefaxed or E-Mail bids will not be accepted.

Please note that if you have previously submitted an informal quote, you will still need to submit a sealed bid prior to the date and time specified above in order to be considered. Please ensure that all requirements listed in the specifications are met.

If you have any questions, please contact Timothy J. Lodge, P.E., City Engineer, at (231) 922-4455, before the bid is submitted.

PLEASE SUBMIT BID TO: Timothy J. Lodge, P.E., City Engineer
Engineering Department, Governmental Center
Second Floor, 400 Boardman Avenue
Traverse City, MI 49684

INSTRUCTIONS TO BIDDERS

1. All bids must be submitted to Timothy J. Lodge, City Engineer, City of Traverse City, Governmental Center, Second Floor, 400 Boardman Avenue, Traverse City, Michigan, 49684, **no later than 2:00 p.m. on Friday, October 2, 2015.**
2. All bids must be submitted in a sealed envelope and clearly marked **“2015 Fuel Depot Improvements” TELEFAXED AND E-MAIL BIDS ARE NOT ACCEPTABLE.**
3. The bid form(s) must be completed and signed by an authorized representative of the Bidder.
4. The City reserves the right to accept or reject any or all proposals, waive irregularities, and to accept the bid which in its opinion is in the best interests of the City.
5. All bids must remain firm for a period of thirty (30) days following the City's receipt of the bid.
6. Payment shall be paid within 30 days of satisfactory completion of project. It is the Vendor's responsibility to submit an invoice to the City of Traverse City.

The City's standard practice is to run checks for the payment of bills received, on the 10th and 25th day of each month. In order to receive payment on the 10th or 25th of the month, the Vendor shall submit an invoice for all work completed up to the fifth or twentieth day of the month to the City of Traverse City, Engineering Dept., 400 Boardman Ave., Traverse City, Michigan, 49684. This normally allows enough time for the City to review and approve the Vendor's invoice and process it for payment. Failure of the Vendor to properly submit invoices by the fifth or twentieth day of the month may be cause for the City to postpone payment of the invoice until the next scheduled run of checks.

The City may withhold any portion of payment as necessary from loss on account of:

- Defective work not remedied, or
 - Failure of Vendor to make payments properly to subcontractors for material or labor, or
 - Damage to another Vendor, or
 - Damage to City Property
8. The City reserves the right to delete 50% of the work without reducing the unit cost.

9. Standards. All work shall be done in accordance with the City of Traverse City Specifications unless otherwise indicated.

10. Completion. Work on Fuel Depot is to be completed by November 15, 2015.

11. Experience. Bidders shall be experienced in this type of work and evidence of bidder's qualifications may be requested.

12. Insurance: The Vendor agrees not to change and agrees to maintain the following insurance throughout the period of performance of this Agreement. The Vendor will upon execution of this Agreement provide a certificate of insurance to the City Clerk. The policy shall contain endorsements stating that at least a 10-day notice will be given to the City prior to termination or any change in the policy; and in the case where Vendor is required to name the City as additional insured, and shall provide an endorsement stating that the City has been named as an additional insured onto such policy for all claims arising out of the Vendor's work. Should any required insurance be cancelled, materially reduced or expired, all activities under this Agreement shall immediately cease until substitute insurance in compliance with all requirements hereof has been procured and evidence thereof presented to the City.

A. Commercial General Liability. The Vendor shall acquire and maintain commercial general liability insurance coverage in the amount of \$1,000,000 per occurrence with the City being named as additional insured for all claims arising out of the Vendor's work, including completed operations coverage (if required in the Request for Proposals/Bids).

B. Workers Compensation. The parties shall maintain suitable workers compensation insurance pursuant to Michigan law and the Vendor shall provide a certificate of insurance or copy of state approval for self insurance to the City Clerk upon execution of this Agreement.

13. Traffic Control. Traffic shall be maintained during the Vendor's operations in accordance with the current Michigan Manual of Uniform Traffic Control Devices. The City will not use the fuel depot while the project is being constructed.

Bidder - Please complete and return

BID SUMMARY

TITLE: 2015 Fuel Depot Improvements

DUE DATE: Friday, October 2, 2015 AT 2 PM

Having carefully examined the attached specifications and any other applicable information, the undersigned proposes to furnish all items necessary for and reasonably incidental to the proper completion of this bid. Bidder submits this bid and agrees to meet or exceed all requirements and specifications unless otherwise indicated in writing and attached hereto.

Bidder certifies that as of the date of this bid the Company or he/she is not in arrears to the City of Traverse City for debt or contract and is in no way a defaulter as provided in Section 152, Chapter XVI of the Charter of the City of Traverse City.

Bidder understands and agrees, if selected as the successful Bidder, to accept a purchase/service order and to provide proof of the required insurance.

The Bidder shall comply with all applicable federal, state, local and building codes, laws, rules and regulations and obtain any required permits for this work.

The Bidder certifies that it is in compliance with the City's Nondiscrimination Policy as set forth in Administrative Order No. 47 and Chapter 605 of the City's Codified Ordinances.

The Bidder certifies that none of the following circumstances have occurred with respect to the Bidder, an officer of the Bidder, or an owner of a 25% or more share in the Bidder's business, within 3 years prior to the bid:

(a) conviction of a criminal offense incident to the application for or performance of a contract;

(b) conviction of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense which currently, seriously and directly reflects on the Bidder's business integrity;

(c) conviction under state or federal antitrust statutes;

(d) attempting to influence a public employee to breach ethical conduct standards; or

(e) conviction of a criminal offense or other violation of other state, local, or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, which in the opinion of the City indicates that the bidder is unable to perform responsibility or which

reflects a lack of integrity that could negatively impact or reflect upon the City of Traverse City, including but not limited to, any of the following offenses or violations of:

- i. The Natural Resources and Environmental Protection Act.
- ii. A persistent and knowing violation of the Michigan Consumer Protection Act.
- iii. Willful or persistent violations of the Michigan Occupational Health and Safety Act.
- iv. A violation of federal, local, or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.
- v. Repeated or flagrant violations of laws related to the payment of wages and fringe benefits.

(f) the loss of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question

Bidder understands that the City reserves the right to accept any or all bids in whole or part and to waive irregularities in any bid in the best interest of the City. The bid will be evaluated and awarded on the basis of the best value to the City. The criteria used by the City may include, but will not be limited to: ability, qualifications, timeframe, experience, price, type and amount of equipment, accessories, options, insurance, permits, licenses, other pertinent factors and overall capability to meet the needs of the City. The City is sales tax exempt – Government.

Having read and clearly understood the instructions to bidders, plans and specifications for the fuel depot improvements, the quantities estimated and being thoroughly familiar with the work to be performed, I/we hereby submit the following bid as Exhibit A (attached).

EXHIBIT A

BIDDER: PLEASE COMPLETE AND RETURN

**DUE: 2:00 p.m., Friday
October 2, 2015**

BID

2015 Fuel Depot Improvements

The undersigned bidder, having carefully examined the local conditions affecting the cost of the work and with the specifications, contract documents and any other applicable information, hereby proposes to perform everything required to be performed and to provide and furnish all labor, materials, necessary tools, equipment and all utility and transportation services necessary to perform and complete this project in a workmanlike manner in accordance with the plans and the work description.

Bidder submits this bid and agrees to meet or exceed all of the City of Traverse City's requirements and specifications unless otherwise indicated in writing and attached hereto.

Bidder certifies that as of the date of this bid, Bidder's company or Bidder is not in arrear to the City of Traverse City for debt or contract and is in no way a defaulter as provided in Section 152, Chapter XVI of the Charter of the City of Traverse City.

Bidder understands and agrees, if selected as successful bidder, to enter with the City into the contract included with the specifications.

Bidder understands that the City reserves the right to accept any or all bids in whole or in part and to waive irregularities in any bid in the best interest of the City of Traverse City. The bids will be evaluated and awarded on the basis of the best value to the City. Criteria used will include, but not be limited to, price, accessories, options and overall capability meeting the needs of the City.

Bidder agrees that the bid may not be withdrawn for a period of sixty-three (63) days from the actual date of the opening of the bid.

The prices shown in this bid reflect an anticipated working time of **20** calendar days starting from the dates specified in the "Notice to Proceed". The City will make arrangements for obtaining fuel at another location for up to **20** calendar days. The Bidder shall be responsible for liquidated damages of Five Hundred Dollars (\$500) per calendar day for each day after the **20** **Calendar day** working time limit as specified in the Notice to Proceed.

2015 Fuel Depot Improvements

Item No	Est Qty	Unit	Description of Items	Unit Price	Total Price
1	1	LSUM	Mobilization		
2	1	LSUM	Cold Weather Concrete Construction		
3	1	EA	Fuel Dispenser W/ Appurtenances, gasoline		
4	1	EA	Fuel Dispenser W/ Appurtenances, diesel		
5	80	FT	Permanent Curb Form W/ Appurtenances		
6	2	EA	Pipe Guard		
7	1	LSUM	Remote Card Reader, Installed		
8	1	LSUM	Light Base, Pole and Fixture, Installed		
9	1	LSUM	Emergency Shut Off Switch, Relocated		
10	1	LSUM	Start Up / Testing Services		
11	1	LSUM	Site Clean Up / Restoration		

Total Bid for Project (Items 1 through 11, inclusive)

\$ _____

DOLLARS

(write in amount)

2015 Fuel Depot Improvements
Alternate Items

Item No	Est Qty	Unit	Description of Items	Unit Price	Total Price
3A	1	EA	Fuel Dispenser W/ Appurtenances, gasoline (All Stainless Steel Cabinet)		
4A	1	EA	Fuel Dispenser W/ Appurtenances, diesel (All Stainless Steel Cabinet)		
5A	80	FT	Permanent Curb Form W/ Appurtenances (Stainless Steel)		

6A	2	EA	Pipe Guard (Stainless Steel)		
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The City reserves the right to delete up to 50% of this work (based on the total proposed bid) with no changes in the as-bid unit prices for the remainder of the work.

Accompanying this bid is a certified check, bank draft or a bid bond in the amount of five percent (5%) of the total bid payable to the City of Traverse City, which it is agreed will be forfeited to said City if the undersigned fails to enter into the contract specified in the specifications within fourteen (14) days after the contract is awarded to the undersigned.

Bidder guarantees that he or she has authority to submit this bid for the firm named below.

Submitted by:

Signature

Company Name

Name and Title (Print)

Company Address

Phone

City, State, Zip

Sole proprietorship/partnership/corporation

If corporation, state of corporation

REFERENCES: (include name of organization, address, contact person, daytime phone number, and length of time services have been performed).

1. _____

2. _____

SUBCONTRACTORS: (include name of organization, address, contact person, daytime phone number, and services to be performed).

1. _____

2. _____

SCHEDULE: (Contractor shall provide anticipated start date and date of substantial completion below)

Start Date: _____

Substantial Completion Date: _____

2015 Fuel Depot Improvements

TECHNICAL SPECIFICATIONS INDEX

PAVEMENT REMOVE, SPECIAL

COLD WEATHER MASONRY CONSTRUCTION

ELECTRICAL WORK

METALS

CONCRETE WORK

PAINTING

FUEL DISPENSER W/ APPURTENANCES

PERMANENT CURB FORM W/ APPURTENANCES

PIPE GUARD

REMOTE CARD READER, INSTALLED

LIGHT BASE, POLE AND FIXTURE, INSTALLED

EMERGENCY SHUT OFF SWITCH, RELOCATED

**CITY OF TRAVERSE CITY
SPECIAL PROVISION
FOR
PAVEMENT REMOVE, SPECIAL**

DESCRIPTION

This work shall be done in accordance with the requirements of Section 204 of the MDOT 2012 Standard Specifications for Construction with the following exceptions:

This special provision is for every location and is intended to cover the work needed to remove the existing road section which includes HMA surface, HMA surface over and including brick and/or concrete, HMA driveways, concrete pavement including concrete driveways, regardless of thickness, and adjacent steel faced curb, curb and gutter or gutter.

CONSTRUCTION METHODS

This work shall be done in accordance with the requirements of Section 204.03 of the MDOT 2012 Standard Specifications for Construction.

The Contractor shall provide neat and clean sawcuts at the limits of pavement removal where existing pavement is to remain. Contractor shall protect existing pavement to remain from damage during construction. If existing pavement is damaged during construction additional sawcuts may be required as determined by the Engineer at no additional cost to the project.

Contractor shall remove and dispose of existing bollards.

Contractor shall remove and dispose of existing dispenser and underground appurtenances to be replaced.

Contractor shall remove, stockpile and protect existing light pole with fixture and card reader for reinstallation by Contractor.

MEASUREMENT and PAYMENT

The complete work as measured for Pavement Remove, Special will be measured as shown on the plans for the various locations this pay item is in use, and will be paid for at the contract unit price per square yard and includes all material, equipment and labor to complete this item for areas shown on the plans.

**CITY OF TRAVERSE CITY
SPECIAL PROVISION
FOR
PAVEMENT REMOVE, SPECIAL**

PAY ITEM

PAY UNIT

PAVEMENT REMOVE, SPECIAL

SYD

**TECHNICAL SPECIFICATIONS
FOR COLD WEATHER MASONRY CONSTRUCTION**

1. GENERAL:

A. This item shall consist of furnishing and installing wind breaks, enclosures, auxiliary heat and all related appurtenances and methods for constructing masonry structures in cold weather per the following procedures.

2. CONSTRUCTION PROCEDURES:

A. When ambient air temperature is below 40°F, implement cold weather procedures and comply with the following:

1. Do not lay glass unit masonry.

2. *Preparation* - Comply with the following requirements prior to conducting masonry work:

a. Do not lay masonry units having either a temperature below 20°F or containing frozen moisture, visible ice, or snow on their surface.

b. Remove visible ice and snow from the top surface of existing foundations and masonry to receive new construction. Heat these surfaces above freezing, using methods that do not result in damage.

3. *Construction* – These requirements apply to work in progress and are based on ambient air temperature. Do not heat water or aggregates used in mortar or grout above 140°F. Comply with the following requirements when the following ambient air temperature exists.

a. 40°F to 32°F: Heat sand or mixing water to produce mortar temperature between 40°F and 120°F at the time of mixing. Grout does not require heated materials, unless the temperature of the materials is below 32°F.

b. Below 32°F to 25°F: Heat sand and mixing water to produce mortar temperature between 40°F and 120°F at the time of mixing. Maintain mortar temperature above freezing until used in masonry. Heat grout aggregates and mixing water to produce grout temperature between 70°F and 120°F at the time of mixing. Maintain grout temperature above 70°F at the time of grout placement. Heat AAC units to a minimum temperature of 40°F before installing thin-bed mortar.

c. Below 25°F to 20°F: Comply with A.3.b and the following: Heat masonry surfaces under construction to 40°F and use wind breaks or enclosures when the wind velocity exceeds 15 mph. Heat masonry to a minimum of 40°F prior to grouting.

d. Below 20°F and below: Comply with A.3.c and the following: Provide an enclosure and auxiliary heat to maintain air temperature above 32°F within enclosure.

4. *Protection* – These requirements apply after masonry is placed and are based on anticipated minimum daily temperature for grouted masonry and anticipated mean daily temperature for ungrouted masonry. Protect completed masonry in the following manner:
 - a. Maintain the temperature of glass unit masonry above 40°F for the first 48 hr. after construction.
 - b. Maintain the temperature of AAC masonry above 32°F for the first 4 hr. after thin-bed mortar application.
 - c. 40°F to 25°F: Protect newly constructed masonry by covering with a weather resistive membrane for 24 hr. after being completed.
 - d. Below 25°F to 20°F: Cover newly constructed masonry completely with weather-resistive insulating blankets, or equal protection, for 24 hr. after completion of work. Extend time period to 48 hr. for grouted masonry, unless the only cement in the grout is Type III portland cement.
 - e. Below 20°F and below: Maintain newly constructed masonry temperature above 32°F for at least 24 hr. after being completed by using heated enclosures, electric heating blankets, infrared lamps, or other acceptable methods. Extend time period to 48 hr. for grouted masonry, unless the only cement in the grout is Type III portland cement.

3. MEASUREMENT:

- A. This item will be measured as Lump Sum.

4. PAYMENT:

- A. The work performed and materials furnished in accordance with this item and measured as provided under “Measurement” will be paid for at the unit price bid for pay items listed below. This price shall be full compensation for furnishing all submittals, labor, quality assurance, materials, freight, tools, equipment and incidentals, and for doing all work involved in masonry construction.

Pay Item	Unit
Selective Demolition/Removals/Cold Weather Masonry Construction	LSUM

TECHNICAL SPECIFICATIONS FOR ELECTRICAL WORK

1. SCOPE:

The work covered in this section of the specifications consists of furnishings and installing all electrical work and/or fixtures with lamps as shown on the Plans and as listed in the fixture legend. This work includes the furnishings of all labor, materials and equipment involved in the complete installation of all wiring devices, fixtures, (e.g., underground bases, junction boxes, wiring, timers, circuit breakers, duplex outlets, lighting contracts, support poles, fixtures, bulbs, pavement repair) as required by this Contract in strict accordance with provisions of the Plans and Specifications and subject to the terms and conditions of the Contract.

2. GENERAL:

- A. All work and materials used on the electrical system shall be in conformity with all applicable federal, state and local laws and regulations, as well as applicable current standards of the National Code of Fire Underwriters and the State of Michigan and the National Electrical Code (latest edition). All electrical equipment and materials shall be listed by Underwriters Laboratories, Inc., except for classes of equipment not available with such listing. The Contractor is required to obtain and pay for all permits and certificates of inspection for the work. A complete schedule of materials and equipment shall be submitted for approval prior to installing any material or equipment. In general, where specified trade names are mentioned, they are intended to indicate quality, appearance, and type of construction required for this installation.
- B. The Contractor shall be an approved, licensed electrical contractor.
- C. All materials and workmanship entering into the work covered by the plans and specifications shall be the best of their respective kinds. The quality of materials used in the construction of the various phases of the work shall be that which experience and good engineering practices have shown to be adapted to such use.

3. DRAWINGS:

- A. Any errors or ambiguities in the Plans & Specifications that are discovered by the Contractor should be reported to the Engineer before the date of opening bids. The Contractor shall have no claims for extras, for any errors which may occur which are not reported to the Engineer prior to opening bids. All items not specifically mentioned herein which are obviously necessary to make a complete working installation shall be included. In case of dispute concerning the true intent and meaning of these Specifications, the Engineer shall interpret the same, and his interpretations shall be accepted by the Contractor as final.

- B. The intent of the City has been indicated on the Plans, but the Contractor will be permitted to make changes to meet field conditions or materials delivery conditions which may arise; however, in each instance, the proposed change must be submitted in the form of a written request and/or drawings or sketches for approval and acceptance by the Engineer. This is considered as a part of the Contract and must be fulfilled to the complete satisfaction of the City before final payment shall be made.
- C. The drawings which constitute a part of this Contract, indicate the general arrangement of circuits and outlets, location of switches, panel boards and other work. Data presented on these drawings are as accurate as preliminary survey and planning can determine, but extreme accuracy is not guaranteed and field verification for all dimensions is directed. Specifications and drawings are for assistance and guidance, but exact locations, distances, and levels will be governed by actual field conditions.

4. INSTALLATION:

- A. The electrical contractor shall work with the other contractors and arrange his work so as not to interfere with the work of other contractors.
- B. The installation shall be made so that the existing and new equipment shall function together as a workable system. The systems shall be complete with all accessories for their operation and shall be left with all equipment properly adjusted and in perfect working order.
- C. The intent of the plans and specifications is to obtain a complete, waterproof, and operating job in all regards. Minor details of construction, installation, materials or other items necessary to make a complete installation are not shown on the plans or specified herein, and area incidental.
- D. The work shall be executed with the best practice so as to contribute to efficiency of operation, minimum of maintenance and ease of accessibility. It shall be executed so that the installation will conform and accommodate itself to the adjacent area and its usage.
- E. The grounding of the entire electrical system shall be in strict accordance to Article 250 and Article 555 of the State and National Electrical Code (latest edition). Service neutrals, all metal enclosures, supporting frames, all utility and service equipment, outlets, metallic conduit, lighting poles, etc., shall be permanently and effectively grounded with insulated, green finish, copper, grounding wires.

- F. Conductors shall be continuous from outlet to outlet and no splices shall be made except within outlet or approved junction boxes.
- G. The Contractor is hereby advised to make his own investigation relating to underground conditions for installation of light pole bases. Rubble, rocks, broken concrete, water, etc., may be encountered when placing the bases. No claim for extra compensation because of encountering these conditions shall be honored.
- H. No provision will be made by which the City will purchase any materials stored on site. The Contractor is responsible for furnishing and placing all material, according to specifications, and will receive payment based solely on completed portions of the work.
- I. Care must be taken in the placement of fixtures to maintain the alignment, spacings, layout and general arrangements shown on the Plans, but the Contractor may vary these dimensions by small distances to clear interferences or obstructions. The final arrangement must present a symmetrical appearance, and any major changes in the arrangement must be approved by the Engineer.
- J. Any final adjustment or aiming of the lighting fixtures shall be done during the night hours. The Electrical Contractor shall pre-arrange the time with the Engineer.
- K. The Electrical Contractor shall furnish and install all conduit, conductors, wiring devices, fittings and supporting facilities for all branch circuits. Circuiting shall be as shown on the drawings. No wire smaller than #12 shall be used. All lighting and outlet circuits shall be a minimum of 20 ampere circuits unless otherwise specified.
- L. All work, fixtures, equipment and materials shall be protected to prevent damage at all times. The Contractor shall make good all damages caused either directly or indirectly by his workmen. All conduit and pipe openings shall be closed with caps and plugs during installation. All fixtures and equipment shall be tightly covered and protected against dirt, water, chemical and mechanical injury. All work shall be thoroughly cleaned and delivered in unblemished condition upon completion of the work.

5. MATERIALS:

- A. All materials shall be new and shall conform with the standards of the Underwriter's Laboratories, Inc., in every case where such a standard has been established for the particular type of material in question. No materials shall be used that does not conform with local codes. The installations shall comply with all laws applying to electrical installations in effect; with the regulations of the National Electrical Code; where such regulations do not conflict with the laws in

effect; and with the regulations of the public utility company and municipal ordinances.

6. CODES, ORDINANCES, INSPECTIONS AND PERMITS:

- A. General: Work is to be executed and inspected in accordance with local or state codes, laws, ordinances, rules and regulations, applicable to that particular class of work, and any fees in connection therewith are to be paid by the Electrical Contractor.
- B. Conflicts: Should any part of drawings or specifications be found to be in conflict with applicable codes or ordinances, the Electrical Contractor shall notify the City Engineer in writing, 48 hours prior to receipt of bids. After receiving bids, Electric Contractors will be required to complete all work necessary to meet requirements of all codes or ordinances without additional expense to Owner or his representative.
- C. The Contractor shall obtain all required permits for the execution of the electrical work, and shall pay all necessary fees. He shall make all arrangements with the utility supplying the power with regard to service connections and metering equipment and shall install this equipment to meet the requirements of the Utility. He shall arrange for all inspections, tests, and approvals required by codes, regulations, and ordinances. He shall furnish a certificate of approval and final inspection from the Electrical Inspector.
- D. The Contractor shall be responsible for paying all utility fees for this installation and any required utility equipment.
- E. Inspections: Electrical Contractor is to arrange with city or state for complete inspection. He shall give to the proper authority all requisite notice relating to work under his charge; shall afford the Engineer and all authorized inspectors every facility for inspection; and shall be responsible for all violations of law. Upon completion of work, he shall have the work inspected, if required, obtaining a certificate of inspection and approval from the inspecting agency and shall deliver such certificate to the Engineer.

7. CLEANING:

- A. The Contractor shall be responsible for keeping the premises free of all shipping cartons, crates, material scrap, conduit cuttings, etc., related to his work.
- B. Factory-finish painted equipment shall be washed with mild soap and water and left in first class condition, entirely free of stains and streaks. Abrasive materials shall not be used.

- C. At the completion of the project, the Contractor shall remove all tools, materials, scrap, etc., from the site and clean equipment installed by him.

8. COMPLETION OF WORK:

- A. Upon completion of the installation, the Contractor shall thoroughly clean all fixtures and equipment. All patching and repairing of surfaces damaged in the performance of this work shall be made by the Contractor or where directed by the Engineer, by others at the expense of the Contractor. All equipment shall be thoroughly tested, all motors checked for overload protection and operation, all cover plates installed, and the system left ready for immediate operation.
- B. The Electrical Contractor shall completely check, test and place in operation all units of equipment furnished under this contract, and shall guarantee to maintain "Service Free" all equipment for a period of two years after date of final acceptance. The Electrical Contractor shall furnish all manpower and equipment necessary to perform all tests.
- C. All equipment shall be "tagged" to indicate its name, function, and mode of operation.
- D. The Electrical Contractor shall leave the entire Electrical System in proper working order and guarantee for a period of two years all the material, equipment and wiring (except lamps) furnished and installed by him to be free from all electrical and mechanical defects, and shall make good any such defects which become apparent within that time. He shall also extend to the Owner any guarantees extended by any manufacturer of equipment and devices installed and furnished by him. The guarantee period shall be extended as of the date of final acceptance or finish approval, whichever is later.
- E. The Contractor shall perform all testing necessary to ensure that the work is satisfactory and in conformity with the requirements of the contract documents and the Michigan State and National Electrical Code (latest edition). The Engineer and the Owner shall be satisfied as to all wiring, connections, switches, etc., that all lights and equipment are properly controlled, and that all apparatus functions properly. Any defects or faults found in materials and/or workmanship shall be corrected to the satisfaction of the Engineer and the Owner without additional cost to the Owner.
- F. The Contractor shall obtain a Certificate of Approval and final inspection from the Electrical Inspector.

TECHNICAL SPECIFICATIONS FOR METALS

1. SCOPE:

The work covered in this section of the specifications consists of furnishing of all labor, materials, and equipment and performing all operations involved in the complete installation of all metal work as required by this Contract in strict accordance with provisions of the Plans and specifications and subject to the terms and conditions of the Contract.

2. GENERAL:

- A. Codes and Standards: Provisions of the following codes, specifications and standards shall be minimum guidelines, more stringent building code requirements shall govern. AISC "Code of Standard Practice for Steel Fabrication, and Erection of Structural Steel for Buildings" including "Commentary"; AWS "Structural Welding Code"; comply with applicable provisions except as otherwise indicated.
- B. Shop Drawings: Show complete details and schedules (if required) for fabrication, assembly and erection. Furnish anchor bolts required for installation in other work; furnish templates for bolt installation.

3. MATERIAL:

- A. Steel Plates, shapes, bars: ASTM A36
- B. Cold-Formed Steel Tubing: ASTM A500, Grade B
- C. Steel Pipe: ASTM A53, Type E or S, Grade B, Schedule 40.
- D. Steel Cable: Plastic Coated, Galvanized Steel, Aircraft Cable, 7 x 19 Strand, 1/4" O.D., clear vinyl coating.
- E. Fasteners: High-strength bolts and nuts, ASTM A325 or A490; unfinished bolts and nuts, ASTM A307, Grade A, and shall be hot-dipped galvanized 2-ounce coating.
- F. Welding Electrodes: Comply with AWS Code. For high-strength low-alloy steel, provide electrodes, welding rods and filler metals equal in strength and compatible in appearance with parent metal joined.

- G. Shop Paint: FS TT-P-86, Type II; or, SSPC-Paint 14.
- H. Stainless Steel Bars & Shapes: ASTM A276, Type 316.
- I. Stainless Steel Plate, Sheet & Strip: ASTM A167, Type 316.
- J. Stainless Steel Bolts: ASTM A193, Type 316, B8MN, B8M2 or B8M3.
- K. Stainless Steel Nuts: ASTM A194, Type 316, B8MN, B8M2, or B8M3.
- L. Anchor Bolts & Nuts:

Carbon Steel:	A307 or A36
Stainless:	A193, Type 316
Galvanized Steel	
Bolts & Nuts:	A153, Zinc Coating for A307 or A36
- M. Flat Washers (Unhardened): F844, Use A153 for Zinc Coating
- N. Threaded Bars: A36
- O. Connection Bolts for Aluminum: A2024-T4; or use appropriate Stainless Steel

Cast Iron:	A48, Class 30
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4. ANCHOR BOLTS:

A. Nonsubmerged Use:

Anchor bolts shall be Stainless Steel for equipment and machinery, where permanently anchored into concrete, unless otherwise shown. Diameter, length and bend dimensions shall be as required by equipment or machinery manufacturer. Unless otherwise required, provide 3/4-inch minimum diameter and other geometry as shown. Furnish minimum two nuts and a washer of same material for each bolt. Provide sleeves as required or as shown for location adjustment.

B. For anchoring fabricated metalwork or structural building columns, or other components where connection will be protected or dry: Anchor bolts shall be galvanized steel, minimum size shall be 3/4-inch diameter by 12-inch long, unless otherwise shown. Furnish two nuts and one washer per bolt of same material as bolt, unless otherwise shown.

- C. For anchoring fabricated metalwork or structural building, or structural frame components in areas of wet use, washdown areas, or areas outside heated buildings: Anchor bolts shall be stainless steel, minimum size shall be 3/4-inch diameter by 12-inch long, unless otherwise shown. Furnish two nuts and one washer per bolt of same material as bolt, unless otherwise shown.

5. STAINLESS STEEL FASTENERS LUBRICANT (ANTISEIZING):

- A. Provide for stainless steel nuts and machined bolts, anchor bolts, concrete anchors, and all other threaded fasteners.
- B. Lubricant shall contain substantial amounts of molybdenum disulfide, graphite, mica, talc, or copper as manufactured by Loc Tite Co., Permatex or equal.

6. ANCHORING SYSTEMS FOR CONCRETE:

- A. Wedge anchors shall be 100 percent, 316 stainless steel, sizes shall be as shown. Do not provide for submerged conditions. Manufacturers will be ITT Phillips Drill Div., Michigan City, IN, Wej-It Corp., Broomfield, CO, Wej-it or approved equal.
- B. Expansion anchors shall be self-drilling anchors, snap-off type or flush type. Provide anchors for use with hot-dipped galvanized bolts. Non-drilling anchors shall be flush type for use with bolt or stud type with projecting threaded stud. Provide in dry areas only where future corrosion is not a problem unless expansion anchors are 316 stainless steel. In wet or damp areas, provide wedge anchors as specified, or in submerged conditions, adhesive anchors as specified. Manufacturer shall be ITT Phillips Drill Div., Michigan City, IN. Hilti, Inc., Tulsa OK, Hilti HDI drop-in anchors or approved equal.
- C. Epoxy anchors shall be provided for anchoring metal components at or below a point one (1) foot, six (6) inches above maximum water surface elevation in water-holding structures, or buried in earth conditions. Do not use where fire or elevated temperatures can occur. Anchor rod shall be 316 stainless steel threaded rod free of grease, oil, or other deleterious material with a 45-degree chisel point. Epoxy adhesive shall meet ASTM C881, Type 1, Grade 3, Class A, B, or C. Two component, 100 percent solids, nonsag, paste, insensitive to moisture, designed to be used in adverse freeze/thaw environments and gray in color. Cure temperature, pot life and workability shall be compatible for intended use and environmental conditions.

Mixed epoxy adhesives shall have nonsag paste consistency with ability to remain in a 1-inch diameter overhead drilled hole without runout, holding the following properties:

Slant shear strength, ASTM C881/882, no failure.

In bond line, dry/moist conditions: 5,000 psi.

Compressive strength, ASTM D695: 14,000 psi minimum.

Tensile strength, ASTM D695: 4,500 psi.

Heat deflection temperature, ASTM D648: 135 degrees F, minimum.

Manufacturers shall be Adhesives Technology Corp., 21850 88th Place South, Kent, WA, 98031, Anchor-It Fastening Systems, HS 200 Epoxy Resin; ITW Ramset/Red Head, P.O. Box 90, Paris, KY, 40361, Epcon Ceramic 6 Epoxy Anchor System, or approved equal.

7. BOLTS AND FASTENERS:

- A. Bolts and fasteners shall be type 315 stainless steel as specified if not permanently embedded in concrete, but located in areas as follows:

Outdoors in areas subject to the weather.

Chemical handling areas.

Equipment rooms subject to drainage, leakage, and washdown, including wet wells and pump chambers.

- B. Bolts and fasteners shall be ASTM A307 or A36 with ASTM A153 galvanized if not permanently embedded in concrete, and not used for structural steel or piping, but located indoors where washdown, leakage, and drainage are not likely to occur (e.g., in personnel buildings, excluding laboratories, on motor floors, in electrical equipment rooms, and in control rooms).

- C. For flanges of piping, valves, and other similar connections, bolts shall be as specified in other sections or as shown.

8. LOOSE STEEL LINTELS AND ANGLE FRAMING:

Provide as required for support of masonry and other construction not attached to structural steel framing or where not specified elsewhere.

9. CONSTRUCTION:

- A. Fabrication: Comply with AISC "Specifications" and final shop drawings. Mark and match-mark units for field assembly.
- B. Connections: As shown on final shop drawings. Comply with AWS Code for procedures, appearance, and quality of welds.
- C. Steel Pipe Railings: Fabricate steel pipe railings and handrails to design, dimensions, and details indicated. Provide railings and handrails members formed of cable and pipe of sizes and wall thickness indicated, but not less than that required to support design loading. Interconnect pipe railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated. At tee and cross intersections provide coped joints. Form bends by use of prefabricated elbow fittings and radius ends or by bending pipe, at the fabricator's option. Close exposed ends of pipe by welding 3/16" thick steel plate in place or by use of prefabricated fittings.
- D. Provisions for Other Work: Fabricate structural steel members to provide holes for securing other work and for passage of other work through steel framing as indicated.
- E. Shop Painting: Paint structural steel work, except members or portions of members embedded in concrete or mortar, and contact areas to be welded or riveted. Clean steel free of loose mill scale, rust, oil and grease. Apply prime paint to provide a minimum dry film thickness of 2.0 mils.
- F. Ladders: Fabricate steel ladders to design, dimensions, and details indicated on the plans.

10. ERECTION:

- A. Comply with AISC Code and Specifications, and maintain work in safe and stable condition during erection. Provide temporary bracing and shoring as required; remove when final connections placed.
- B. Set base plates on cleaned bearing surfaces, using wedges or other adjustments as required. Solidly pack open spaces with bedding mortar, consisting of 1 part Portland cement to 3 parts sand and only enough water for packing and hydration, or use commercial non-shrink grout material at Erector's option.
- C. Splice members only where shown on final shop drawings.

11. INSTALLATION OF FABRICATED METAL WORK:

- A. General Contractor shall install all work in accordance with shop drawings, the drawings, and these specifications. Install fabricated metalwork plumb or level as applicable. Completed installations shall be rigid, substantial, and neat in appearance. Erect structural steel in accordance with applicable portions of AISC Code of Standard Practice, except as modified. Install commercially manufactured products in accordance with manufacturer's recommendations as approved.
- B. Aluminum metalwork erection shall be in accordance with the Aluminum Association. Do not remove mill markings from concealed surfaces. Remove inked or painted identification marks on exposed surfaces not otherwise coated after installed material has been inspected and approved.

12. ANCHOR BOLTS AND CONCRETE ANCHORS INSTALLATION:

- A. Accurately locate and hold anchor bolts in place with templates at the time concrete is placed.
- B. Do not begin installation of concrete anchors until concrete or masonry receiving anchors has attained design strength.
- C. Do not install an anchor closer than six times its diameter to either an edge of concrete or masonry, or to another anchor, unless specifically shown otherwise.
- D. Install concrete anchors in accordance with manufacturer's specific quality control submittal specified hereinbefore and instructions. Use manufacturer's recommended drills and equipment. Hole diameters are critical to installation, use only drills recommended by anchor manufacturer. Follow manufacturer's safe handling instructions.
- E. Epoxy anchors: Do not install when temperature of concrete is below 35 degrees F or above 110 degrees F.
- F. Follow specific manufacturer safe handling practices when handling and/or installing all concrete anchors.

13. PAINT TOUCH UP:

Touch up prime paint after erection. Clean field welds, bolted connections and abraded areas, and apply same type paint as used in shop. Contractor shall apply 2 coats of acrylic enamel to all metal surfaces in direct contact with treated wood and shall paint all other items as required in the Technical Specifications for Painting.

TECHNICAL SPECIFICATIONS FOR CONCRETE WORK

1. SCOPE OF WORK:

The work under this section shall include all materials, labor and equipment necessary to complete all of the concrete work, including but not limited to the items in these specifications and those shown on the working drawings.

2. GENERAL:

All procedures and materials under this section, where not specifically stated, shall be in accordance with standards and recommendations of the American Concrete Institute's "Building Code Requirements for Reinforced Concrete" (ACI 318, latest edition); "Specifications for Structural Concrete Buildings," (ACI 301, latest edition); 2012 Standard Specifications for Construction of the Michigan Department of Transportation.

3. MATERIALS AND PRODUCTS:

- A. Portland Cement shall conform to "Standard Specifications for Portland Cement" (ASTM C150, latest edition) or "Specifications for Air-Entrained Portland Cement" (ASTM C175, latest edition) and shall be Type 1A.
- B. Concrete aggregates shall conform to "Standard Specifications for Concrete Aggregates" (ASTM C33, latest edition).
- C. All water used in concrete shall be from a potable water supply.
- D. Air-entraining admixtures shall conform to "Standard Specifications for Air-Entrained Admixtures for Concrete" (ASTM C260, latest edition).
- E. Water-reducing admixture shall conform to ASTM C494. Only use admixtures which have been tested and accepted in mix designs, unless otherwise acceptable in writing by the Engineer.
- F. Moisture barrier shall be clear 4 mils thick polyethylene. Membrane-forming curing compound shall be ASTM C309, Type 1, white membranous curing compound and applied in accordance with MDOT Standard Specification Section 602, 2012 Edition.
- G. Expansion Joint Filler shall be pre-formed joint filler conforming to ASTM D1751 or D1752, or shall be resin-impregnated fiberboard conforming to physical

requirements of ASTM D1752, and shall be 1 inch thick unless otherwise indicated on the drawings.

- H. Steel reinforcing bars shall conform to ASTM A615, Grade 40, ASTM A616, Grade 50, or ASTM A617, Grade 40. A minimum cover of 3 inches is required on horizontal and vertical surfaces.
- I. Welded wire fabric shall conform to ASTM A185.
- J. Concrete for this project, unless specified otherwise or modified herein, shall be transit mixed concrete from an approved mixing plant. Concrete shall be mixed and delivered in accordance with the requirements of ASTM C94, "Standard Specifications for Ready Mixed Concrete." Each cubic yard of concrete shall have a minimum compressive strength of 4000 psi at 28 days, an air-entraining content of 6.5 + 1.5%, and a maximum 4-inch slump. Aggregates shall meet the current ASTM C33 Standard for severe exposure conditions.

4. CONCRETE MIX PROPORTIONS:

One month prior to placement of concrete, unless otherwise approved by the Engineer, mix proportions and trial batch test results (including 28-day compressive strength tests) shall be submitted to the Engineer for his review and approval. The trial batch shall be prepared by an agency acceptable to the Engineer, and shall be proportioned to meet the herein specified slump, air content and compressive strength requirements.

5. MIXING CONCRETE:

- A. Mixing and transporting equipment for ready-mixed concrete shall be capable of providing concrete which meets the ASTM C94 requirements for uniformity.
- B. For job-mixed concrete, when approved by the Engineer, the mixer shall be rotated at a speed recommended by the manufacturer. If mixer performance tests are not made, each batch of 1 cubic yard or less shall be mixed for at least 2 minutes after all materials are in the mixer. The mixing time shall be increased by 15 seconds for each additional cubic yard or fraction thereof. The entire batch shall be discharged before the mixer is recharged.

6. CONVEYING CONCRETE:

- A. Concrete shall be conveyed from the mixer to the place of final deposit by methods that will prevent separation or loss of materials.

- B. Equipment for chuting, pumping, and pneumatically conveying concrete shall be of such size and design as to ensure a practically continuous flow of concrete at the delivery end without separation of materials.

7. PREPARATION OF EQUIPMENT AND PLACE OF DEPOSIT:

- A. Before placement, all equipment for mixing and transport of the concrete shall be cleaned, and all debris and ice shall be removed from the places to be occupied by the concrete. Forms shall be thoroughly wetted (except in freezing weather) or oiled, and masonry filler units that will be in contact with concrete shall be well-drenched (except in freezing weather).
- B. Water shall be removed from place of deposit before concrete is placed unless otherwise permitted by the Engineer. All latents and other unsound material shall be removed from hardened concrete before additional concrete is added.

8. FORM WORK:

- A. All form-work shall be constructed so that concrete members and structures are of correct size, shape, alignment, elevation and position. Side forms shall be of wood or metal straight and free from warp and of sufficient strength to resist springing when the concrete is placed against them. Forms shall be firmly staked to such line and grade so that the surface and width will conform with the surface and width of the adjacent work or as directed by the Engineer, and shall provide for a transverse slope so as to conform with the slope of the adjacent work or as indicated on the drawings. All forms must be inspected and approved by the Engineering Department before concrete is placed therein.
- B. Clean and adjust forms prior to concrete placement. Apply form release agents or wet forms, as required. Re-tighten forms during concrete placement if required to eliminate mortar leaks.
- C. Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting diagrams, templates and instructions provided by others for locating and setting.

9. STEEL REINFORCMENT:

- A. The Contractor shall furnish, cut, bend and place all steel reinforcement as indicated on the drawings or as otherwise required. When surrounding concrete is place, all reinforcement shall be free from loose flaky rust and scale and free from oil, grease or other coating which might destroy or reduce its bond with the concrete. Position, support and secure reinforcement against displacement. Locate and support with metal chairs, runners, bolsters, spacers and hangers as

required. Set wire ties so that ends are directed into concrete, not toward exposed concrete surfaces.

- B. All spliced bars shall be lapped a minimum of 24 bar diameters or as shown on the drawings. The lapped ends of bars may be separated sufficiently to permit embedment of the entire surface of the bar in concrete, or may be securely wired together. Butt-welding of bars in lieu of lapping will not be permitted.
- C. Before placing concrete, care shall be taken to determine that all embedded items are firmly and securely fastened in place as indicated on the drawings. Embedded items shall be free of oil and other foreign matter such as loose coatings of rust, paint and scale. The embedding of wood in the concrete will not be permitted.
- D. Install welded wire fabric in as long lengths as is practicable, lapping at least one mesh.

10. PLACING CONCRETE:

- A. The required curing compound in sufficient quantity to complete the pour along with all necessary application equipment shall be on site and approved by the Engineer prior to ordering and/or placing any concrete.
- B. Concrete shall be worked into the corners and angles of the forms and around all reinforcements without permitting the materials to segregate. Concrete shall be placed within 30 minutes after it has been mixed unless otherwise authorized. It shall be placed on clean, damp surfaces free from water, ice, frost, mud debris or objectionable coatings. The placement shall be carried on at such a rate that the formation of cold joints will be prevented. All concrete placing equipment and methods shall be subject to approval of the Engineer.
- C. Samples of concrete shall be taken in the field from mixtures used to determine the adequacy of control of materials and the slump, consistency, compressive strength and air content of the concrete in accordance with ASTM C360. The Owner shall furnish all material, concrete technicians, labor and facilities required for molding and curing test specimens at the site. Molding, curing and testing shall be performed by the Engineer. The Owner reserves the right to require the Contractor to mold and test additional specimens as it considers necessary. Additional tests which fail to achieve results established under the design mix shall be paid for by the Contractor. Additional tests which do achieve results established under the design will be paid for by the Owner.
- D. The following procedure shall be followed in restoring or replacing any Portland Cement concrete street, driveway or alley wearing surface:

Backfill trench and compact sub-base as directed by the Engineer. The condition of the base shall be approved by the Engineer before concrete is placed thereon. Place the mixed Portland Cement concrete on the base and distribute to such depth and sufficiently above grade so that when consolidated and finished, the surface shall conform to the surface of the adjacent pavement. The finished patch shall have a thickness of not less than the thickness of the original pavement or a minimum of 9 inches in streets.

Consolidate the concrete within the entire area of the patch by means of either hand-spading or use of a mechanical vibrator so as to assure a minimum of voids. Strike off flush with the surface of the adjacent pavement. The strike board shall be moved forward with a combined longitudinal and transverse motion, the manipulation being such that neither end is raised from the adjacent pavement during the process. A slight excess of concrete shall be kept ahead of the cutting edge at all times.

After striking off, the surface shall be made uniform by longitudinal or transverse floating.

The concrete shall be cured as specified in MDOT Specification Section 602 or as directed by the Engineer. The curing process shall be pursued for a period of not less than 48 hours after pouring the concrete at which time the street may be opened to traffic.

The Engineer may require the use of an approved bonding agent so as to assure a lasting bond between the patch and the adjacent pavement.

11. JOINTS:

All joints shall conform to the details and shall be constructed in the locations as specified or indicated on the drawings. All equipment and methods used in forming or cutting of joints shall be approved by the Engineer.

A. Expansion Joints:

Expansion joints shall be placed as shown on the drawings and as specified herein. Devices used for installation of the joints shall be adequate to hold the parts of the joint in proper position and protect the filler from damage during concreting operations. Adjacent sections of filler shall be fitted tightly together and held in line to ensure continuity and prevent any concrete from entering the expansion space. Any concrete which has flowed into a gap between an expansion joint strip and the edge forms of the concrete shall be cut out immediately after the forms have been removed. Expansion joints shall form a complete and uniform separation between the adjoining sections.

B. Construction Joints:

Transverse construction joints shall be installed at the end of a day's placing operations and at any other point when concrete placement is interrupted for 30 minutes or longer.

C. Contraction Joints for Sidewalks & Slabs:

Longitudinal contraction joints shall be of the weakened plane or dummy type. Joints shall be constructed true-to-line with their faces perpendicular to the surface of the sidewalk or curb line. Transverse joints shall be constructed at right angles to the centerline, and longitudinal joints shall be constructed parallel to the centerline, unless otherwise required. In sidewalks having an overall width of 5 feet, transverse contraction joints shall be constructed at intervals of 5 feet. All contraction joints shall be produced by the use of slab division forms extending to the full depth of the concrete or by cutting joints in the concrete, after floating, to a depth of not less than $\frac{1}{4}$ the thickness of the sidewalk. The cut joints shall not be less than $\frac{1}{8}$ inch nor more than $\frac{1}{4}$ inch in width and shall be finished smooth and true to line. The concrete at the faces of all joints shall be thoroughly spaded and compacted to fill all voids, and the surface shall be finished smooth and true to grade. All joints are incidental to concrete work.

D. Expansion Joints for Sidewalks:

1-inch transverse joints shall be placed through concrete sidewalk in line with all expansion joints in the adjacent curb, gutter or combination curb and gutter.

$\frac{1}{2}$ -inch expansion joints shall be placed between the sidewalk and back of adjacent parallel curb or gutter and between the sidewalk and buildings or other rigid structures. When directed by the Engineer, the expansion joint between sidewalks and buildings shall be placed one foot from the property line and parallel to it.

$\frac{1}{2}$ -inch transverse expansion joints shall be placed through concrete sidewalk in line with back of adjacent sidewalk when pouring sidewalk around a corner at intersections. When pouring crosswalks out to the curb line at intersections in conjunction with installation of new sidewalk around a corner, $\frac{1}{2}$ -inch expansion joints shall be placed through concrete sidewalk in line with the back of both adjacent sidewalks.

E. Joints Around Trees:

Where trees occur within 3 feet of the sidewalk on either side of the sidewalk, the sidewalk shall be divided as follows:

½-inch expansion joints shall be placed along the centerline of the sidewalk and parallel with the edge of the sidewalk, 5 feet on either side of the tree.

½-inch transverse expansion joints shall be placed at 5 feet either side of the tree from the edge of the sidewalk nearest the tree to the expansion joint on the centerline of the sidewalk.

A transverse cut joint shall be made from the centerline of the sidewalk to the edge of the sidewalk opposite the side of the tree 5 feet either side of the tree and a cut joint the full width of the sidewalk directly opposite the tree.

The cut joints shall not be less than 1/8 inch nor more than ¼ inch in width and shall be finished smooth and true-to-line to a depth of not less than ¼ the thickness of the sidewalk.

F. Joints for Curb and Gutter Work:

Expansion joints composed of pre-molded joint filler shall be used. All such materials shall be of one piece ½ inch thick and shall occupy the full cross section of the curb and gutter. Joints shall be placed at intervals of not more than 60 feet (100 feet for paving machine) and at the ends of each curve, driveway or alley opening. A joint shall be provided for the full sidewalk section where a new piece of walk adjoins a curb. Joints will be considered as paid for in the unit prices for concrete items. Concrete widening shall match as well as possible the joints in the existing pavement. Steel divider plates shall be used at the end of each pour. 1½-inch tooled joints shall be placed at 10-foot intervals.

12. CURB OPENINGS:

Unless otherwise indicated on the plans or directed by the Engineer, curb openings shall be constructed by dropping off the 6" x 6" curb in a length of 18 inches with radii top and bottom. The bottom width of such openings shall generally be 14 feet for driveways and 24 feet for alleys. There shall be a 1½-inch slope from the gutter line up to the back of the concrete. No special payment will be made for these openings. They will be measured as curb and gutter and the Contractor shall place sufficient gravel behind them to permit use after the concrete is seven days old.

13. SEALING JOINTS:

Unless otherwise approved by the Engineer, all joints shall be sealed in accordance with Section 602 of the MDOT Standard Specifications for Construction, 2012 edition. The

joints shall be sealed immediately following the curing period or as soon thereafter as the weather conditions permit, as directed by the Contracting Officer. Immediately before installing the sealer, joints shall be thoroughly cleaned and shall be free from concrete, dust, dirt or other objectionable material.

14. CONCRETE FINISHES:

A. Slab Trowel Finish:

Apply trowel finish to monolithic slab surfaces that are exposed to view. Screed fresh concrete to grade while placing within forms. Floating and troweling operations shall not begin until free water on the surface of the fresh concrete has disappeared. Water may not be sprayed onto fresh concrete to increase workability, nor may Portland Cement be applied to "dry up" the surface. Consolidate concrete surfaces by finish troweling, free of trowel marks, uniform in texture and appearance.

B. Edging and Final Finishing:

Unless otherwise directed by the Engineer, immediately after the initial finishing, the edges of the slab and all specified joints shall be finished with an edging tool. The pavements shall then be given a final finish by dragging a broom over the concrete surface and that portion of the pavement disturbed by the edging operation.

15. CURING AND PROTECTION:

A. General:

The Contractor shall have all equipment needed for adequate curing and protection of the concrete on hand and ready to install before actual concrete placement begins. The curing medium shall be applied so as to prevent loss of moisture from the concrete. All concrete shall be adequately protected from damage at all times.

B. Curing:

After the finishing operations have been completed and immediately after the free water has left the surface, the surface of the slab shall be completely coated and sealed with a uniform layer of white membranous curing compound, complying with ASTM C309, unless otherwise directed by the Engineer.

The compound shall be applied in a continuous uniform film by means of mechanically pumped pressure sprayer equipment at the rate directed by the Engineer, but not less than one gallon per 200 square feet of surface.

The equipment shall provide adequate stirring of the compound during application. The equipment for application of the compound must be on the project and approved by the Engineer before work is started. If rain falls on the newly coated pavement before the film has dried sufficiently to resist damage, or if the film is damaged in any other way, the Contractor will be required to apply a new coat of material to the affected areas equal in curing value to that specified for the original coat. The treated surface shall be protected by the Contractor from injury for a period of at least 7 days unless otherwise approved by the Engineer. All traffic, either foot or otherwise, will be considered as injurious to the film of the applied compound. A minimum of foot traffic will be permitted on the dried film as necessary to properly carry on the work, including the removal of any high spots, provided any damage to the film is immediately repaired by the application of a second coat of the compound. Immediately after the forms are removed, the entire area of the sides of the slab shall be coated with the curing compound at the rate specified for the pavement surface.

The Contractor shall provide on the project sufficient alternate coverings for the protection of the pavement in case of rain or breakdown of the spray equipment.

Failure to provide proper curing will be considered as sufficient cause for immediate suspension of the concreting operations.

C. Protection Against Accidents:

The Contractor shall furnish and maintain during the continuance of the work such barriers, lights and other protective devices and shall furnish such watchmen as will effectively prevent any accidents in consequence of his work; and he shall be liable for all accidents and damages occasioned in any way by his acts of neglect or by the acts or neglect of his sub-contractors, agents, employees or workmen.

It shall be the responsibility of the Contractor to plan his pours so the concrete will be sufficiently hardened before terminating work for that particular day. All surfaces of newly poured work shall be protected by the Contractor from any damage caused by pedestrians, vehicles, bikes, dogs and others until the concrete has sufficiently hardened.

D. Cold Weather Requirements:

Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather. No frozen materials or materials containing snow or ice shall be used.

All reinforcement, forms, fillers and ground with which the concrete is to come in contact shall be free from snow and ice.

Construction during cold weather shall be performed in accordance with ACI 306, "Recommended Practice for Cold Weather Concreting," as directed by the Engineer.

16. QUALITY CONTROL:

The Contractor shall establish and maintain a quality control system for all operations performed under this section to assure compliance with contract requirements and maintain records of his quality control for all operations performed including, but not limited to, the following:

- A. Composition, quality & testing of concrete material
- B. Gradation of concrete aggregates
- C. Form work
- D. Placement of reinforcing steel and embedded items
- E. Batching and mixing concrete
- F. Conveying and placing concrete
- G. Joint installation and treatment
- H. Finishing of concrete surfaces
- I. Curing and protection of concrete
- J. Dimension tolerances
- K. Observance of safety regulations

17. DEFECTIVE WORK:

- A. Any concrete that is found to be lacking in the requirements listed in this specification or of poor workmanship, and not approved by the Engineer shall be considered as Defective Concrete.
- B. Defective concrete, voids, honeycombing, ridges and local bulging on all concrete surfaces permanently exposed to view shall be repaired to the satisfaction of the Engineer after the removal of forms. Defective concrete shall be repaired by cutting out the unsatisfactory material and placing new concrete which shall be secured with keys, dovetails or anchors. Excessive rubbing of formed surfaces will not be permitted. All unformed surfaces of concrete, exposed in the completed work, shall have a broomed finish without additional mortar and shall be true to elevation as shown on the drawings. Other surfaces shall be brought to the specified elevations and left true and regular.

18. MEASUREMENT:

Only concrete acceptably placed or used will be measured for payment.

Measurement of concrete for payment will be made on the basis of those items listed in the proposal within the pay lines of the structures as indicated on the drawings or herein.

TECHNICAL SPECIFICATIONS FOR PAINTING

1. **SCOPE:**

The work covered in this section of the specifications consists in the furnishing of all labor, materials, and equipment, and in performing all operations necessary to complete all of the painting required by this Contract in strict accordance with provisions of the Plans and Specifications and subject to the terms and conditions of the Contract.

2. **GENERAL:**

A. To assure the quality expected of the City all containers shall contain the following:

- (1) Manufacturer's name
- (2) Type of Paint
- (3) Manufacturer's stock number
- (4) Color
- (5) Instructions for reducing where applicable
- (6) Data when mixed

B. Submit and receive approval of color samples prior to ordering any materials. Except as otherwise specified, materials shall be the products of one of the following manufacturers, or as approved by the Engineer:

- (1) Benjamin Moore
- (2) Sherwin Williams
- (3) Pittsburg Paint

3. **EXECUTION:**

A. All surfaces shall be clean, and in suitable condition as recommended by the paint manufacturer. Apply all materials with suitable brushes or rollers. Rate of application shall not exceed that as recommended by the paint manufacturer for the surface involved. Comply with the recommendation of the manufacturer for application and drying time between successive coats. Finish coats shall be

smooth, free of brush marks, streaks, laps, pile-ups of paint and skipped or missed spots. Refinish whole section where portion has been damaged or is not acceptable.

- B. Painting schedule: Ferrous metal: One (1) coat zinc chromate primer, two (2) coats acrylic semi-gloss enamel (including pipe handrail).

4. PAINT & COATINGS:

<u>Product</u>	<u>Definition</u>
Polyamide, Anti-Corrosive, Epoxy	Converted epoxy primer containing rust-inhibitive pigments
Organic Zinc Rich Primer	Converted epoxy, epoxy/phenolic or urethane type, minimum 10 lbs; metallic zinc content per gallon
Rust-Inhibitive Primer	Single-package steel primers with anti-corrosive pigment loading; may be alkyd, vinyl, epoxy ester, chlorinated rubber
Alkyd Enamel	Optimum quality, gloss finish, medium long oil
Wash Primer	Vinyl butyral acid
Cementitious Acrylic	Two-components (liquid and aggregate) filler
Polyamide High Build Epoxy	Capability of 4-8 MDFT per coat
Bituminous Paint	Single-component, coal-tar pitch based
Polyurethane Enamel	Two-component, aliphatic or acrylic based polyurethane; high gloss finish

5. APPLICATION OF PAINT:

A. General:

- (1) Inspection: Schedule with Engineer in advance for cleaned surfaces and all coats prior to succeeding coat.
- (2) Apply coatings in accordance with paint manufacturer's recommendations. Allow sufficient time between coats to assure thorough drying of previously applied paint.
- (3) Fusion Bonded Coatings Method Application: Electrostatic, fluidized bed, or flocking.
- (4) Paint units to be bolted together and to structures prior to assembly or installation.

B. Shop Primed or Factory Finished Surfaces:

- (1) Inspection: Schedule with Engineer in advance for shop primed or factory finished items delivered to jobsite for compliance with Specifications.
- (2) Hand or power sand areas of chipped, peeled, or abraded coating, feathering the edges. Follow with a spot primer using specified primer.
- (3) For two-package or converted coatings, consult coatings manufacturer for specific procedures as relates to manufacturer's products.
- (4) Prior to application of finish coats, clean shop primed surfaces free of dirt, oil, and grease and apply mist coat of specified primer, 1-mil dry film thickness.
- (5) After welding, prepare and prime holdback areas as required for specified paint system. Apply primer in accordance with manufacturer's instructions.

C. Manufacturer Applied Paint Systems:

- (1) Repair abraded areas on factory finished items in accordance with the equipment manufacturer's directions.
- (2) Carefully blend repaired areas into original finish.

D. Film Thickness:

- (1) Coverage is listed as either total minimum dry film thickness in mils (MDFT) or the spreading rate in square feet per gallon (SFPG). Per coat determinations are listed as MDFTPC or SFPGPC.
- (2) Number of Coats: Minimum required irrespective of coating thickness. Additional coats may be required to obtain minimum required paint thickness, depending on method of application, differences in manufacturers' products, and atmosphere conditions.
- (3) Maximum film build per coat shall not exceed coating manufacturer's recommendations.

E. Porous Surfaces, Such As Concrete, Masonry:

- (1) Prime Coat:
 - a. May be thinned to provide maximum penetration and adhesion.
 - b. Type and Amount of Thinning: Determined by paint manufacturer and dependent upon surface density and type of coating.
- (2) Surfaces Specified to Receive Water Base Coating: Damp, but free of running water, just prior to application of coating.

F. Damaged Coatings, Pinholes, and Holidays:

- (1) Feather edges and repair in accordance with recommendations of paint manufacturer.
- (2) Repair fusion bonded coatings as recommended by original applicator. Applicator shall provide liquid repair kits for this purpose as recommended by coating manufacturer.
- (3) Apply finish coats, including touch-up and damage-repair coats, in a manner which will present a uniform texture and color-matched appearance.

G. Unsatisfactory Application:

- (1) If item has improper finish color or insufficient film thickness, clean and top coat surface with specified paint material to obtain specified color and coverage. Obtain specific surface preparation information from coating manufacturer.

- (2) Hand or power sand visible areas of chipped, peeled, or abraded paint, and feather the edges. Follow with primer and finish coat in accordance with the Specifications. Depending on extent of repair and appearance, a finish sanding and topcoat may be required.
- (3) Evidence of runs, bridges, shiners, laps, or other imperfections shall be cause for rejection.
- (4) Repair defects in coating system per written recommendations of coating manufacturer.
- (5) Leave all staging up until Engineer has inspected surface or coating. Replace staging removed prior to approval by Engineer.

6. CLEANUP:

- A. Place cloths and waste that might constitute a fire hazard in closed metal containers or destroy at the end of each day.
- B. Upon completion of the work, remove staging, scaffolding, and containers from the site or destroy in a legal manner.
- C. Completely remove paint spots, oil, or stains upon adjacent surfaces and floors and leave entire job clean.

7. PROTECTIVE COATINGS SYSTEM:

<u>System No.</u>	<u>Title</u>
5	EXPOSED METAL - MILDLY CORROSIVE
6	EXPOSED METAL - ATMOSPHERIC
27	ALLUMINUM AND DISSIMILAR METAL INSULATION
28	INTERIOR WOOD AND TRIM

- A. System No. 5 Exposed Metal - Mildly Corrosive:

<u>Paint Material</u>	<u>Min. Coats, cover</u>
Polyamide, Anti-Corrosive, Epoxy Primer	1 coat, 2.5 MDFT

	Polyurethane Enamel	2 coats, 3 MDFT
B.	System No. 6 Exposed Metal - Atmospheric:	
	<u>Paint Material</u>	<u>Min. Coats, cover</u>
	Rust-Inhibitive Primer	1 coat, 2 MDFT
	Alkyd Enamel	2 coats, 4 MDFT
C.	System No. 27 Aluminum and Dissimilar Metal Insulation:	
	<u>Paint Material</u>	<u>Min. Coats, cover</u>
	Wash Primer	1 coat, 0.4 mil
	Bituminous Paint	1 coat, 10 mils
D.	System No. 28 Interior Wood and Trim	
	<u>Paint Material</u>	<u>Min. Coats, cover</u>
	Alkyd Undercoater	1 coat, 3 mils
	Alkyd Resin Finish	2 coats, 2 mils

8. PAINT APPLICATION SCHEDULE:

- A. Unless otherwise shown or specified in these Specifications, paint or coat the work in accordance with the following application schedule. In the event of discrepancies or omissions in the following, request clarification from the Engineer before starting work in question.
- B. System No. 5 Exposed Metal - Mildly Corrosive: Use on the following items or areas:
 - Exposed metal surfaces, new and existing located inside of structures, highly humid atmosphere such as wet and dry wells and similar areas.
- C. System No. 6 Exposed Metal - Atmospheric: Use on the following items or areas:
 - (1) Exposed metal surfaces, new and existing located outside of structures and exposed to weather, including metal doors and frames, vents, louvers,

interior metal duct work, flashings, sheet metalwork and miscellaneous architectural metal trim.

- (2) Apply surface preparation and primer to surfaces prior to installation. Finish coats need only be applied to surfaces exposed after completion of construction.

D. System No. 27 Aluminum and Dissimilar Metal Insulation: Use on nonsubmerged concrete embedded aluminum surfaces and where required.

9. SURFACES NOT REQUIRING PAINTING:

A. Unless otherwise stated herein or shown, the following areas or items will not require painting:

- (1) Nonferrous and corrosion-resistant ferrous alloys such as copper, bronze, monel, aluminum, chromium plate, atmospherically exposed weathering steel, and stainless steel, except where:
 - a. Required for electrical insulation between dissimilar metals.
 - b. Aluminum and stainless steel are embedded in concrete or masonry, or aluminum is in contact with concrete or masonry.
- (2) Nonmetallic materials such as glass, PVC, wood, porcelain, and plastic (FRP) except as required for architectural painting or color coding.
- (3) Prefinished electrical and architectural items such as motor control centers, switchboards, switchgear, panelboards, transformers, disconnect switches, acoustical tile, cabinets, elevators, building louvers, wall panels, etc.
- (4) Nonsubmerged electrical conduits attached to unpainted concrete surfaces, unless otherwise noted.
- (5) Insulated piping and/or insulated piping with jacket will not require exterior coating, except as required for architectural painting or color coding.

B. Prepare manufactured items and materials that are "factory" galvanized and coat as specified hereinafter for the exposure condition of the item and for architectural purposes, unless otherwise stated herein.

- C. Except as modified herein, exterior concrete surfaces, existing and new, interior and exterior wood, masonry, concrete, and metal surfaces will not be painted unless specifically indicated herein.

10. SURFACES REQUIRED TO BE PAINTED:

- A. All exposed ferrous piping including piping inside of the Valve Chamber, Pump Chamber and above ground including all hangers, valves, bolts, supports and accessories:
Color shall be light gray.
- B. All ferrous metal items that will be in contact with concrete, masonry and/or exposed shall be finish painted including frames hatches, grab bars, access ladders, etc. except for manhole castings.
- C. All Metal Doors and Frames for Structure:
Color shall be light gray.
- D. All exterior, above ground, electrical conduit, equipment, boxes, meter bases, and enclosures:
Color shall be light gray.
- E. All Aluminum and stainless steel that are embedded in concrete or masonry, or aluminum that is in contact with concrete or masonry.
- F. The exposed ceiling and interior wood trim of the Equipment Building:
Color shall be White.
- G. Aluminum Roof Vents:
Color to match roof shingles.
- H. Miscellaneous equipment shipped to the jobsite with factory applied coatings as follows shall be painted under this work as specified:

No Factory Finish: Surface preparation, priming and finish painting.

Prime Coat: Surface preparation, touch-up and finish painting.

Intermediate Coat: Surface preparation, touch-up and finish painting.

Prefinished Equipment: Touch-up as required.

- F. Pumping Unit: Positive displacement, self-priming, gear-type pumping unit with integral centrifugal air separator and adjustable bypass valve. Suction strainers at inlet connection.
- G. Motor: 1-HP continuous duty with thermal overload protection, adjustable V-link belt connects to pump pulley.
- H. Electrical: 120/240VAC 50/60 Hz. (Existing power service is 240VAC)
- I. Inlet Connection: EC – 1 ½” male NPT.
- J. Discharge: EC – 1” NPT. Includes ¾” reducing bushing.
- K. Flow Control Valve: EC – Proportional 7/8” valve.
- L. Cabinet Finish: Powder-coated metallic silver sides, top, and base, Door color TBD by Engineer. Black register face with black decal with white lettering.
- M. Cabinet Construction: All exterior panels to be fabricated from heavy gauge galvanized steel for superior weather and corrosion resistance. Hinged doors for convenient service access.
- N. Lighted Product ID Panels: Light for display also illuminates product ID panel.
- O. Nozzle Boot: To fit supplied nozzle.
- P. Hose Hanger: Contractor to provide.
- Q. Pulse Output Interface: Contractor to provide to interface with existing card reader system.
- R. Heater: Contractor to provide heater for electronics.
- S. Hose Hanger / Mast: Contractor to provide hose hanger and/or mast to keep stored house out of the fueling lane.
- T. Hose and Nozzles: Contractor to provide industry standard models for approval.
- U. Dispenser Sump: Fiberglass W/ metal flange.
- V. Fittings, Adaptors, Wiring Etc.: All other appurtenances required, per industry standards, to furnish, install and put dispensers in service for City use.

CONSTRUCTION METHODS

- A. Examination:
 1. Examine work upon which Fuel Dispenser will be installed.
 2. Coordinate with General Contractor to correct unsatisfactory conditions.
 3. Commencement of work by installer is acceptance of substrate conditions.
- B. Assembly - Installation:
 1. Follow Manufacturers' installation instruction.

FINISH

- A. Material: TBD
- B. Color: TBD

MEASUREMENT AND PAYMENT

A. The completed work as described will be paid for at the contract unit price for the following contract items:

PAY ITEM

PAY UNIT

Fuel Dispenser W/ Appurtenances, gasoline
Fuel Dispenser W/ Appurtenances, diesel

EA.
EA.

**CITY OF TRAVERSE CITY
TECHNICAL SPECIFICATION
FOR
PERMANENT CURB FORM W/ APPURTENANCES**

DESCRIPTION

- A. The work for Permanent Curb Form includes the furnishing of all materials, equipment and labor required for the furnishing and installation of a painted curb form.

SUBMITTALS

- A. At least 14 days prior to construction, the General Contractor shall submit two (2) copies of the curb form submittal package to the Engineer for review and approval. The submittal package shall include technical specifications and product data from the manufacturer for the following:
 - 1. Shop drawings: indicate materials, sizes, styles, fabrication, anchorage, bracing, support bars and installations details for permanent curb form.
 - 2. Manufacturers' warranty.

MANUFACTURER

- A. OPW
9393 Princeton-Glendale Road
Hamilton, Ohio 45011
 - B. Product: OPW Island form
 - C. Substitutions: Engineer approved equal
- Toll Free: (888) 422-2525

MATERIALS - COMPONENTS

- A. Style: Half circle end and straight sections.
- B. Material: Steel
- C. Width: 48" outside to outside
- D. Height: 9" top of island to top of fueling lane, 13" overall.
- E. End Sections: Pre-braced with hardware for assembly.
- F. Straight Sections: Provide hardware for assembly.
- G. Cross Braces: Contractor shall provide cross braces every 24" along inside of straight sections with hardware for assembly.
- H. Sump Support Bars: Contractor shall provide sump support bars per manufacturers specifications for dispenser sump and curb form configuration.

CONSTRUCTION METHODS

- A. Examination:
 - 1. Examine work upon which Fuel Dispenser will be installed.

2. Coordinate with General Contractor to correct unsatisfactory conditions.
 3. Commencement of work by installer is acceptance of substrate conditions.
- B. Assembly - Installation:
1. Follow Manufacturers' installation instruction.

FINISH

- A. Material: Steel
- B. Color: TBD

MEASUREMENT AND PAYMENT

- A. The completed work as described will be paid for at the contract unit price for the following contract items:

PAY ITEM

PAY UNIT

Permanent Curb Form w/ appurtenances

FT

**CITY OF TRAVERSE CITY
TECHNICAL SPECIFICATION
FOR
PIPE GUARD**

DESCRIPTION

- A. The work for Pipe Guard includes the furnishing of all materials, equipment and labor required for the furnishing and installation of a painted double radius pipe guard.

SUBMITTALS

- A. At least 14 days prior to construction, the General Contractor shall submit two (2) copies of the pipe guard submittal package to the Engineer for review and approval. The submittal package shall include technical specifications and product data from the manufacturer for the following:
 - 1. Shop drawings: indicate materials, sizes, styles, fabrication, anchorage and installations details for Pipe Guard.
 - 2. Manufacturers' warranty.

MANUFACTURER

- A. OPW
9393 Princeton-Glendale Road
Hamilton, Ohio 45011
 - B. Product: OPW Pipe Guard
 - C. Substitutions: Engineer approved equal
- Toll Free: (888) 422-2525

MATERIALS - COMPONENTS

- A. Style: Double radius.
- B. Material: 4" O.D. schedule 40 steel.
- C. Width: 41" outside to outside
- D. Height: 30" top of pipe to top of concrete island, 74" overall (35" of bury below 9" concrete island)
- E. Radii: 14"

CONSTRUCTION METHODS

- A. Examination:
 - 1. Examine work upon which Fuel Dispenser will be installed.
 - 2. Coordinate with General Contractor to correct unsatisfactory conditions.
 - 3. Commencement of work by installer is acceptance of substrate conditions.
- B. Assembly - Installation:
 - 1. Follow Manufacturers' installation instruction.

FINISH

- A. Material: 4" O.D. schedule 40 steel.
- B. Color: TBD

MEASUREMENT AND PAYMENT

- A. The completed work as described will be paid for at the contract unit price for the following contract items:

PAY ITEM

PAY UNIT

Pipe Guard

EA

**CITY OF TRAVERSE CITY
TECHNICAL SPECIFICATION
FOR
REMOTE CARD READER, INSTALLED**

DESCRIPTION

- A. The work for Remote Card Reader, Installed includes the furnishing of all materials, equipment and labor required for the painting and re-installation of the existing remote card reader.

SUBMITTALS

- A. At least 14 days prior to construction, the General Contractor shall submit two (2) copies of the remote card reader package to the Engineer for review and approval. The submittal package shall include technical specifications and product data for the re-installation of the card reader for the following:
 - 1. Shop drawings: indicate materials, sizes, styles, fabrication, anchorage, and installation details for remote card reader.

MANUFACTURER

- A. Product: Existing "veeder root" card reader and appurtenances.

MATERIALS - COMPONENTS

- A. Anchorage: Contractor shall provide anchor bolts and nuts to match existing
- B. Material: Existing card reader shall be sand blasted and painted per industry standards.

CONSTRUCTION METHODS

- A. Examination:
 - 1. Examine work upon which remote card reader will be installed.
 - 2. Coordinate with General Contractor to correct unsatisfactory conditions.
 - 3. Commencement of work by installer is acceptance of substrate conditions.
- B. Assembly - Installation:
 - 1. Follow Manufacturers' installation instruction.

FINISH

- A. Material: Steel
- B. Color: TBD

MEASUREMENT AND PAYMENT

A. The completed work as described will be paid for at the contract unit price for the following contract items:

PAY ITEM

PAY UNIT

Remote Card Reader, Installed

LSUM

**CITY OF TRAVERSE CITY
TECHNICAL SPECIFICATION
FOR
LIGHT BASE, POLE AND FIXTURE, INSTALLED**

DESCRIPTION

- A. The work for Light Base, Pole and Fixture, Installed includes the furnishing of all materials, equipment and labor required for re-installation of the existing light base, pole and fixture.

SUBMITTALS

- A. At least 14 days prior to construction, the General Contractor shall submit two (2) copies of the light base, pole and fixture to the Engineer for review and approval. The submittal package shall include technical specifications and product data for the re-installation of the light pole for the following:
 - 1. Shop drawings: indicate materials, sizes, styles, fabrication, footing, anchorage, and installation details for light base, pole and fixture.

MANUFACTURER

- A. Product: Existing light base, pole and fixture.

MATERIALS - COMPONENTS

- A. Anchorage: Contractor shall provide footing, anchor bolts and nuts to match existing

CONSTRUCTION METHODS

- A. Examination:
 - 1. Examine work upon which light base, pole and fixture will be installed.
 - 2. Coordinate with General Contractor to correct unsatisfactory conditions.
 - 3. Commencement of work by installer is acceptance of substrate conditions.
- B. Assembly - Installation:
 - 1. Follow Manufacturers' installation instruction.

MEASUREMENT AND PAYMENT

A. The completed work as described will be paid for at the contract unit price for the following contract items:

PAY ITEM

PAY UNIT

Light Base, Pole and Fixture, Installed

LSUM

**CITY OF TRAVERSE CITY
TECHNICAL SPECIFICATION
FOR
EMERGENCY SHUT OFF SWITCH, RELOCATED**

DESCRIPTION

- A. The work for Emergency Shut Off Switch, Relocated includes the furnishing of all materials, equipment and labor required for the relocation of the emergency shut off switch.

SUBMITTALS

- A. At least 14 days prior to construction, the General Contractor shall submit two (2) copies of the emergency shut off switch, relocated package to the Engineer for review and approval. The submittal package shall include technical specifications and product data for the relocation of the push button emergency shut off switch for the following:
 - 1. Shop drawings: indicate materials, sizes, styles, conduit, post w/ footing, and installation details for push button emergency shut off switch.

MANUFACTURER

- A. Product: Existing push button emergency shut off switch and appurtenances.

MATERIALS - COMPONENTS

- A. Wood Post: 6"x6" treated wood post 8' long (48" of bury)
- B. Concrete: 18" diameter, 24" high footing at bottom of post.
- C. Conduit: Buried per NEC
- D. Junction Boxes: per NEC

CONSTRUCTION METHODS

- A. Assembly - Installation:
 - 1. Remove and salvage existing push button emergency shut off and sign.
 - 2. Reroute conduit to location shown on plans. Provide a minimum of 20' between nearest fuel dispenser and shut off switch or in accordance with State rules and regulations. Conduit shall be hand buried per NEC / Electrical Permit.
 - 3. Hand dig post hole and provide concrete footing around installed wood post.
 - 4. Mount Switch on post using existing junction box or in accordance with NEC / Electrical Permit.
 - 5. Attach sign to post in accordance with State rules and regulations.
 - 6. Verify switch functions properly.

MEASUREMENT AND PAYMENT

A. The completed work as described will be paid for at the contract unit price for the following contract items:

PAY ITEM

PAY UNIT

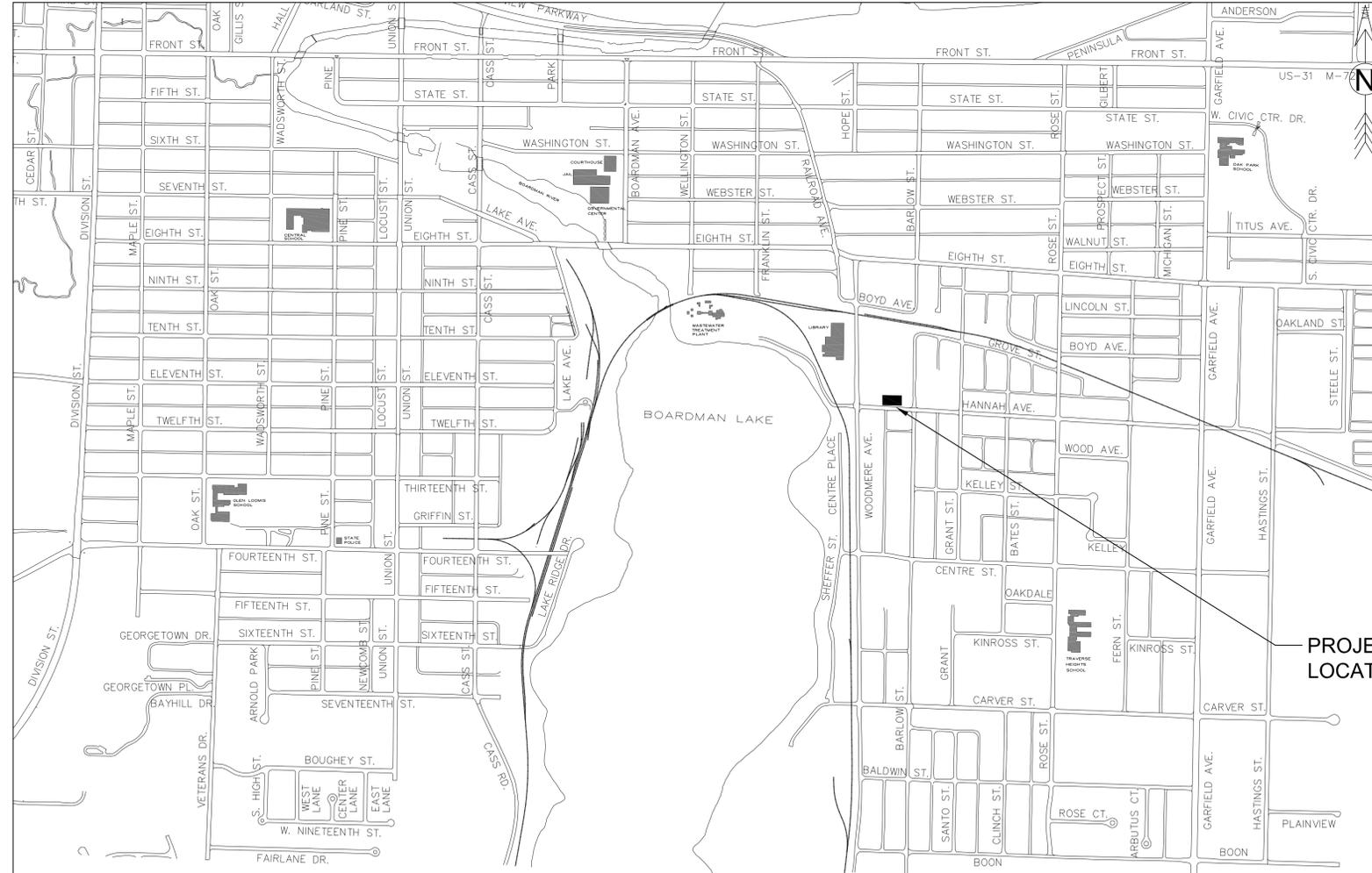
Emergency Shut Off Switch, Relocated

LSUM

CONSTRUCTION PLANS FOR THE CITY OF TRAVERSE CITY 2015 FUEL DEPOT IMPROVEMENTS



The City of Traverse City
Engineering Department
GOVERNMENTAL CENTER
400 Boardman Avenue
Traverse City, Michigan 49684



PLAN INDEX		
SHEET	DESCRIPTION	REV. DATE
1	COVER SHEET	9-11-2015
2	EXISTING CONDITIONS	9-11-2015
3	REMOVALS / PROPOSED PLAN	9-11-2015

PROJECT LOCATION

LOCAL UTILITIES

CITY OF TRAVERSE CITY ENGINEERING DEPARTMENT
ADDRESS: 400 BOARDMAN AVENUE, TRAVERSE CITY
CONTACT: TIMOTHY J. LODGE
TELEPHONE: (231) 922-4460

TRAVERSE CITY LIGHT AND POWER
ADDRESS: 1131 HASTINGS STREET, TRAVERSE CITY
ENGINEER: BLAKE WILSON
TELEPHONE: (231) 934-4544

TRAVERSE CITY SOIL EROSION & SEDIMENTATION CONTROL
ADDRESS: 400 BOARDMAN AVENUE, TRAVERSE CITY
CONTACT: JOHN MCWETHY
TELEPHONE: (231) 922-4467

CONSUMERS ENERGY COMPANY (C.P.)
ADDRESS: 821 HASTINGS ST., TRAVERSE CITY
AREA ENGINEER: GREG MORTENSEN
TELEPHONE: 1-800-477-5050

AT&T
ADDRESS: 142 E. STATE STREET, TRAVERSE CITY
AREA ENGINEER: KATHY DOHM-BEISER
TELEPHONE: (231) 941-2707

DTE ENERGY
ADDRESS: 1250 MICHCON LANE, S.W. P.O. BOX 279, KALKASKA
AREA ENGINEER: MATTHEW LOGAN
TELEPHONE: (231) 258-3785
EMERGENCY LEAK RESPONSE: 1-800-947-5000

TRAVERSE CITY WATER AND SEWER MAINTENANCE
ADDRESS: 507 HANNAH AVE., TRAVERSE CITY
CONTACT: JUSTIN ROY
TELEPHONE: (231) 922-4923

MICHIGAN DEPARTMENT OF TRANSPORTATION (M.D.O.T.)
TRAVERSE CITY TSC
ADDRESS: 2084 US-31 SOUTH, TRAVERSE CITY
ENGINEER: DAVE PAX
TELEPHONE: (231) 941-1986

CHARTER COMMUNICATION
ADDRESS: 1392 TRADE CENTRE DR., TRAVERSE CITY
ENGINEER: KEVIN MORRISON
TELEPHONE: (231) 932-8140

POLICE AGENCIES
EMERGENCY CALLS: 911
CITY OF TRAVERSE CITY: (231) 995-5150
MICHIGAN STATE POLICE: (231) 946-4646
GRAND TRAVERSE COUNTY SHERIFF: (231) 922-4500

FIRE DEPARTMENTS
EMERGENCY CALLS: 911
CITY OF TRAVERSE CITY: (231) 922-4930

AMBULANCE
EMERGENCY CALLS: 911

LOCATION PLAN NO SCALE

GRAND TRAVERSE COUNTY
CITY OF TRAVERSE CITY
R11W, T27N

CITY OF TRAVERSE CITY
2015 FUEL DEPOT IMPROVEMENTS
COVER SHEET



CITY ENGINEER
TIMOTHY J. LODGE, P.E.

City of Traverse City

Revision/Issue	Date
Date:	09-11-2015
Project No.:	
Drawn by:	ARY
Scale:	N.T.S.
Sheet No.:	1 OF 3

