Hite associates

ARCHITECTURE / PLANNING / TECHNOLOGY

ADDENDUM NO. 2

July 28, 2023

Project: **Addition to Benson Elementary School**
Johnston County Schools

TO: ALL BIDDERS

The following items clarify, add to, delete from, and / or otherwise change and supersede information previously issued to you in the bidding documents for the referenced project. Please read them carefully and adjust your bid accordingly.

Please note that addendums, and all revised documents are available via Hite Associates website www.hiteassoc.com under the "Contractor Resources" link.

ADDENDUM NO. 2:

1. Form of Proposal Alternate No. 1: Alternate No. 1 amount added for 500 Wing classroom expansion addition, shall be complete with all trades work. All required General, Plumbing, Mechanical and Electrical work is to be included complete. All Preferred Manufacturer Alternates listed below shall be included as part of this Alternate bid; G-1, G-2, P-1, P-2, P-3, M-1, M-2, M-3, BCS-1, E-1, E-2, E-3, E-4.
2. Form of Proposal Alternate No. G-2: Toilet partitions in TT Tough TM-2, texture to be provided in BLACK color.
3. Section 01056 Allowances: A $90,000 HVAC and Controls Systems Commissioning allowance item is added.
4. Clarified adherence requirements for compliance to the Davis-Bacon Act. Contractors and subcontractors must:
    a. Pay covered workers weekly.
    b. Submit weekly certified payroll records to the contracting agency (JCPS).
    c. Post the applicable Davis-Bacon wage determination with the Davis-Bacon poster (WH-1321) on the job site in a prominent and accessible place where they can be easily seen by the workers.
5. Drawing C-101; Exterior Double-Sided Basketball Goal: Provide Model BA872-BK Double-Sided Playground Basketball System, with all necessary components for a complete assembly, as manufactured by Bison, Inc. www.bisoninc.com. 800-247-7668
    a. Provide pole constructed of 6" square, 3/16" wall structural steel tube with a 39" in-ground installation, featuring a back-to-back 6" square 45° extension arms x 3/16" wall structural tube, with a 4" square 18" wall steel tube horizontal support arm and 14" thick steel backboard support plate. Pole shall be designed so that rim mounts directly

to pole to minimize stress on the backboard. Extension arm shall be mounted by means of 6 each 5/8" grade-8 bolts. Pole system shall provide a minimum setback from the front of pole to front of backboard of 60". Entire pole system shall have a textured black polyester powder coated finish and carry a lifetime warranty. Vertical pole shall be capped. Backboard shall be constructed of formed and welded steel with a 42" x 60" rectangular playing surface. Skin shall be 12 ga. mild steel and rear structure shall be 7 ga. and 10 ga. steel. All edges of the skin shall be formed with no shear edges exposed. Boards with exposed shear edges shall not be considered equal. The backboard shall be coated with a white polyester powder coated finish and have an official-sized orange shooter's square. Backboards shall carry a lifetime warranty. Rim shall consist of two 5/8" diameter high strength steel rings welded together at a minimum of six places. Back and side plates shall be 3/16" thick and be continuously welded. Net attachment system shall be of a continuous type constructed of 3/16" x 1" steel with punched net attachment slots suitable for included nylon nets. Individual. Rim shall have a lifetime warranty and orange powder coated finish. Installation to be completed in accordance with manufacturer's instructions. Entire system weight shall be rated for 500 lb.

6. Drawing L-101 Site Landscape Plan is added.
7. REVISED Drawing S-1102 per DPI response: Caulk and expansion joint treatment at firewall is coordinated with Addendum No. 1 revisions on Drawing A-1006.
8. Revised drawing A-601: Added note: “SEE SHEET A-609 FOR ENLARGED FLOOR PLAN AND DETAILS”.
9. Revised Drawing A-604: Elevations revised to show exterior ramps and steps.
10. Added Drawing A-609, with Enlarged Plan, Elevations and Details for exterior ramp at door 600D.
11. Clarification: There is no hot water in the gang bathrooms or in the bathrooms and wet areas inside the classrooms. The only fixtures that require hot water are the staff bathroom lavatories, the counter sink in the planning room, the mop basin in Custodian/Access 613, the utility sink on the platform, and the counter sinks located in the classroom casework. All lavatories that are shown with no hot water shall have 1/2" pipe installed in wall and stubbed up to above block and capped for future connection. Contractor shall provide and install angled shut off valve in wall under sink for future connection. See “Lavatory – Future Hot Water Piping Installation Detail” on sheet P001.
12. Sheet P-001: Changed the size of the Counter Sinks (CS) and added the Service Sink (SS).
13. Sheet P-001: Added “Lavatory – Future Hot Water Piping Installation Detail”.
14. Sheet P-502: Added Plumbing Notes and added note #1 at wet area lavatories (4 locations total).
15. Sheet P-602: Added Hot Water to the Staff Lavatories.
16. Sheet P-602: Added Plumbing Notes and added note #1 at gang restroom and wet area lavatories (14 locations total).
17. Sheet P-611: Corrected Service Sink label on platform.
18. Sheet M-003: Added sheet for Chilled Water Flow Diagram.
19. Sheet M-004: Added sheet for Hot Water Flow Diagram.
20. Sheet M-402: Changed “CIRC-7” and “CIRC-8” to read “NEW P-7” and “NEW P-8”.

21. Sheet M-402: Added (2) VFDs for Pumps P-1 and P-2 in existing Boiler Room.
22. Sheet E-002: Revised Panel "MP" Layout. Changed circuit 1,3,5 to reuse the existing 40 Amp breaker for VFD for Pump P-1. Removed existing 15 Amp breaker in circuit 13,15,17 and added a new 40 Amp breaker for VFD for Pump P-2. Revised Notes at the bottom of Panel "MP" Panel Schedule.
23. Sheet E-002: Revised Panel "MP1" Layout. Removed spare 30 Amp breakers from MP1-4 and MP1-6. Removed 20 Amp breakers from MP1-14 and MP-16. Added (2) new 20 Amp 2-pole breakers in circuits MP1-4,6 and MP1-14,16 for new Boiler Circulator Pumps. Revised Notes at the bottom of Panel "MP1" Panel Schedule.
24. Sheet E-002: Revised Panel "MDP1" Layout.
25. Sheet E-002: Revised Panel "MDP2" Layout. Changed breaker for Panel "6L" to 225 Amp breaker.
26. Sheet E-003: Revised Riser Note #1 to read "225 AMP" instead of "400 AMP".
27. Sheet E-003: Revised Riser Note #3 to change wire size to "4 - #4/0 & 1 - #4G in 2.5C".
28. Sheet E-003: Changed main breaker size for Panel "6L" to 225 Amp.
29. Sheet E-003: Changed main breaker size to 225 Amp in Panel "6L" Panel Schedule.
30. Sheet E-601: Revised circuit designations for pumps P-7 and P-8 in Boiler Room. Added (2) new VFDs and revised circuit designations.

James G. Hite, AIA, Project Architect
Hite Associates, PC

BIDDERS PLEASE NOTE THAT REFERENCED REVISED DOCUMENTS AND DRAWING REVISIONS ARE MARKED AS SUCH ON THE REVISION BLOCK ON THE PLANS AND ARE TO BE ACCESSED ON THE HITE ASSOCIATES WEBSITE.

Revised / Added Documents:

Form of Proposal
Specification Section 01056 Allowances
L-101
A-601, A-604, A-609
S-1102
P-001, P-502, P-602, P-611
M-003, M-004, M-402
E-002, E-003, E-601

cc: All Bidders / All Meeting Attendees / Brooks Moore, PE

dist.: JGH / RBE / BQ / WP/ AC / File: Bids & Addenda

GENERAL

CASH ALLOWANCES:

The following is a list of cash allowances to be provided in bids. Non-fee items include labor, tax, and freight, except as noted. The Owner reserves the right to bid the work or select subcontractors, or to credit any allowance at full value to remove the work from the Contract. Unit Prices listed on Bid Form of Proposal, Sitework Material allowances, and Form of Contract include all costs, including overhead and profit costs, and shall not be listed as a separate cost when unit prices and materials allowance materials are used or credited.

*(** Does not include labor or installation, to be provided by GC, unless otherwise noted)*

General Contract:	Testing and Special Inspections 01062:	$40,000
	Project Sign 01065:	$2,500
	** Signs & Bldg Equip. 10440:	$2,500
	BDA Emergency Responders Radio Coverage system:	$60,000
	HVAC and Controls Systems Commissioning	$90,000
	General Allowance:	$60,000
	TOTAL	**$255,000**

BUILDING PERMITS and all other permit costs shall be determined by Bidders and provided for in Bids.

MATERIALS ALLOWANCES:

1. Mass undercut for building footprint: General Contractor shall provide in his bid 200 cubic yards of mass undercut, disposal off site, and select off-site backfill, compacted in place, as directed by the Engineer. Specified stripping of site as indicated in geotechnical report and fill as indicated by finished construction grades is NOT a part of this allowance.

2. Foundation undercut: General Contractor shall provide in his bid 50 cubic yards of localized undercut installed for building foundations and floor slabs, disposal off site, with backfill of #57 or #67 washed stone, in addition to the specific requirements on the Structural Plans.

NOTE: THESE MATERIAL ALLOWANCES WILL BE MEASURED AND MONITORED BY THE OWNER'S TESTING AGENCY. AMOUNTS NOT USED WILL BE CREDITED BACK TO THE OWNER AT THE UNIT PRICE INDICATED ON BID FORM OF PROPOSAL. AMOUNTS USED IN EXCESS OF THESE ALLOWANCES WILL BE CHARGED TO THE OWNER AT THE SAME UNIT PRICES.

END OF SECTION

F O R M OF P R O P O S A L

From: _____ Contract: GENERAL

Address: _____

To: Johnston County Schools Date: _____

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud.

The bidder further declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the places where the work is to be done, that he has examined the specifications for the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed.

The Bidder proposes and agrees if this proposal is accepted to contract with the ***Johnston County Board of Education*** in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of the: ***Additions to Benson Elementary School*** in full in complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the Owner and / or Architect, with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the Contract Documents, for the sum of:

SINGLE PRIME CONTRACT ALL WORK:

_____ Dollars($)_____

Plumbing subcontractor: _____

Mechanical subcontractor: _____

Electrical subcontractor: _____

ALTERNATES:

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be added to the base bid.

ALTERNATE NO. 1 Shall be the amount added to the Base Bid to provide the 500 Wing classroom expansion addition, complete with all trades. All required General, Plumbing, Mechanical and Electrical work is to be included complete. All Preferred Manufacturer Alternates listed below shall be included as part of this Alternate bid:

(Add) Dollars ($)

ALTERNATE NO. G-1 Shall be the amount added to the Base Bid to provide 08700 finish door hardware as specified, in lieu of other, equivalent manufacturers:

(Add) Dollars ($)

ALTERNATE NO. G-2: Shall be the amount added to the Base Bid to provide preferred manufacturer ASI Accurate for toilet partitions, with vandal resistant anti-graffiti surface texture, Black Tough Texture (TT) raised profile dimple texture, in lieu of other equivalent manufacturers, as per Specification 10900.

(Add) Dollars($)

ALTERNATE NO. P-1 Shall be the amount added to the Base Bid to provide Sloan Royal Series flush valves, in lieu of other, equivalent manufacturers.

(Add) Dollars($)

ALTERNATE NO. P-2 Shall be the amount added to the Base Bid to provide Delta faucets, in lieu of other, equivalent manufacturers.

(Add) Dollars($)

ALTERNATE NO. P-3 Shall be the amount added to the Base Bid to provide Kohler plumbing fixtures, in lieu of other, equivalent manufacturers.

(Add) Dollars($)

ALTERNATE NO. M-1 Shall be the amount added to the Base Bid to provide Trane equipment, in lieu of other, equivalent manufacturers.

(Add) Dollars($)

ALTERNATE NO. M-2 Shall be the amount added to the Base Bid to provide Belimo actuators and Sq. D motor starters, in lieu of other, equivalent manufacturers.

(Add) Dollars($)

ALTERNATE NO. M-3 Shall be the amount added to the Base Bid to provide Bell & Gosset pumps, in lieu of other, equivalent manufacturers.

(Add) _____ Dollars($)

ALTERNATE NO. BCS-1 Shall be the amount added to the Base Bid to provide Tridium Controllers to connect to the Schneider Controls (existing DCM system), for HVAC controls, control of schedule for fans, pumps, water heaters, interior lights and exterior lights.

(Add) _____ Dollars($)

ALTERNATE NO. E-1 Shall be the amount added to the Base Bid to provide Square D electrical equipment in lieu of other, equivalent manufacturers.

(Add) _____ Dollars ($)

ALTERNATE NO. E-2 Shall be the amount added to the Base Bid to provide electrical devices as manufactured by Hubbell meeting specifications, in lieu of other, equivalent manufacturers.

(Add) _____ Dollars ($)

ALTERNATE NO. E-3 Shall be the amount added to the Base Bid to provide a fire alarm system manufactured by Notifier Fire Systems (to integrate with existing system) as specified, in lieu of other, equivalent manufacturers.

(Add) _____ Dollars ($)

ALTERNATE NO.. E-4 Shall be the amount added to the Base Bid to provide Exit & Combo Emergency-Exit Lights manufactured by Exitronix and Emergency Lights manufactured by Tamlite as listed in the Light Fixture schedule, in lieu of other, equivalent manufacturers.

(Add) _____ Dollars ($)

UNIT PRICES:

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices will include all costs, and shall be applied, as appropriate, to compute the total value of changes in the scope of the installed work, all in accordance with the contract documents. Unit prices listed shall include all overhead and profit costs.

ITEM #	DESCRIPTION	UNIT PRICE
1	Mass Under Cut Excavation (Disposal **OFF** Site)	_____ c.y. (cubic yard)
2	Foundation Under Cut Excavation (Disposal **OFF** Site)	_____ c.y. (cubic yard)
3	Off-Site Select Borrow Fill	_____ c.y. (cubic yard)
4	#57 or #67 Stone (Building foundations)	_____ c.y. (cubic yard)
5	CABC Stone Base (drives and parking)	_____ c.y. (cubic yard)
6	Tensar BX-1100 Geogrid	_____ s.y. (square yard)
7	4" Thick Concrete Sidewalk	_____ s.y. (square yard)
8	Conflict Box	_____ each

NOTE: "Installed" means undercut and fill are measured compacted and in place complete assembly, not by truckload or prior to compaction.

TIME

The Bidder further proposes and agrees hereby to commence work on a date specified in the Architect's Notice to Proceed, and to complete all work according to the schedule of dates set under Article 8 "Time" of the Supplementary Conditions, WHICH ARE DATES CERTAIN, with no allowance for delays except as may be caused by the Owner. Applicable liquidated damages shall be as stated in the Supplementary General Conditions.

HUB PARTICIPATION REQUIREMENTS;

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of HUB Participation Form) the HUB businesses that it will use on the project with the total dollar value of the bids that will be performed by the HUB businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit HUB participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B)** to that effect in lieu of Affidavit (**A)** required above. The HUB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by HUB businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

OR

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of HUB businesses for participation in the contract.

Note:
Bidders must always submit **with their bid** the Identification of HUB Participation Form listing all HUB contractors, vendors and suppliers that will be used. If there is no HUB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

BYRD ANTI-LOBBYING AMENDMENT CERTIFICATION

In submitting a bid, the undersigned bidder certifies that:

In accordance with federal regulations, it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant or any other award covered by this amendment in connection with this bid, and that it will disclose any lobbying with non-federal funds that takes place in connection with obtaining any federal award in connection with this bid.

Proposal Signature Page

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract by the Designer, as agent for the Owner, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the Owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of _____

_____
(Name of firm or corporation making bid)

WITNESS:

By:_____
Signature

_____
(Proprietorship or Partnership)

Name: _____
Print or type

Title_____
(Owner / Partner / President / Vice President)

Address_____

ATTEST:

_____

By:_____

License No._____

Title:_____
(Corp. Sec. or Asst. Sec. only)

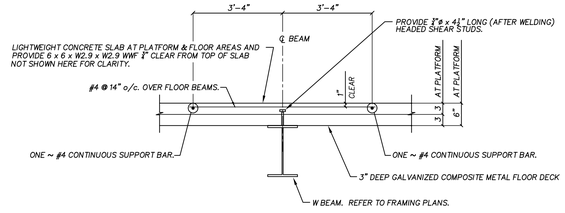
Federal I.D. No. _____

(CORPORATE SEAL)

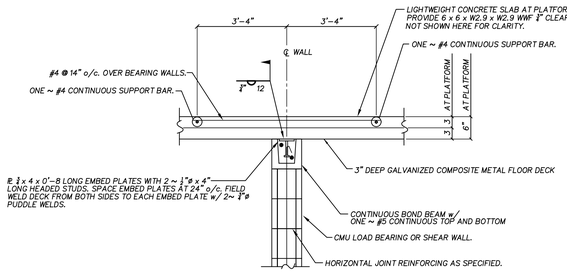
Addendum received and used in computing bid:

Addendum No. 1 _____ Addendum No. 3 _____ Addendum No. 5_____ Addendum No. 6__

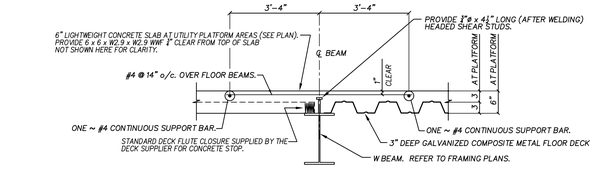
Addendum No. 2 _____ Addendum No. 4 _____ Addendum No. 6 _____ Addendum No. 7 __



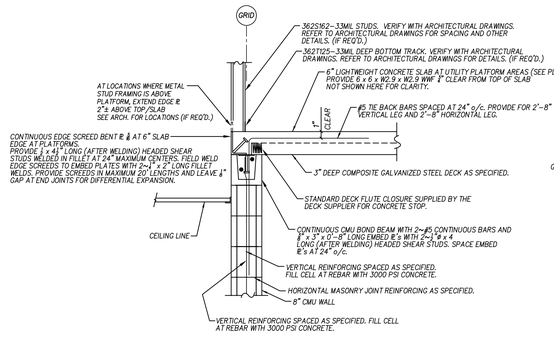
1 TYPICAL PLATFORM SUPPORT BEAM
NO SCALE



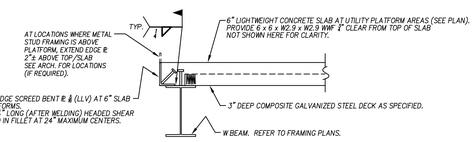
3 TYPICAL CMU LOAD BEARING WALL DETAIL AT ELEVATED SLAB
NO SCALE



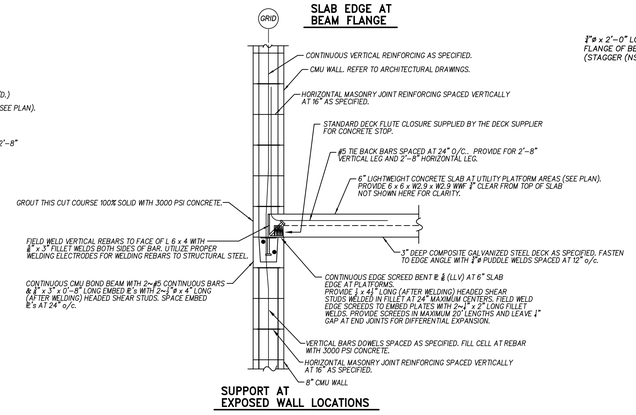
AT DECK CHANGE OF DIRECTION



SLAB EDGE CONCEALED ABOVE CEILING

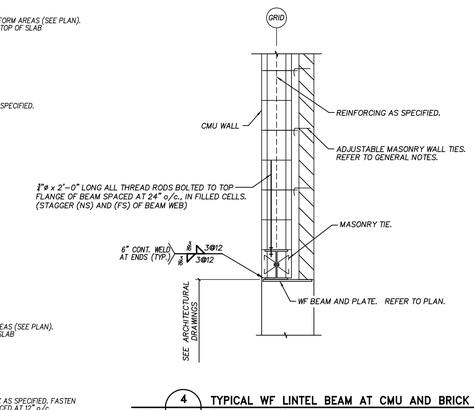


SLAB EDGE AT BEAM FLANGE

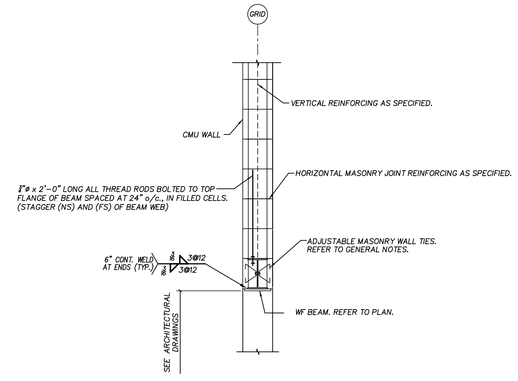


SUPPORT AT EXPOSED WALL LOCATIONS

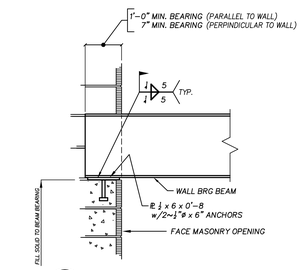
2 TYPICAL ELEVATED SLAB EDGE DETAILS
NO SCALE



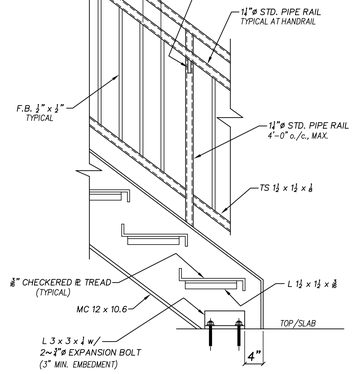
4 TYPICAL WF LINTEL BEAM AT CMU AND BRICK (IF REQUIRED)
NO SCALE



5 TYPICAL WF BEAM AT CMU WALL (IF REQUIRED)
NO SCALE

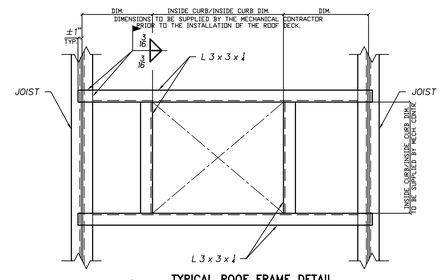


6 TYPICAL BEAM BEARING DETAIL
NO SCALE

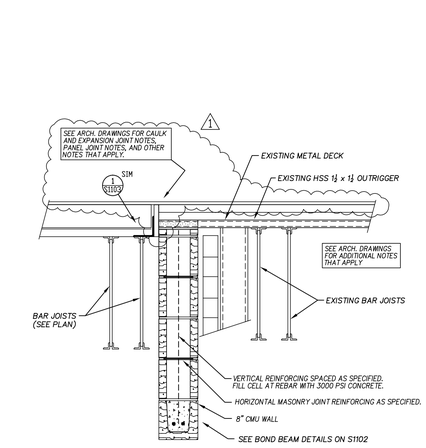


7 TYPICAL STAIR CONSTRUCTION
NO SCALE

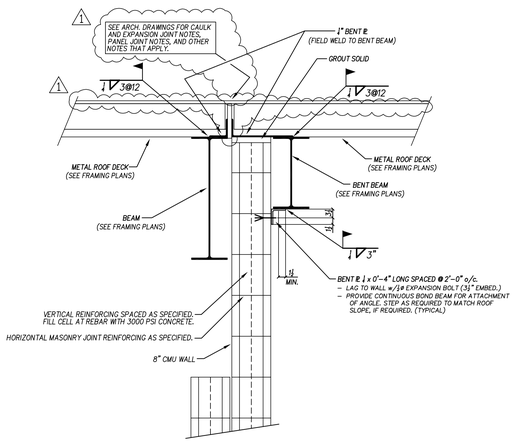
- SEE ARCHITECTURAL DRAWINGS FOR STAIR LOCATION AND ADDITIONAL NOTES THAT APPLY.
- STAIR CONFIGURATION TO BE VERIFIED BY STAIR MANUFACTURER. ABOVE SECTION IS SCHEMATICAL IN NATURE, AND IS ONLY INCLUDED AS A GUIDELINE. STAIR MANUFACTURER SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.



8 TYPICAL ROOF FRAME DETAIL (IF REQUIRED)
NO SCALE
TO SUPPORT THE DECK UNDER CURBS

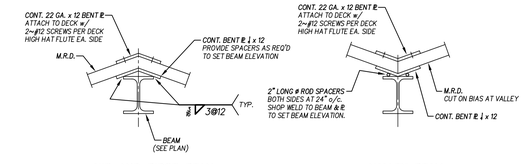


9 WALL SECTION AT FIRE RATED WALL – 500 UNIT
NO SCALE



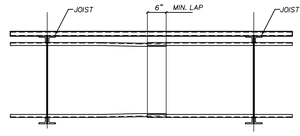
10 WALL SECTION AT FIRE RATED WALL – 600 UNIT
NO SCALE

LOOSE LINTEL SCHEDULE (TYPICAL, U.O.N.)				
MARK	SIZE	M.O.	BEARING	REMARKS
L1	L 3½ x 3½ x ¼	1'-8 to 5'-0	8" @ EA. END	
L2	L 5 x 3½ x 5/16 LLV	5'-0 to 7'-0	8" @ EA. END	
L3	L 6 x 3½ x 5/16 LLV	7'-0 to 8'-0	8" @ EA. END	
L4	W 8 x 10 w/℄ ⅝	8'-0 to 10'-0	8" @ EA. END	BEAR SIM TO 6/S1102
L5	W 8 x 18 w/℄ ⅝	10'-0 to 12'-0	12" @ EA. END	BEAR SIM TO 6/S1102
L6	W 16 x 26 w/℄ ⅝	12'-0 to 20'-0	12" @ EA. END	BEAR SIM TO 6/S1102
L7	W 16 x 31 w/℄ ⅝	20'-0 >	12" @ EA. END	BEAR SIM TO 6/S1102

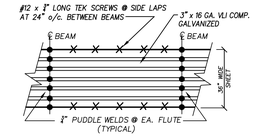


HIP AND RIDGE BEAM — VALLEY BEAM

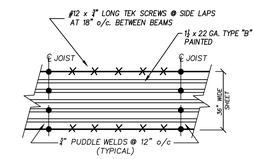
TYPICAL HIP AND VALLEY BEAM DETAIL



TYPICAL HORIZ. BRIDGING SPLICE DETAIL
NO SCALE
WELD AT ALL CONTACT POINTS

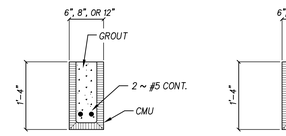


DECK FASTENING DETAIL
3" VLI COMPOSITE FLOOR DECK
NO SCALE

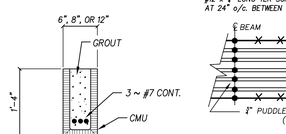


DECK FASTENING DETAIL
TYPE "B" ROOF DECK
NO SCALE

8" DEEP CMU LINTEL
NO SCALE BEAR ALL LINTEL COMPONENTS 8" EA. SIDE
SPAN = 2'-0" TO 4'-0"



16" DEEP CMU LINTEL
NO SCALE BEAR ALL LINTEL COMPONENTS 8" EA. SIDE
SPAN = 4'-1" TO 8'-4"



16" DEEP CMU LINTEL
NO SCALE BEAR ALL LINTEL COMPONENTS 1'-4" EA. SIDE
(FILL ALL CELLS SOLID UNDER CMU LINTEL BEARING)
SPAN = 8'-5" TO 14'-0"

Hite associates
ARCHITECTURE / ENGINEERING / TECHNOLOGY
2600 Meridian Drive / Greenville, NC 27858 / tel (252) 757-0333

No.	Date:	Revision
1	07/27/23	REVISED PER BPI COMMENTS & ARCH. REVISIONS

NC LIC C-1050
QED QUEEN ENGINEERING & DESIGN
2600 MERIDIAN RD, SUITE 4-415
GREENVILLE, NC 27858
PHONE (252) 489-8888
FAX (252) 489-8889
NORTH CAROLINA PROFESSIONAL SEAL 18991 ENGINEER BRUCE L. QUEEN
12 JUL 2023

Additions to
Benson Elementary School
Johnston County School
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

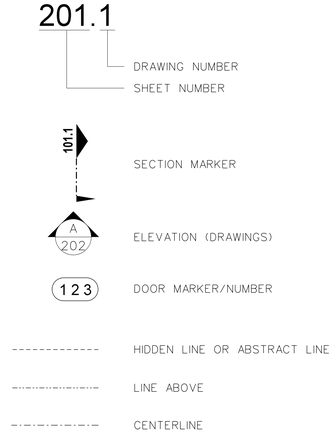
Project No: 22301
Date: 12 JUL 2023
Drawing no: S 1102

ABBREVIATIONS

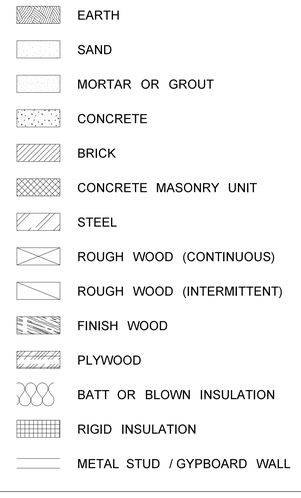
AFF	ABOVE FINISH FLOOR	INV	INVERT
L	ANGLE	JT	JOINT
AB	ANCHOR BOLT	LAV	LAVATORY
@	AT	MAS	MASONRY
B/B	BACK TO BACK (CURB)	MAX	MAXIMUM
BRG	BEARING	MB	MARKER BOARD
BD	BOARD	MET	METAL
BC	BRICK COURSE	MC	MECHANICAL CONTRACTOR
BLDG	BUILDING	MT	METAL THRESHOLD
CI	CAST IRON	MIN	MINIMUM
CPT	CARPET	MISC	MISCELLANEOUS
CB	CATCH BASIN	NOM	NOMINAL
CLG	CEILING	N	NORTH
CT	CEILING TILE	NIC	NOT IN CONTRACT
CB	CHALKBOARD	NTS	NOT TO SCALE
CJ	CONSTRUCTION JOINT	OC	ON CENTER
CONC	CONCRETE	OPG	OPENING
CMU	CONCRETE MASONRY UNIT	OPP	OPPOSITE
CG	CORNER GUARD	PC	PLUMBING CONTRACTOR
CMP	CORRUGATED METAL PIPE	PLAS	PLASTER
CONT.	CONTINUOUS	PL	PLATE
C & R	CURTAIN & ROD	PT	PRESSURE TREATED
C & T	CURTAIN & TRACK	R	RADIUS
DIA	DIAMETER	REF	REFERENCE
DIM	DIMENSION	RENIF	REINFORCED
DS	DOWNSPOUT	RCP	REINFORCE CONCRETE PIPE
DWR	DRAWER	REQ'D	REQUIRED
EA	EACH	RFS	RUBBER FASTENING STRIP
EC	ELECTRICAL CONTRACTOR	RI	RIGID INSULATION
EIFS	EXTERIOR INSULATION & FIN SYSTEM	R/W	RIGHT OF WAY
ELECT	ELECTRICAL	RD	ROOF DRAIN
EWC	ELECTRIC WATER COOLER	RDL	ROOF DRAIN LEADER
ELEV	ELEVATION	RGH	ROUGH
EQ	EQAUL	SCHED	SCHEDULED
ETR	EXISTING TO REMAIN	SH	SHELF
EXIST	EXISTING	SHTG	SHEATHING
EXP	EXPOSED, EXPANSION	SIM	SIMILAR
EJ	EXPANSION JOINT	SPEC	SPECIFIED
F/F	FACE TO FACE (CURB)	SPECS	SPECIFICATIONS
FIN	FINISH	STD	STANDARD
FE	FIRE EXTINGUISHER	SUSP	SUSPENDED
FEC	FIRE EXTINGUISHER CABINET	TB	TACKBOARD
FHC	FIRE HOSE CABINET	TYP	TYPICAL
FTG	FOOTING	TJC	TYPICAL CONTROL JOINT
FD	FLOOR DRAIN	UON	UNLESS OTHERWISE NOTED
FL	FLOOR	UR	URINAL
FSR	FLEXIBLE SHEET ROOFING	VB	VAPOR BARRIER
GB	GYPSUM WALLBOARD	VERT	VERTICAL
GC	GENERAL CONTRACTOR	VCT	VINYL COMPOSITION TILE
HM	HOLLOW METAL	WC	WATER CLOSET
HOR	HORIZONTAL	WWF	WELDED WIRE FABRIC
INSUL	INSULATION	W/	WITH

DRAWING SYMBOLS

DRAWING IDENTIFICATION MARKERS



MATERIAL SYMBOLS



DRAWING INDEX

No.	Date:	Revision
2	7/28/23	Sheets added per Addendum #2
1	7/25/23	Sheet C-309 added per Addendum #1

Hite associates
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2600 Meridian Drive / Greenville, NC 27834 / tel (252) 757-0333

HITE ASSOCIATES, P.C. — ARCHITECTURAL CORPORATION — CERTIFICATE NUMBER C-418 — GREENVILLE, N.C.

JAMES GRAY HITE — REGISTERED ARCHITECT 3754 — STATE OF NORTH CAROLINA — GREENVILLE, N.C.

Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

Project No.: 22301

Date: 6 February 2023

Drawing no.: T-1

Second Grade Classroom 621
Second Grade Classroom 619
Second Grade Classroom 617
Second Grade Classroom 615
Second Grade Classroom 622
Second Grade Classroom 620
Second Grade Classroom 618
Second Grade Classroom 616
SEE SHEET A-000 FOR ENLARGED TYPICAL CLASSROOM FLOOR PLAN AND INTERIOR ELEVATIONS
SEE SHEET A-609 FOR ENLARGED RAMP PLAN, SECTIONS, AND DETAILS 2
Resource 614
Custodian Access 613
Corridor 600A
Staff 610
Storage 609
Staff 608
Girls 611
Boys 612
Planning 606
Resource 607
First Grade Classroom 605A
First Grade Classroom 603A
First Grade Classroom 604A
First Grade Classroom 601A
First Grade Classroom 602A
Toilet 605E
Toilet 605D
Stor 605C
Cubbies 605B
Toilet 603D
Wet Area 601E
Stor 603C
Cubbies 603B
Toilet 601D
Stor 601C
Cubbies 601B
Cubbies 604B
Stor 604C
Wet Area 602E
Toilet 604D
Toilet 602D
Cubbies 602B
Stor 602C
New Dining Area 404C
NEW SPRINKLER ROOM 421
DRY STORAGE 411
FREEZER
COOLER
ELECTRICAL ROOM 414
KITCHEN 408
STAFF TOILET 413
STAFF LOCKERS 412
MANAGERS OFFICE 410
CUSTODIAN/ CHEMICAL STORAGE 409
DISWASHING 407
VENDING
BOILER ROOM 415
CAN WASH 416
CAN STORAGE 417
GENERAL STORAGE 405
CHAIR/TABLE STORAGE 406
COVERED LOADING
CHILLER YARD
DINING AREA 404
STORAGE 404B
ART STORAGE 402A
STAGE 404A
ART ROOM 402
KILN 402B
STORAGE 401B
OFFICE 401A
MULTI PURPOSE 401
MUSIC ROOM 403
MUSIC STORAGE 403A
CORRIDOR 400
STAFF 422
BOYS TOILET 418
CUSTODIAN/ STAIR 419
GIRLS TOILET 420
2 HOUR FIRE WALL
5/8" GYPBOARD OVER 7/8" FURRING WITH PVC CORNER GUARDS AS SPECIFIED
EXISTING WALL TO BE 1-HOUR FIRE BARRIER SEAL TO ROOF DECK AS REQUIRED. SEE SHEET A-602.
EXISTING WALL TO BE 1-HOUR FIRE BARRIER SEAL TO ROOF DECK AS REQUIRED.
EXISTING WALL TO BE 1-HOUR FIRE BARRIER SEAL TO PLATFORM AS REQUIRED.
PROVIDE INTUMESCENT TREATMENT AT EXPOSED STRUCTURAL STEEL ELEMENTS
4" DOOR JAMB ADJACENT TO STEEL COLUMN (TYPICAL)
DASHED LINE REPRESENTS CLEAR FLOOR AREA FOR EGRESS LADDER
EMERGENCY EGRESS LADDER SEE SHEET A-1010

601.1 FLOOR PLAN: 400 AND 600 UNITS
SCALE: 1/8" = 1'-0"

No.	Date:	Revision
2	7/28/23	Revised per Addendum #2
1	7/19/23	Revised per Addendum #1

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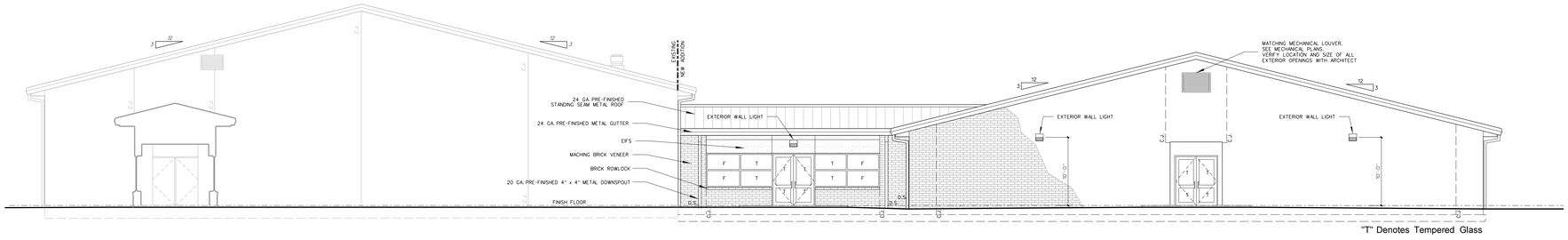
2600 Meridian Drive / Greenville, NC 27834 / tel:(252) 757-0333

HITE ASSOCIATES, P.C. — ARCHITECTURAL CORPORATION — CERTIFICATE NUMBER C-418 — GREENVILLE, NC

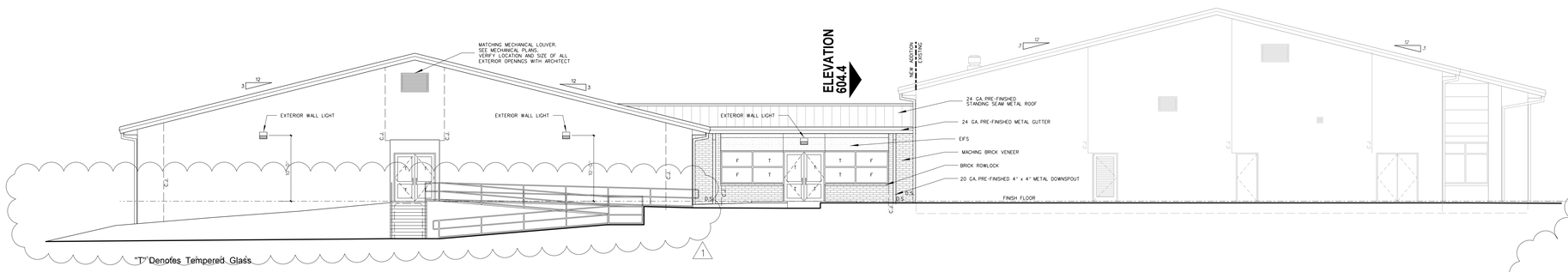
JAMES GRAY HITE — REGISTERED ARCHITECT — 7234 — GREENVILLE, NC

Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

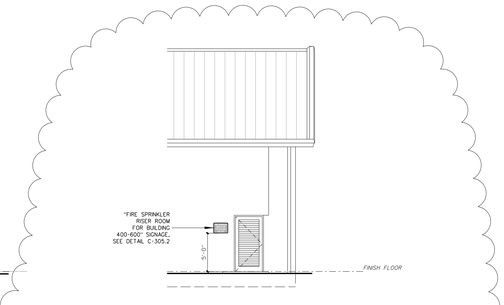
Project No. 22301
Date: 6 February 2023
Drawing no. A 601



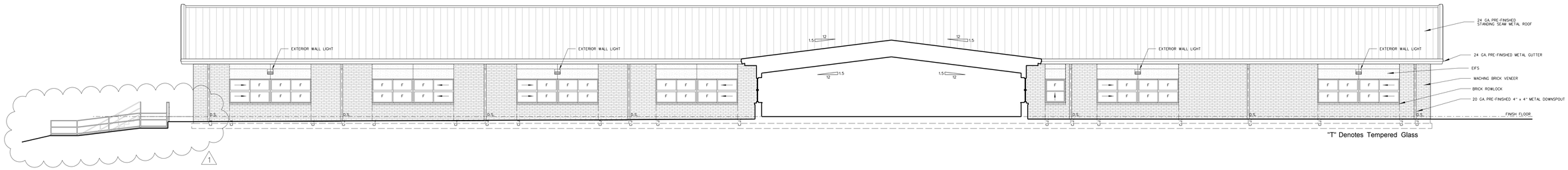
604.5 EXTERIOR ELEVATION - 600 UNIT
SCALE: 1/8" = 1'-0"



604.3 EXTERIOR ELEVATION - 600 UNIT
SCALE: 1/8" = 1'-0"



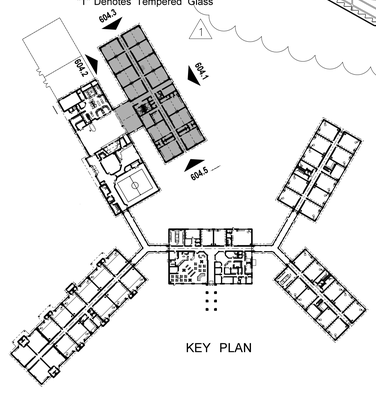
604.4 400 UNIT - FIRE RISER ROOM
SCALE: 1/8" = 1'-0"



604.2 EXTERIOR ELEVATION - 600 UNIT
SCALE: 1/8" = 1'-0"

NOTE:
GENERAL CONTRACTOR SHALL VERIFY TOP OF FINISH GRADES, TOP OF OF CONCRETE WALKS AND TOP OF CONCRETE SLABS ADJACENT TO BUILDING AND ADJUST LOCATION OF THROUGH WALL FLASHING AND WEEPS.

604.1 EXTERIOR ELEVATION - 600 UNIT
SCALE: 1/8" = 1'-0"



No.	Date:	Revision
1	7/28/23	Revised per Addendum #2

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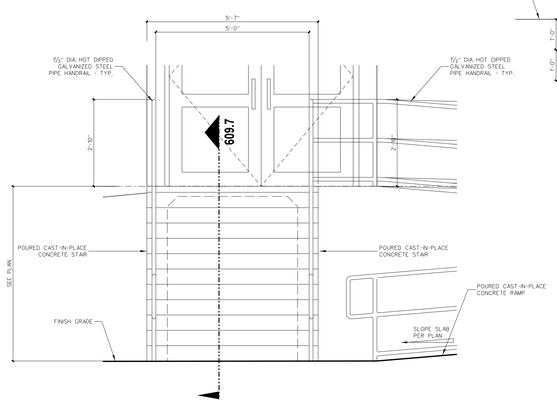
HITE ASSOCIATES, P.C. CORPORATION NORTH CAROLINA LICENSE NUMBER C-0418 GREENVILLE

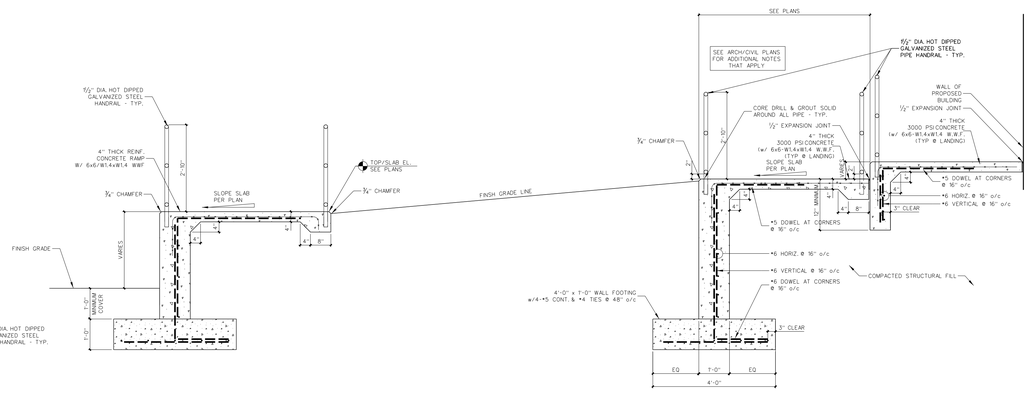
JAMES GRAY HITE REGISTERED ARCHITECT 23354 NORTH CAROLINA GREENVILLE

Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

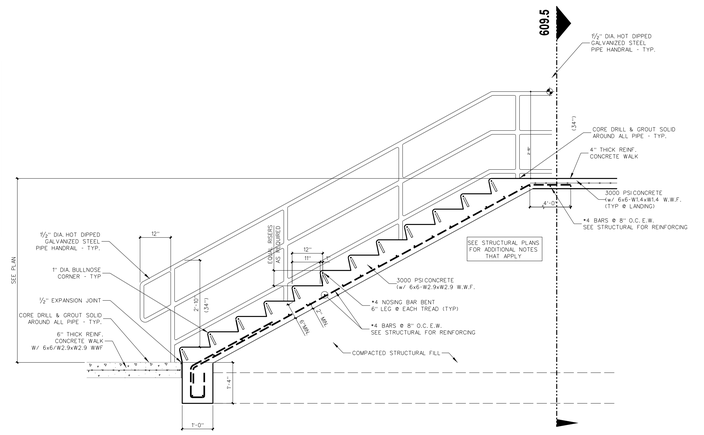
Project No. 22301
Date: 6 February 2023
Drawing no. A 604



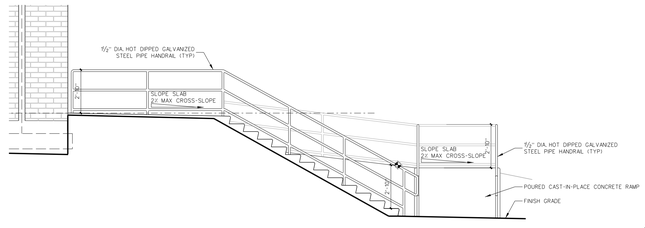
609.6 CONCRETE RAMP/STEPS ELEVATION
SCALE: 1/2" = 1'-0"



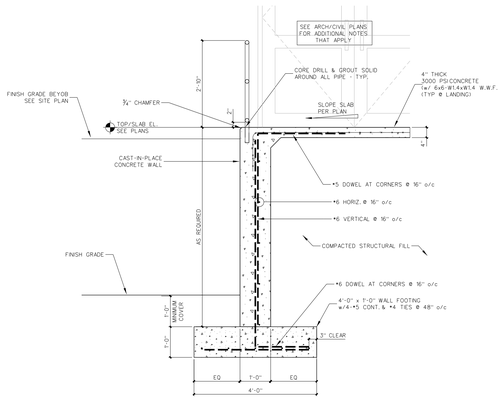
609.8 CAST-IN-PLACE CONCRETE RAMP
SCALE: 1/2" = 1'-0"



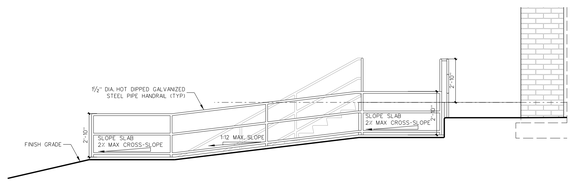
609.7 CAST-IN-PLACE POURED CONCRETE STAIR
SCALE: 1/2" = 1'-0"



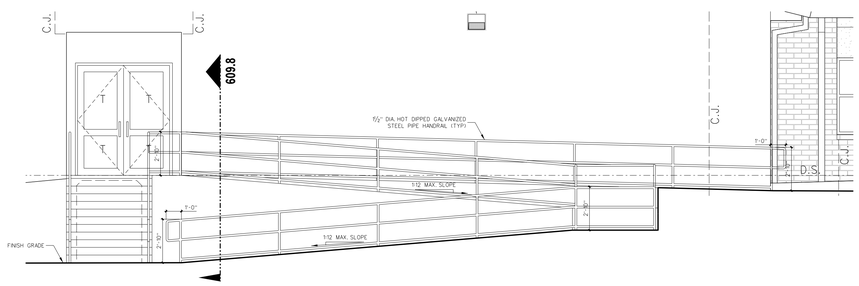
609.4 CONCRETE STEPS & RAMP ELEVATION
SCALE: 1/4" = 1'-0"



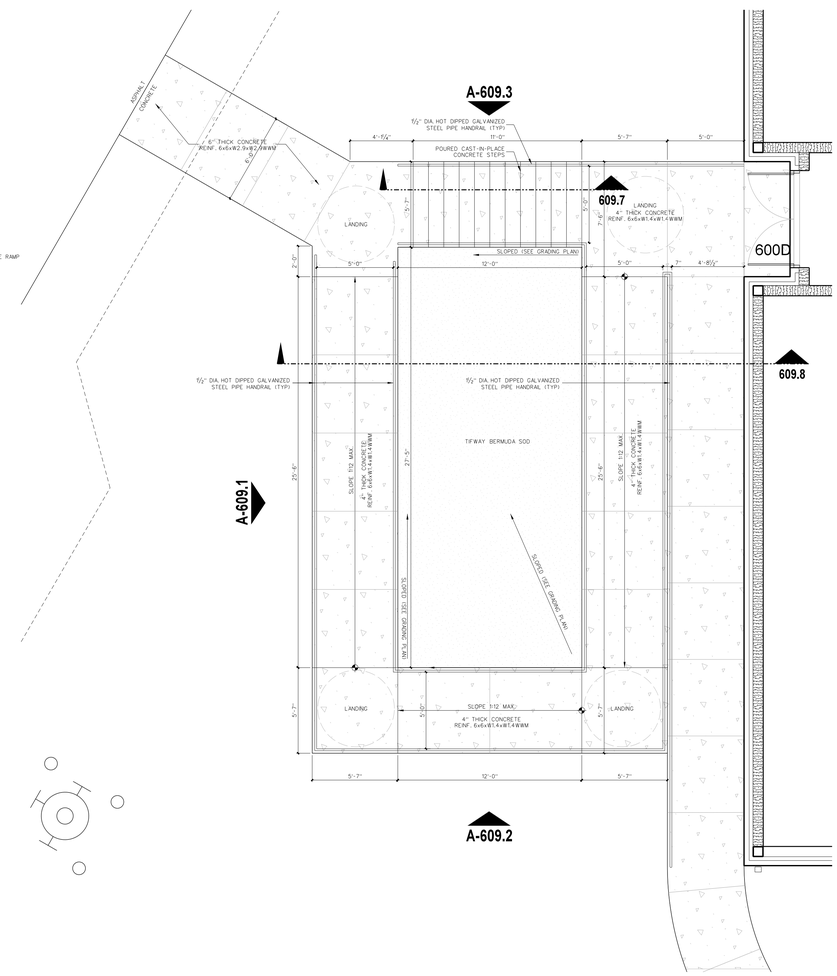
609.5 CAST-IN-PLACE CONCRETE STOOP
SCALE: 1/2" = 1'-0"



609.3 CONCRETE STEPS & RAMP ELEVATION
SCALE: 1/4" = 1'-0"



609.2 CONCRETE STEPS & RAMP ELEVATION
SCALE: 1/4" = 1'-0"



609.1 ENLARGED CONCRETE STEPS & RAMP
SCALE: 1/4" = 1'-0"

No.	Date:	Revision
1	7/28/23	Sheet Added per Addendum #2

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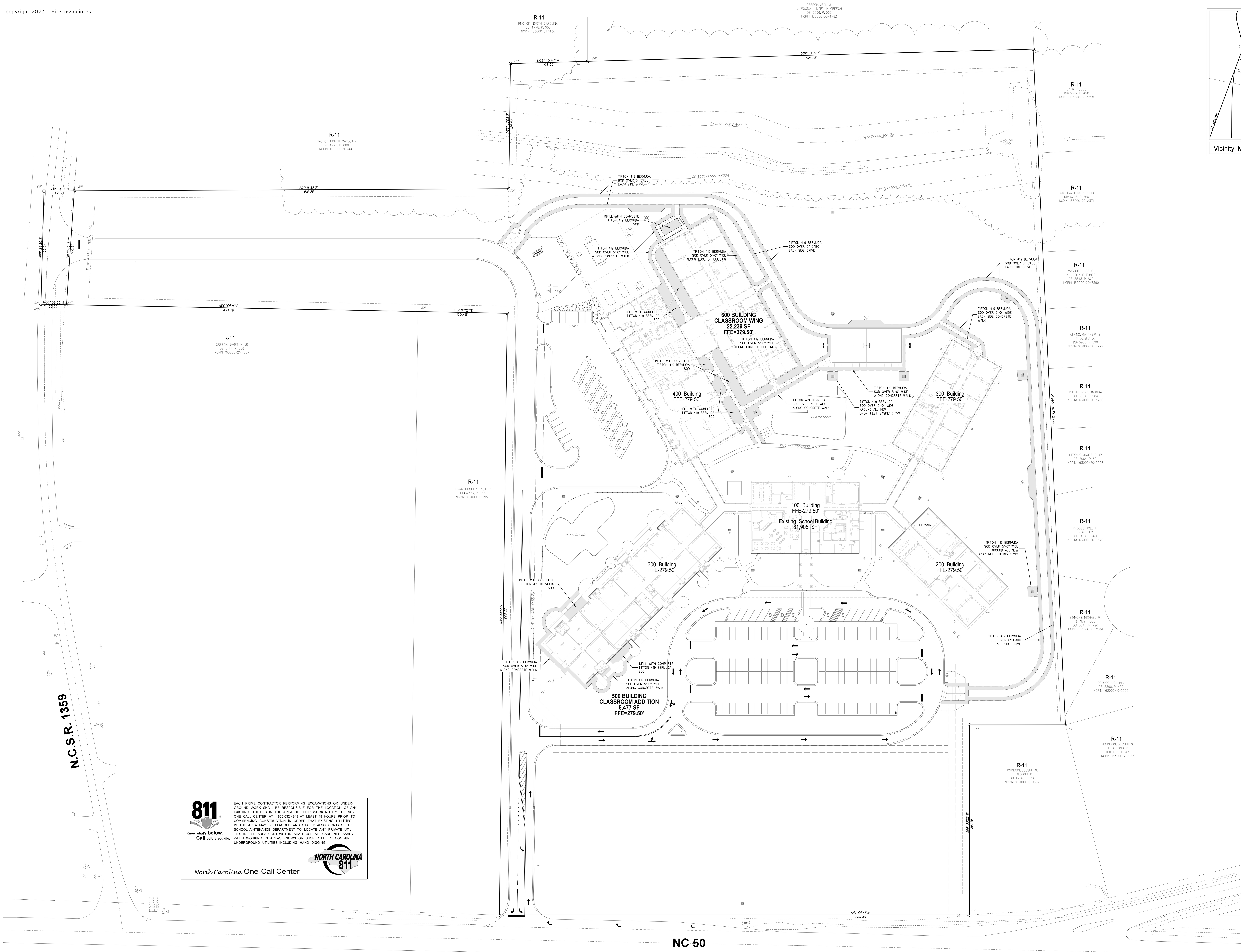
HITE ASSOCIATES, P.C. — CORPORATE NUMBER C-418 — REGISTERED — GREENVILLE, NC

JAMES GRAY HITE — REGISTERED ARCHITECT 3754 — GREENVILLE, NC

Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

Project No. 22301
Date: 6 February 2023
Drawing no. A 609



EACH PRIME CONTRACTOR PERFORMING EXCAVATIONS OR UNDERGROUND WORK SHALL BE RESPONSIBLE FOR THE LOCATION OF ANY EXISTING UTILITIES IN THE AREA OF THEIR WORK. NOTIFY THE NC-ONE CALL CENTER AT 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION IN ORDER THAT EXISTING UTILITIES IN THE AREA MAY BE FLAGGED AND STAKED. ALSO CONTACT THE SCHOOL AINTENANCE DEPARTMENT TO LOCATE ANY PRIVATE UTILITIES IN THE AREA. CONTRACTOR SHALL USE ALL CARE NECESSARY WHEN WORKING IN AREAS KNOWN OR SUSPECTED TO CONTAIN UNDERGROUND UTILITIES, INCLUDING HAND DIGGING.

811 Know what's below. Call before you dig.

North Carolina One-Call Center

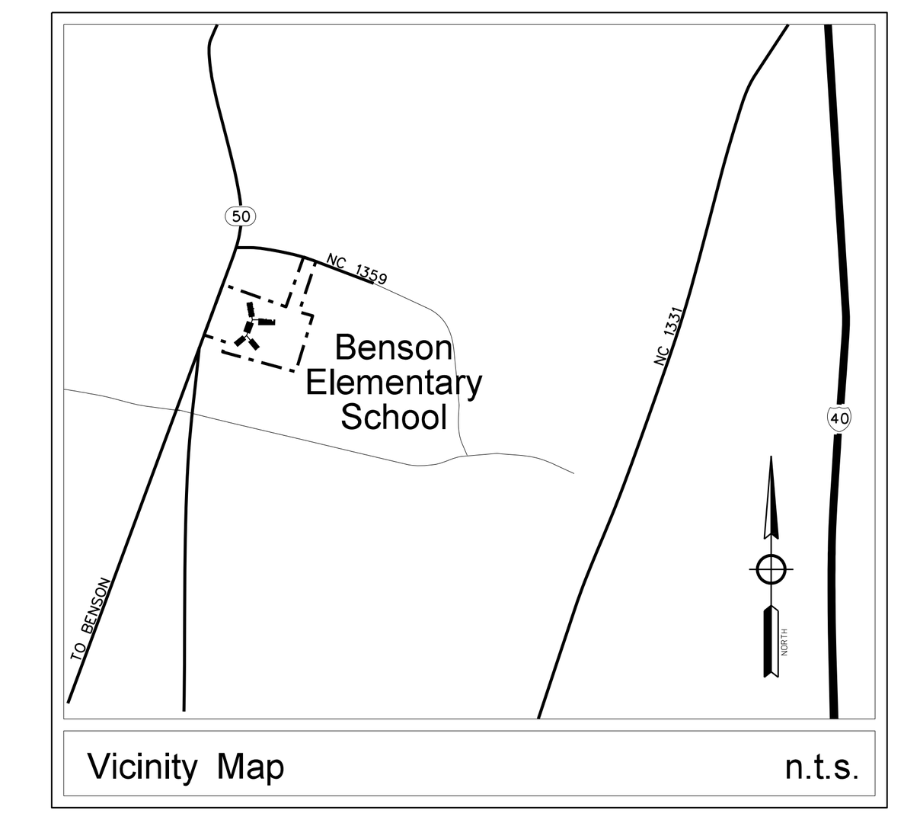
NORTH CAROLINA 811

101.1 SITE LANDSCAPE PLAN

SCALE: 1" = 50'-0"

NORTH

GRAPHIC SCALE: 50 0 50 100 150 FEET



Revision

No. | Date:

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HITE ASSOCIATES, P.C. REGISTERED ARCHITECTURAL CORPORATION CERTIFICATE NUMBER 418 STATE OF NORTH CAROLINA GREENVILLE

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER J. STEPHEN JANOWSKI

Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

Project No. 22301

Date: 6 February 2023

Drawing no. L 101

EXIST PANELBOARD SCHEDULE - "MP"

MAIN: 100 MLO | VOLTAGE: 480/277 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 10,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LTG	REC	MTR	A/C	HTG	KIT	MISC	LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1								5.8							4.2										2
3	40	3	8	3/4"	NEW 15HP VFD FOR PUMP P-1 **			5.8							4.2					VFD FOR PUMP P-5 & PUMP P-6	3/4"	8	3	35	4
5								5.8							4.2										6
7								2.1							2.1										8
9	15	3	12	3/4"	PUMP P-3			2.1							2.1					PUMP P-4	3/4"	12	3	15	10
11								2.1							2.1										12
13								5.8							2.1										14
15	40	3	8	3/4"	NEW 15HP VFD FOR PUMP P-2 ***			5.8							2.1					EXHAUST FAN EF-4H	3/4"	12	3	20	16
17								5.8							2.1										18
19								1.3											4.2						20
21	20	3	12	3/4"	AHU-405			1.3											4.2	UNIT HEATER	3/4"	12	3	20	22
23								1.3											4.2						24
25	20	1			SPARE															SPARE			1	20	26
27	20	1			SPARE															SPARE			1	20	28
29	20	1	12	3/4"	LTG - BOILER/ELEC ROOMS															SPARE			1	20	30
LIGHTING (KVA):					0.0	0.0	0.0	45.2	0.0	0.0	0.0	0.0	0.0	0.0	25.3	0.0	0.0	0.0	12.5	CONNECTED LOAD (KVA):					83.0

RECEPTACLES (KVA):	0.0				DEMAND LOAD (KVA):	83.0
MOTORS (KVA):	70.5	PHASE A	28	99.8		
A/C (KVA):	0.0	PHASE B	28	99.8	CONNECTED LOAD (AMPS):	99.8
HEATING (KVA):	0.0	PHASE C	28	99.8	DEMAND LOAD (AMPS):	99.8
KITCHEN (KVA):	0.0		KVA	AMPS		
MISCELLANEOUS (KVA):	12.5					

NOTES: * DENOTES REPURPOSE OF EXISTING "SPARE" BREAKER.
** DENOTES RE-USE OF EXISTING 40 AMP BREAKER.
*** DENOTES REMOVAL OF EXISTING 15 AMP BREAKER AND INSTALL NEW 40 AMP BREAKER. OFFER BREAKER BACK TO OWNER FOR SALVAGE.
+ INDICATES NEW BREAKER IN EXISTING "SPACE".
BOLD INDICATES NEW WORK IN EXISTING ELECTRICAL PANEL.
EXISTING PANEL IS GENERAL ELECTRIC "A-SERIES" PANEL.

"MP" DEMAND CALCS

LIGHTING		0.00	KVA	X	125	%	=	0.0 KVA
RECEPTAC	TOTAL	0.00	KVA					
	1ST	10.00	KVA	X	100	%	=	0.0 KVA
	REMAIN	0.00	KVA	X	50	%	=	0.0 KVA
MOTORS		70.50	KVA	X	100	%	=	70.5 KVA
A/C		0.00	KVA	X	100	%	=	0.0 KVA
WATER HEATING		0.00	KVA	X	125	%	=	0.0 KVA
FUTURE		______	KVA	X	100	%	=	0.0 KVA
KITCHEN		0.00	KVA	X	65	%	=	0.0 KVA
MISCELLANEOUS		12.47	KVA	X	100	%	=	12.5 KVA
TOTAL	=	99.8 amps					=	83.0 KVA

"MDP1" DEMAND CALCS

LIGHTING		0.00	KVA	X	125	%	=	0.0 KVA
RECEPTAC	TOTAL	0.00	KVA					
	1ST	10.00	KVA	X	100	%	=	0.0 KVA
	REMAIN	0.00	KVA	X	50	%	=	0.0 KVA
MOTORS		70.50	KVA	X	100	%	=	70.5 KVA
	LARGEST		KVA	X	125	%	=	0.0 KVA
A/C		96.00	KVA	X	100	%	=	96.0 KVA
WATER HEATING		54.00	KVA	X	125	%	=	67.5 KVA
EXIST PEAK DEMAND		200.00	KVA	X	125	%	=	250.0 KVA
KITCHEN		0.00	KVA	X	65	%	=	0.0 KVA
MISCELLANEOUS		12.47	KVA	X	100	%	=	12.5 KVA
TOTAL	=	597.2 amps					=	496.5 KVA

EXISTING PANELBOARD SCHEDULE - "MDP1"

MAIN: 800A MCB | VOLTAGE: 480/277 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 65,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LTG	REC	MTR	A/C	HTG	KIT	MISC	LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1																									2
3		3			SPACE															SPACE			3		4
5																									6
7																									8
9	90	3	3	1 1/4"	BOOSTER HEATER															TVSS	3/4"	8	3	40	10
11																									12
13						0.0	0.0	23.5	0.0	0.0	0.0	4.2					18.0								14
15	100	3	3	1 1/4"	PANEL "MP"	0.0	0.0	23.5	0.0	0.0	0.0	4.2					18.0			WATER HEATER #1	1 1/4"	3	3	100	16
17						0.0	0.0	23.5	0.0	0.0	0.0	4.2					18.0								18
19									32.0																20
21	150	3	1/0	2"	+ NEW CHILLER #3				32.0											SPACE			3		22
23									32.0																24
25																									26
27		3			SPACE															SPACE			3		28
29																									30
31																									32
33	225	3	4/0	2 1/2"	PANEL "3L"																				34
35																									36
37																									38
39	400	3	600	3 1/2"	XFMR - PANEL PDP																				40
41																									42
LIGHTING (KVA):					0.0	0.0	0.0	70.5	96.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	54.0	0.0	0.0	CONNECTED LOAD (KVA):					233.0

RECEPTACLES (KVA):	0.0				DEMAND LOAD (KVA):	496.5
MOTORS (KVA):	70.5	PHASE A	78	280.4		
A/C (KVA):	96.0	PHASE B	78	280.4	CONNECTED LOAD (AMPS):	280.2
HEATING (KVA):	54.0	PHASE C	78	280.4	DEMAND LOAD (AMPS):	597.2
KITCHEN (KVA):	0.0		KVA	AMPS		
MISCELLANEOUS (KVA):	12.5					

NOTES: PEAK LOAD WAS PROVIDED BY THE UTILITY, RECORDED IN MAY OF 2021. PEAK WAS MULTIPLIED BY 125% PER NEC REQUIREMENTS. EXISTING 800A SERVICE PANEL IS ADEQUATE.

EXIST PANELBOARD SCHEDULE - "MP1"

MAIN: 100 MLO | VOLTAGE: 208/120 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 10,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LTG	REC	MTR	A/C	HTG	KIT	MISC	LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1	20	1	12	3/4"	GWH #1 BURNER					0.5									1.8	HEAT TRACE (CH1 & 2)	3/4"	12	1	20	2
3	20	1	12	3/4"	RECIRC PUMP			0.6							1.0					** PUMP P-7	3/4"	12	2	20	4
5	20	1	12	3/4"	GWH #2 BURNER					0.5					1.0										6
7	20	1	12	3/4"	* HEAT TRACE CH-3							1.2							0.6	CHILLER CONTROL	3/4"	12	1	15	8
9	20	1	12	3/4"	BOILER #1 CONTROLS							1.5							0.6	HVAC CONTROLS	3/4"	12	1	15	10
11	20	1	12	3/4"	BOILER #2 CONTROLS							1.5							0.6	AHU-405 CONTROLS	3/4"	12	1	15	12
13	20	1	12	3/4"	REC - BOILER RM		1.4								1.0					*** PUMP P-8	3/4"	12	1	20	14
15	20	1	12	3/4"	EF-4D			0.8							1.0										16
17	30	2	10	3/4"	UNIT HEATER							3.0			0.5					EF-4C			1		18
19												3.0			1.4					FLY FAN			1		20
21	20	1	12	3/4"	BOILER							1.5							1.5	CH-2 CONTROLS			1		22
23	20	1	12	3/4"	* SPRINKLER HOTBOX							0.5							1.5	CH-3 CONTROLS			1		24
25	20	1			SPARE										0.8										26
27	20	2	12	3/4"	+ UNIT HEATER							1.7			0.8					+ PUMP P-9	3/4"	12	3	15	28
29												1.7			0.8										30
LIGHTING (KVA):					0.0	0.0	1.4	1.4	0.0	1.0	0.0	15.5	0.0	0.0	8.6	0.0	0.0	0.0	6.6	CONNECTED LOAD (KVA):					34.6

RECEPTACLES (KVA):	1.4				DEMAND LOAD (KVA):	35.4
MOTORS (KVA):	10.0	PHASE A	12	98.7		
A/C (KVA):	0.0	PHASE B	11	92.5	CONNECTED LOAD (AMPS):	95.9
HEATING (KVA):	1.0	PHASE C	12	96.8	DEMAND LOAD (AMPS):	98.4
KITCHEN (KVA):	0.0		KVA	AMPS		
MISCELLANEOUS (KVA):	22.1					

NOTES: * DENOTES REPURPOSE OF EXISTING "SPARE" BREAKER.
** INDICATES REMOVAL OF (2) EXISTING 30 AMP BREAKERS AND INSTALLING NEW 20 AMP 2-POLE BREAKER. OFFER BREAKERS BACK TO OWNER FOR SALVAGE.
*** INDICATES REMOVAL OF (2) EXISTING 20 AMP BREAKERS AND INSTALLING NEW 20 AMP 2-POLE BREAKER. OFFER BREAKERS BACK TO OWNER FOR SALVAGE.
+ INDICATES NEW BREAKER IN EXISTING "SPACE".
BOLD INDICATES NEW WORK IN EXISTING PANEL.
EXISTING PANEL IS GENERAL ELECTRIC "A-SERIES" PANEL.

"MP1" DEMAND CALCS

LIGHTING		0.00	KVA	X	125	%	=	0.0 KVA
RECEPTAC	TOTAL	1.44	KVA					
	1ST	10.00	KVA	X	100	%	=	1.4 KVA
	REMAIN	0.00	KVA	X	50	%	=	0.0 KVA
MOTORS		7.54	KVA	X	100	%	=	7.5 KVA
	LARGEST	2.49	KVA	X	125	%	=	3.1 KVA
A/C		0.00	KVA	X	100	%	=	0.0 KVA
WATER HEATING		1.00	KVA	X	125	%	=	1.3 KVA
FUTURE		______	KVA	X	100	%	=	0.0 KVA
KITCHEN		0.00	KVA	X	65	%	=	0.0 KVA
MISCELLANEOUS		22.10	KVA	X	100	%	=	22.1 KVA
TOTAL	=	98.4 amps					=	35.4 KVA

"MDP2" DEMAND CALCS

LIGHTING		12.35	KVA	X	125	%	=	15.4 KVA
RECEPTAC	TOTAL	35.80	KVA					
	1ST	10.00	KVA	X	100	%	=	10.0 KVA
	REMAIN	25.80	KVA	X	50	%	=	12.9 KVA
MOTORS		41.98	KVA	X	100	%	=	42.0 KVA
	LARGEST		KVA	X	125	%	=	0.0 KVA
A/C		0.00	KVA	X	100	%	=	0.0 KVA
WATER HEATING		58.50	KVA	X	125	%	=	73.1 KVA
EXIST PEAK DEMAND		100.00	KVA	X	125	%	=	125.0 KVA
KITCHEN		0.00	KVA	X	65	%	=	0.0 KVA
MISCELLANEOUS		23.00	KVA	X	100	%	=	23.0 KVA
TOTAL	=	362.6 amps					=	301.4 KVA

EXISTING PANELBOARD SCHEDULE - "MDP2"

MAIN: 800A MCB | VOLTAGE: 480/277 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 65,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LTG	REC	MTR	A/C	HTG	KIT	MISC	LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1																									2
3		3			SPACE															SPACE			3		4
5																									6
7													6.3	11.2	11.3	0.0	2.3	0.0	8.5						8
9		3			SPACE								4.3	14.4	13.9	0.0	2.3	0.0	5.7	+ NEW PANEL "6L"	2 1/2"	4/0	3	225	10
11													1.7	10.2	16.8	0.0	0.0	0.0	8.8						12
13																	18.0								14
15	40	3	8	3/4"	TVSS												18.0			WATER HEATER #2	1 1/4"	3	3	100	16
17																	18.0								18
19																									20
21	225	3	4/0	2 1/2"	PANEL "4L"																				22
23																									24
25																									26
27	600	3	EXIST	EXIST	PANEL "1PP"																				28
29																									30
LIGHTING (KVA):					12.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	35.8	42.0	0.0	58.5	0.0	23.0	CONNECTED LOAD (KVA):					171.6

RECEPTACLES (KVA):	35.8				DEMAND LOAD (KVA):	301.4
MOTORS (KVA):	42.0	PHASE A	58	207.8		
A/C (KVA):	0.0	PHASE B	59	211.4	CONNECTED LOAD (AMPS):	206.4
HEATING (KVA):	58.5	PHASE C	56	200.4	DEMAND LOAD (AMPS):	362.6
KITCHEN (KVA):	0.0		KVA	AMPS		
MISCELLANEOUS (KVA):	23.0					

NOTES: PEAK LOAD WAS PROVIDED BY THE UTILITY, RECORDED IN MAY OF 2021. PEAK WAS MULTIPLIED BY 125% PER NEC REQUIREMENTS. EXISTING 800A SERVICE PANEL IS ADEQUATE.

"4P" DEMAND CALCS

LIGHTING		3.80	KVA	X	125	%	=	4.8 KVA
RECEPTAC	TOTAL	15.50	KVA					
	1ST	10.00	KVA	X	100	%	=	10.0 KVA
	REMAIN	5.50	KVA	X	50	%	=	2.8 KVA
MOTORS		1.00	KVA	X	100	%	=	1.0 KVA
	LARGEST		KVA	X	125	%	=	0.0 KVA
A/C		5.10	KVA	X	100	%	=	5.1 KVA
WATER HEATING		0.00	KVA	X	125	%	=	0.0 KVA
FUTURE		______	KVA	X	100	%	=	0.0 KVA
KITCHEN		0.00	KVA	X	65	%	=	0.0 KVA
MISCELLANEOUS		8.00	KVA	X	100	%	=	8.0 KVA
TOTAL	=	87.7 amps					=	31.6 KVA

EXIST PANELBOARD SCHEDULE - "4P"

MAIN: 200 MCB | VOLTAGE: 208/120 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 10,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LTG	REC	MTR	A/C	HTG	KIT	MISC	LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1												1.9		1.1						REC - RM 400,419	3/4"	12	1	20	2
3	20	1	12	3/4"	KILN - RM 402B							1.9		1.1						EWC - CORRIDOR	3/4"	12	1	20	4
5												1.9		1.1						REC - RM 400,401	3/4"	12	1	20	6
7	20	1	12	3/4"	COMPUTER RM 403,401		1.0							1.1						REC - RM 403,404	3/4"	12	1	20	8
9	20	1	12	3/4"	EWC 404							1.0		1.1						REC - RM 403,404	3/4"	12	1	20	10
11	20	1	12	3/4"	MOTORIZED SCREEN							1.0		1.1						REC - RM 402,404	3/4"	12	1	20	12
13	20	1	12	3/4"	FCU-400				1.7					1.1						REC - RM 402,404	3/4"	12	1	20	14
15	20	1	12	3/4"	FCU-402				1.2					1.4						REC - RM 401	3/4"	12	1	20	16
17	20	2	12	3/4"	FCU-403				1.2					0.7						REC - IDF	3/4"	12	1	20	18
19	20	1	12	3/4"	BMS-CONTROLS							0.3								SPARE	3/4"	12	1	20	20
21	20	1	12	3/4"	PUMP/LOUVER			0.5								1.0				FCU-406	3/4"	10	1	30	22
23	20	1	12	3/4"	EXH FANS			0.5												SPARE	3/4"	12	1	20	24
25	20	1	12	3/4"	REC-PLATFORM 400		0.7													SPARE	3/4"	12	1	20	26
27	20	1	12	3/4"	* REC RM 404C		0.5						1.9							TRACK LIGHTING	3/4"	12	1	20	28
29	20	1	12	3/4"	* REC RM 404C		0.5						1.9							TRACK LIGHTING	3/4"	12	1	20	30
31		1			SPACE									1.0						COMP RM 402	3/4"	12	1	20	32
33		1			SPACE									1.0						COMP RM 402	3/4"	12	1	20	34
35		1			SPACE									1.0						COMP RM 402	3/4"	12	1	20	36
37		1			SPACE															SPACE			1		38
39		1			SPACE															SPACE			1		40
41		1			SPACE															SPACE			1		42
LIGHTING (KVA):					3.8	0.0	2.7	1.0	4.1	0.0	0.0	8.0	3.8	12.8	0.0	1.0	0.0	0.0	0.0	CONNECTED LOAD (KVA):					33.4

RECEPTACLES (KVA):	15.5				DEMAND LOAD (KVA):	31.6
MOTORS (KVA):	1.0	PHASE A	10	82.5		
A/C (KVA):	5.1	PHASE B	13	105.0	CONNECTED LOAD (AMPS):	92.7
HEATING (KVA):	0.0	PHASE C	11	90.8	DEMAND LOAD (AMPS):	87.7
KITCHEN (KVA):	0.0		KVA	AMPS		
MISCELLANEOUS (KVA):	8.0					

NOTES: * DENOTES NEW BREAKER IN EXISTING "SPACE". EXISTING IS A SQ. D NQO PANEL.

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS

Hite associates
ARCHITECTURE / PLANNING / TECHNOLOGY
2600 Meridian Drive / Greenville, NC 27834 / tel (252) 757-0333

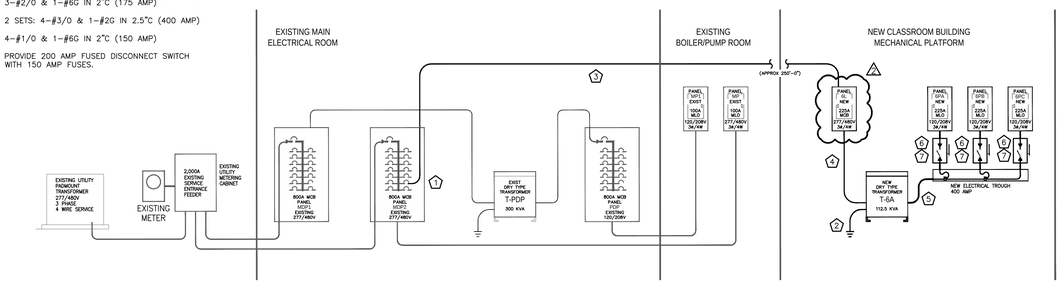
Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

Project No. 22301
Date: 12 APRIL 2023
Drawing no. E 002

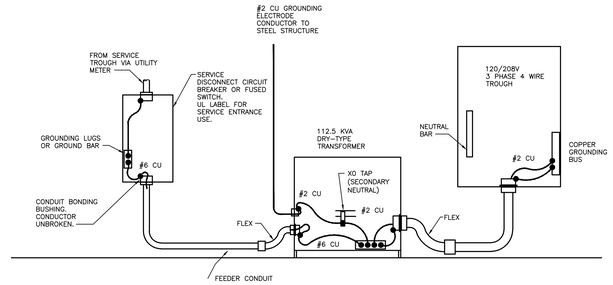
ES Project No: ES23030
ENGINEERING SOURCE of NC, P.A.
102-A2 Regency Blvd. Greenville, NC 27834

ELECTRICAL RISER NOTES:

1. PROVIDE AND INSTALL NEW 225 AMP 3 POLE BREAKER IN EXISTING MAIN SWITCHBOARD.
2. GROUND TRANSFORMER PER TRANSFORMER GROUNDING DETAIL.
3. 4–#4/0 & 1–#4G IN 2.5"C (225 AMP)
4. 3–#2/0 & 1–#6G IN 2"C (175 AMP)
5. 2 SETS: 4–#3/0 & 1–#2G IN 2.5"C (400 AMP)
6. 4–#1/0 & 1–#6G IN 2"C (150 AMP)
7. PROVIDE 200 AMP FUSED DISCONNECT SWITCH WITH 150 AMP FUSES.



003.2 POWER RISER DIAGRAM: 600 WING
SCALE: N.T.S.



003.3 112.5 KVA TRANSFORMER DETAIL
SCALE: N.T.S.

NEW PANELBOARD SCHEDULE - "6L"

MAIN: 225 MCB | VOLTAGE: 480/277 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 43,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	PHASE A B C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1	20	1	12	3/4"	LIGHTING - 621 619 617 615	2.4								2.3							LIGHTING - 601 603 605	3/4"	12	1	20	2
3	20	1	12	3/4"	LIGHTING - 622 620 618 616	2.4								1.9							LIGHTING - 602 604 607 606	3/4"	12	1	20	4
5	20	1	12	3/4"	LIGHTING - PLATFORM	0.6								0.9							LIGHTING - CORRIDOR	3/4"	12	1	20	6
7	20	1	12	3/4"	LIGHTING - MEDIA/GANG RR	1.1								0.5							LIGHTING - EXTERIOR	3/4"	12	1	20	8
9	15	1	12	3/4"	FC-601		2.3													0.4	LIGHTING CONTACTOR LC-1	3/4"	12	1	20	10
11	15	1	12	3/4"	FC-602		2.3								2.3						FC-616	3/4"	12	1	20	12
13	15	1	12	3/4"	FC-603		2.3								2.3						FC-617	3/4"	12	1	20	14
15	15	1	12	3/4"	FC-605		2.3								2.3						FC-618	3/4"	12	1	20	16
17	15	1	12	3/4"	FC-607		2.3								2.3						FC-619	3/4"	12	1	20	18
19	15	1	12	3/4"	FC-611		2.3								2.3						FC-620	3/4"	12	1	20	20
21	15	1	12	3/4"	FC-614		2.3								2.3						FC-621	3/4"	12	1	20	22
23	15	1	12	3/4"	FC-615		2.3								2.3						FC-622	3/4"	12	1	20	24
25	20	1			SPARE													2.3			EWH-2	3/4"	12	2	15	26
27	20	1			SPARE													2.3								28
19	20	1			SPARE																SPARE			1	20	30
31																					SPACE			1		32
33	15	3	12	3/4"	FC-604		1.1														SPACE			1		34
35							1.1														SPACE			1		36
37					XFMR	0.0	11.2	0.8	0.0	0.0	0.0	8.5														38
39	175	3	2/0	2"	PANELS "6PA" "6PB" "6PC"	0.0	14.4	1.1	0.0	0.0	0.0	5.3									TVSS	3/4"	10	3	30	40
41						0.2	10.2	1.7	0.0	0.0	0.0	9.8														42
LIGHTING (KVA):					12.4	6.7	35.8	25.7	0.0	0.0	0.0	22.6		5.6	0.0	16.3	0.0	4.5	0.0	0.4	CONNECTED LOAD (KVA):					117.6
RECEPTACLES (KVA):					35.8																DEMAND LOAD (KVA):					108.9
MOTORS (KVA):					42.0								PHASE A	40	142.9											
A/C (KVA):					0.0								PHASE B	41	148.4						CONNECTED LOAD (AMPS):					141.5
HEATING (KVA):					4.5								PHASE C	38	135.4						DEMAND LOAD (AMPS):					131.0
KITCHEN (KVA):					0.0									KVA	AMPS											
MISCELLANEOUS (KVA):					23.0																					
NOTES:																										

"6L" DEMAND CALCS

LIGHTING	12.35	KVA	X	125 %	=	15.4 KVA
RECEPTAC TOTAL	35.80	KVA				
1ST	10.00	KVA	X	100 %	=	10.0 KVA
REMAIN	25.80	KVA	X	50 %	=	12.9 KVA
MOTORS	41.98	KVA	X	100 %	=	42.0 KVA
LARGEST		KVA	X	125 %	=	0.0 KVA
A/C	0.00	KVA	X	100 %	=	0.0 KVA
WATER HEATING	4.50	KVA	X	125 %	=	5.6 KVA
FUTURE	____	KVA	X	100 %	=	0.0 KVA
KITCHEN	0.00	KVA	X	65 %	=	0.0 KVA
MISCELLANEOUS	23.00	KVA	X	100 %	=	23.0 KVA
TOTAL =	131.0 amps				=	108.9 KVA

NEW PANELBOARD SCHEDULE - "6PB"

MAIN: 225 MLO | VOLTAGE: 208/120 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 22,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	PHASE A B C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1	20	1	12	3/4"	RECEPT - CLASS 615		0.8								0.8						RECEPT - CLASS 616	3/4"	12	1	20	2
3	20	1	12	3/4"	RECEPT - CLASS 615		0.6								0.6						RECEPT - CLASS 616	3/4"	12	1	20	4
5	20	1	12	3/4"	TEACHER/MONITOR 615		0.6				0.5									0.5	TEACHER/MONITOR 616	3/4"	12	1	20	6
7	20	1	12	3/4"	CHARGE CART 615						1.0									0.5	CHARGE CART 616	3/4"	12	1	20	8
9	20	1	12	3/4"	RECEPT - RESOURCE		0.8								1.2						RECEPT - PLATFORM	3/4"	12	1	20	10
11	20	1	12	3/4"	TEACHER/MONITOR 614						0.5									0.8	IDF DATA BOARD	3/4"	12	1	20	12
13	20	1	12	3/4"	RECEPT - CORRIDOR		1.0													1.0	EWC (GFI BREAKER)	3/4"	12	1	20 *	14
15	20	1	12	3/4"	RECEPT - CUSTODIAN 613		0.8								0.8						RECEPT - PLANNING 606	3/4"	12	1	20	16
17	20	1	12	3/4"	RECEPT - RESOURCE 607		1.0								0.4						RECEPT - PLANNING 606	3/4"	12	1	20	18
19	20	1	12	3/4"	TEACHER/MONITOR 607						0.5				0.4						RECEPT - PLANNING COUNTER	3/4"	12	1	20	20
21	20	1	12	3/4"	RECEPT - CORRIDOR		1.0								0.4						RECEPT - PLANNING COUNTER	3/4"	12	1	20	22
23	20	1	12	3/4"	LIGHTING - RESTROOMS	0.2		0.6												1.2	PLANNING 606 REF.	3/4"	12	1	20	24
25	20	1	12	3/4"	EF-B			0.9												0.5	HVAC CONTROLS	3/4"	12	1	20	26
27	15	2	12	3/4"	DHP-624			1.1												0.8	UV LIGHTS (EAST)	3/4"	12	1	20 *	28
29								1.1												0.8	UV LIGHTS (WEST)	3/4"	12	1	20 *	30
31	20	1			SPARE																SPARE			1	20	32
33	20	1			SPARE																SPARE			1	20	34
35	20	1			SPARE																SPARE			1	20	36
37																					SPACE			1		38
39	30	2	10	3/4"	TVSS																SPACE			1		40
41																					SPACE			1		42
LIGHTING (KVA):					0.2	0.2	6.6	3.6	0.0	0.0	0.0	2.5		0.0	4.6	0.0	0.0	0.0	0.0	0.1	CONNECTED LOAD (KVA):					23.6
RECEPTACLES (KVA):					11.2																DEMAND LOAD (KVA):					23.1
MOTORS (KVA):					3.6								PHASE A	7	61.2											
A/C (KVA):					0.0								PHASE B	8	67.5						CONNECTED LOAD (AMPS):					65.6
HEATING (KVA):					0.0								PHASE C	8	68.3						DEMAND LOAD (AMPS):					64.1
KITCHEN (KVA):					0.0									KVA	AMPS											
MISCELLANEOUS (KVA):					8.6																					
NOTES: * NEXT TO BREAKER AMPERAGE INDICATES BREAKER SHALL BE A GFCI BREAKER.																										

NEW PANELBOARD SCHEDULE - "6PA"

MAIN: 225 MLO | VOLTAGE: 208/120 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 22,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	PHASE A B C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1	20	1	12	3/4"	RECEPT - CLASS 621		0.8								0.8						RECEPT - CLASS 622	3/4"	12	1	20	2
3	20	1	12	3/4"	RECEPT - CLASS 621		0.6								0.6						RECEPT - CLASS 622	3/4"	12	1	20	4
5	20	1	12	3/4"	TEACHER/MONITOR 621		0.6					0.5			0.6					0.5	TEACHER/MONITOR 622	3/4"	12	1	20	6
7	20	1	12	3/4"	CHARGE CART 621							1.0			0.6					1.0	CHARGE CART 622	3/4"	12	1	20	8
9	20	1	12	3/4"	RECEPT - CLASS 619		0.8								0.8						RECEPT - CLASS 620	3/4"	12	1	20	10
11	20	1	12	3/4"	RECEPT - CLASS 619		0.6								0.6						RECEPT - CLASS 620	3/4"	12	1	20	12
13	20	1	12	3/4"	TEACHER/MONITOR 619		0.6					0.5			0.6					0.5	TEACHER/MONITOR 620	3/4"	12	1	20	14
15	20	1	12	3/4"	CHARGE CART 619							1.0			0.6					1.0	CHARGE CART 620	3/4"	12	1	20	16
17	20	1	12	3/4"	RECEPT - CLASS 617		0.8								0.8						RECEPT - CLASS 618	3/4"	12	1	20	18
19	20	1	12	3/4"	RECEPT - CLASS 617		0.6								0.6						RECEPT - CLASS 618	3/4"	12	1	20	20
21	20	1	12	3/4"	TEACHER/MONITOR 617		0.6					0.5			0.6					0.5	TEACHER/MONITOR 618	3/4"	12	1	20	22
23	20	1	12	3/4"	CHARGE CART 617							1.0								1.0	CHARGE CART 618	3/4"	12	1	20	24
25	20	1	12	3/4"	RECEPT - CORRIDOR		1.0														SPARE	3/4"	12	1	20	26
27	20	1	12	3/4"	RECEPT - CORRIDOR		1.0														SPARE	3/4"	12	1	20	28
29	20	1	12	3/4"	RECEPT - EXTERIOR		0.6														SPARE	3/4"	12	1	20	30
31	20	1	12	3/4"	SPARE																SPACE			1		32
33	20	1	12	3/4"	SPARE																SPACE			1		34
35	20	1	12	3/4"	SPARE																SPACE			1		36
37																					SPACE			1		38
39	30	3	10	3/4"	TVSS																SPACE			1		40
41																					SPACE			1		42
LIGHTING (KVA):					0.0	0.0	8.6	0.0	0.0	0.0	0.0	4.5		0.0	6.0	0.0	0.0	0.0	0.0	4.5	CONNECTED LOAD (KVA):					23.6
RECEPTACLES (KVA):					14.6																DEMAND LOAD (KVA):					21.3
MOTORS (KVA):					0.0								PHASE A	8	66.7											
A/C (KVA):					0.0								PHASE B	8	66.7						CONNECTED LOAD (AMPS):					65.5
HEATING (KVA):					0.0								PHASE C	8	63.3						DEMAND LOAD (AMPS):					59.1
KITCHEN (KVA):					0.0									KVA	AMPS											
MISCELLANEOUS (KVA):					9.0																					
NOTES: * NEXT TO BREAKER AMPERAGE INDICATES BREAKER SHALL BE A GFCI BREAKER.																										

"6PA" DEMAND CALCS

LIGHTING	0.00	KVA	X	125 %	=	0.0 KVA
RECEPTAC TOTAL	14.60	KVA				
1ST	10.00	KVA	X	100 %	=	10.0 KVA
REMAIN	4.60	KVA	X	50 %	=	2.3 KVA
MOTORS	0.00	KVA	X	100 %	=	0.0 KVA
LARGEST		KVA	X	125 %	=	0.0 KVA
A/C	0.00	KVA	X	100 %	=	0.0 KVA
WATER HEATING	0.00	KVA	X	125 %	=	0.0 KVA
FUTURE	____	KVA	X	100 %	=	0.0 KVA
KITCHEN	0.00	KVA	X	65 %	=	0.0 KVA
MISCELLANEOUS	9.00	KVA	X	100 %	=	9.0 KVA
TOTAL =	59.1 amps				=	21.3 KVA

"6PB" DEMAND CALCS

LIGHTING	0.20	KVA	X	125 %	=	0.3 KVA
RECEPTAC TOTAL	11.20	KVA				
1ST	10.00	KVA	X	100 %	=	10.0 KVA
REMAIN	1.20	KVA	X	50 %	=	0.6 KVA
MOTORS	3.64	KVA	X	100 %	=	3.6 KVA
LARGEST		KVA	X	125 %	=	0.0 KVA
A/C	0.00	KVA	X	100 %	=	0.0 KVA
WATER HEATING	0.00	KVA	X	125 %	=	0.0 KVA
FUTURE	____	KVA	X	100 %	=	0.0 KVA
KITCHEN	0.00	KVA	X	65 %	=	0.0 KVA
MISCELLANEOUS	8.60	KVA	X	100 %	=	8.6 KVA
TOTAL =	64.1 amps				=	23.1 KVA

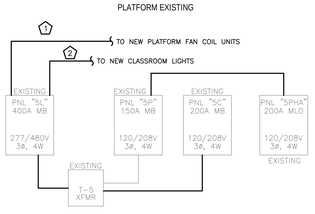
NEW PANELBOARD SCHEDULE - "6PC"

MAIN: 225 MLO | VOLTAGE: 208/120 | PHASE: 3 | WIRE: 4 | MOUNTING: SURFACE | AIC: 22,000 | BUS BARS: COPPER

CKT #	BKR TRIP	POLE	WIRE SIZE	COND SIZE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	PHASE A B C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	KIT	MISC	DESCRIPTION	COND SIZE	WIRE SIZE	POLE	BKR TRIP	CKT #
1	20	1	12	3/4"	RECEPT - CLASS 601		0.8								0.8						RECEPT - CLASS 602	3/4"	12	1	20	2
3	20	1	12	3/4"	RECEPT - CLASS 601		0.8								0.8						RECEPT - CLASS 602	3/4"	12	1	20	4
5	20	1	12	3/4"	TEACHER/MONITOR 601						0.5									0.5	TEACHER/MONITOR 602	3/4"	12	1	20	6
7	20	1	12	3/4"	CHARGE CART 601						0.5									0.5	CHARGE CART 602	3/4"	12	1	20	8
9	20	1	12	3/4"	RECEPT - CLASS 603		0.8								0.8						RECEPT - CLASS 604	3/4"	12	1	20	10
11	20	1	12	3/4"	RECEPT - CLASS 603		0.8								0.8						RECEPT - CLASS 604	3/4"	12	1	20	12
13	20	1	12	3/4"	TEACHER/MONITOR 603						0.5									0.5	TEACHER/MONITOR 604	3/4"	12	1	20	14
15	20	1	12	3/4"	CHARGE CART 603						0.5									0.5	CHARGE CART 604	3/4"	12	1	20	16
17	20	1	12	3/4"	RECEPT - CLASS 605		0.8								1.2						RECEPT - CORRIDOR	3/4"	12	1	20	18
19	20	1	12	3/4"	RECEPT - CLASS 605		0.8								0.8						RECEPT - EXTERIOR	3/4"	12	1	20	20
21	20	1	12	3/4"	TEACHER/MONITOR 605						0.5										SPARE			1	20	22
23	20	1	12	3/4"	CHARGE CART 605						0.5										SPARE			1	20	24
25	20	1			SPARE																SPARE			1	20	26
27	20	1			SPARE																SPARE			1	20	28
29	20	1			SPARE																SPARE			1	20	30
31		1			SPACE																SPACE			1		32
33		1			SPACE																SPACE			1		34
35		1			SPACE																SPACE			1		36
37																					SPACE			1		38
39	30	3	10	3/4"	TVSS																SPACE			1		40
41																					SPACE			1		42
LIGHTING (KVA):					0.0	0.0	4.8	0.0	0.0	0.0	0.0	3.0		0.0	5.2	0.0	0.0	0.0	0.0	2.0	CONNECTED LOAD (KVA):					15.0
RECEPTACLES (KVA):					10.0																DEMAND LOAD (KVA):					15.0
MOTORS (KVA):					0.0								PHASE A	5	43.3											
A/C (KVA):					0.0								PHASE B	5	39.2						CONNECTED LOAD (AMPS):					41.6
HEATING (KVA):					0.0								PHASE C	5	42.5						DEMAND LOAD (AMPS):					41.6
KITCHEN (KVA):					0.0									KVA	AMPS											
MISCELLANEOUS (KVA):					5.0																					
NOTES: * NEXT TO BREAKER AMPERAGE INDICATES BREAKER SHALL BE A GFCI BREAKER.																										

"6PC" DEMAND CALCS

LIGHTING	0.00	KVA	X	125 %	=	0.0 KVA
RECEPTAC TOTAL	10.00	KVA				
1ST	10.00	KVA	X	100 %	=	10.0 KVA
REMAIN	0.00	KVA	X	50 %	=	0.0 KVA
MOTORS	0.00	KVA	X	100 %	=	0.0 KVA
LARGEST		KVA	X	125 %	=	0.0 KVA
A/C	0.00	KVA	X	100 %	=	0.0 KVA
WATER HEATING	0.00	KVA	X	125 %	=	0.0 KVA
FUTURE	____	KVA	X	100 %	=	0.0 KVA
KITCHEN	0.00	KVA	X	65 %	=	0.0 KVA
MISCELLANEOUS	5.00	KVA	X	100 %	=	5.0 KVA
TOTAL =	41.6 amps				=	15.0 KVA



ELECTRICAL RISER NOTES:

1. 2–#12 & 1–#12 G. IN 3/4"C (TYP PER CKT)
2. NEW CLASSROOM LIGHTING CIRCUITS. SEE PANEL SCHED.
3. 2–#12 & 1–#12G IN 3/4"C (TYP FOR 1P–20A CKTS). SEE PANEL SCHEDULE

003.1 POWER RISER DIAGRAM: 500 WING
SCALE: N.T.S.

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS

Hite associates
ARCHITECTURE / PLANNING / TECHNOLOGY
2600 Meridian Drive / Greenville, NC 27834 / tel (252) 757-0333

Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

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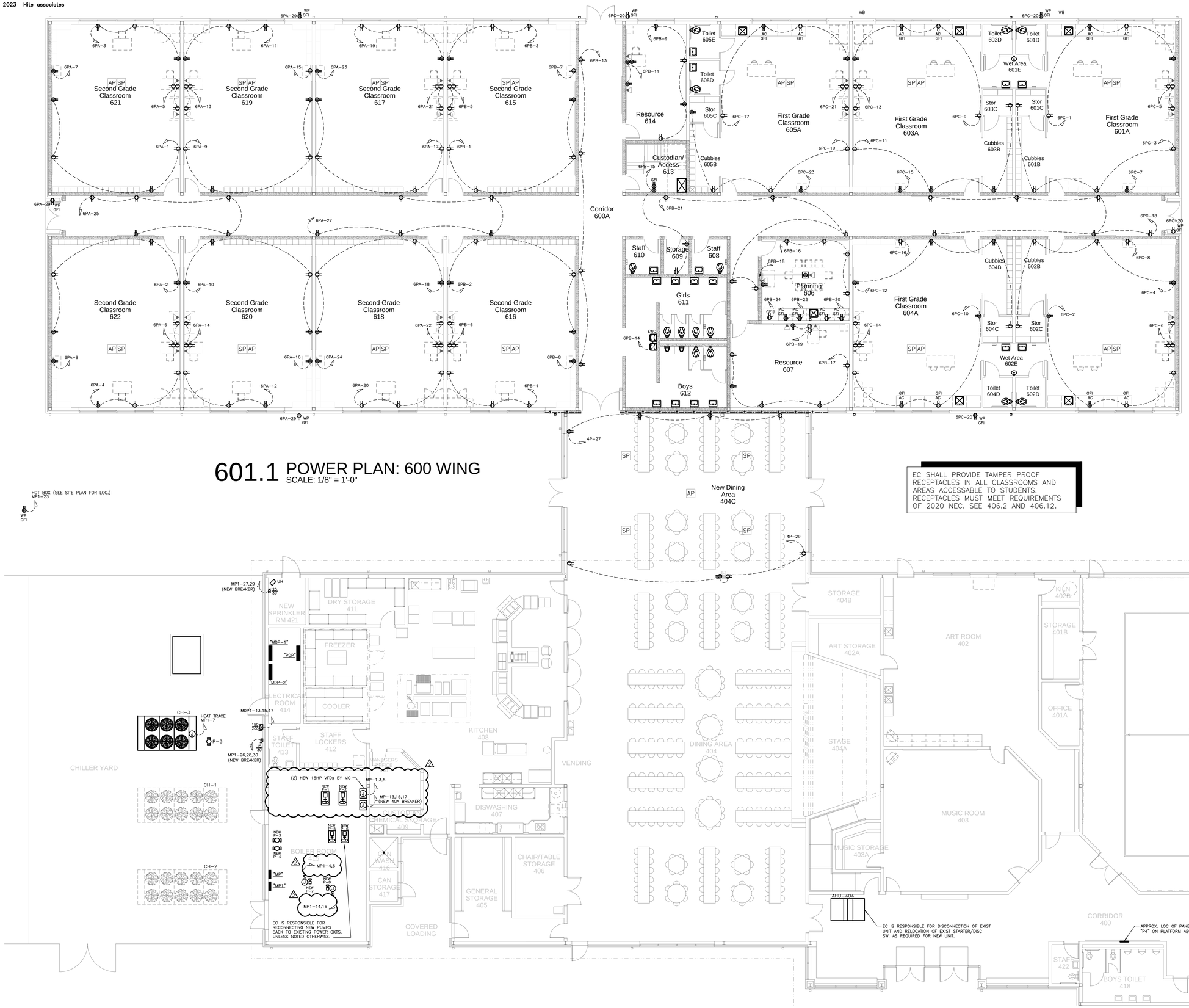
ES Project No: ES23030

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER D. WILSON POPE 7/28/23

Project No. 22301
Date: 12 APRIL 2023
Drawing no. E 003



601.1 POWER PLAN: 600 WING
SCALE: 1/8" = 1'-0"

EC SHALL PROVIDE TAMPER PROOF RECEPTACLES IN ALL CLASSROOMS AND AREAS ACCESSABLE TO STUDENTS. RECEPTACLES MUST MEET REQUIREMENTS OF 2020 NEC. SEE 406.2 AND 406.12.

601.2 EXISTING BLDG POWER PLAN: 400 WING
SCALE: 1/8" = 1'-0"

No.	Date	Revision
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS
2	7/28/23	ADDENDUM # 2

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Project No. 22301
Date: 12 APRIL 2023
Drawing no. E 601

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ES Project No: ES23030
D. Johnson Pan 7/28/23

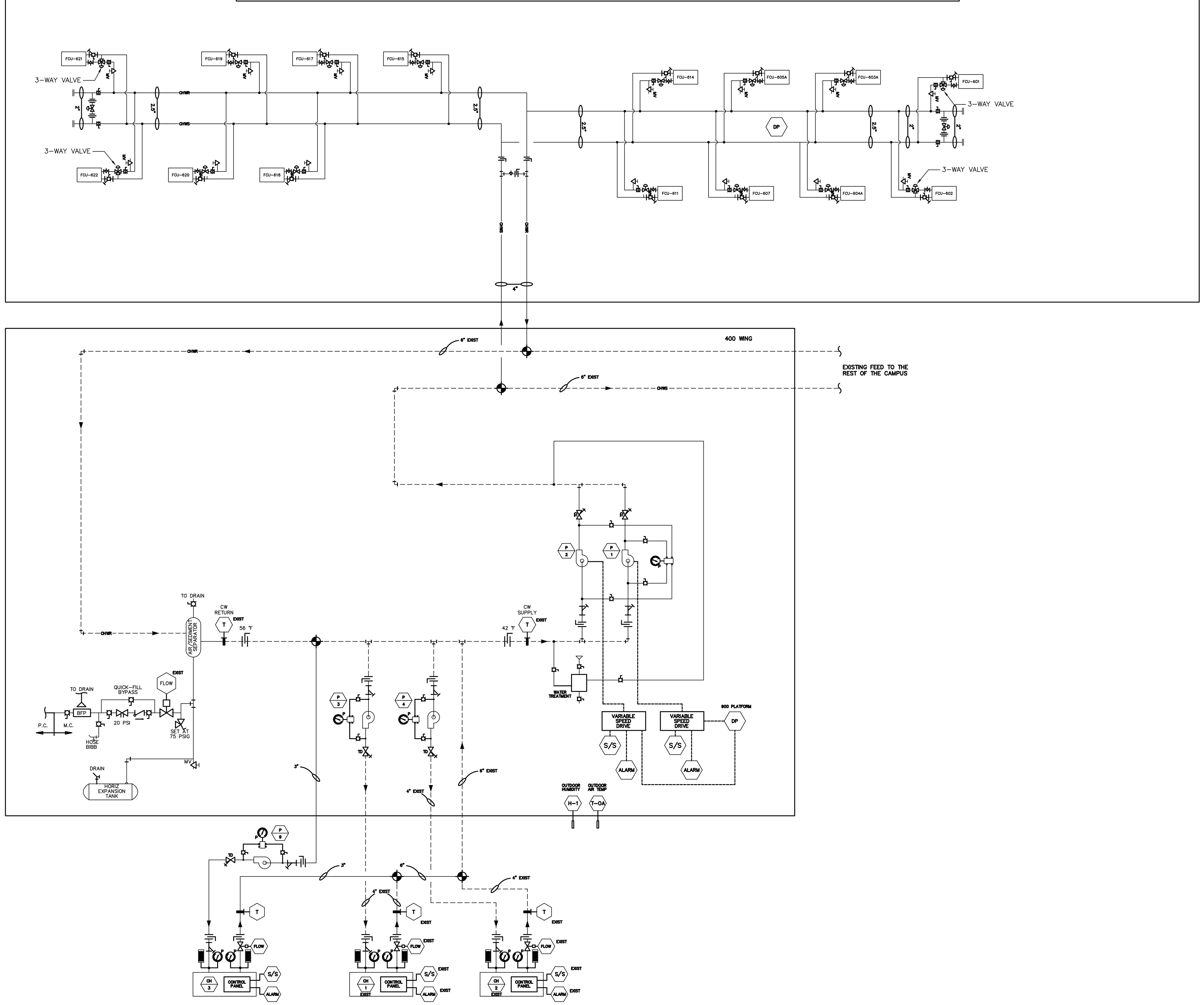
CHILLER CONTROL:

START/STOP: BMS shall enable Chiller(s) once water flow is proven in respective primary chiller loops. Chiller Controller shall index Chiller(s) on once building return water temperature is above 46°F. Chiller Controller shall modulate cooling stages based on building return water temperature. Chiller Controller shall index Chiller(s) off once building return water temperature reaches 42°F.

CHILLED WATER SYSTEM CONTROL: CHILLER PRIMARY PUMP:

Chiller pump CHP-1 shall be enabled by BMS based on a call for cooling. Pump Controller shall index Pump CHP-1 on when building return water temperature rises above 46°F (adjustable). BMS shall index on Chiller 1 once proof of water flow is established in the Primary Water Loop. Chiller 1 shall be indexed off once building return water temperature is below 42°F. Pump Controller shall index CHP-1 off once Chiller 1 has been indexed off. BMS shall monitor pump status via motor amperage draw.

BUILDING LOOP SECONDARY PUMPS: Secondary pumps shall be installed in parallel configuration and shall be controlled by Pump Controller. BMS shall enable and disable secondary pumps based on an owner supplied occupied and unoccupied schedule. During occupied times the Pump Controller shall index secondary pumps on. During unoccupied times Pump Controller shall index Secondary pump on once a call for cooling is received from the BMS. Once the call for cooling has been satisfied, the Pump Controller shall index secondary pump off.



003.1 CHILLED WATER FLOW DIAGRAM
SCALE: N.T.S.

ENGINEERING SOURCE of NC, P.A.
ES Project No. ES23030

No.	Date	Revision
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS
2	7/28/23	ADDENDUM # 2

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Project No. 22301
Date: 12 APRIL 2023
Drawing no. M 003

BOILER CONTROL:

START/STOP: Boiler DDC controllers shall be linked together and shall control the boiler(s) for modulating heat output, boiler circulator pump activation, and adjustable water temperature reset based on outdoor air temperature signal from BMS. Boiler DDC controller(s) shall also control lead/lag configuration and shall be rotated weekly (adjustable) or in accordance with owner preference. BMS shall index lead-lag boiler DDC controller to provide variable water temperature system using adjustable reset ratio based on outdoor temperature with a minimum water reset temperature of 130 deg F. Boiler DDC controller(s) shall cascade boilers and boiler stages to achieve HW supply temperature setpoint target by comparing the actual HW supply temperature to its setpoint.

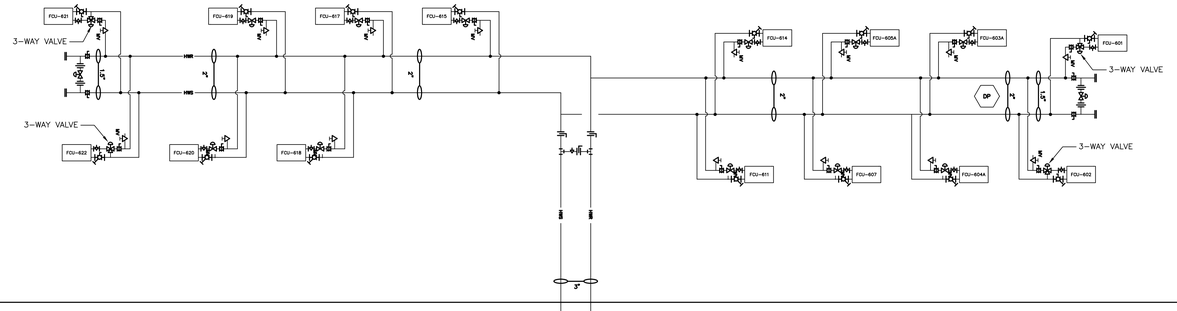
BURNER CONTROLS: Flame monitoring controls by others; see Boiler specification. BMS shall monitor failure signal.

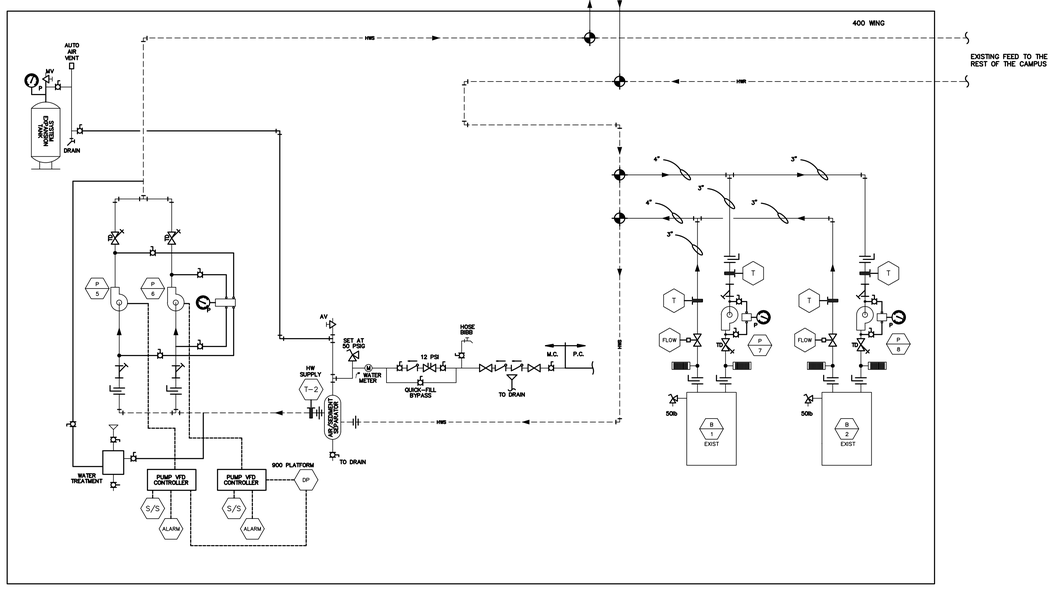
BOILER CIRCULATOR PUMPS: Boiler Circulator Pumps shall be controlled by boiler's pump contacts. Controls Contractor shall provide a relay and 120V circuit for Boiler Circulator Pumps and connect relay circuit to boiler circulator activation circuit.

BUILDING LOOP SECONDARY PUMPS: Secondary pumps shall be installed in parallel configuration and shall be controlled by Pump Controller in Lead/Lag configuration. Pump Controller shall allow either building loop pump to operate as the lead pump. Lead pump designation shall be rotated weekly (adjustable) or in accordance with owner preference. Pump Controller shall modulate pump speed based on calculated differential setpoint. BMS shall enable and disable secondary pumps based on owner supplied occupied and unoccupied schedule. During occupied times the Pump Controller shall index secondary pumps on to minimum flow (32 GPM). As heating valves open, Pump Controller shall modulate Secondary pump speed to maintain differential setpoint. During unoccupied times Pump Controller shall index Secondary pump on to minimum speed once a call for heating is received from the BMS. Pump Controller shall modulate pump speed based on calculated differential pressure setpoint. Once the call for heating has been satisfied, the Pump Controller shall index secondary pump off.

SAFETIES: Provide single boiler emergency shut-down red switch with alarm cover equal to Stopper II at boiler room exit door. Shut-down switch shall shut-down all boilers in Boiler Room.

900 WING CLASSROOM ADDITION PLATFORM





004.1 HOT WATER FLOW DIAGRAM
SCALE: N.T.S.

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS

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Project No. 22301
Date: 12 APRIL 2023
Drawing no. M 004

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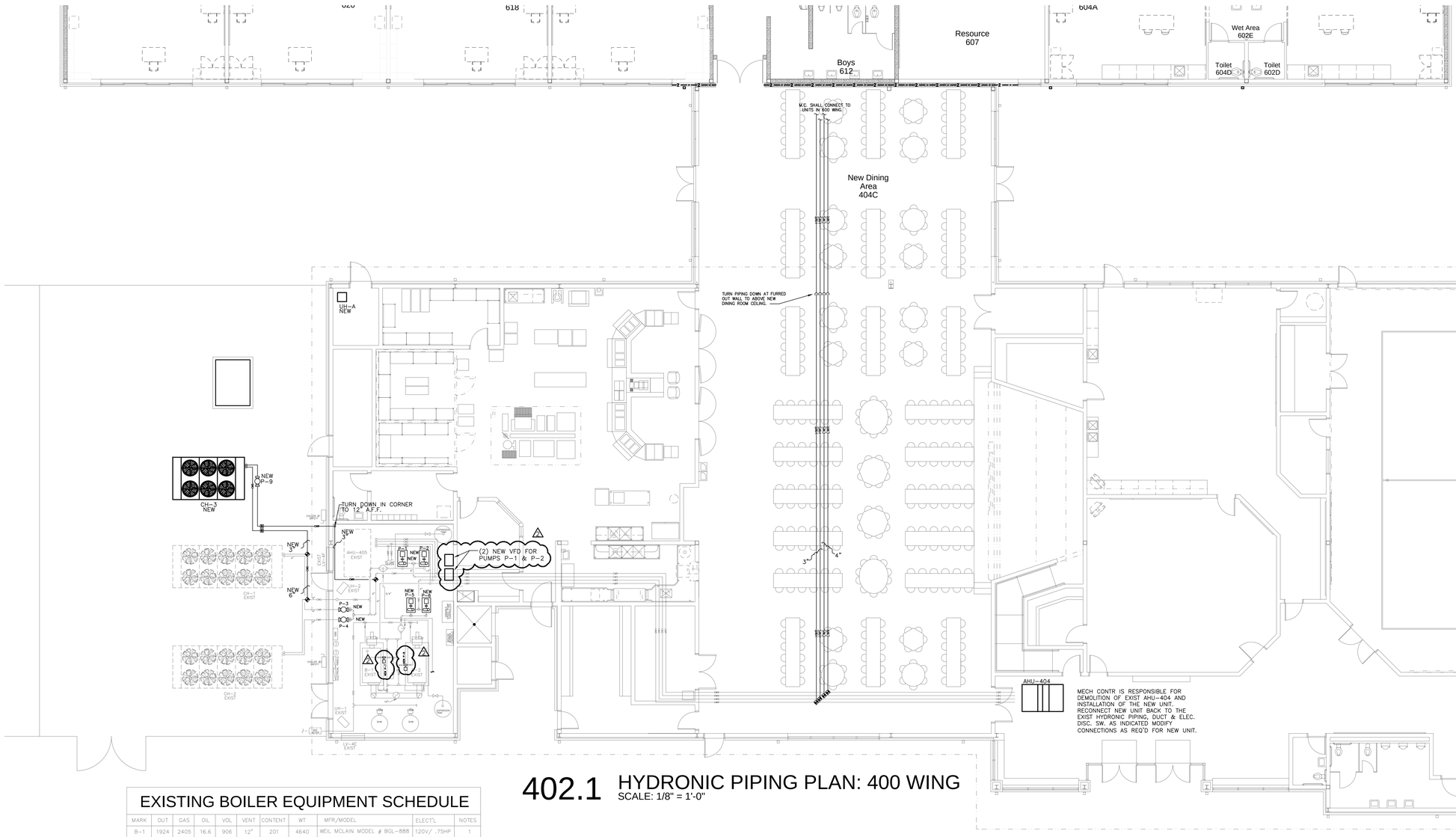
7/28/23



402.1 HYDRONIC PIPING PLAN: 400 WING
SCALE: 1/8" = 1'-0"

GENERAL MECHANICAL PLAN NOTES:

1. M.C. SHALL THOROUGHLY TEST ALL EXISTING HVAC SYSTEMS INDICATED TO REMAIN PRIOR TO THE BEGINNING OF DEMOLITION. DOCUMENT ANY INOPERABLE SYSTEM.
2. M.C. SHALL BE RESPONSIBLE FOR RELOCATION OF ALL HVAC EQUIP. HINDERING THE PROGRESS OF OTHER TRADES.
3. ANY EXISTING HVAC DEVICE OR SYSTEM NOT REMOVED SHALL REMAIN OPERATIONAL FOLLOWING COMPLETION OF PROJECT.
4. EXISTING DUCT IS SHOWN IN APPROXIMATE LOCATIONS. FIELD VERIFY SIZES AND LOCATIONS PRIOR BEGINNING ANY DUCT CONSTRUCTION OR ORDERING ANY EQUIPMENT/MATERIAL.
5. SEE ARCHITECTURAL PLANS FOR CEILING TYPES AND ORIENTATIONS PRIOR TO ORDERING AIR DISTRIBUTION. COORDINATE GRILLE LOCATION WITH ARCHITECTURAL RCP.
6. M.C. SHALL BALANCE EACH SYSTEM, NEW AND EXISTING, TO CFM'S INDICATED. PROVIDE A TEST & BALANCE REPORT FROM AN INDEPENDENT COMPANY TO THE OWNER AND ENGINEER PRIOR TO JOB CLOSE-OUT.

EXISTING BOILER EQUIPMENT SCHEDULE

MARK	OUT	GAS	OIL	VOL	VENT	CONTENT	WT	MFR/MODEL	ELECT'L	NOTES
B-1	1924	2405	16.6	906	12"	201	4640	WEIL MCLAIN MODEL # BGL-888	120V/ .75HP	1
B-2	1389	1780	11.8	639	10"	155	3500	WEIL MCLAIN MODEL # BGL-688	120V/ .75HP	1

NOTES:
1) EXISTING BOILER TO REMAIN.

ABBREVIATIONS: OUT = NET RATED OUTPUT (MBtuH)
GAS = NATURAL GAS INPUT (MBtuH)
OIL = LIGHT OIL CAPACITY (GPH)
VOL = STACK GAS VOLUME

EXISTING AIR-COOLED LIQUID CHILLER SCHEDULE

MARK	CAP	EER	KW	GPM	LWT	EWT	STEPS	WT	MFR/MODEL	COMP	ELECT'L	MCA	MOCP	NOTES
CH-1	139.0	9.5	161.6	350	42°	54°	5 MIN.	4800	TRANE # ASCEND 160	5	460V/3HP	319	350	1
CH-2	139.0	9.5	161.6	350	42°	54°	5 MIN.	4800	TRANE # ASCEND 160	5	460V/3HP	319	350	1

NOTES:
1) EXISTING CHILLER TO REMAIN.

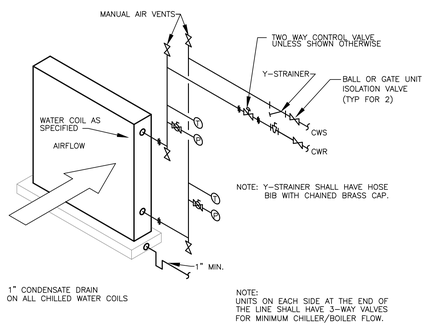
ABBREVIATIONS: CAP = CAPACITY @ LWT
EER = ENERGY EFFICIENCY RATIO
KW = POWER INPUT (WATTS X 1000)
VOL = STACK GAS VOLUME
LWT = LEAVING WATER TEMP (°F)
EWT = ENTERING WATER TEMP (°F)
MCA = MAX. CIRCUIT AMPACITY
MOCP = MAX. OVER CURRENT PROTECTION

REPLACEMENT PUMP SCHEDULE

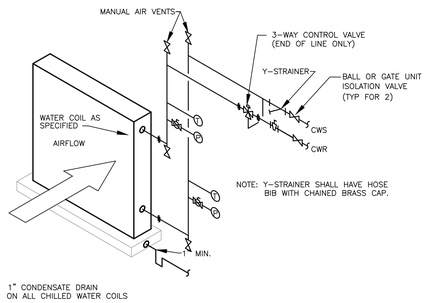
MARK	TYPE	SERVICE	GPM	HEAD	EFF	HP	RPM	ELECT'L	FLA	CONTROL	MFR/MODEL	NOTES
P-1	END SUCTION CENTRIFUGAL	CW SYSTEM PUMP	350	80	65	15	1750	480V/3PH	21.0	VARI-SPEED	BELL & GOSSETT SERIES 1510	1,3
P-2	END SUCTION CENTRIFUGAL	CW SYSTEM PUMP	350	80	65	15	1750	480V/3PH	21.0	VARI-SPEED	BELL & GOSSETT SERIES 1510	1,3
P-3	HORIZ. IN-LINE	CHILLER-1	280	35	55	5	1750	480V/3PH	7.6	CHILLER/ON	BELL & GOSSETT SERIES 80	2
P-4	HORIZ. IN-LINE	CHILLER-2	280	35	55	5	1750	480V/3PH	7.6	CHILLER/ON	BELL & GOSSETT SERIES 80	2
P-5	END SUCTION CENTRIFUGAL	HW SYSTEM PUMP	120	70	65	5	1750	480V/3PH	7.6	VARI-SPEED	BELL & GOSSETT SERIES 1510	2
P-6	END SUCTION CENTRIFUGAL	HW SYSTEM PUMP	120	70	65	5	1750	480V/3PH	7.6	VARI-SPEED	BELL & GOSSETT SERIES 1510	2
P-7	HORIZ. IN-LINE	BOILER CIRCULATOR	130	25	63	1.5	1750	208V/1PH	10.0	AQUASTAT	BELL & GOSSETT SERIES 60	1
P-8	HORIZ. IN-LINE	BOILER CIRCULATOR	95	25	71	1.5	1750	208V/1PH	10.0	AQUASTAT	BELL & GOSSETT SERIES 60	1

NOTES:
1) REMOVE EXISTING PUMP, INSTALL NEW PUMP BACK IN PLACE, RECONNECT TO EXIST CONTROLS, NEW FEEDER BY EC.
2) REMOVE EXISTING PUMP AND INSTALL NEW PUMP BACK IN ITS PLACE, CONNECT BACK TO EXISTING CONTROL AND POWER WIRING.
3) REMOVE EXISTING VFD SERVING PUMPS, INSTALL NEW 30HP VFD W/BY-PASS AND RECONNECT TO NEW PUMPS.

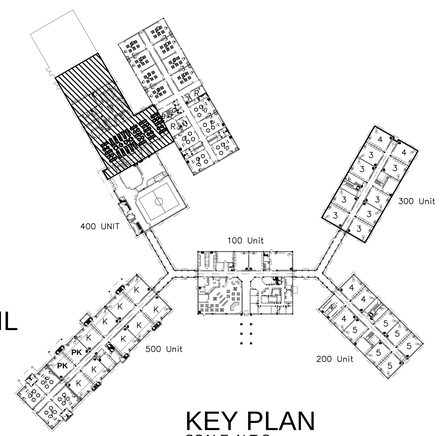
ABBREVIATIONS: HEAD = FRICTION LOSS (ft)
EFF = MIN. PUMP EFFICIENCY (%)
GPM = FLOW RATE
FLA = PUMP MOTOR FULL LOAD AMPS



402.2 2-WAY VALVE COIL PIPING DETAIL
SCALE: NONE



402.3 3-WAY VALVE COIL PIPING DETAIL
SCALE: NONE



KEY PLAN
SCALE: N.T.S.

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7/28/23

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS

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Additions to
Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

Project No. 22301
Date: 12 APRIL 2023
Drawing no. M 402

PLUMBING GENERAL NOTES:

1. THE ENTIRE PLUMBING SYSTEM SHALL BE IN ACCORDANCE WITH N.C. PLUMBING CODE AND LOCAL PLUMBING INSPECTOR.

2. ALL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES PRIOR TO INSTALLATION. CONTRACTOR SHALL COORDINATE ROUTING OF ALL PIPING WITH EXISTING CONDITIONS AND SHALL PROVIDE ANY NECESSARY OFFSETS, TEES, REROUTING, ETC. REQUIRED FOR A COMPLETE AND COORDINATED INSTALLATION.

3. THE PLUMBING CONTRACTOR SHALL COORDINATE THE INSTALLATION OF PLUMBING FIXTURES & EQUIPMENT WITH OTHER PRIME CONTRACTORS PRIOR TO INSTALLATION TO AVOID CONFLICTS. CONTACT ARCHITECT IF ALTERNATE INSTALLATION METHOD IS REQUIRED.

4. THE LOCATIONS OF KNOWN EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE METHOD & HAVE NOT BEEN VERIFIED; CONTRACTOR SHALL DETERMINE EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK & IS RESPONSIBLE FOR ANY DAMAGE INCURRED BY FAILURE TO DO SO. CALL UTILITY LOCATOR SERVICE 48 HOURS BEFORE EXCAVATION (1-800-632-4949). ALSO CONTACT SCHOOL MAINTINANCE DEPARTMENT AND USE PRIVATE UTILITY LOCATOR SERVICE AS NEED TO IDENTIFY ALL EXISTING UNDERGROUND UTILITIES.

5. THESE PLANS ARE DIAGRAMMATIC. DO NOT SCALE THESE DRAWINGS. REFER TO LARGEST SCALE ARCHITECTURAL DRAWINGS. CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS, TEES, ELBOWS, ETC. FOR A COMPLETE WORKING PLUMBING SYSTEM.

6. THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES RELATED TO PERMITTING, INSPECTIONS, TAPS, ETC.

7. CONTRACTOR SHALL COORDINATE ANY PLUMBING SYSTEM REQUIRING SHUTDOWN WITH THE OWNER 48 HOURS IN ADVANCE.

8. HVAC DUCTWORK HAS RIGHT-OF-WAY OVER PLUMBING PIPES; COORDINATE AS REQUIRED. NO PIPING SHALL BE INSTALLED OVER ELECTRICAL EQUIPMENT SUCH AS SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, ETC., PER NEC ARTICLE 110.

9. ALL SUPPLY, DRAIN, AND VENT PIPING SHALL BE CONCEALED (EXCEPT AT FIXTURES) UNLESS OTHERWISE NOTED. ALL PIPE CONTAINING LIQUIDS INSIDE BUILDING ARE TO BE LOCATED WITHIN THE "INSULATION ENVELOPE".

10. ALL DOMESTIC WATER PIPING SHOWN IS ABOVE, BETWEEN FLOOR JOIST/WITHIN WALLS, AND IN CRAWL SPACES UNLESS OTHERWISE NOTED.

11. ALL DOMESTIC WATER PIPING SHALL BE TYPE L COPPER ABOVE GRADE, TYPE K BELOW WITH NO JOINTS UNDER SLAB. INSULATE HOT AND COLD WATER PIPING AS SPECIFIED. PRESSURE TEST SYSTEM AT 100 PSIG FOR 24 HOURS OR 150 PSIG FOR 4 HOURS. COPPER TUBING BELOW GRADE SHALL BE UTILIZED AS THE ELECTRICAL SYSTEM GROUNDING ELECTRODE.

12. ALL WATER PIPING SHALL BE INSULATED WITH PRE-FORMED FIBERGLASS TYPE INSULATION WITH THE FLAME DENSITY RATING NOT EXCEEDING 25 & THE SMOKE DENSITY RATING NOT EXCEEDING 50. THICKNESS FOR COLD WATER PIPING SHALL BE 1/2" THICK. THICKNESS FOR HOT WATER & RETURN PIPING SHALL BE 1" THICK. INSTALL SADLES AS REQUIRED IN ALL LOCATIONS TO PREVENT COMPRESSION OF INSULATION.

13. ALL BRANCH LINES SHALL HAVE SHUT-OFF VALVES. ALL DOMESTIC WATER BALL VALVES SHALL BE BRASS BODY, FULL PORT, CHROME PLATED BALL. TEFLON SEATS 150 # WSP, FOR SIZES 1/2" THRU 2". PROVIDE VALVE HANDLE EXTENSIONS AS REQUIRED FOR INSULATION.

14. ALL SANITARY SEWER PIPING SHOWN IS BELOW SLAB/WITHIN WALLS UNLESS NOTED OTHERWISE. ALL SANITARY VENT PIPING SHOWN IS ABOVE CEILING/WITHIN WALLS UNLESS NOTED OTHERWISE.

15. ALL WASTE AND VENT PIPING SHALL BE SCHEDULE 40 PVC-DWV CONFORMING TO ASTM D 2665. ALL JOINTS SHALL BE SOLVENT WELDED TYPE CONFORMING TO ASTM D 2665/2949/3034, ASTM F 891, CSA B182.2,CSA CAN/CSA-B182.4

16. VENT LINES SHALL SLOPE UP TO VTR.

17. ALL PIPING SYSTEMS SHALL BE SUPPORTED AS REQUIRED BY NC PLUMBING CODE AND MANUFACTURERS RECOMMENDATIONS.

18. ALL PIPING PENETRATIONS THRU NEW AND EXISTING WALLS SHALL BE SEALED TO EQUAL RATING OF THE NEW/EXISTING WALL.

19. PROVIDE CHROME-PLATED ESCUTCHEON PLATES WHERE PIPES PASS THROUGH FINISHED WALLS, CEILINGS, OR FLOORS.

20. ALL PLUMBING SYSTEMS SHALL BE TESTED AS REQUIRED PER N.C. PLUMBING CODE.

21. THE PLUMBING CONTRACTOR SHALL COORDINATE ALL UNDER SLAB PIPING WITH ALL STRUCTURAL FOUNDATIONS, P.C. SHALL COORDINATE ALL UNDER SLAB PLUMBING WITH ELEVATION INVERTS WITH THE SITE UTILITY INVERTS.

22. ALL EXPOSED WATER SUPPLY AND WASTE LINES UNDER OPEN SINKS/LAVATORIES SHALL HAVE PROTECTIVE DEVICES INSTALLED TO MEET LATEST NCSBC AND ADA REQUIREMENTS.

23. THE ENTIRE PLUMBING SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH NC PLUMBING CODE.

24. ROOF DECKING SHALL NOT BE PENETRATED TO SUPPORT WASTE LINES, VENT LINES, AND WATER SUPPLY LINES.

25. WATER HEATERS SHALL COMPLY WITH N.C ENERGY CODE SECTION 504 OF THE NC BUILDING CODE.

26. WATER CLOSETS SHALL BE MOUNTED ON CAST IRON FLANGES.

27. CLEANOUTS & FLOOR DRAIN STRAINERS SHALL BE INSTALLED FLUSH WITH FINISH FLOOR ELEVATION. FLOOR DRAINS SHALL BE INSTALLED TO PROVIDE PROPER DRAINAGE OF SPACE.

28. ALL FLOOR DRAINS, HUB DRAINS, AND FLOOR SINKS SHALL HAVE TRAP PRIMERS OR HOSE BIBBS, INSTALLED AS SPECIFIED IN THE N.C. PLUMBING CODE SECTION 412.6.

29. P.C. SHALL VERIFY AND SET THE MAXIMUM OUTLET TEMPERATURES AT ALL NON-COMMERCIAL KITCHEN EQUIPMENT INCLUDING HAND SINKS LOCATED IN THE KITCHEN TO NOT EXCEED 110°F BY INSTALLATION OF POINT OF USE ANTI-SCALD MIXING VALVES IF NECESSARY.

30. ALL ACCESS COVERS INCLUDING BUT NOT LIMITED TO IN-GRADE CLEANOUTS, MANHOLES, AND WATER METER BOXES SHALL BE FLUSH WITH FINISHED GRADE UNLESS OTHERWISE SPECIFIED

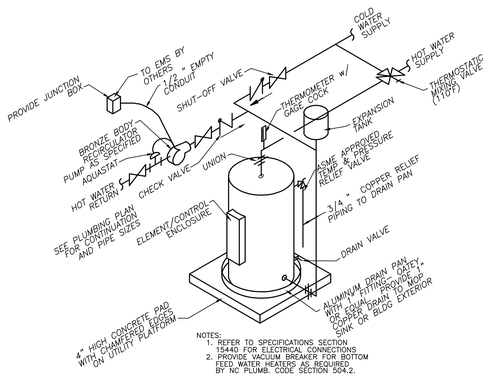
31. P.C. SHALL PROTECT ALL PLUMBING PIPE AS IT COMES UP THROUGH CONCRETE PER SECTION 305.1 OF THE N.C. PLUMBING CODE.

32. ALL PLUMBING CONSTRUCTION PENETRATING FIRE-RATED SURFACES AND NON-RATED PARTITIONS SHALL BE SEALED PER FIRE STOPPING DETAIL ON SHEET FP-001 OR THE LATEST EDITION OF THE UL FIRE RESISTANCE DIRECTORY, VOLUME 2.

33. "PROVIDE" IS DEFINED AS FURNISH AND INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.

34. PLUMBING CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL EXTERNAL DISCONNECTS THAT ARE REQUIRED FOR EQUIPMENT PROVIDED UNDER THIS CONTRACT. PLUMBING CONTRACTOR SHALL FURNISH ALL REQUIRED FUSES FOR ALL FUSED DISCONNECT SWITCHES. COORDINATE DISCONNECT AND FUSE INSTALLATION WITH ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING DISCONNECT SWITCHES AND FUSES. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL LINE SIDE WIRING AND CONDUIT TO EXTERNALLY OR INTERNALLY MOUNTED DISCONNECTS AND SHALL PROVIDE AND INSTALL LOAD SIDE WIRING AND CONDUIT FROM EXTERNALLY MOUNTED DISCONNECT SWITCHES TO PLUMBING EQUIPMENT. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINAL ELECTRICAL CONNECTIONS TO PLUMBING EQUIPMENT. SEE "PLUMBING EQUIPMENT ELECTRICAL CONNECTION DETAIL".

35. PLUMBING CONTRACTOR SHALL PROVIDE MARKING TAPE AND TRACER WIRE FOR ALL NONE METALLIC PIPING BELOW GRADE. TAPE SHALL BE AT LEAST 3" WIDE AND SHALL BE LABELED FOR THE SPECIFIC TYPE PIPE. TAPE SHALL BE 24" BELOW GRADE. TRACER WIRE SHALL BE INSTALLED ON NON-METALLIC SEWER PIPE AND SHALL MEET REQUIREMENTS OF SECTION 306.2.4. TRACE WIRE SHALL BE MINIMUM 14 AWG AND RATED FOR DIRECT BURIAL.



NOTES:
1. REFER TO SPECIFICATIONS SECTION 15440 FOR ELECTRICAL CONNECTIONS
2. PROVIDE VACUUM BREAKER FOR BOTTOM FEED WATER HEATERS AS REQUIRED BY NC PLUMB. CODE SECTION 504.2.

ELECTRIC WATER HEATER-RECIRCULATING TYPE

SCALE: NTS

PLUMBING FIXTURE SCHEDULE

	ITEM	DESCRIPTION	FINISH	COLD	HOT	VENT	WASTE	ADA
	CO	CLEAN-OUT IN FLOOR - ZURN MODEL # ZN-1444-BP WITH INSIDE CAULK CONNECTION	BRONZE				3"	
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATIONS)						
	WCO	WALL-CLEAN-OUT - ZURN M# ZN-1441-BP	BRONZE					
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATION)					2"	
	WC	WATER CLOSET - KOHLER HIGHCLIFF UNIVERSAL HEIGHT EL 1.6 ELONGATED FLUSH VALVE WC	WHITE			2"	4"	YES
		SEAT - KOHLER K-4666-SA ANTI-MICROBIAL OPEN FRONT SEAT W/ SELF SUSTAINING CHECK HINGE	WHITE					YES
		FLUSH VALVE - SLOAN REGAL 111 OR EQUAL	CHROME	1"				
	UR	URINAL - WHITE VITREOUS CHINA, WALL HUNG, KOHLER "FRESHMAN" K-4989-T-0	WHITE			1-1/2"	2"	YES
		FLUSH VALVE - SLOAN REGAL 180 OR EQUAL	CHROME	3/4"				YES
	LAV	LAVATORY - KOHLER "HUDSON" WALL HUNG LAVATORY MODEL NO. K-2867 ENAMELD CAST IRON	WHITE	-	-	1 1/2"	2"	YES
		FAUCET - DELTA 87 T111 SINGLE-HANDLE METERING OR EQUAL	CHROME	1/2"	1/2"			YES
		TRUEBRO HANDI LAV-GUARD INSULATION KIT M# 102W (OR EQUAL FROM MANUFACTURERS SPECIFICATIONS).	WHITE					
	LAV-S	LAVATORY - KOHLER "HUDSON" WALL HUNG LAVATORY MODEL NO. K-2867 ENAMELD CAST IRON	WHITE	-	-	1 1/2"	2"	YES
		FAUCET - DELTA 501 SINGLE-HANDLE OR EQUAL	CHROME	1/2"	1/2"			YES
		TRUEBRO HANDI LAV-GUARD INSULATION KIT M# 102W (OR EQUAL FROM MANUFACTURERS SPECIFICATIONS).	WHITE					
	MB	MOP SINK - EL MUSTEE 24"X24" MOP SINK M# 63M				2"	3"	
		FAUCET - T&S BRASS B-0665-BSTR WITH WRIST BLADES OR EQUAL		3/4"	3/4"			
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATION.)						
	DF	NON-REFRIGERATED DRINKING FOUNTAIN. FACE-MOUNTED, ONE PIECE. CONTOUR-FORMED BASIN WITH ROUNDED	BY ARCH.	3/8"		1-1/2"	1-1/4"	YES
		CORNERS AND EDGES REDUCES SPATTER. HALSEY TAYLOR #HRFSEBP.						
	EWC	ELECTRIC WATER COOLER IN SINGLE UNIT CONFIGURATION- OASIS P8AM	BY ARCH.	3/4"		1-1/2"	2"	YES
		8 GPH OF 50 ° F WATER @ 80° F INLET WATER AND 90° F ROOM TEMPERATURE.						
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATIONS).						
	CS	COUNTER SINK - 19"x22" STAINLESS 2 HOLE 4" CENTERS, ELKAY LUSTERONE # BLR1922	BY ARCH.			1-1/2"	2"	YES
2		FAUCET - DELTA 100 DST OR EQUAL		1/2"	1/2"			
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATIONS).						
	SS	UTILITY SINK - MUSTEE 19F UTILATUB SINGLE PIECE MOLDED THERMOPLASTIC UTILITY TUB WITH LEGS				2"	4"	
		FAUCET - ZURN Z-841M1-5H WALL MOUNTED FAUCET WITH RIGID SPOUT AND VACUUM BREAKER WITH 3/4"		1/2"	1/2"			
		THREADED OUTLET AND PAIL HOOK						
	FD	FLOOR DRAIN - ZURN M# ZN415B WITH TYPE "B" STRAINER	NICK-BRNZ					
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATION)					3"	
	AFH	WALL HYDRANT - WOODFORD SANITARY AUTOMATIC DRAINING FREEZELESS M# B65	CHROME	3/4"				
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATIONS)						
	HB	HOSE BIB - WOODFORD KEYLESS, NON-FREEZELESS, M # 24-C	CHROME	3/4"				
		(OR EQUAL PRODUCT FROM MANUFACTURERS IN SPECIFICATIONS)						
	TMV	THERMOSTATIC MIXING VALVE SERVING 1 THRU 50 GPM	NICK-BRNZ	3/4"	3/4"			N/A
		LAWLER #801 OR EQUAL			1"			

*MODEL NUMBERS ARE PROVIDED TO ESTABLISH A LEVEL OF QUALITY. EQUAL QUALITY PRODUCTS ARE ACCEPTABLE.

NOTES:
1. REFER TO SPECIFICATIONS SECTION 15440 FOR ELECTRICAL CONNECTIONS
2. PROVIDE VACUUM BREAKER AS REQUIRED BY NC PLUMB. CODE SECTION 504.2.

ELECTRIC WATER HEATER

SCALE: NTS

ELECTRIC WATER COOLER

SCALE: N.T.S.

FIXTURE CALCULATIONS JUSTIFICATION - 500 WING			
OCCUPANCY = **EDUCATION (FIRST GRADE)**	MINIMUM PLUMBING FIXTURES FROM TABLE 403.1		
		TOTAL REQUIRED	TOTAL PROVIDED
NET AREA FOR OCCUPANT CALC.: CAPACITY OF MULTI PURPOSE = **68 PEOPLE**	MEN	2 WC 1 LAVATORY - UR	2 WC 2 LAVATORY - UR
DIVISION OF FACILITIES PER TABLE 403.4: MALE: **50%** FEMALE: **50%** 68 x .5 = **34 FEMALE** 68 - 34 = **34 MALE**	WOMEN	2 WC 1 LAVATORY	2 WC 2 LAVATORY
	DRINKING FOUNTAINS	1 DF	2 DF

FIXTURE CALCULATIONS JUSTIFICATION - 600 WING			
OCCUPANCY = **EDUCATION (K-8)**	MINIMUM PLUMBING FIXTURES FROM TABLE 403.1		
		TOTAL REQUIRED	TOTAL PROVIDED
NET AREA FOR OCCUPANT CALC.: CAPACITY OF MULTI PURPOSE = **285 PEOPLE**	MEN	6 WC 3 LAVATORY - UR	5 WC 7 LAVATORY 2 UR
	WOMEN	6 WC 3 LAVATORY	4 WC 7 LAVATORY
DIVISION OF FACILITIES PER TABLE 403.4: MALE: **50%** FEMALE: **50%** 285 x .5 = **143 FEMALE** 285 - 143 = **142 MALE**	STAFF	2 WC 2 LAVATORY	2 WC 2 LAVATORY
	DRINKING FOUNTAINS	2 EWC	1 HI-LOW EWC 2 DF

FIXTURE UNIT REQUIREMENTS - 500 WING	
POTABLE WATER SUPPLY	32.0 GPM USE 2" SERVICE
WASTE	36.0 FU USE 4" SERVICE

FIXTURE UNIT REQUIREMENTS - 600 WING	
POTABLE WATER SUPPLY	67.6 GPM USE 2" SERVICE
WASTE	120.0 FU USE 4" SERVICE

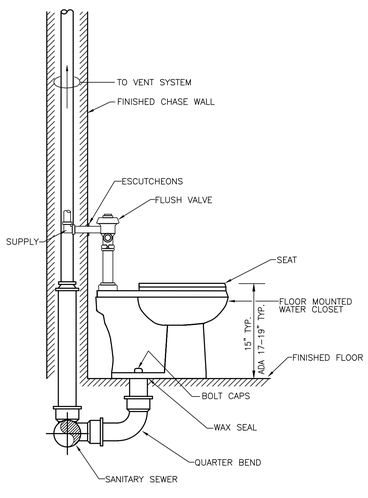
EWH SCHEDULE							
TAG	LOCATION	CAP	ELEMENT	TEMP	RCVY @ 60° RISE	MFR / MODEL no.	ELECT'L	NOTES
EWH 1	PLATFORM 500 WING	50	(2) 4500 W	110	50 GAL	A.O. SMITH No. DEN-52	480V 3Ø 5.4A	1,3,4,5
EWH 2	PLATFORM 600 WING	50	(2) 4500 W	110	50 GAL	A.O. SMITH No. DEN-52	480V 3Ø 5.4A	1,2,3,4,5

NOTES:
1) STATE INDUSTRIES, LOCHINVAR, OR RHEEM/RUUD MEETING OR EXCEEDING SPECIFICATIONS ARE ACCEPTABLE SUBSTITUTES
2) PROVIDE BRONZE BODY RECIRCULATION PUMP RATED FOR 5 GPM @ 15' HEAD, 1/6 hp, 115V; B&G No. PL-36 OR EQUAL BY TACO OR ARMSTRONG.
3) PROVIDE EWH WITH NON-SIMULTANEOUS DUAL ELEMENTS SIZED AS SPECIFIED
4) SEE DETAIL FOR ACCESSORIES
5) WATER HEATER SHALL COMPLY WITH SECTION 504 OF THE NORTH CAROLINA ENERGY CODE.

ABBREVIATIONS:
CAP = STORAGE CAPACITY (gal)
ELEMENT = (qty) WATTAGE
TEMP = HW OUTPUT TEMPERATURE (deg F)
RCVY = RECOVERY @ 100 deg F RISE (gph)
POU = POINT OF USE WATER HEATER

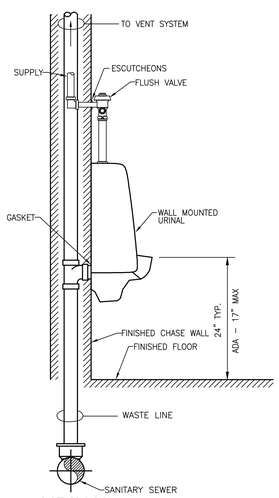
LAVATORY - FUTURE HOT WATER PIPE INSTALLATION DETAIL

SCALE: N.T.S.



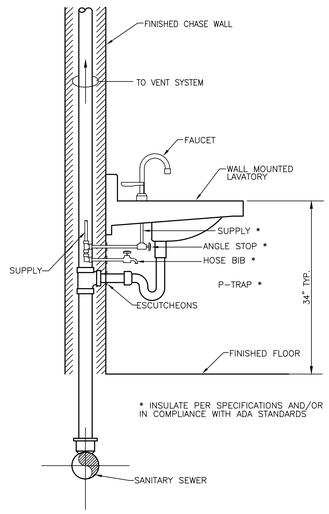
WATER CLOSET

SCALE: N.T.S.



URINAL

SCALE: N.T.S.



* INSULATE PER SPECIFICATIONS AND/OR IN COMPLIANCE WITH ADA STANDARDS

LAVATORY - WALL MOUNTED

SCALE: N.T.S.

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS

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Additions to
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Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

Project No. 22301
Date: 12 APRIL 2023
Drawing no. P 001

ES Project No: ES23030
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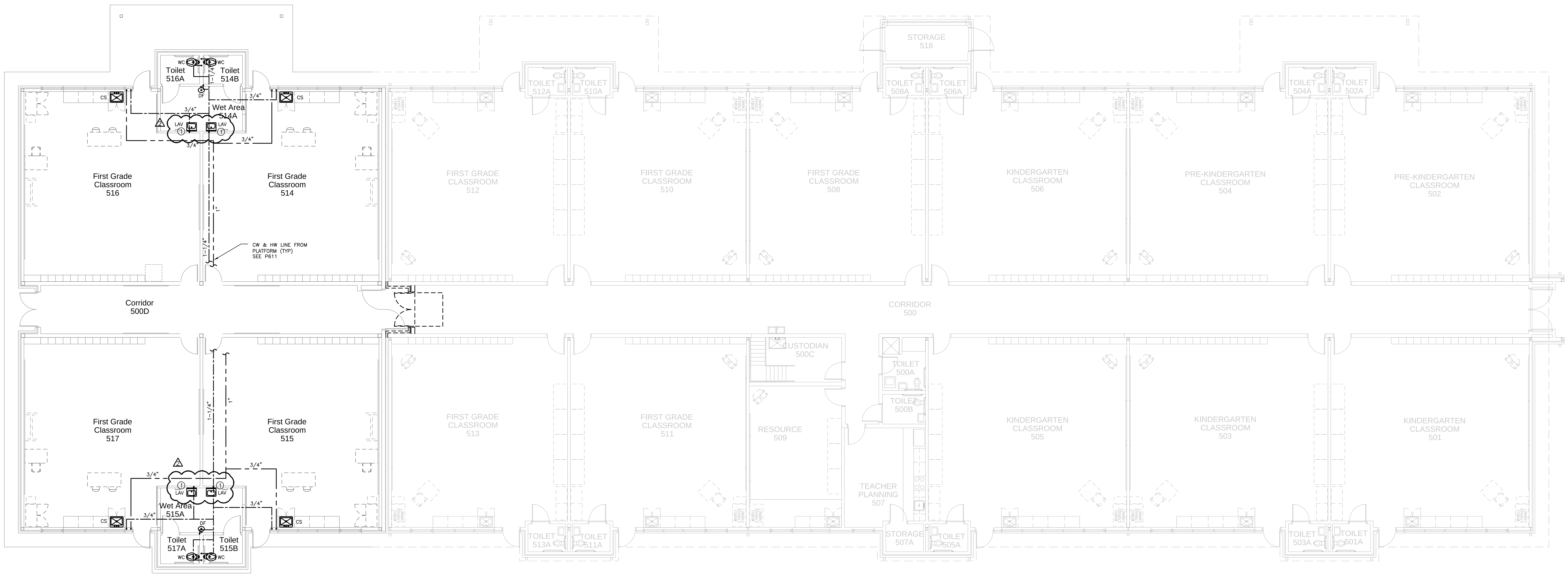
7/28/23



502.1 ALTERNATE BID POTABLE WATER PLAN: 500 WING

SCALE: 1/8" = 1'-0"

PLUMBING PLAN NOTES:

1. CONTRACTOR TO INSTALL 1/2" HOT WATER LINE IN WALL AND CAP JUST ABOVE BLOCK. SEE "LAVATORY – FUTURE HOT WATER PIPING INSTALLATION DETAIL" ON SHEET P001. PROVIDE AND INSTALL SHUT-OFF ANGLE STOP VALVE UNDER LAVATORY FOR FUTURE CONNECTION.

PLUMBING LEGEND

- EXISTING SANITARY SEWER LINE
- SANITARY SEWER LINE
- GREASE WASTE LINE
- VENT
- COLD WATER
- EXISTING COLD WATER
- HOT WATER
- RECIRCULATING HOT WATER LOOP
- EXISTING HOT WATER
- VTR – VENT THROUGH ROOF
- E.C. – ELECTRICAL CONTRACTOR
- M.C. – MECHANICAL CONTRACTOR
- G.C. – GENERAL CONTRACTOR
- CO – CLEAN OUT
- WCO – WALL CLEAN OUT
- BALL VALVE
- CHECK VALVE
- UNION
- ELBOW UP
- ELBOW DOWN
- POINT OF NEW CONNECTION TO EXISTING
- HOT WATER RECIRCULATION PUMP
- CIRCUIT SETTER
- WATER HAMMER ARRESTOR (WHA)
- AAV – AUTOMATIC AIR ADMITTANCE VALVE
- TMV – THERMOSTATIC MIXING VALVE

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS

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Additions to
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Project No. 22301
Date: 12 APRIL 2023
Drawing no. P 502

ES Project No: ES23030
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PLUMBING PLAN NOTES:

1. CONTRACTOR TO INSTALL 1/2" HOT WATER LINE IN WALL AND CAP JUST ABOVE BLOCK. SEE "LAVATORY – FUTURE HOT WATER PIPING INSTALLATION DETAIL" ON SHEET P001. PROVIDE AND INSTALL SHUT–OFF ANGLE STOP VALVE UNDER LAVATORY FOR FUTURE CONNECTION.

602.1 POTABLE WATER PLAN: 600 WING
SCALE: 1/8" = 1'-0"

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE–BID & DPI COMMENTS

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Benson Elementary School
Johnston County Schools
2040 NC-50 Benson, NC 27504 / Johnston County / North Carolina

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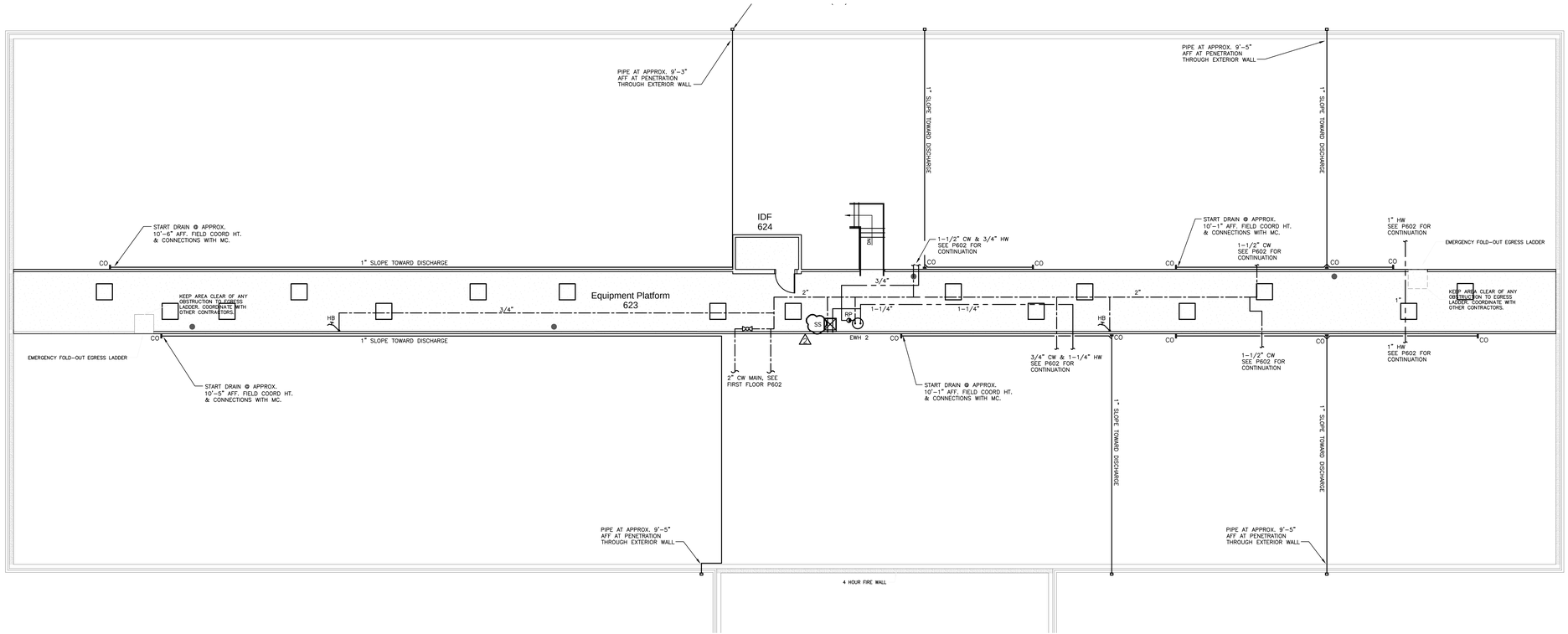
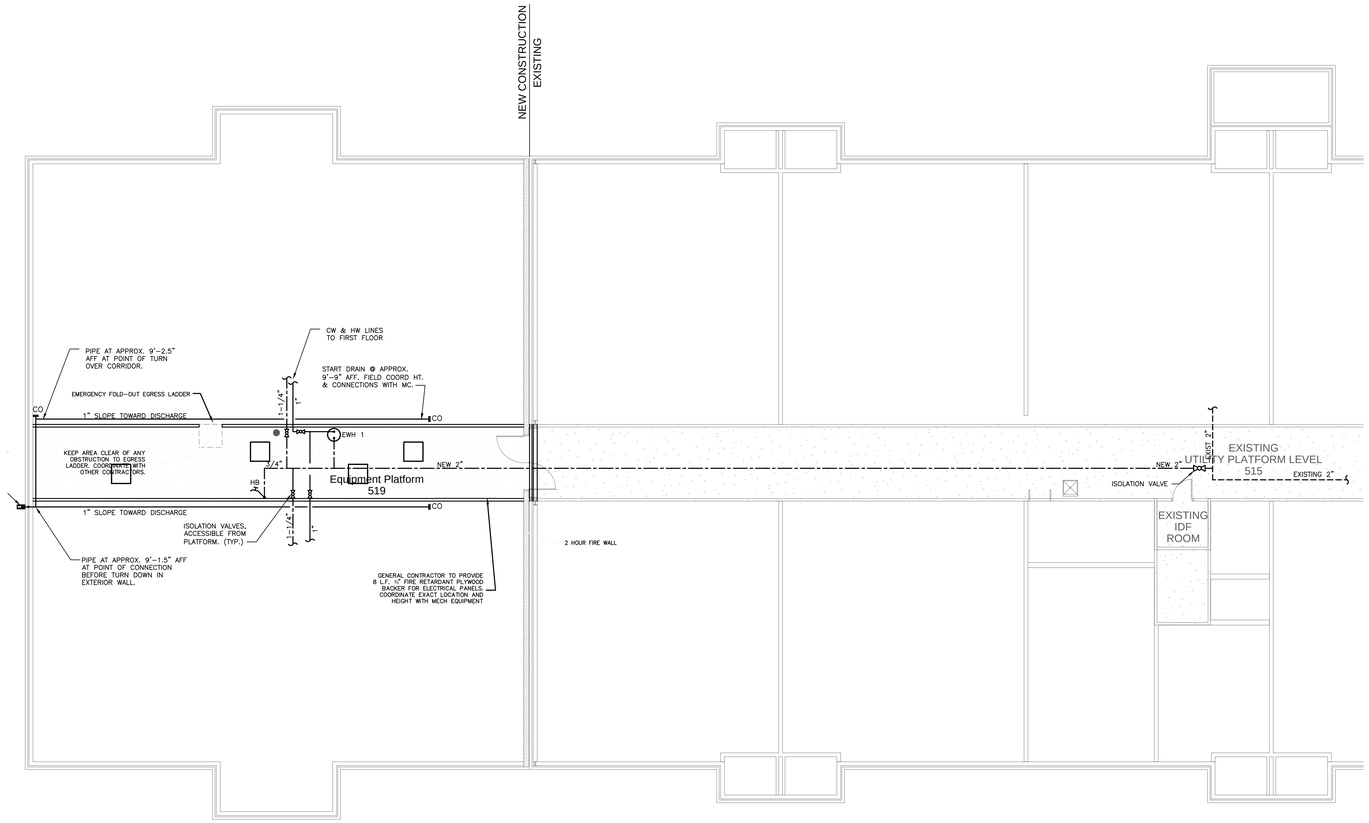
Project No: ES230330

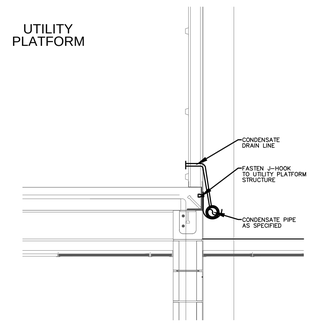
Project No: 22301
Date: 12 APRIL 2023
Drawing no. P 602



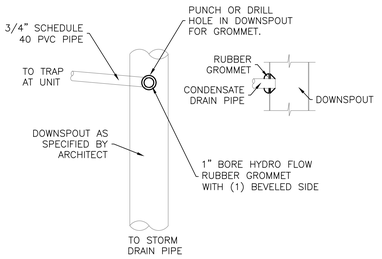
611.1 PLATFORM PLAN: 600 WING
SCALE: 1/8" = 1'-0"



611.2 PLATFORM PLAN: 500 WING
SCALE: 1/8" = 1'-0"



611.3 CONDENSATE PIPE DETAIL
SCALE: N.T.S.



611.4 CONDENSATE CONNECTION DETAIL
SCALE: N.T.S.

No.	Date	Revision
2	7/28/23	ADDENDUM # 2
1	7/24/23	ADDENDUM # 1 PRE-BID & DPI COMMENTS

Hite associates
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Additions to
Benson Elementary School
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Project No. 22301
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