



State of Utah

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Department of Administrative Services

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ADDENDUM NO. 4

Date: 12 March 2009

To: Contractors

From: Bill Bowen, Project Manager, DFCM

Reference: Weber State University
Women's Softball Field Venue

DFCM Project #: 08240810

Subject: **Addendum No. 4**

Pages:

DFCM Addendum	1 page
Questions & Answers	2 pages
MHTN Addendum #3	2 page
<u>Revised Specification</u>	<u>9 page</u>
Total Pages	14 pages

Note: *This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.*

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

1. **SCHEDULE CHANGES** – No schedule changes.
2. **Project Construction Schedule**
 - 2.1. Start Date: **Monday, May 4, 2009**
 - 2.2. Preferred Substantial Completion Date: **Wednesday, July 22, 2009**
 - 2.3. Latest Acceptable Substantial Completion Date: **Wednesday, August 19, 2009**

End of Addendum

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WSU Softball Field – Questions for Final Addendum

1. (Q): Sheet CG101 states that the boulder retaining wall on the north end behind the outfield fence should be +/- 2.00 feet in height. However, sheet AS103 detail E2 states that the boulder retaining wall is to be 4 feet max. Which height should be used in constructing the boulder retaining wall.

(A): Detail E2 on AS103 indicates that the height of the boulder retaining wall cannot exceed 4' high from finish grade below the wall to finish grade above the wall. If you are to construct a 2' high +-exposed boulder wall with the requirement for a bury depth of 1/2 the boulder height, the boulders at the base of the wall could be 4' diameter. This would allow 2'+- of exposed wall as called for on the grading plan. Infill boulders, of course, would be required to fill the gaps between the large boulders. The infill boulders should not be less than 18" diameter as specified. If a 3' diameter boulder is used for the base of the wall, then a second row of 18" diameter rocks will be required for the second row to achieve a minimum 2' high exposed wall. Please look at the construction of the boulder walls at the WSU Bell Tower Plaza as an example of a stacked boulder wall.

2. (Q): What size ground conductor should be pulled from the existing MDP to Panel HA?

(A): Panel HA has a ground bus connected directly to the grounding system that shall be provided. No ground conductor from panel MDP is necessary.

3. (Q): On drawing EE003, on the single line diagram is a note on Panel HA that says "Tie to network for remote control". What does this entail? Where is the network located?

(A): Panel HA shall be a powerlink G3 or engineer approved equivalent panel. This panel has the capability to be networked for the control of the breakers in it. The network connection will be in the future concessions structure.

4. (Q): There is a water meter and vault plan on sheet CD101 which I can't find on the drawings. Is this to be installed in conjunction with this project, and if so, where is it located?

(A): We were able leave the existing water meter in place. A new meter is not needed, delete the water meter and vault detail shown on Sheet CD101.

5. (Q): Is there a soil report that we are to use in preparing our bid?

(A): The Geo-technical report is found in the Appendix of the Specification.

6. (Q): On sheet CG101 there is a note that says to remove and replace fill below Future Concessions. How deep is the fill to be removed?

(A): Approximately 5.5 feet per soils report boring log B-1A.

7. (Q): I can't find a specification for the 1"x 12" perforated panel pipe land drain. Can you provide one?

(A): Please see specification section Playing Field Turf – 02930 subsection 2.04. Other approved products are Varicore Multi Flow Drainage Systems.

8. (Q): A subcontractor has reported that there is a lot of previously dumped material on the site that isn't identified on the grading or demo plans, including debris and tires. How do you want us to handle this?

(A): The civil engineer estimates that approximately 200 cubic yards of Additional material has been dumped within the "Construction Limits" of the Hammer Throw. This extra material can be added to the nearby 4:1 side sloped areas, slightly extending the construction limits where the material is added. As

indicated in the pre-bid site visit, any site debris encountered in the loose fills would need to be separated from the loose fill piles and disposed of in a legal manner per demolition and site clearing specifications.

9. (Q): If alternate #3 for seeding the new hammer throw area is not accepted, how do you propose we provide soil stabilization for storm water pollution requirements?

(A) All SWPPP notes apply to the hammer throw area. Add or leave approximately 200 feet of silt fencing or straw waddling along the east side of the east fence along "Old Post Road".



**Addendum No. Three
for the
WSU Women Softball Venue
MHTN Project No. 2008547**

All Contractors submitting proposals on the above captioned project shall be governed by the following addendum, changes and explanations to the bidding documents and shall submit their bids in accordance therewith:

CHANGES TO THE PROJECT MANUAL:

A3.1 SECTION 02930 – PLAYING FIELD TURF Paragraph 2.4 add the following manufacturers:
Varicore Multi Flow Drainage Systems and Hydraway 300

A3.2 SECTION 16145 – LIGHTING CONTROL DEVICES:

Approved Manufacturers

The following lighting manufacturers are approved to bid. Approval of the equipment from catalog information indicates that the brand name and general characteristics are acceptable to the Engineer. Any conflict arising from use of the substituted equipment shall be the responsibility of the Supplier who shall bear all costs required to make the equipment comply with the intent of plans and specifications.

<u>Fixture Type</u>	<u>Approved Manufacturers</u>
T-1	GE Sport Lighting, Musco
T-2	GE Sport Lighting, Musco
T-3	GE Sport Lighting, Musco
T-4	Exceline
T-5	Lightolier

The Softball field lighting (Type T-1, T-2 & T-3 Lighting fixtures) must meet NCAA Competition reference. Manufacturer shall design the poles based on the indicated pole locations. The Manufacturer shall provide installation instructions.

The fixture Manufacturers shall provide pole, lightning protection, lighting control, ballast mounting, pole base, and emergency lighting design. Refer to specification for more information. Emergency lighting shall light the bleachers at one-foot candle for a minimum of 90 minutes. Coordinate ballast mounting with Engineer. Refer to drawing and specifications for further requirements.

Approximate location of poles must remain as shown on sheet ES101. Location of ballasts must be coordinated with the engineer.

A3.3 SECTION 16526 – SPORTS LIGHTING is incorporated into the Project Manual as an attachment to this Addendum

CHANGES TO THE DRAWINGS:

- A3.4 Sheet CD101** – Delete the water meter and vault detail shown. The existing water meter is to remain, undisturbed in place.
- A3.5 Sheet SW102** - All SWPPP Notes apply to the Hammer Throw area. Add approximately 200 feet of silt fencing or straw waddling along the east side of the east fence along “Old Post Road
- A3.6 Sheet CG102**
- a. Add approximately 200 feet of silt fencing or straw waddling along the east side of the east fence along “Old Post Road
 - b. Add the following note:
approximately 200 cubic yards of Additional material has been dumped within the “Construction Limits” of the Hammer Throw. This extra material can be added to the nearby 4:1 side sloped areas, slightly extending the construction limits where the material is added. As indicated in the pre-bid site visit, any site debris encountered in the loose fills would need to be separated from the loose fill piles and disposed of in a legal manner per demolition and site clearing specifications.
- A3.7 Sheet AS102 – Detail B1**
Revise the text “16’ tall section” to read “20’ tall section”
- A3.8 Sheet AS102 – Detail B5 Clarification**
30” high Rubberized matt is to be installed along the entire length of the 20’ high backstop
- A3.9 Sheet ES101**
1. Run two each, 2” conduit from the existing WSU communication box to the telephone terminal board in the new storage room. Coordinate with WSU, IT Group.

Attachments:

Section 16526 – SPORTS LIGHTING

End of Addendum No. 3

SECTION 16526 - SPORTS LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes lighting for the following outdoor sports venues, specified primarily by illumination performance:
 - 1. Baseball field.
- B. Related Sections include the following:
 - 1. Division 16 Section "Lighting Control Devices" for multipole lighting relays and contactors.

1.3 DEFINITIONS

- A. CV: Coefficient of variation; a statistical measure of the weighted average of all relevant illumination values for the playing area, expressed as the ratio of the standard deviation for all illuminance values to the mean illuminance value.
- B. Delegated-Design Submittals: Documents, including drawings, calculations, and material and product specifications prepared as a responsibility of Contractor to obtain acceptance by Owner and authorities having jurisdiction.
- C. Horizontal Illuminance: Measurement in **foot-candles (lux)**, on a horizontal surface **36 inches (915 mm)** above ground, unless otherwise indicated.
- D. LLD: Lamp lumen depreciation.
- E. LLF: Light loss factor.
- F. Luminaire: Complete lighting fixture, including ballast housing if provided.
- G. Target Illuminance: Average maintained illuminance level, calculated by multiplying initial illuminance by LLF.
- H. UG: Uniformity gradient; the rate of change of illuminance on the playing field, expressed as a ratio between the illuminances of adjacent measuring points on a uniform grid.

- I. Vertical Illuminance: Measurement in **foot-candles (lux)**, in **two** directions on a vertical surface, at an elevation coinciding with plane height of horizontal measurements.

1.4 PERFORMANCE REQUIREMENTS

- A. Facility Type: **College**.
- B. Illumination Criteria: Comply with criteria in IESNA RP-6 for the following:
 1. Minimum average maintained illuminance level for each lighted area for each sports venue and for the indicated class of play.
 2. CV and maximum-to-minimum uniformity ratios for each lighted area equal to or less than those listed in IESNA RP-6 for the indicated class of play.
 3. UG levels within each lighted area and between adjacent lighted areas equal to or less than those listed in IESNA RP-6 for the indicated speed of sport.
- C. Illumination Calculations: Computer-analyzed point method complying with IESNA RP-6 to optimize selection, location, and aiming of luminaires.
 1. Grid Pattern Dimensions: For playing areas of each sport and areas of concern for spill-light control, correlate and reference calculated parameters to the grid areas and intersection points of the indicated grid pattern.
 2. Spill-Light Control: Minimize spill light for each playing area on adjacent and nearby areas.
 - a. Prevent light trespass on properties near Project as defined by authorities having jurisdiction.
 - b. For areas indicated on Drawings as "spill-light critical," limit the level of illuminance directed into the area from any luminaire or group of luminaires, and measured **36 inches (915 mm)** above grade to the following:
 - 1) Maximum Horizontal Illuminance: **0.1 fc** at property line.
 - 2) Maximum Vertical Illuminance from the Direction of the Greatest Contribution of Light: **1.0 fc** at property line.
 - c. Calculate the horizontal and vertical illuminance due to spill light for points spaced **10 feet** apart in areas indicated on Drawings as "spill-light critical," to ensure that design meets the above limits.
 3. Glare Control: Design illumination for each playing area to minimize direct glare in adjacent and nearby areas.
 - a. Design source intensity of luminaires that may be observed at an elevation of **60 inches (1525 mm)** above finished grade from nearby properties to be less than **12,000** candela when so observed.
 - b. Design source intensity of luminaires that may be observed at an elevation of **60 inches (1525 mm)** above finished grade from designated "spill-light critical" areas to be less than **12,000** candela when so observed.

4. Use a field factor of **15** percent according to IESNA RP-6, in establishing initial illuminance.
 5. Determine LLF according to IESNA RP-6; use LLD at **70** percent of rated lamp life **and Project-specific data listed in the subparagraph below**.
 - a. Ambient-Temperature Factor: Determine value based on a temperature range between -5 to 120 degrees fahrenheit.
 6. Luminaire Mounting Height: Comply with recommendations in IESNA RP-6, **with consideration for requirements to minimize spill light and glare**.
- D. Baseball Fields:
1. IESNA RP-6, Class of Play: **II**.
 2. Speed of Sport: **Fast**.
 3. Grid Pattern Dimensions: **30 by 30 feet**.
- E. Emergency Illumination: In case of power failure, provide a minimum of **1.0-fc (10.8-lux)** illumination, within 30 seconds, measured at grade in spectator and spectator egress areas. Duration of emergency illumination shall be not less than **90** minutes. Batteries for emergency illumination shall be adapted to function at freezing temperatures. Batteries shall be provided as an integral part of the illumination system.
- F. Electric Power Distribution Requirements:
1. Electric Power: **480** V, 3 phase.
 - a. Include roughing-in of service indicated for nonsports improvements on the Project site.
 - b. Balance load between phases. Install wiring to balance three phases at each support structure.
 - c. Include required overcurrent protective devices and individual lighting control for each sports field or venue.
 - d. Include indicated feeder capacity and panelboard provisions for future lighted sports field construction.
 2. Maximum Total Voltage Drop from Source to Load: 3 percent, including voltage drops in branch circuit, subfeeder, and feeder.

1.5 SUBMITTALS

- A. Product Data: For each type of lighting product; include the following:
1. Lamp life, output, and energy-efficiency data. Energy data shall comply with IESNA LM-47.
 2. Photometric data based on laboratory tests of each luminaire type, complete with lamps, ballasts, and accessories.

- a. Photometric data shall be certified by a qualified independent testing agency.
 - b. Photometric data shall be certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Delegated-Design Submittals: The following documents, signed and sealed by a qualified professional engineer:
1. Drawings and specifications for construction of lighting system.
 2. Manufacturer's determination of LLF used in design calculations.
 3. Structural analysis data and calculations used for pole selection.
 - a. Manufacturer Seismic Qualification Certification: Submit certification that sports lighting components and their mounting and anchorage provisions are designed to remain in place without separation of any parts when subjected to the seismic forces defined in Division 16 Section "Electrical Supports and Seismic Restraints." Include the following:
 - 1) Basis for Certification: Indicate whether withstand certifications are based on actual test of assembled components or on calculation.
 - 2) Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
 - b. Manufacturer Wind-Load Strength Certification: Submit certification that selected total support system, including poles, complies with AASHTO LTS-4 for location of Project.
 4. Design calculations for the following:
 - a. Target illuminance.
 - b. Point calculations of horizontal and vertical illuminance, CV, and UG at minimum grid size and area.
 - c. Point calculations of horizontal and vertical illuminance in indicated areas of concern for spill light.
 - d. Calculations of source intensity of luminaires observed at eye level from indicated properties nearby the playing fields.
 - e. Short-circuit current calculations for rating of panelboards.
 - f. Total connected and estimated peak-demand electrical load, in kilowatts, of lighting system.
 - g. Capacity of **service** required to supply the lighting system.
 5. Wiring requirements, including required conductors and cables and wiring methods.
 6. Lightning protection design shall be provided by the light pole manufacturer and furnished and installed by the contractor per manufacturer's instructions.
- C. Manufacturer Certificates: Signed by manufacturers certifying that support structures, including brackets, arms, appurtenances, bases, anchorages, and foundations, comply with requirements.

- D. Qualification Data: For **Installer, and manufacturer.**
- E. Field quality-control test reports.
- F. Operation and Maintenance Data: For sports lighting system components to include in emergency, operation, and maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 250 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.
 - 1. Manufacturer's responsibilities include fabricating sports lighting and providing professional engineering services needed to assume engineering responsibility.
 - 2. Engineering Responsibility: Preparation of delegated-design submittals and comprehensive engineering analysis by a qualified professional engineer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of luminaires, lamps, and luminaire alignment products and to correct misalignment that occurs subsequent to successful acceptance tests. Manufacturer may exclude lightning damage, hail damage, vandalism, abuse, and unauthorized repairs and alterations from special warranty coverage.
 - 1. Luminaire Warranty: Luminaire and luminaire assembly (excluding fuses and lamps) shall be free from defects in materials and workmanship for a period of **five** years from date of Substantial Completion.
 - 2. Lamp Warranty:
 - a. Replace lamps and fuses that fail within **12** months from date of Substantial Completion.
 - b. Provide replacement lamps that fail within the second **12** months from date of Substantial Completion.
 - 3. Alignment Warranty: Accuracy of alignment of luminaires shall remain within specified illuminance uniformity ratios for a period of **five** years from date of successful completion of acceptance tests.

- a. Realign luminaires that become misaligned during the warranty period.
- b. Replace alignment products that fail within the warranty period.
- c. Verify successful realignment of luminaires by retesting as specified in Part 3 "Field Quality Control" Article.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Luminaires: Equal to ten percent of amount installed for each size indicated, but no fewer than one unit.
 2. Lamps: Equal to ten percent of amount installed for each size indicated, but no fewer than two units.
 3. Ballasts: Equal to 10 percent of amount installed for each size indicated, but no fewer than two units.
 4. Fuses: Equal to 10 percent of amount installed for each size indicated, but no fewer than two units.

PART 2 - PRODUCTS

2.1 LUMINAIRES, LAMPS, AND BALLASTS

- A. Luminaires: Listed and labeled, by an NRTL acceptable to authorities having jurisdiction, for compliance with UL 1598 for installation in wet locations.
 1. Doors, Frames, and Other Internal Access: Smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without using tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent their accidental falling during relamping and when secured in operating position. Door shall be removable for cleaning or replacing lens.
 2. Exposed Hardware: Stainless-steel latches, fasteners, and hinges.
 3. Spill-Light Control Devices: Internal louvers and external baffles furnished by manufacturer and designed for secure attachment to specific luminaire.
 4. Luminaires shall be bracket-mounted.
- B. Ballast Mounting: **Grouped in cabinets at** location of associated luminaires, unless otherwise indicated.

2.2 SUPPORT STRUCTURES

- A. Support-Structure Wind-Load Strength: Poles and other support structures, brackets, arms, appurtenances, bases, anchorages, and foundations shall comply with AASHTO LTS-4 and shall be certified by manufacturers to withstand steady winds up to **100 mph (160 km/h)** with a gust factor of 1.3 without permanent deflection or whipping.

- B. Support-Structure Seismic Strength: Poles or other support structures, brackets, arms, appurtenances, base, anchorage, and foundation shall be designed to prevent separation of components or fracture of poles, luminaire supports, or pole foundations during a seismic event.
- C. Mountings, Fasteners, and Appurtenances:
 - 1. Corrosion resistant, compatible with support components, and shall not cause galvanic action at contact points.
 - a. Steel Components: Hot-dip galvanized after fabrication, complying with ASTM A 123/A 123M.
 - b. Mounting Hardware Fasteners: Hot-dip galvanized, complying with ASTM A 153/A 153M.
- D. Concrete for Pole Foundations: **3000-psi (20.7-MPa)**, 28-day minimum compressive strength. Concrete, reinforcement, and formwork are specified in Division 3 Section "Cast-in-Place Concrete."

2.3 POWER DISTRIBUTION

- A. Electrical Enclosures Exposed to Weather: NEMA Type **3R** with hinged doors fitted with padlock hasps.

2.4 SURGE PROTECTION

- A. Surge Protection: Comply with requirements in Division 16 Section "Transient Voltage Suppression" and include surge suppressors with the following requirements:
 - 1. Panelboard type.
 - 2. Nonmodular, with LED indicator lights **and one set of dry contacts**.
 - 3. Peak Single-Impulse Surge Current Rating: 160 kA per phase.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use web fabric slings (not chain or cable) to raise and set structural members.
- B. Install poles and other structural units level, plumb, and square.
- C. Except for embedded structural members, grout void between pole base and foundation. Use nonshrinking or expanding concrete grout firmly packed in entire void space. Use a short piece of **1/2-inch- (13-mm-)** diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole. Nonshrink grout is specified in Division 5 Section "Metal Fabrications."

- D. Extend cast-in-place bolted base foundations **36 inches (914 mm)** above grade, minimum.
- E. Install lamps in each luminaire and fasten luminaire to structural supports.
 - 1. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.
- F. Baffles and Louvers for Spill-Light Correction: Install on luminaires with fasteners provided by manufacturer. Install and adjust to correct out-of-limit spill-light **and glare** measurements.
- G. Install controls and ballast housings in cabinets mounted on support structure at least **10 feet (3 m)** above finished grade.

3.2 FIELD QUALITY CONTROL

- A. Perform the following field quality-control tests, inspections, and analysis according to IESNA RP-6 and IESNA LM-5, where applicable, and prepare test reports:
 - 1. After installing sports lighting system and after electrical circuits have been energized, perform proof-of-performance field measurements and analysis for compliance with requirements.
 - 2. Playing and Other Designated Areas: Make field measurements at intersections of grids, dimensioned and located as specified in Part 1 "Performance Requirements" Article and as described below.
 - a. Baseball. Measure at least **25** points of the infield and **87** points of the outfield. Extend the grid **15 feet (5 m)** outside the foul lines, extending to outfield boundary or fence.
 - 3. Make field measurements at established test points in areas of concern for spill light and glare.
 - 4. Perform analysis to demonstrate correlation of field measurements with specified illumination quality and quantity values and corresponding computer-generated values that were submitted with engineered design documents, and submit a report of the analysis. For computer-generated values, use manufacturer's lamp lumens that are adjusted to lamp age at time of field testing.
- B. Correction of Illumination Deficiencies for Playing Areas: Make corrections to illumination quality or quantity measured in field quality-control tests that vary from specified illumination criteria by plus or minus 10 percent or more; add or replace luminaires, or change mounting height, revise aiming, or install louvers, shields, or baffles. If luminaires are added or mounting height is changed, revise aiming and recalculate and modify or replace support structures, if indicated. Retest as specified above after repairs, adjustments, or replacements are made. Report results in writing.
- C. Correction of Excessive Illumination in Spill-Light-Critical Areas: If measurements indicate that specified limits for spill light are exceeded, make corrections to illumination quantity measured in field quality-control tests that reduce levels to within specified maximum values. Replace luminaires, or change mounting heights, revise aiming, or install louvers, shields, or baffles. If

mounting height is changed, revise aiming and recalculate and modify or replace support structures, if indicated. Retest as specified above after repairs, adjustments, or replacements are made. Report results in writing.

3.3 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain sports lighting. Refer to Division 1 Section "Demonstration and Training."

END OF SECTION 16526