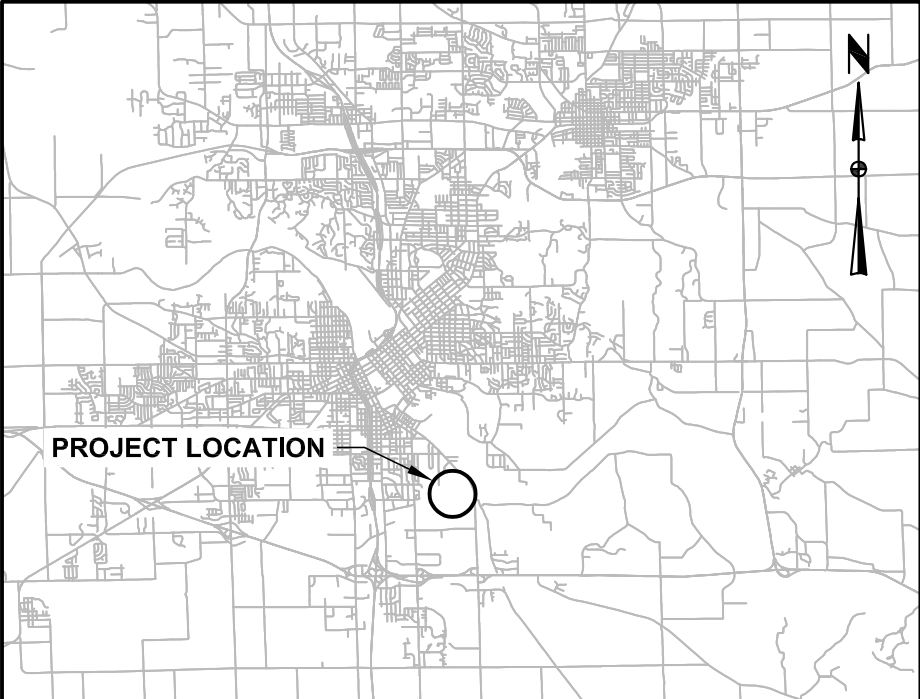


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FILE DATE: / / 2021  
LETTING DATE: / / 2021

PLANS OF IMPROVEMENTS FOR:  
**2021**  
**TAIT CUMMINS SPORTS COMPLEX REPAIRS**  
**BID PACKAGE #2- LIGHTING AND ELECTRICAL**  
**CITY OF CEDAR RAPIDS, IOWA**  
**CIP NUMBER PUR1120-131**  
**CONTRACT NUMBER**

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A.01-2	COVER SHEET
P.01	DIAMOND 1 ELECTRICAL/LIGHTING PLAN
P.02	DIAMOND 2 ELECTRICAL/LIGHTING PLAN
P.03	DIAMOND 3 ELECTRICAL/LIGHTING PLAN
P.04	DIAMOND 4 ELECTRICAL/LIGHTING PLAN
P.05	ELECTRICAL/LIGHTING DETAILS
P.06	ELECTRICAL/LIGHTING SCHEDULES, SYMBOLS, & NOTES
P.07	LIGHTING FIXTURE AIMING DIAGRAM
P.08	ELECTRICAL SPECIFICATIONS



**LOCATION MAP**  
NOT TO SCALE

**WPE**

WEST  
PLAINS  
ENGINEERING, INC.

215 2ND AVENUE SE, SUITE 200 • CEDAR RAPIDS, IA 52401  
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WWW.WESTPLAINSENGINEERING.COM  
RAPID CITY, SD • SIOUX FALLS, SD • CASPER, WY • CEDAR RAPIDS, IA • BISMARCK, ND


PLANS PREPARED BY:

**WATERSMITH**

ENGINEERING

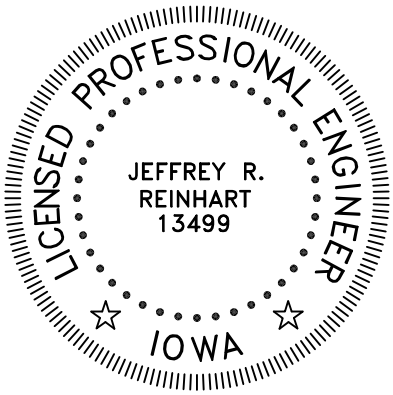
**WATERSMITH ENGINEERING**  
808 WILSON AVENUE SW, CEDAR RAPIDS, IA 52404  
PHONE: 319-540-8031

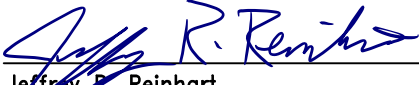
PLANS PREPARED FOR:



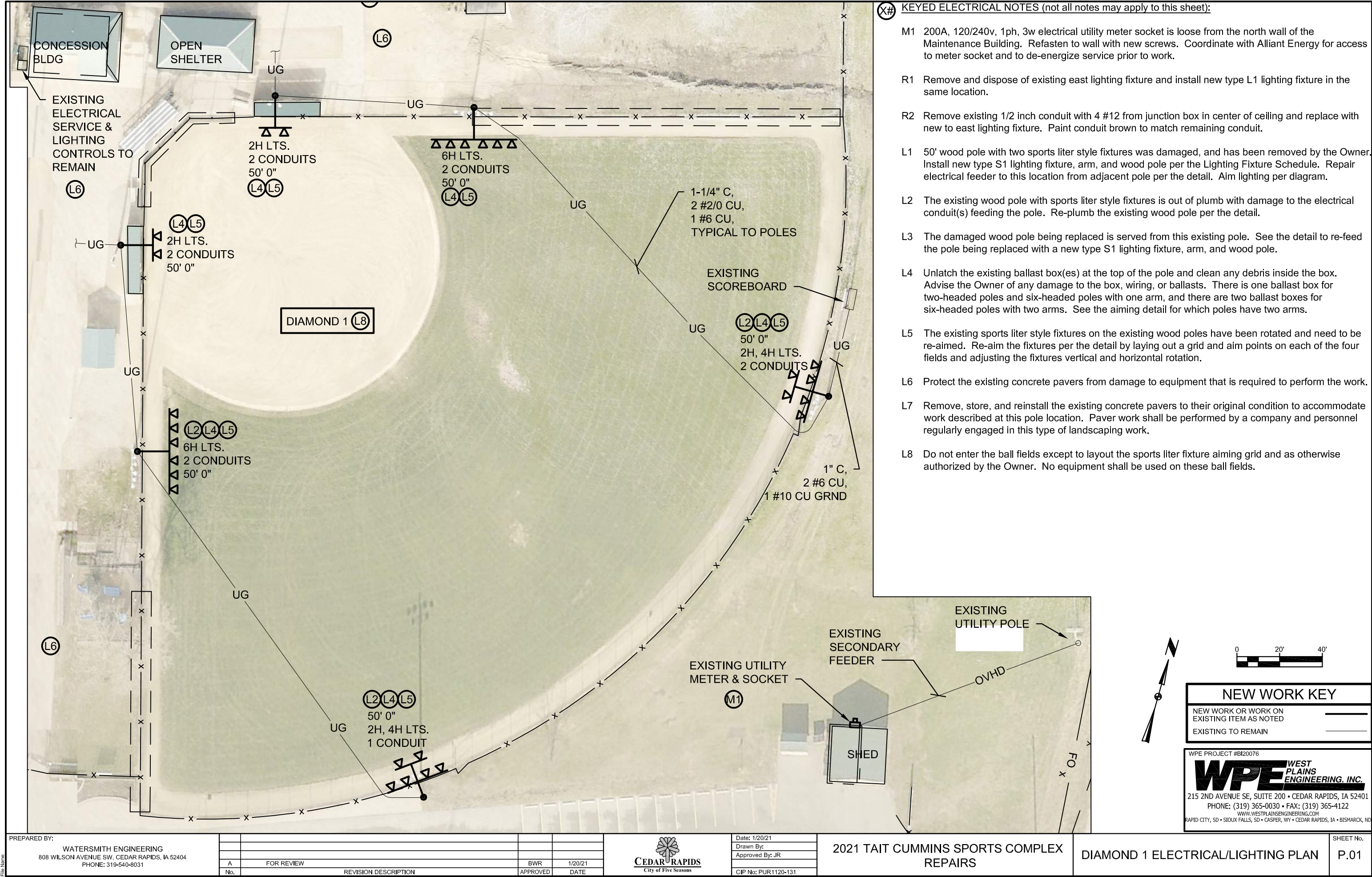
**CEDAR RAPIDS**  
City of Five Seasons

CITY COUNCIL:  
MAYOR: BRADLEY G. HART  
AT LARGE: PATRICK LOEFFLER  
AT LARGE: TYLER OLSON  
AT LARGE: ANN POE  
DISTRICT 1: MARTY HOEGER  
DISTRICT 2: SCOTT OVERLAND  
DISTRICT 3: DALE TODD  
DISTRICT 4: SCOTT OLSON  
DISTRICT 5: ASHLEY VANORNY



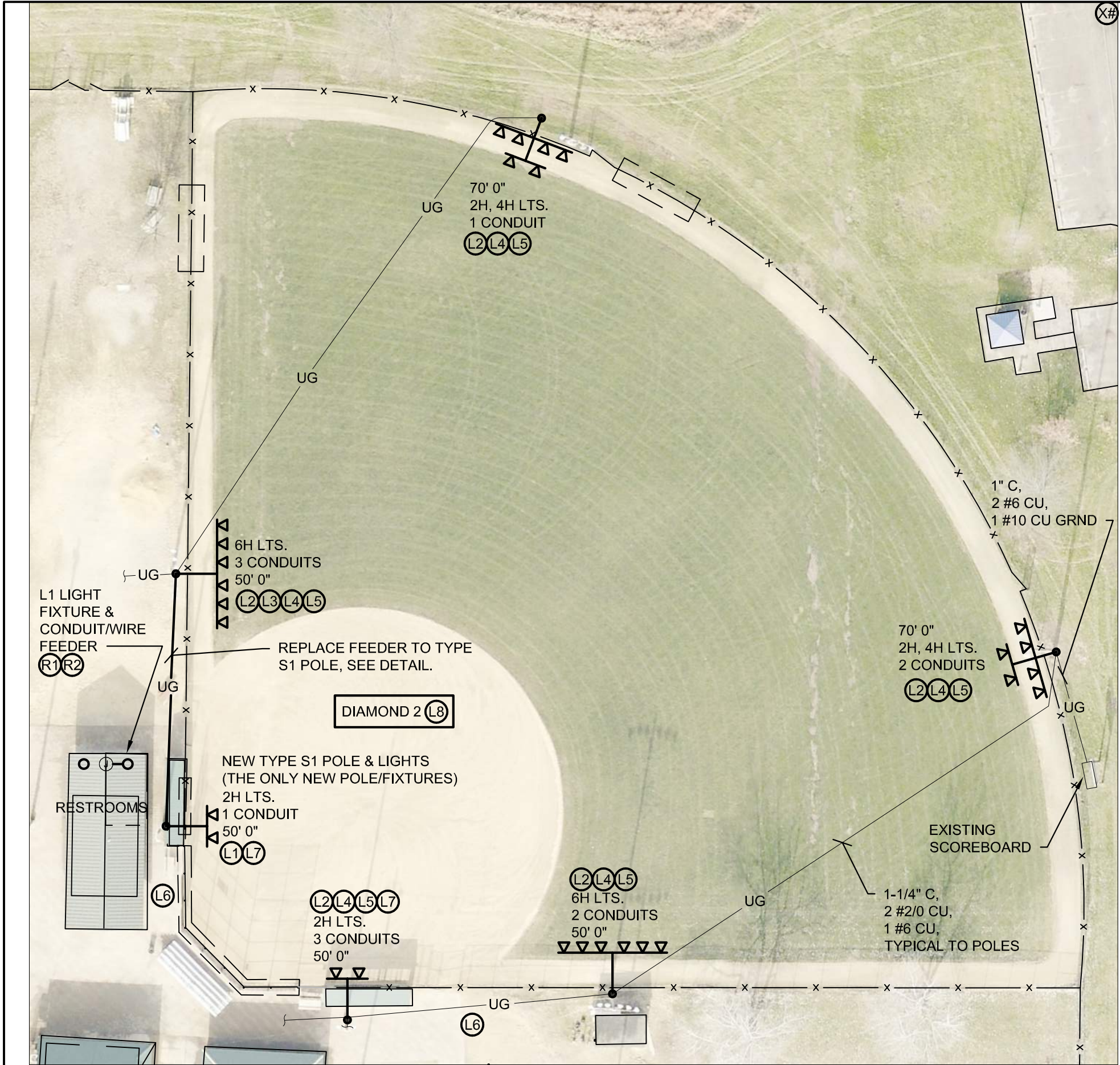
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.  
 1-29-2021  
Jeffrey R. Reinhart  
Iowa Registration Number: 13499  
My license renewal date is December 31, 2021.  
Pages or sheets covered by this seal: ALL





- KEYED ELECTRICAL NOTES (not all notes may apply to this sheet):**
- M1 200A, 120/240v, 1ph, 3w electrical utility meter socket is loose from the north wall of the Maintenance Building. Refasten to wall with new screws. Coordinate with Alliant Energy for access to meter socket and to de-energize service prior to work.
  - R1 Remove and dispose of existing east lighting fixture and install new type L1 lighting fixture in the same location.
  - R2 Remove existing 1/2 inch conduit with 4 #12 from junction box in center of ceiling and replace with new to east lighting fixture. Paint conduit brown to match remaining conduit.
  - L1 50' wood pole with two sports liter style fixtures was damaged, and has been removed by the Owner. Install new type S1 lighting fixture, arm, and wood pole per the Lighting Fixture Schedule. Repair electrical feeder to this location from adjacent pole per the detail. Aim lighting per diagram.
  - L2 The existing wood pole with sports liter style fixtures is out of plumb with damage to the electrical conduit(s) feeding the pole. Re-plumb the existing wood pole per the detail.
  - L3 The damaged wood pole being replaced is served from this existing pole. See the detail to re-feed the pole being replaced with a new type S1 lighting fixture, arm, and wood pole.
  - L4 Unlatch the existing ballast box(es) at the top of the pole and clean any debris inside the box. Advise the Owner of any damage to the box, wiring, or ballasts. There is one ballast box for two-headed poles and six-headed poles with one arm, and there are two ballast boxes for six-headed poles with two arms. See the aiming detail for which poles have two arms.
  - L5 The existing sports liter style fixtures on the existing wood poles have been rotated and need to be re-aimed. Re-aim the fixtures per the detail by laying out a grid and aim points on each of the four fields and adjusting the fixtures vertical and horizontal rotation.
  - L6 Protect the existing concrete pavers from damage to equipment that is required to perform the work.
  - L7 Remove, store, and reinstall the existing concrete pavers to their original condition to accommodate work described at this pole location. Paver work shall be performed by a company and personnel regularly engaged in this type of landscaping work.
  - L8 Do not enter the ball fields except to layout the sports liter fixture aiming grid and as otherwise authorized by the Owner. No equipment shall be used on these ball fields.





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**NEW WORK KEY**

NEW WORK OR WORK ON	_____
EXISTING ITEM AS NOTED	_____
EXISTING TO REMAIN	_____

WPE PROJECT #B120076

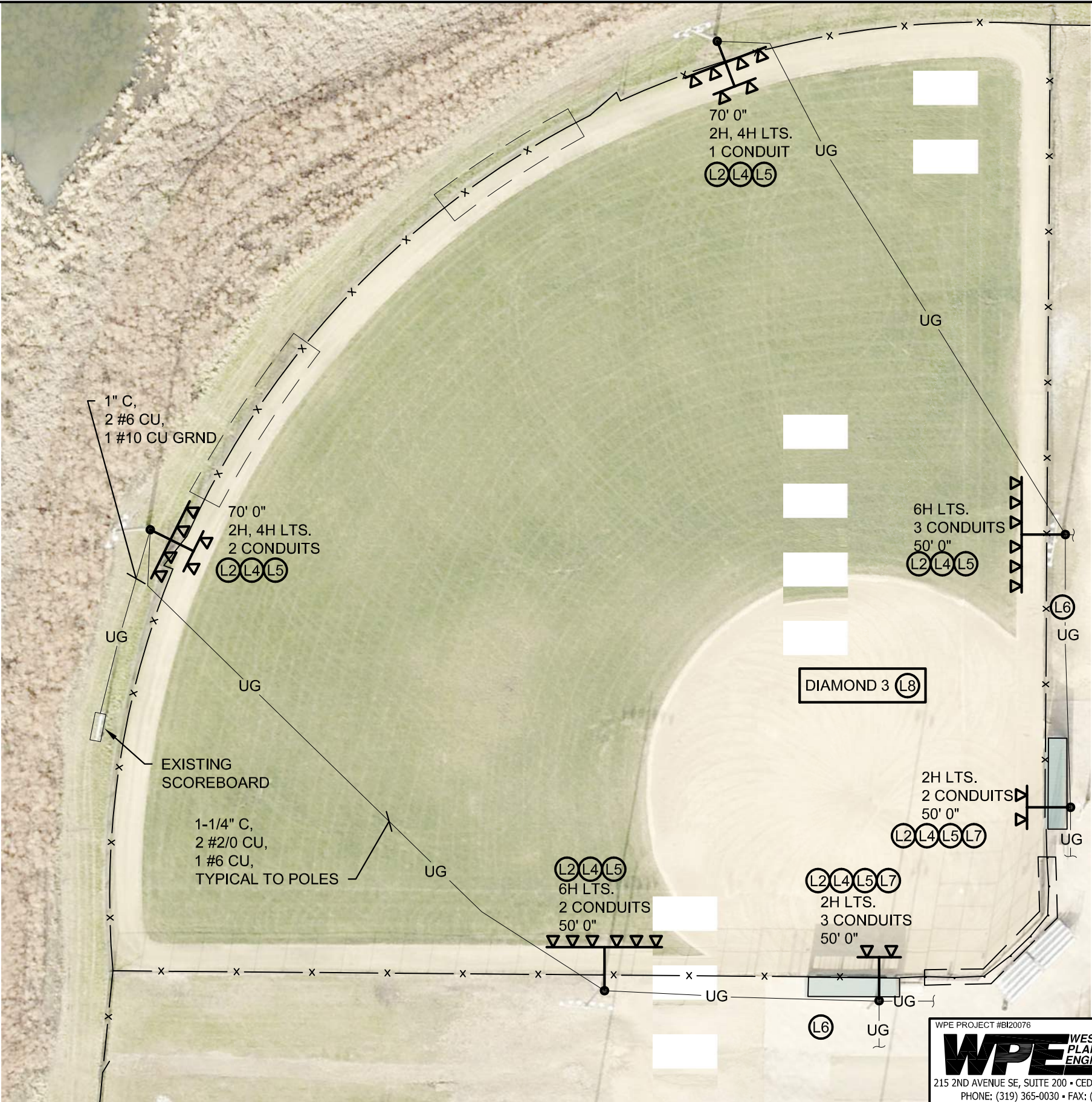
**WPE** WEST PLAINS ENGINEERING, INC.

215 2ND AVENUE SE, SUITE 200 • CEDAR RAPIDS, IA 52401  
PHONE: (319) 365-0030 • FAX: (319) 365-4122  
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RAPID CITY, SD • SIOUX FALLS, SD • CASPER, WY • CEDAR RAPIDS, IA • BISMARCK, ND



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NEW WORK KEY

NEW WORK OR WORK ON  
EXISTING ITEM AS NOTED  
EXISTING TO REMAIN

PREPARED BY:  
WATERSMITH ENGINEERING  
808 WILSON AVENUE SW, CEDAR RAPIDS, IA 52404  
PHONE: 319-540-8031

A	FOR REVIEW	BWR	1/20/21
No.	REVISION DESCRIPTION	APPROVED	DATE



Date: 1/20/21  
Drawn By:  
Approved By: J.R.  
CIP No: PUR1120-131

2021 TAIT CUMMINS SPORTS COMPLEX  
REPAIRS

DIAMOND 3 ELECTRICAL/LIGHTING PLAN

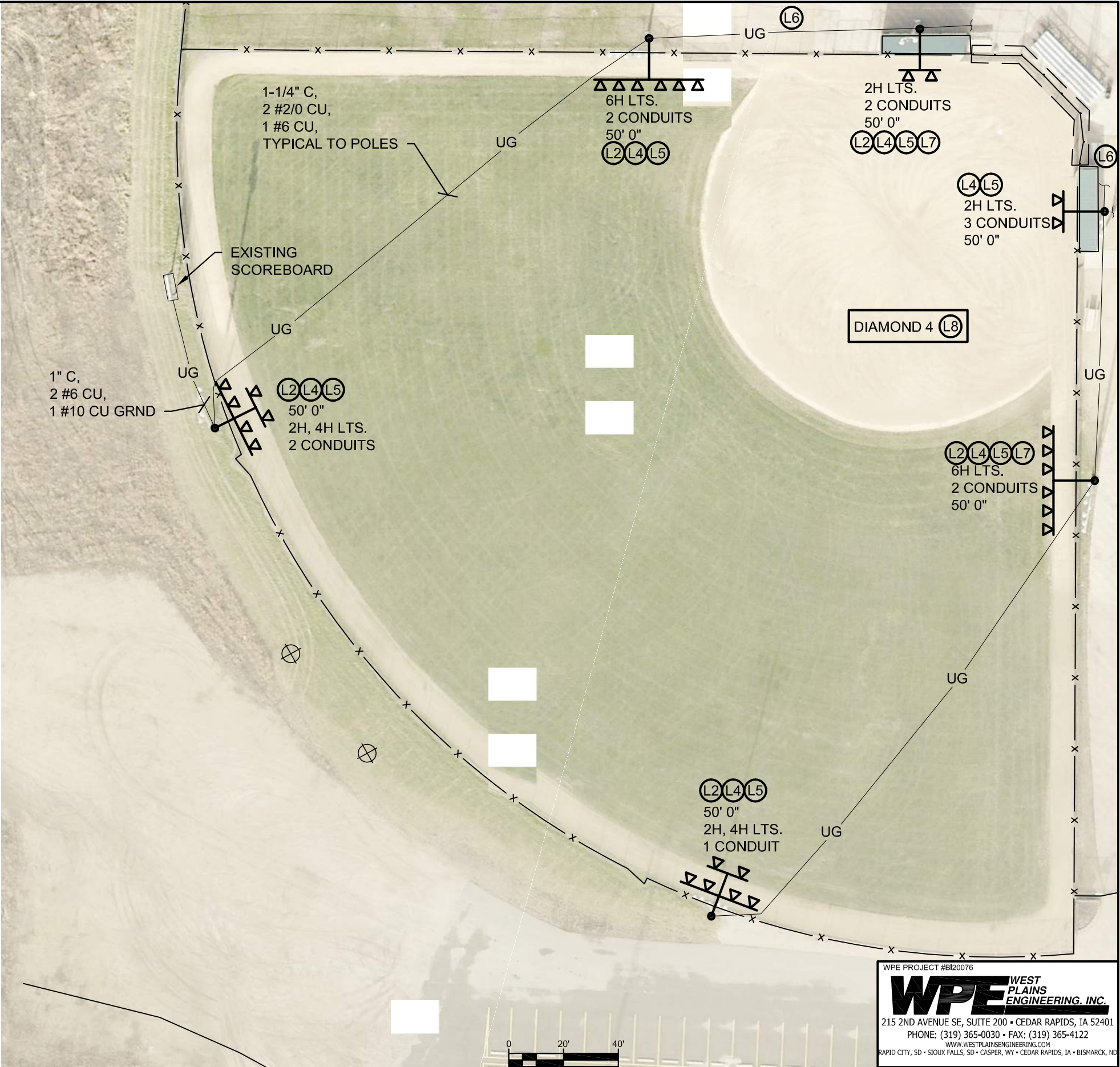
SHEET No.  
P.03

WPE PROJECT #B120076  
**WPE** WEST PLAINS ENGINEERING, INC.  
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NEW WORK KEY

NEW WORK OR WORK ON	_____
EXISTING ITEM AS NOTED	_____
EXISTING TO REMAIN	_____

PREPARED BY:  
WATERSMITH ENGINEERING  
808 WILSON AVENUE SW, CEDAR RAPIDS, IA 52404  
PHONE: 319-540-8031

A	FOR REVIEW	BWR	1/20/21
No.	REVISION DESCRIPTION	APPROVED	DATE



Date: 1/20/21  
Drawn By:  
Approved By: J.R.  
CIP No: PUR1120-131

2021 TAIT CUMMINS SPORTS COMPLEX  
REPAIRS

DIAMOND 4 ELECTRICAL/LIGHTING PLAN

SHEET No.  
P.04

WPE PROJECT #BI20076  
**WPE** WEST PLAINS ENGINEERING, INC.  
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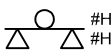



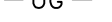

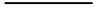





ELECTRICAL SYMBOLS

THESE SYMBOLS COMPRISE A STANDARD LIST;  
NOT ALL SYMBOLS MAY APPEAR ON THIS PROJECT.

ALL MOUNTING HEIGHTS ARE TO CENTER OF DEVICE ABOVE FINISHED GRADE

SITE LIGHTING & ELECTRICAL

	EXTERIOR POLE SPORTS LIGHT, MULTIPLE LUMINAIRES, WOOD POLE #H = QUANTITY OF SPORTS LITER FIXTURE HEADS ON EACH ARM		PULL BOX
			JUNCTION BOX
	UNDERGROUND FEEDER		UTILITY METER & METER SOCKET
	SURFACE FEEDER		SURFACE MOUNTED LIGHT FIXTURE
	OVERHEAD FEEDER		DISCONNECT SWITCH

GENERAL ELECTRICAL NOTES:

- A. Locate existing utilities prior to beginning work. Coordinate electrical installations to not interfere with these items.
1. Not all site conditions are represented on this electrical sheet. Locations of utilities shown are approximate and Contractor shall exercise caution in excavating and trenching on this site to avoid existing utilities. The Contractor shall immediately notify the Engineer if unidentified conditions are discovered and affect the new work.
- B. Below is a list of some common requirements outlined in the Specification. Refer to the Specification for more detailed information for these and all other items.
1. Minimum conduit size shall be 3/4". Utilize HDPE conduit for bored conduit and Schedule 40 PVC for trenched conduit.
2. Conduits, junction boxes, wiring, and equipment shall be labeled per NEC.
3. Provide a green ground conductor throughout all new electrical work.
- C. Where items are shown to be removed, remove and dispose of all items, hangers, fasteners, conduit/wire, etc. serving the items.
- D. All open excavations shall be backfilled with proper material in lifts and shall be compacted to 95% density. Proper equipment shall be utilized to ensure compaction requirements have been met.
- E. The Owner is planning on having the 23 existing wood poles inspected separately but concurrently with this project. The intent is to have the poles replaced under this contract if any are not safe. Provide a per pole cost for the removal and replacement of one 50' pole and provide a per pole cost for the removal and replacement of one 70' pole. Include the removal and reinstallation of the electrical feeders, pull boxes, disconnects, ballast box(es), lighting fixture mounting rack, lighting fixtures, and grounding wire on the new pole.

LIGHTING FIXTURE SCHEDULE

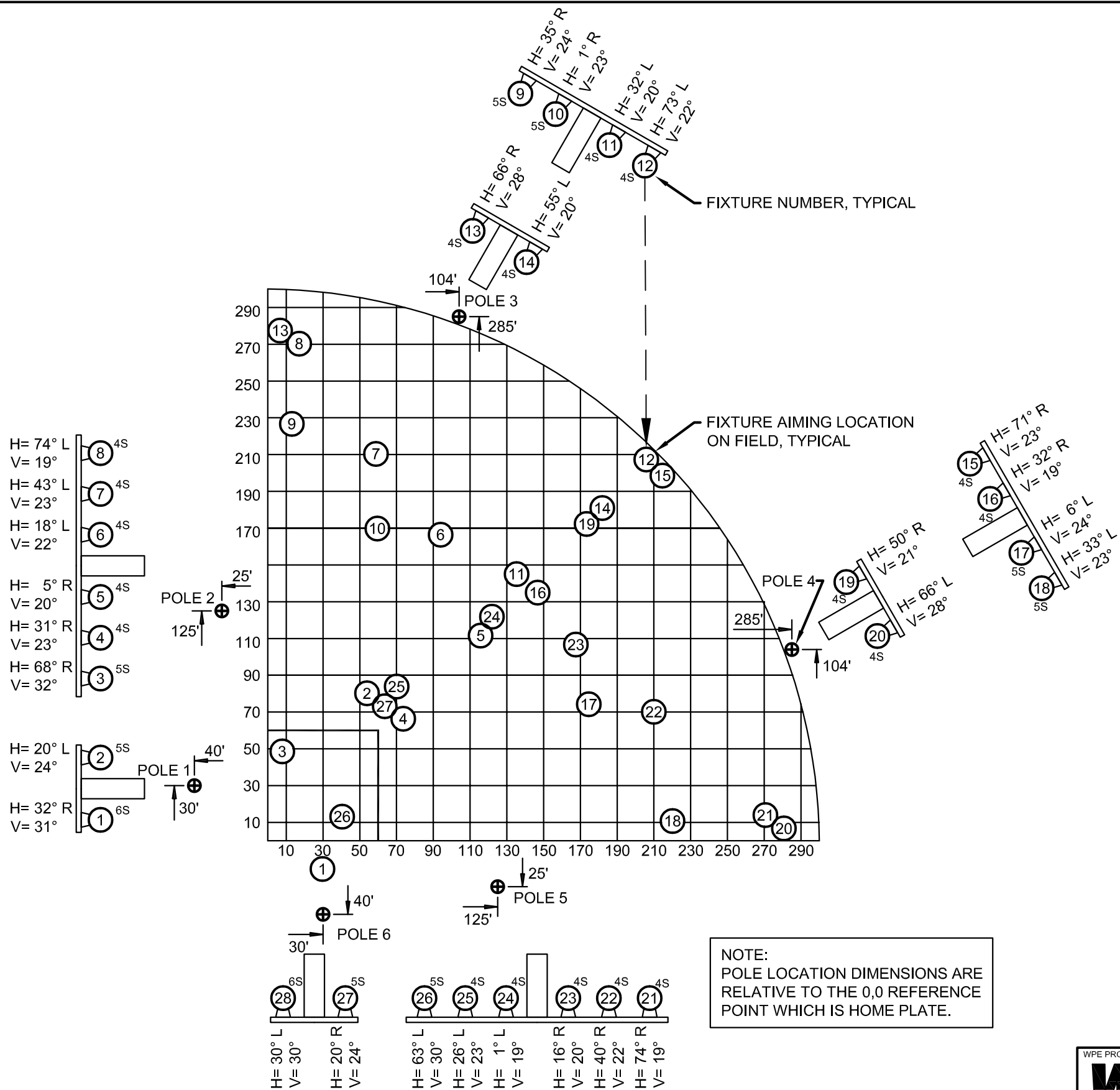
MARK	DESCRIPTION	MANUFACTURER AND SERIES NUMBER	LAMPING TYPE	MOUNTING	VOLT.	WATT.	NOTES
S1	SPORTS LIGHTING RACK ON 60' WOOD POLE (BURIED 10'), TWO FLOOD LIGHTING FIXTURES ON MOUNTING RACK	HUBBELL SLS-1500H-0-5/6-8 SIGNIFY	1500W/MH	POLE AND RACK	MULTI	1700W EACH	1, 2
L1	12" ROUND LED SURFACE FIXTURE WITH POLY CARBONATE HOUSING AND LENS	LIGHTWAY CJRC-11-LED-F1Q-4-W99-WSP HUBBELL, COOPER, WILLIAMS	LED 41K 2000 LUMENS	SURFACE	120	23	
<b>NOTES:</b> 1. PROVIDE 60' CLASS 3 ROUND WOOD POLE, WITH 50' ABOVE GRADE. PROVIDE GALVANIZED RACK TO MOUNT FIXTURES WITH ALL NECESSARY GALVANIZED 2. FIXTURES SHALL HAVE REMOTE BALLASTS MOUNTED IN A NEMA 12 GASKETED BOX WITH HINGED COVER AND LATCHES (TO MATCH EXISTING). BALLASTS SHALL BE AS RECOMMENDED BY THE FIXTURE MANUFACTURER.							

WPE PROJECT #BI20076

**WPE****WEST PLAINS ENGINEERING, INC.**

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NOTE:  
POLE LOCATION DIMENSIONS ARE  
RELATIVE TO THE 0,0 REFERENCE  
POINT WHICH IS HOME PLATE.

**A**  
**P.07** LIGHTING FIXTURE  
AIMING DIAGRAM

PREPARED BY:  
WATERSMITH ENGINEERING  
808 WILSON AVENUE SW, CEDAR RAPIDS, IA 52404  
PHONE: 319-540-8031

A	FOR REVIEW	BWR	1/20/21
No.	REVISION DESCRIPTION	APPROVED	DATE



Date: 1/20/21  
Drawn By: J.R.  
Approved By: J.R.  
CIP No: PUR1120-131

2021 TAIT CUMMINS SPORTS COMPLEX  
REPAIRS

LIGHTING FIXTURE AIMING DIAGRAM

WPE PROJECT #B120076

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SHEET No.  
P.07



Plot Date:  
File Name:

PREPARED BY: WATERSMITH ENGINEERING 808 WILSON AVENUE SW, CEDAR RAPIDS, IA 52404 PHONE: 319-540-8031						Date: 1/20/21	2021 TAIT CUMMINS SPORTS COMPLEX REPAIRS	ELECTRICAL SPECIFICATIONS	SHEET No. P.08
						Drawn By:			
						Approved By: J.R			
	A	FOR REVIEW		BWR					
	No.	REVISION DESCRIPTION		APPROVED		CIP No: PUR1120-131			

ELECTRICAL SPECIFICATIONS

DRAWINGS AND MEASUREMENTS: The drawings are not intended to be scaled for measurements nor to serve as shop drawings. The Contractor shall consult existing conditions and equipment drawings for dimensions, obstructions and locations of equipment.

ORDINANCES AND CODES: All work shall be executed in accordance with the current edition of the City Electrical Ordinances, OSHA, and National Electrical Code (NEC). Where ever there is a conflict, the more stringent requirement shall apply. All fees, permits, licenses, etc., necessary in order to complete the work of this section shall be paid by this Contractor.

WORKMANSHIP: The installation work included in this specification shall be performed in a neat workmanlike manner by personnel experienced and skilled in the Electrical trade. Only the best quality workmanship will be accepted. All exposed parts of the electrical wiring systems such as exposed conduits, etc., shall be square and true with the surrounding construction.

GUARANTEE: The Contractor shall assume responsibility for any defects which may develop in any part of his work caused by faulty workmanship, material or equipment, and agrees to replace, repair, or alter, at his expense, any such faulty workmanship, material, or equipment that has been brought to his attention during a period of one year from the date of the final certificate for payment. Acceptance of the work shall not waive this guarantee.

QUALITY ASSURANCE: All materials and equipment shall be new and of best quality, of the type best suited for the purpose intended, and be made by nationally recognized and substantially established manufacturers. All electrical materials used in this work shall be listed by the Underwriters Laboratories, Inc., where testing is provided and shall bear their label.

COMPLETED WORK: Prior to acceptance of the electrical installation, the Electrical Contractor shall demonstrate to the Owner all functions of the systems, and shall instruct the Owner in the proper operation and maintenance of such systems. Systems shall be complete, non-hazardous, and ready for normal use. The Contractor shall clean all material and leave all material in new condition. The Contractor shall clean up and remove from the site all debris, excess material, and equipment left during the construction of this project.

EQUIPMENT: Submit shop drawings for major equipment for review. Include the stamp of the Electrical Contractor showing that he has reviewed and approved them. Contractor shall provide corrosion resistant supports for the proper installation of all equipment.

EQUIPMENT IDENTIFICATION AND CLEANUP: All electrical equipment shall be provided with identification indicating its use or function. Equipment to be identified shall include junction boxes, wiring, and conduits. Provide warning tape over all buried electrical conduits. All electrical equipment must be kept completely protected from weather elements. Damage from rust, scratches, etc., shall be corrected.

RACEWAY: All wiring shall be installed in raceway; galvanized rigid metal conduit, Schedule 80 PVC, or equal thickness HDPE. PVC or HDPE shall not be used above grade. Rigid metal conduit or shall be used where exposed. Contractor shall do all excavating for underground wiring/conduit and shall backfill trenches after work has been inspected. Provide a locator wire buried with all conduits. Conduits within buildings (dry locations) may be EMT with malleable iron or steel set screw fittings.

RACEWAY FITTINGS: On all conduit systems the connector fitting shall be of the insulated throat type. All conduit fittings shall be of galvanized steel construction.

RACEWAY INSTALLATIONS: Conduits shall be sized as noted or as required by NEC for number and size of conductors installed except that 3/4 inch shall be minimum size. Conduits shall be run parallel to and at right angles to construction.

WIRE AND CABLE: All wire for branch circuits shall conform to the requirements of the current edition of the NEC and shall meet all relevant ASTM Specifications. Conductors shall be 600 volt rated and shall have type THWN or XHHW insulation. All conductors shall be stranded. Minimum size conductor shall be #12 for power wiring and #14 for control wiring. Aluminum conductors shall not be used.

PULL BOXES AND JUNCTION BOXES: Pull boxes and junction boxes are generally not indicated on drawings except for special requirements. This Contractor shall install pull boxes or junction boxes as shown or required to facilitate wire pulling. Above grade pull boxes shall be NEMA 3R with lockable cover. In grade boxes shall be composite type with composite lid with the letters "Electrical" embossed.

GROUNDING: All permanently installed electrical equipment shall be grounded in accordance with the NEC to form a continuous grounding system. Provide separate green ground conductor throughout the entire electrical system including all outlets and wiring devices. Provide equipment grounding connections, sufficiently tight to assure a permanent and effective ground, for each lighting pole as indicated with a copper 5/8" x 8' grounding rod at each location.

LIGHTING FIXTURES: Provide lighting fixtures as scheduled on the drawings. Provide a minimum of a 5 year warranty.

WOOD POLES AND ACCESSORIES: Provide length and class as indicated on the lighting fixture schedule. Select poles for straightness and minimum sweeps and short crooks. Provide galvanized racks and hardware to support new sports lighting fixtures. Set by digging holes large enough to permit use of tampers to full depth. Set racks at right angle to pole and fasten to pole with galvanized hardware.

SAFETY SWITCHES: Shall be heavy duty 250 volt, quick-make, quick-break operation, horsepower rated, NEMA 3R enclosure non-fused unless noted fused, and of the size shown on the drawings or as required by code. All safety switches shall be Square D or equal General Electric, Siemens, or Cutler-Hammer.

FUSES: motors shall be protected by dual-element fuses able to carry 500% of rating for a minimum of 10 seconds, and sized at 125% of the actual name plate ampere rating. Fuses shall be Bussman-Fusetron, FRN (250V), or equal.

EXCAVATION: Adequate barricades and warning signs shall be posted around the site at all times, alerting to the hazardous conditions and restricting site access to authorized personnel only. All excavations shall be done in a safe manner after utility locates are marked. Excess soil from the excavation must be placed away from the hole to ensure no runoff from the soil will be directed into the excavation and no earth pressure will adversely affect slope stability. Excess excavated material and material determined unsuitable for use as fills or topsoil shall be disposed of off the site.

BACKFILL: Suitable earth removed from the excavation, free of rocks, boulders, stones, bricks, batts, plaster, mortar or other debris. All backfill shall be free from cinders, ashes, refuse and organic material. Backfill should consist of natural materials such as loam, clay, sand, gravel or other similar materials where appropriate. Frozen soil may not be used for backfill.

COMPACTION: All fills shall be compacted using equipment capable of compacting each lift its full depth. Moisture during compaction operations shall be maintained at optimum content. The compacting equipment shall be approved equipment of such design, weight and quantity to obtain the required density in accordance with soil compacting specifications. Water distributors equipped with a suitable sprinkling device shall be used to add moisture to the soil if required. Compaction operations shall be continued until the fills are compacted to not less than 95% of the maximum density. Excavation shall be sized so that compaction equipment has sufficient operating clearance to achieve specified compaction throughout all areas of fill.

WPE PROJECT #B120076

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