

**Fennville High School Football Field
5 Memorial Drive, Fennville, MI 49408
Project #38369646**

**INVITATION TO BID
June 10, 2009**

Fennville Public Schools is currently seeking bids for the following project:

Football Field Lighting Replacement

- Scope of Work:** All existing poles and lights will be removed and disposed of per the direction of owner. The holes will be backfilled with stone to allow for 12" of top soil and seeded with a top quality turf seed. All trenches will also be back filled to match existing grade and seeded. The new four pole lighting system will be installed per layout provided.
- Electrical:** The electrical system consists of 480 Y/120 volt/3 phase.
- Job Site Review:** On site visitation can be made by calling Jon Carr, Building and Grounds Supervisor – 269-561-4832 (W); 269-686-6570 (C). **A mandatory pre-bid meeting will be held on July 1, 2009 at 10:00 a.m. at High School Football Field site.**
- Insurance:** Contractor shall furnish certificate of insurance prior to start of project with a minimum of \$500,000.00 coverage and proof of worker comprehensive insurance.
- Qualifications:** Contractor shall furnish previous install experiences and references to show ability to complete the contract.
- Job Work Schedule:** Contractor may start work as soon as letter of intent is issued with completion by August 14, 2009.
- Change Orders:** Contractor must submit any changes to the owner in writing and have their representative verbally agree to the change before any work can proceed.
- Job Site Clean Up:** Contractor will be responsible to maintain a clean and safe work area at all times and any open trenches shall be secured and clearly marked.
- Payments:** A total of two (2) pay requests shall be made with the following provisions:
1. No payments will be made prior to July 1, 2009.
2. Payment #1 for material that has been ordered and received on site.
3. Payment #2 final pay request at completion of job and with the owner representative's final inspection.
- Bid Due Date:** **Bids are due on Friday July 10, 2009 at 2 p.m. in the Superintendent's Office. Please mark your bid Fennville Football Field Lighting**

Fennville Public Schools reserves the right to accept or reject any and all bids that are not in the best interest of the school community.

Owner Responsibilities:

1. Complete access to the site for construction using standard 2 wheel drive rubber tire equipment.
2. Locate existing underground utilities and irrigation systems.
3. Pay for extra costs associated with foundation excavation in non-standard soils (rock, caliche, high water table, collapsing holes, etc.). Standard soils are defined as soils that can be excavated using standard earth auguring equipment.
4. Provide electrical design by Electrical Engineer. (Only if required)

Sports Lighting Manufacturer Responsibilities:

1. Provide required poles, fixtures, and foundations.
2. Provide layout of pole locations and aiming diagram.
3. Provide Project Management assistance as needed.
4. Provide structural designs. (Only if required)
5. Provide review of electrical design as provided by Electrical Contractor or Electrical Engineer.

Installing Contractor Responsibilities:

1. Provide equipment and materials to off load equipment at jobsite per scheduled delivery.
2. Remove all existing poles/lights and dispose of per direction of owner. The holes will be backed filled with stone to allow for 12" of top soil, and seeded with a top quality of turf seed. All trenches will also be back filled to match existing grade, and seeded.
3. Provide storage containers for material as necessary and dumpsters for waste disposal.
4. Provide adequate security to protect Musco delivered products from theft, vandalism or damage during the installation.
5. Provide required permits.
6. Provide electrical design for Musco to review prior to installation. (Only if Required)
7. Provide materials and equipment to install or upgrade existing electrical service panels as required or necessary. (This needs defined per Electrical design).
8. Provide materials and equipment to install all underground conduit, wiring, pull boxes etc. and terminate wiring as required per electrical design.
9. Confirm the existing underground utilities and irrigation systems have been located and are clearly marked so as to avoid damage from construction equipment. Repair any such damage during construction.
10. Provide materials and equipment to install (4) light structure foundations as specified on Layout.
11. Mark all pole locations per manufacturer layout.
12. Provide and install ground rods (one per pole location) for lightning protection per NFPA 780 Code and local building codes. Poles 75' or shorter should use a #2 copper conductor to the ground rod. Poles taller than 75' should use a #2/0 copper conductor. For standard clay soil, the ground rod must not be less than 5/8"x 8' long, driven vertically into the soil until point is 10' below grade. Ground rods must be installed in soil, not in the concrete backfill. Exothermic fusion welding is preferred to clamping to join ground wire and rod. Refer to the latest edition of NFPA 780 for additional information.
13. Remove spoils to owner designated location at jobsite.
14. Provide materials and equipment to assemble sports lighting fixtures and terminate all necessary wiring.
15. Provide equipment and materials to assemble and erect (4) light structure poles.
16. Provide equipment and materials to install the new Lighting Contactor Cabinet and terminate all necessary wiring.
17. If extended warranty alternate is accepted Contractor will commission system per manufacturer instructions.
18. Keep all heavy equipment off of playing fields when possible. Repair damage to grounds which exceeds that which would be expected. Indentations caused by heavy equipment traveling over dry ground would be an example of expected damage. Ruts and sod damage caused by equipment traveling over wet grounds would be an example of damage requiring repair.
19. Provide startup and aiming as required to provide complete and operating sports lighting system.

SECTION 16526 – SPORTS FIELD LIGHTING

PART 1 – GENERAL

1.1 SUMMARY

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the performance and design standards for Fennville Public Schools - High School Football – Fennville, Michigan. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth by the criteria set forth in these specifications.
- C. The sports lighting will be for the following fields:
 - 1. Football Field – 360’ x 160’
- D. The primary goals of this sports lighting project are:
 - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore the lighting system shall be designed such that the light levels are guaranteed for a period of 25 years.
 - 2. **Comprehensive Warranty:** Each manufacturer shall supply a signed warranty covering the entire system for 25 years. Warranty shall guarantee light levels; lamp replacements; system energy consumption; monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

1.2 LIGHTING PERFORMANCE

- A. **Performance Requirements:** Playing surfaces shall be lit to an average constant light level and uniformity as specified in the chart below. Light levels shall be held constant for 25 years. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Measured average illumination level shall be +/- 10% of predicted mean in accordance with IESNA RP-6-01, and measured at the first 100 hours of operation.

Area of Lighting	Average Constant Light Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
FB Field	40 footcandles	2.0:1.0	72	30’ x 30’

1.3 LIFE CYCLE COSTS

- A. **Energy Consumption:** Based on a 5000 hour operating cycle, the average kWh consumption for the field lighting system shall be 56.3 or less.

1.4 WARRANTY AND GUARANTEE

- A. **10-Year Warranty:** Each manufacturer shall supply a signed warranty covering the entire system, excluding fuses and lamps, for 10 years from the date of shipment. Labor shall be included for 2 years. Lamps shall be warranted for 2 years for parts, and 1 year for labor. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

- B. **SEE Alternate 4.1: 25-Year Warranty:**

Each manufacturer shall supply a signed warranty covering the entire system for 25 years. Warranty shall guarantee light levels; lamp replacements; system energy consumption; monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

1.5 DELIVERY TIMING

- A. **Equipment On-Site:** The equipment must be on-site 30 days from receipt of approved submittals and complete order information.

1.6 PRE-BID SUBMITTAL REQUIREMENTS

- A. Approved Product: Musco’s Light-Structure Green™ System is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section at least 10 days prior to bid. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.
- B. Design Approval: The owner will review pre-bid shop drawings from the manufacturers to ensure compliance to the specification.
 - 1. If the design meets the design requirements of the specifications, a letter will be issued to the manufacturer and addendum to bidders indicating approval for the specific design / manufacturer submitted.
 - 2. Any system claiming to use Constant Light or Constant Illumination must provide a stamped comprehensive third party test report verifying the functionality of the system. Stamp shall be from a licensed PE. Providing lamp replacements and/or pre-payment of electrical bills will not be considered acceptable forms of Constant Light or Constant Illumination.

1.7 ALTERNATE SYSTEM REQUIREMENTS

- A. Compliance to Specifications: Acceptance of a bid alternate does not negate the contractor and lighting manufacturer’s responsibility to comply fully with the requirements of these specifications. Any exceptions to the specifications must be clearly stated in the prior approval submittal documents.
- B. Light Level Requirements: Manufacturer shall provide computer models guaranteeing light levels on the field over 25 years. If a constant light level cannot be provided, a maximum Recoverable Light Loss Factor of 0.70 shall be applied to the initial light level design to achieve the maintained light levels of 40 foot-candles. For alternate systems, scans for both initial and maintained light levels shall be submitted.

Area of Lighting	Initial Average Light Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
FB Field	57 foot-candles	2.0:1.0	72	30’ x 30’

- C. Revised Electrical Distribution: Manufacturer shall provide revised electrical distribution plans to include changes to service entrance, panel and wire sizing.

PART 2 – PRODUCT

2.1 LIGHTING SYSTEM CONSTRUCTION

- A. System Description: Lighting system shall consist of the following:
 - 1. Galvanized steel poles and cross arm assembly. Concrete poles, direct bury steel and wooden poles are NOT acceptable.
 - 2. Pre-stressed concrete base embedded in concrete backfill. Anchor bolt foundations are acceptable.
 - 3. All luminaires shall be constructed with a die-cast aluminum housing to protect the luminaire reflector system.
 - 4. Due to the nature of high output lamps to experience excessive lumen depreciation, lamps with initial lumens higher than 155,000 are not acceptable.
 - 5. External visors and internal glare shields shall be utilized to minimize spill light, sky glow and glare.
 - 6. Manufacturer will remote all ballasts and supporting electrical equipment in aluminum enclosures mounted approximately 10’ above grade. The enclosures shall include ballast, capacitor and fusing for each luminaire. Safety disconnect per circuit for each pole structure will be located in the enclosure.
 - 7. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.

8. Lighting Contractor Cabinet to provide on-off control of the lighting system constructed of NEMA Type 4 aluminum. Communication method shall be provided by manufacturer. Cabinet shall contain custom configured contactor modules for 30, 60, and 100 amps, labeled to match field diagrams and electrical design. Manual Off-On-Auto selector switches shall be provided.
- B. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, ballast and other enclosures shall be factory assembled, aimed, wired and tested.
 - C. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed steel shall be hot dip galvanized per ASTM A123. All exposed hardware and fasteners shall be stainless steel of at least 18-8 grade, passivated and polymer coated to prevent possible galvanic corrosion to adjoining metals. All exposed aluminum shall be powder coated with high performance polyester. All exterior reflective inserts shall be anodized, coated with a clear, high gloss, durable fluorocarbon, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All wiring shall be enclosed within the cross arms, pole, or electrical components enclosure.
 - D. Lightning Protection: All structures shall be equipped with lightning protection meeting NFPA 780 standards. Contractor shall supply and install a ground rod of not less than 5/8" in diameter and 8' in length, with a minimum of 10' embedment. Ground rod should be connected to the structure by a copper main down conductor with a minimum size of #2 for poles with less than 75' mounting height and 2/0 for poles with more than 75' mounting height.
 - E. Safety: All system components shall be UL Listed for the appropriate application.
 - F. Electric Power Requirements for the Sports Lighting Equipment:
 1. Electric power: 480 Volt Y, 3 Phase Mye
 2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

2.2 STRUCTURAL PARAMETERS

- A. Support Structure Wind Load Strength: Poles and other support structures, brackets, arms, bases, anchorages and foundations shall be determined based on the 2003 edition of the IBC Building Code, wind speed of 90 MPH, exposure category C. Luminaire, visor, and cross arm shall withstand 150 mph winds and maintain luminaire aiming alignment. Foundation design will be based on 2003.
- B. Structural Design: The stress analysis and safety factor of the poles shall conform to AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.
- C. Soil Conditions: The design criteria for these specifications are based on soil design parameters as outlined in the geotechnical report. If a geotechnical report is not provided by the owner, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2003 IBC, Table 1804.2 (used if wind criteria is 2003 IBC).
- D. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state of Michigan. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

PART 3 – EXECUTION

3.1 FIELD QUALITY CONTROL

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA RP-6-01, Appendix B.
- B. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including foot-candles, uniformity ratios, and maximum kilowatt consumptions are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be liable to any or all of the following:

1. Manufacturer shall at his expense provide and install any necessary additional fixtures to meet the minimum lighting standards. The Manufacturer shall also either replace the existing poles to meet the new wind load (EPA) requirements or verify by certification by a licensed structural engineer that the existing poles will withstand the additional wind load.
2. Manufacturer shall minimize the Owner's additional long term fixture maintenance and energy consumption costs created by the additional fixtures by reimbursing the Owner the amount of \$1,000.00 (one thousand dollars) for each additional fixture required.
3. Manufacturer shall remove the entire unacceptable lighting system and install a new lighting system to meet the specifications.

PART 4 – WARRANTY ALTERNATE

4.1 25 YEAR WARRANTY

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years. Warranty shall guarantee light levels; lamp replacements; system energy consumption; monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.
- B. Complete Lamp Replacement: Manufacturer shall include all group lamp replacements required to provide 25 years of operation based upon 100 usage hours per year.
- C. Preventative and Spot Maintenance: Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual lamp outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.
- D. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the owner of outages within 24 hours, or the next business day. The controller shall determine switch position (Manual or Auto) and contactor status (open or closed).
- E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.
- F. The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields, to only having permission to execute "early off" commands by phone.
- G. Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

Part 5 - ELECTRICAL SYSTEM REQUIREMENTS

- A. Contractor Responsibility: The installing contractor shall be responsible for providing the equipment and installation of a complete and operational system commencing from the load side of the service transformer and terminating at the safety disconnect within the electrical enclosure, 10' above grade, on each lighting pole. The electrical contractor shall coordinate the transformer and switchgear locations, as well as identifying the voltage and phase of the service, with the local power company and the Owner's representative before any equipment is installed.
- G. Electric Power Requirements for the Sports Lighting Equipment:
Electric power: 480 Volt Y, 3 Phase Mye
- H. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.
- I. System Design
1. The electrical system equipment shall consist of:
 - a. Conductors and conduit from the main service transformer to the service entrance panel board.
 - b. The service entrance panel board with appropriate individual circuit over-current protection. The panel board shall meet local and National Electrical Code (NEC) requirements for the size of the service, AIC rating, and the type of the environment to which it will be exposed. All feeder breakers shall be bolt on type.
 - c. Conductors and conduit for the feeder circuit from the service entrance panel board (or from the contactor panel if applicable) to the safety disconnect mounted in the electrical enclosure on each lighting pole 10' above grade.
 - d. Grounding conductors and grounding methods for the following:
 - (1) The main service entrance panel board. (per NEC or local codes)
 - (2) The lighting contactor enclosure. (per NEC or local codes)
 - (3) Each electrical component enclosure mounted on the lighting poles. (Equipment Grounding System) (per NEC or local codes)
 - (4) Lightning Protection for individual poles as follows (per NFPA 780):
 - (a) A 5/8" x 8' copper grounding rod buried vertically in undisturbed earth. The bottom tip of the grounding rod should reach a minimum of 10' below grade.
 - (b) A copper grounding conductor shall be connected to the top of the copper grounding rod and extend and connect to the grounding lug located inside the hand hole of the pole approximately 10' above grade. The size of this conductor shall be #2 if the pole is less than 75' in height and #2/0 if the pole is 75' in height or greater.
 2. Underground wiring shall be all copper wire and shall be installed in PVC Schedule 40 conduit and shall be buried to a depth of 40 inches meeting/exceeding the NEC and local electrical codes. Acceptable copper wire types need to comply with any local requirements, but will be labeled either THHN or THWN. If above ground conduit must be used, it shall be rigid galvanized steel. Conduit elbows located at the electrical panel should be rigid conduit, as opposed to PVC.
- J. Trenching or Directional Boring
1. The installing contractor shall be responsible for locating all underground utilities including, but not limited to, natural gas, electric, water, sewer, cable TV and telephone.
 2. The owner shall be responsible for locating and staking any underground facilities that are not utility related. Owner accepts responsibility for damage to such facilities that are not properly located or staked.
 3. Trenching depth and width shall be adequate to install appropriately sized conduit and to meet local and National Electrical Codes.

4. Trenches shall be back-filled with excavated soil and compacted to approximately the same density of the surrounding soil to minimize settlement.
5. No trench line or feeder circuit shall cross the playing area. Directional boring permissible as long as playing field is not damaged/disturbed.

K. Design Standards

1. All circuits shall be designed so as not to exceed a 3% voltage drop at the safety disconnect in the electrical enclosure near the base of each pole.
2. All work shall meet local and National Electrical Codes. It shall be the installing contractors' responsibility to correct any work deemed unacceptable by local electrical inspectors.
3. All electrical components shall be UL Listed for the appropriate application.
4. Each pole shall be on a dedicated circuit. If common poles are to be used, or a pole is to have fixtures on a separate circuit, another dedicated circuit shall be run to that pole. Consult lighting equipment specifications and lighting manufacturer for special circuitry information.
5. If any pole utilizes a Momentary Power Interrupt (MPI) lighting fixture(s) and the system voltage is 480, the installing contractor must run an appropriately sized neutral conductor to each pole with the MPI fixture. If a neutral conductor is not available, the installing contractor must provide a step down transformer to allow the MPI fixture(s) to operate at either 208v, 240v, or 277 volts.

L. Submittal Information

The successful contractor shall provide an electrical plan/schematic, detailing all of the equipment described above, to the owner prior to commencing work. This electrical plan/schematic shall bear the stamp of an Electrical Engineer with P.E. status within the State of Michigan.

PART 6 – EXECUTION

6.1 CONTRACTOR'S DUTIES

- A. All work performed under this contract shall be performed in accordance with all provisions of these specifications and drawings. Any deviations from the specifications or plans must be approved in writing by the owner or his representative.
- B. Initial site inspection: The contractor shall be presumed to have made a reasonable inspection of the premises prior to the time of bidding and shall be held responsible for all information available through such inspection. The contractor shall immediately upon discovery, bring to the attention of the owner any conflicts that may occur among the various provisions of the specifications and plans. The owner shall resolve such conflicts and shall be responsible for any costs reasonably incurred by the contractor due to such conflict. Failure of the contractor to bring conflicts or exceptions to the attention of the owner shall allow the owner to require any change deemed necessary before acceptance by the owner.
- C. Insurance Requirements:
 1. Contractor's and Subcontractor's Insurance: The contractor shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the owner, nor shall the contract allow any subcontractor to commence work on his sub-contract until the insurance required of the subcontract has been so obtained and approved.
 2. Workman's Compensation Insurance: The contractor shall procure and shall maintain during the life of the contract, Workman's Compensation Insurance and Death Liability Insurance for all of the employees engaged in work on the project under the contract, and in case any such work is sublet, the contractor shall require the subcontractor similarly to provide Workman's

Compensation Insurance and Death Liability Insurance for all of the latter's employees engaged in such work unless such employees engaged in hazardous work on the project under his contract are not protected under Workman's Compensation Statute, the contractor shall provide and shall cause each subcontractor to provide adequate employer's general liability insurance for the protection of such of his employees not otherwise protected.

3. Contractor's Public Liability and Property Damage Insurance : The contractor shall procure and shall maintain during the life of this contract, Contractor's Public Liability Insurance in an amount not less than \$500,000 for injuries, including accidental death to any one person and subject to the same limit for each person in an amount not less than \$500,000 on account of one accident, the Contractor's Property Damage Insurance in an amount not less than \$100,000 each occurrence and aggregate.
4. Subcontractor's Public Liability and Property Damage Insurance: The contractor shall require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage Insurance of the type specified in subparagraph 3 hereof in the amount specified.
5. Automobile Public and Property Damage Insurance: The contractor shall require each of his subcontractors to procure and to maintain during the life of his subcontract, Automobile Public Liability Insurance in an amount not less than \$500,000 single limit for injuries, including accidental death and property damage. Insurance for automobiles shall include: the contractor's owned automobiles and trucks, hired automobiles and trucks, and automobiles and trucks not owned by the contractor.

- D. Bonding: The successful contractor shall furnish a performance bond in an amount equal to one hundred percent (100%) of the contract as security for the faithful performance of this contract, and a labor and material payment bond in an amount of one hundred percent (100%), or in the penal sum not greater than that prescribed by state, territory, or local law, as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The bonds shall be written by a surety licensed to do business in the locale in which the work is being performed and shall be satisfactory to the owner.

The successful contractor shall, upon completion of the project, protect the owner against defective materials or faulty workmanship for a period of two (2) years. The contractor, at the owner's request, shall furnish a maintenance bond for the above outlined maintenance term. This bond shall be in an amount not to exceed one hundred percent (100%) of the contract price.

- E. Codes, Permits and Licenses: All work shall comply with the applicable rules of the National Electrical Code, the National Electrical Safety Code, the National Fire Codes, (published by the National Fire Protection Association), state and local codes and ordinances, and the terms and conditions of the services of the electrical utility, as well as any other authorities that may have lawful jurisdiction pertaining to the work specified. None of the terms or pro-visions of this specification shall be construed as waiving any of the rules, regulations or requirements of these authorities. The contractor shall procure all necessary permits or licenses to carry out his work, and shall pay the lawful fee therefore, as well as for any inspection fee or the cost of a certificate of approval.

In any instance where these specifications call for materials for construction of a better quality or larger size than required by the codes, the provisions of these specifications shall take precedence. The codes shall govern in the case of direct conflict between the codes and the plans and the specifications.

6.2 MATERIALS

- A. Approved Materials: All materials supplied by the contractor under the provisions of these specifications and plans shall be new materials of the kind and character called for by the specifications. Defective equipment or material damaged in the course of installation or tests shall be replaced or repaired in a manner satisfactory to the owner. All materials and equipment to be furnished under these specifications shall be the standard product of a manufacturer regularly engaged in the production of such material and shall be the manufacturer's current standard design.
- B. Alternate Materials: The materials specified have been determined to have characteristics appropriate for the purposes of this project. Alternate materials will only be considered as a substitute bid on a separate substitution sheet. No bid will be approved which proposes to use a non-approved substitute. Substitutions will not be considered in determining the lowest responsive bid. The owner reserves the right to reject any or all bids.

6.3 SITE ACCESS

- A. Contractor Access: For the performance of the contract, the contractor will be permitted to occupy such portions of the site as shown on the plans, or as permitted by the owner or his representative. A reasonable amount of tools, materials or equipment for construction purposes may be stored in such place, but not more than is necessary to avoid delays in construction. Excavated and waste materials shall be piled or stocked in such a way as to not interfere with spaces that may be designated to be left free and unobstructed, not to inconvenience other contractors or the owners.

Upon completion of the work and before acceptance and final payment is made, the contractor shall clean and remove from the site of the work, surplus and discarded materials, temporary structures and debris of every kind. The contractor shall leave the site of work in a neat and orderly condition equal to that which originally existed. Surplus and waste materials removed from the site of the work shall be disposed of at locations satisfactory to the owner.
- B. Owner's Access: The owner's representative shall at all times have access to the work site. The contractor shall keep the owner advised of the progress of the project and shall provide opportunity for the owner or his representative to inspect each phase of the project. The contractor shall provide proper and safe facilities for such access and for inspection.

6.4 REPLACEMENT OF DAMAGED PROPERTY

The contractor shall replace all property damaged by him including fences, trees, plants, grass, walks, drives, building surfaces, etc.

6.5 DEMO OF EXISTING POLES/LIGHTS

The contractor shall remove all existing poles/lights and disposed of per the direction of the owner. The holes will be backed filled with stone to allow for 12" of top soil, and seeded with a top quality of turf seed. All trenches will also be back filled to match existing grade, and seeded.

6.6 INSTALLATION

- A. Manufacturer's Instructions: Written instructions for the installation of the sports lighting equipment shall be provided by the manufacturer. The contractor shall review the instructions prior to beginning installation and review any areas of concern with the manufacturer.
- B. Manufacturer Representative: A qualified representative from the sports lighting manufacturer shall be available to provide installation guidance if required by the contractor.

- C. Handling of Equipment: The lighting equipment shall be handled in an appropriate manner to ensure safe installation and prevent damage to the equipment. Repair or replacement of damaged component shall be the responsibility of the installing contractor.
- D. Rigging: Use the appropriated rated web fabric slings to lift components into position. Chains or cables shall not be allowed due to potential failure and damage to components.
- E. Completion Time: All construction, after Notice to Proceed, is to be completed within 30 calendar days. A charge of \$50.00 per day for liquidated damages to the owner will be charged if all construction is not completed within the specified period. The contractor will be required to commence work within ten (10) calendar days after the owner issues a Notice to Proceed and shall be present at the job site during normal working hours and shall proceed to completion with due diligence.
- F. Clean-up: Upon completion of the work and before acceptance and final payment is made, the contractor shall clean and remove from the site of the work, surplus and discarded materials, temporary structures and debris of every kind. The contractor shall leave the site of work in a neat and orderly condition equal to that which originally existed. Surplus and waste materials removed from the site of the work shall be disposed of at locations satisfactory to the owner.