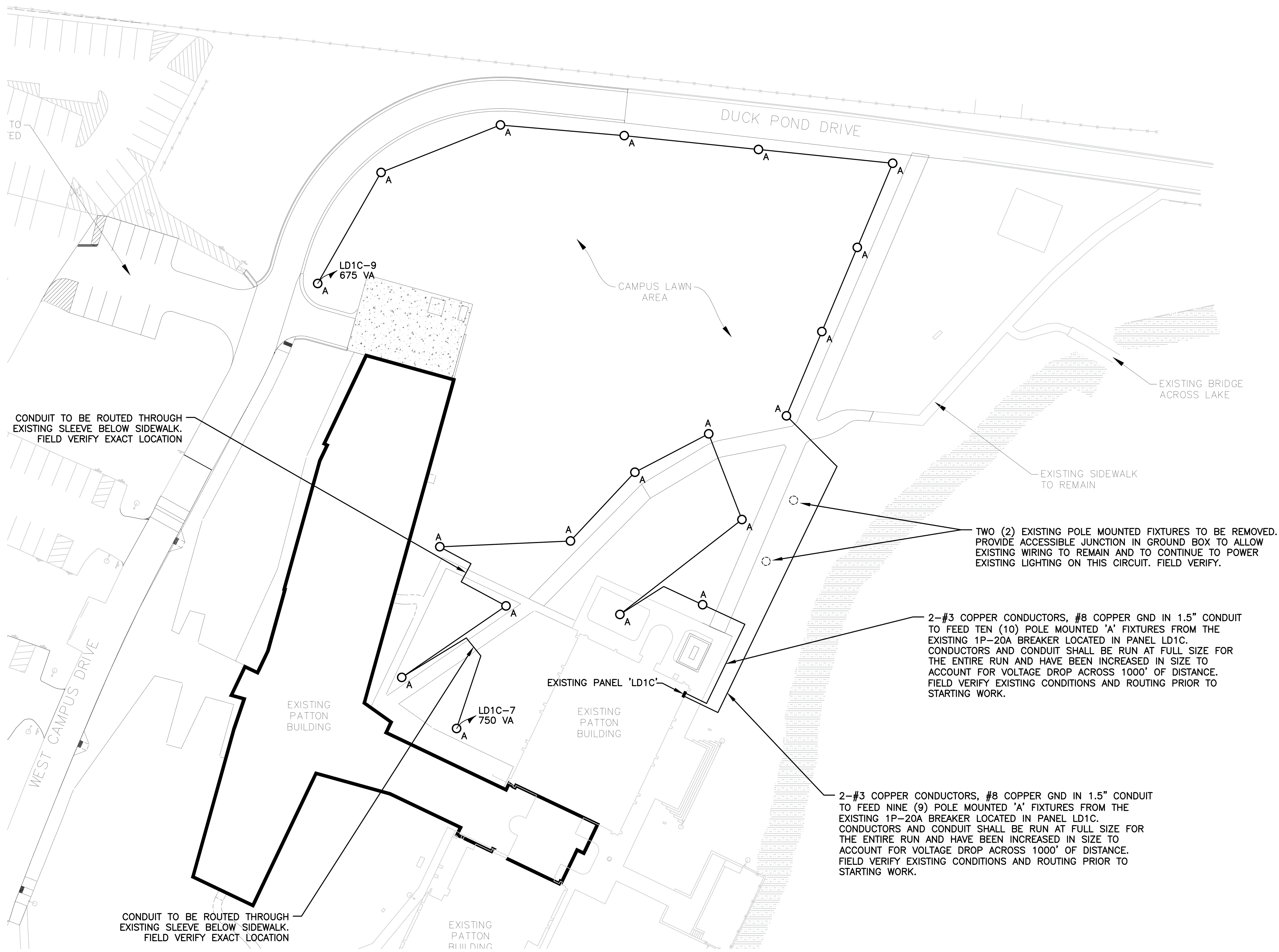
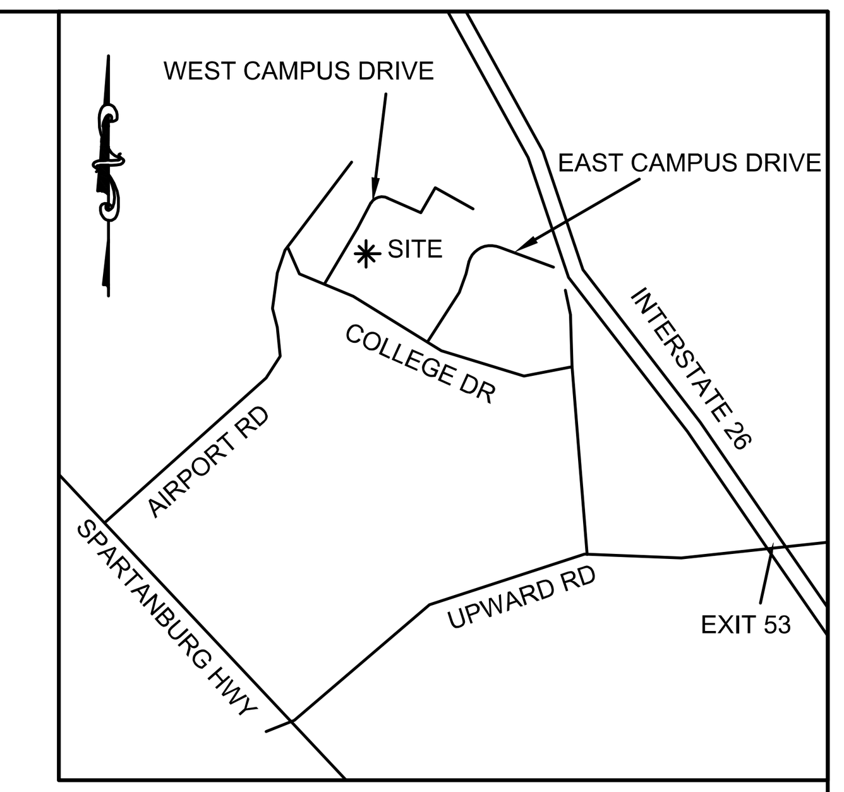




VICINITY MAP
NOT TO SCALE

1 / E101 PARTIAL SITE PLAN – LIGHTING (BASE BID)

SCALE: 1" = 40'-0"

LIGHTING NOTES:

1. 'A' FIXTURES AND POLES SHOWN HERE ARE ALL NEW INSTALLATIONS.
2. 'A' FIXTURES SHALL MATCH EXISTING FIXTURES THAT WERE INSTALLED DURING PATTON BUILDING CONSTRUCTION, NO SUBSTITUTIONS ALLOWED.
3. SEE LIGHTING FIXTURE SCHEDULE THIS SHEET FOR PROPOSED LIGHTING FIXTURE AND POLE SPECIFICATIONS.
4. CONTRACTOR TO PROVIDE A TURNKEY PROJECT INCLUSIVE OF ALL LABOR, MATERIALS, LIGHT HEADS, CONCRETE BASES, LIGHT POLES, POLE BASE FLANGES AND MOUNTING BOLTS, BASE FLANGES, BASE COVERS, POLE WEATHER CAPS, LIGHT POLE TENONS, TRAFFIC CONTROL, SUPERVISION, SHIPPING, DISPOSAL FEES, PERMITS AND INSPECTIONS.

LIGHTING FIXTURE SCHEDULE

MARK	VOLT-AMPS PER FIXTURE	DESCRIPTION	LAMPS CODE	LAMPS COLOR TEMP (K)
A	75	LED AREA LUMINAIRE AND POLE TO MATCH EXISTING FIXTURES ON SITE, NO SUBSTITUTIONS ALLOWED FOR EITHER LUMINAIRE: LITHONIA #MRP LED 42C 350 50K SR4 MVOLT DDBXD 12'-0" POLE W/FLUTED SHAFT & DECORATIVE BASE: ANP LIGHTING #CB0702-4F12.188-76	LED	5000

sims group
CONSULTING ENGINEERS, PC
PO BOX 5534 • ASHEVILLE, NC 28813
PHONE: 828-251-2025 • FAX: 828-251-1933
www.simsgroupconsultingengineers.com
NC FIRM LICENSE #C-4284

derek@simsengineers.com

NORTH CAROLINA PROFESSIONAL SEAL 042145 ENGINEER DEREK J. STEWART

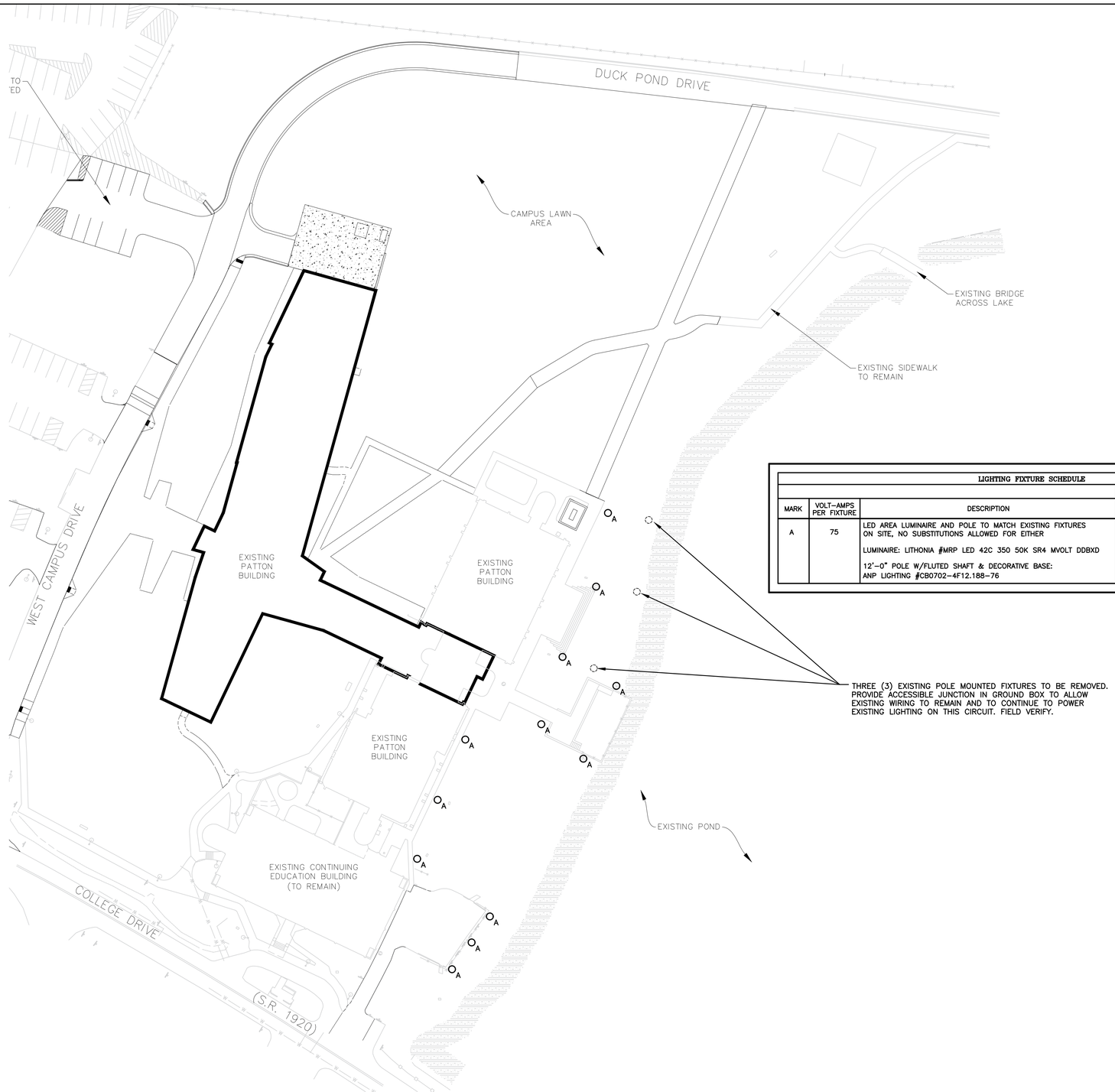
Derek J. Stewart

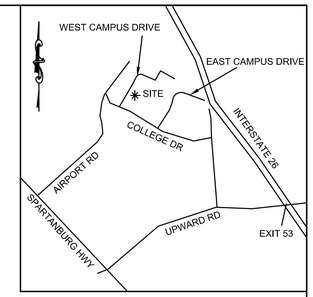
PATTON BUILDING SITE/AREA LIGHTING

BLUE RIDGE COMMUNITY COLLEGE CAMPUS
FLAT ROCK, NORTH CAROLINA

DATE:	9/13/2023
DESIGN BY:	DJS
DRAWN BY:	RKH/PAM
APPROVED BY:	DJS
SHEET NUMBER:	E101

SIMS PROJECT #2355





VICINITY MAP
NOT TO SCALE

LIGHTING FIXTURE SCHEDULE				
			LAMPS	
MARK	VOLT-AMPS PER FIXTURE	DESCRIPTION	CODE	COLOR TEMP (K)
A	75	LED AREA LUMINAIRE AND POLE TO MATCH EXISTING FIXTURES ON SITE, NO SUBSTITUTIONS ALLOWED FOR EITHER LUMINAIRE: LITHONIA #MRP LED 42C 350 50K SR4 MVOLT DDBXD 12'-0" POLE W/FLUTED SHAFT & DECORATIVE BASE: ANP LIGHTING #CB0702-4F12.188-76	LED	5000

1 / E102 PARTIAL SITE PLAN - LIGHTING (ALTERNATE BID)

SCALE: 1" = 40'-0"

LIGHTING NOTES:

1. 'A' FIXTURES AND POLES SHOWN HERE ARE TO REPLACE EXISTING FIXTURES ON A 1:1 BASIS. EXISTING CIRCUITS TO REMAIN AND BE REUSED.
2. NEW 'A' FIXTURES SHALL MATCH EXISTING FIXTURES THAT WERE INSTALLED DURING PATTON BUILDING CONSTRUCTION, NO SUBSTITUTIONS ALLOWED.
3. SEE LIGHTING FIXTURE SCHEDULE THIS SHEET FOR PROPOSED LIGHTING FIXTURE AND POLE SPECIFICATIONS.
4. CONTRACTOR TO PROVIDE A TURNKEY PROJECT INCLUSIVE OF ALL LABOR, MATERIALS, LIGHT HEADS, CONCRETE BASES, LIGHT POLES, POLE BASE FLANGES AND MOUNTING BOLTS, BASE FLANGES, BASE COVERS, POLE WEATHER CAPS, LIGHT POLE TENONS, TRAFFIC CONTROL, SUPERVISION, SHIPPING, DISPOSAL FEES, PERMITS AND INSPECTIONS.

SIMS PROJECT #2355

sims group
CONSULTING ENGINEERS, PC
PO BOX 5534 • ASHEVILLE, NC 28813
PHONE: 828-251-2025 • FAX: 828-251-1933
www.simsgroupconsultingengineers.com
NC FIRM LICENSE #C-4284

derek@simsengineers.com
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042145 DEREK J. STEWART
Derek J. Stewart

PATTON BUILDING SITE/AREA LIGHTING

BLUE RIDGE COMMUNITY COLLEGE CAMPUS
FLAT ROCK, NORTH CAROLINA

DATE:	9/13/2023
DESIGN BY:	DJS
DRAWN BY:	RKH/PAM
APPROVED BY:	DJS
SHEET NUMBER:	E102

SECTION 16010

BASIC ELECTRICAL REQUIREMENTS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

A. Basic Electrical Requirements specifically applicable to Division 16 in addition to Division 1 – General Requirements.

1.2 SCOPE OF WORK

A. Provide electric meter, electric service, power distribution equipment, conductors, luminaires, wiring devices, fire alarm system, and other required materials and labor to produce a complete and operating electrical system. Coordinate service with utility and advise owner of service application procedure.
Provide conductors and conduit for all equipment in project.
Provide conduit with pull cords for HVAC control circuits.
B. Obtain all permits, pay all fees, and request inspection from authority having jurisdiction.
C. All work and materials shall be guaranteed for one year from date of substantial completion.
D. Provide temporary power during construction.

1.3 WORK SEQUENCE

A. Coordinate construction and utility outages (if any) with Owner, all other trades, and utility companies. After-hours work may be required to interrupt service.
B. Notify Engineer of discrepancies in the Contract Documents.
C. E-Mail questions or comments to derek@simsengineers.com or fax (828-251-1933) in lieu of telephone calls.

1.4 REGULATORY REQUIREMENTS

A. Conform to applicable State and Local Building Codes.
B. Fire Alarm: NFPA 72.
C. Electrical: NFPA 70.
D. Life Safety Code, NFPA 101.
E. The Contractor shall install all materials in accordance with State and Local Building Code. Any work that does not comply shall be made to comply at the contractor's expense.
F. All equipment shall be UL or ETL listed for purpose specified.

1.5 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by Project conditions.
B. Prepare record drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Architect/Engineer before proceeding. Submit all changes on Record Documents as a requirement of Project Closeout.
C. Refer to Architectural Drawings for dimensions, locations, cabinets, etc. Do not scale Electrical Drawings.
D. Conceal all materials except where the Architect grants specific permission to do otherwise.
E. Arrange electrical work in a neat, well organized manner. Conduit shall run parallel with primary lines of the building construction.
F. Locate operating and control equipment with adequate access for operation and maintenance.
G. Give right-of-way to piping which must slope for drainage.
H. Advise other trades of openings required in their work for the subsequent move-in of large electrical equipment.
I. Coordination Drawings: For locations where several elements of electrical (or combined mechanical and electrical) work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings showing the actual dimensions required for the installation.

1.6 SUBSTITUTIONS:

The purpose of specifying equipment by catalog number is to establish quality standards, not necessarily to limit submittals. Substitutions may be accepted if approved as equivalent. Contact engineer prior to bid with any questions. If substitutes are not submitted within 14 days after the bid is accepted, then the equipment shall be provided as specified. Contractor submitting substitutions shall be responsible for any additional cost resulting from the substitution.

1.7 EXCAVATING FOR ELECTRICAL WORK

A. General: The work of this article is defined to include whatever excavating and backfilling is necessary to install the electrical work. The contractor shall coordinate the work with other excavating and backfilling in the same area, including dewatering, floor protection provisions, and other temporary facilities. Coordinate the work with other work in the same area, including other underground services, landscape development, paving, and floor slabs on grade. Coordinate with weather conditions and provide temporary facilities needed for protection and proper performance of excavating and backfilling.
B. General Standards: Except as otherwise indicated, comply with the applicable provisions of the Division 2 sections, for plumbing work excavating and backfilling. Refer instances of uncertain applicability to the Engineer for resolution before proceeding.
C. Rock Excavation shall be defined as the removal of a formation that cannot be excavated without systematic drilling and blasting or without the use of pneumatic tools. All rock excavation/removal shall be performed by the General Contractor.
The Electrical subcontractor shall lay out his work and perform all normal excavation.
If rock is encountered, it shall be removed by the General Contractor.
The General Contractor shall be responsible for providing backfill material.
D. Sequencing: Delay backfill and encasement of conduit until testing of conductors has been completed.

2. PART 2 GENERAL DESCRIPTION OF WORK

2.1 Coordinate work with other Trades.

2.2 General:

A. Provide all luminaires, wiring devices, conductors, switches, disconnects, fuses, fire alarm system, and other required materials. Coordinate electrical requirements for equipment supplied by other trades prior to ordering electrical materials.
B. Provide U.L. listed Fire-Stop penetrations through rated assemblies. See Architectural life safety plans to locate rated assemblies.
C. Identify major equipment with engraved Lamacoid labels.
D. Provide typed panelboard directories.
E. Gang mount switches. Provide continuous switchplate.
F. Electrical Contractor shall provide all penetrations and patching required to install electrical work.
G. Support all luminaires, materials, and equipment from building structure.
H. Install all materials and equipment in accordance with manufacturer's instructions.
I. Telephone service shall meet the requirements of and be coordinated with Utility.
J. Electrical service shall meet the requirements of and be coordinated with Utility.
K. Panelboards shall have copper bus unless otherwise noted.
L. Electrical circuits shall not share neutrals unless otherwise noted.

2.3 Design Requirements vs. Code Minimum Requirements.

A. Some of the design requirements stated for this project exceed the minimum requirements of the NEC. These decisions are usually made in order to:
1. Increase reliability of the system.
2. Increase service life of system components.
3. Enhance system safety beyond the minimum requirements of the NEC.
B. Design requirements that may exceed NEC minimum are most often associated with the following:
1. Insulation type.
2. Conductor size.
3. Conduit type.
4. Conduit couplings.
5. Size of equipment grounding conductor. See NEC section 250.4A5.

3. PART 3 CONDUCTORS & CONDUIT

3.1 Conductors:

A. Unless otherwise noted on plans:
1. Conductors above grade shall be THWN-2 copper.
2. Conductors underground or under slab shall be XHHW copper.
B. All conductors shall be in conduit or other approved raceway.
C. Provide EGC (equipment grounding conductor) with all circuits. Some EGCs are sized larger than the NEC minimum. This is done in order to reduce the probability of EGCs being damaged during ground faults.
D. Conductors smaller than #8 AWG shall be solid.
E. Approved manufacturers. (No other manufacturer's products are permitted.)
ENCORE WIRE
SOUTHWIRE
AFC
GENERAL CABLE
OKONITE
CERROWIRE
F. Line-voltage conductors shall not be smaller than #12 AWG.
G. Branch circuits longer than 75 feet shall be wired with conductors #10 AWG or larger.

3.2 Conduit and Raceway:

A. Above grade: EMT with compression-type steel couplings and connectors.
B. Below grade: Schedule 40 PVC with Schedule 80 PVC risers.
C. Raceway Seal: Where a raceway enters a building or structure from an underground distribution system, it shall be sealed in accordance with NEC 300.5(G). Spare or unused raceways shall also be sealed.
Sealant shall be American Polywater FST or equivalent.
D. Conduit shall be trade size 3/4" minimum unless otherwise noted.
Exceptions: control wiring, 120V receptacles, and switches may use trade size 1/2" if sized per NEC.
E. Type MC Cable with copper conductors and green ground may be used for concealed branch circuits. Redhead bushings shall be provided at each termination.
F. Support conduit from building structure with threaded rods and hangers, trapeze hangers, channel and clamps, or other approved method.

4. PART 4 DOCUMENTS AND SUBMITTALS

4.1 SUBMITTALS

A. Submit under provisions of Contract Documents.
B. Identify items with marks to match those shown on drawings.
C. Architect shall approve all colors.
D. All submittals shall have the Contractor's stamp with approval signature.
E. Highlight deviations from specified materials.
F. Product Data: 6 sets, including 3 sets for maintenance manuals. Data shall include the following:
Luminaires
Wiring Devices
Panelboards
Safety Switches
Surge Protective Devices (SPDs)
Fire Alarm System
G. Test Reports (if required): 3 copies
H. Warranties: 6 copies, including 3 for maintenance manuals.
I. Maintenance Manuals: 3 complete sets in loose-leaf 3-ring binders, with rigid permanent vinyl covered back and front. Separators with index tabs shall be provided. One set shall have all sheets individually encased in clear, plastic document protectors.

4.2 CONTROL DATA: Provide control diagrams and wiring diagrams where applicable; include description of control systems, catalog data, and calibration instructions for all components.
Provide name and address of Controls manufacturer and installer.

4.3 MAINTENANCE INSTRUCTION: Typewritten instructions for maintenance of the systems in itemized form and with time schedule shall be furnished.
The instructions shall list each item of equipment requiring inspection, lubrication, or other service.
The operating personnel shall be instructed regarding each maintenance procedure.

5. PART 5 ELECTRICAL WORK CLOSEOUT

5.1 General: Refer to the Division 1 sections for general closeout requirements. Maintain a daily log of operational data on electrical equipment and systems through the closeout period; record hours of operation, assigned personnel, fuel consumption, etc. Submit copy to Owner.

5.2 Record Drawings: Give special attention to the complete and accurate recording of underground circuits, and other concealed or non-accessible work. Record change orders where not shown accurately by contract documents. Submit to Architect/Engineer at end of project one set of reproducible sepias that show all changes in the electrical work.

5.3 Closeout Equipment/Systems Operations: Contractor shall demonstrate sustained, satisfactory performance of all equipment and systems in a test run of appropriate duration.
The Owner's operating personnel shall be present. Adjust or correct equipment as required for proper performance. Clean equipment and luminaires.

5.4 Operating Instructions: Conduct a walk-through instruction seminar for the Owner's personnel. Explain the identification system, operation diagrams, emergency and alarm provisions, and sequencing requirements. Also explain requirements related to: seasonal provisions, security, safety, and efficiency.

5.5 Training: Contractor shall provide training on all major equipment, controls, etc, as part of the contract.

5.6 Turn-Over of Operations: At the time of substantial completion, turn over the prime responsibility for operation of the electrical equipment and systems to the Owner's operating personnel. However, until the time of final acceptance, provide one electrician, who is completely familiar with the work, to consult with and continue training the Owner's personnel.

END OF SECTION

SIMS PROJECT #2355

sims group
CONSULTING ENGINEERS, PC
PO BOX 5534 • ASHEVILLE, NC 28813
PHONE: 828-251-2025 • FAX: 828-251-1933
www.simsgroupconsultingengineers.com
NC FIRM LICENSE #C-4284

derek@simsengineers.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042145 DEREK J. STEWART

Derek J. Stewart
Digitally signed by Derek J. Stewart
DN: cn=Derek J. Stewart, o=Sims Group Consulting Engineers, PC, ou=Mechanical/Electrical/Plumbing Engineer, email=derek@simsengineers.com, c=US
Date: 2023.09.13 15:46:42 -04'00'

PATTON BUILDING SITE/AREA LIGHTING

BLUE RIDGE COMMUNITY COLLEGE CAMPUS
FLAT ROCK, NORTH CAROLINA

DATE:	9/13/2023
DESIGN BY:	DJS
DRAWN BY:	RKH/PAM
APPROVED BY:	DJS
SHEET NUMBER:	E103