SECTION 009113 – ADDENDUM TW0

PART 1 - ADDENDA

1.1 PROJECT INFORMATION

A. Project Identification: Laurel School District Mason Elementary School Restrooms Addition Project.

B. Owner: Laurel School District, 303 W. 8th Street, Laurel, MS 39441.

C. Architect: Dale | Bailey, an Association, One Jackson Place, Suite 250, 188 E. Capitol Street, Jackson, MS 39201-2100

D. Architect Project Number: 23003

E. Date of Addendum Two: 10 July 2023

1.2 NOTICE TO BIDDERS

A. This Addendum is issued to all registered plan holders pursuant to the Instructions to Bidders and Conditions of the Contract. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.

B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

C. The date for receipt of bids is UNCHANGED by this Addendum at same time and location.

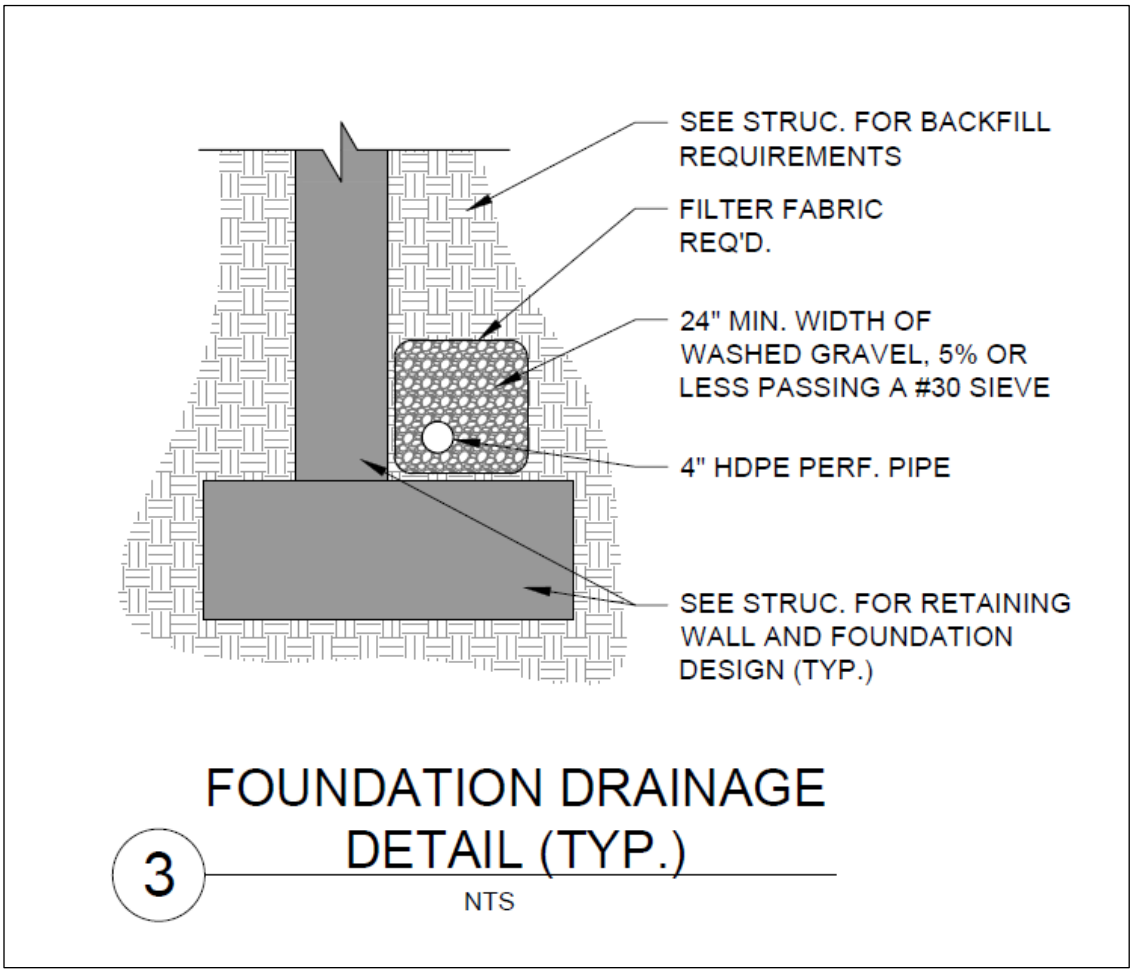
1.3 GENERAL

A. Report of Geotechnical Exploration by W Geotechnical and Testing, Inc. dated June 29, 2023, is attached.

1.4 GENERAL RESPONSES TO REQUESTS FOR INFORMATION

A. Question: Can you provide clarification of the French drain that is being installed on top of the footing against the retaining wall footing? I cannot any other details on it other than on structural detail for footing. Please let me know.

Answer: Contractor should install foundation drain as per this detail. Use 4” PVC to hard pipe through foundation and tie into existing inlet between building addition and existing roadway.



B. Question: Can you clarify if a concrete pad is to be installed around the lift station within the chain link fence or if this is to be compacted limestone. There is no detail that I can find, but the plans indicate limestone. Please let me know.

Answer: Not an office, but crushed limestone is what plans say. No concrete pad.

1.5 REVISIONS TO SPECIFICATION SECTIONS

A. DOCUMENT 312318 – EARTHWORK FOR STRUCTURES (Re-Issued). Delete this document in its entirety and replace it with the attached. Revise Section 2.3, 3.4B &C, 3.5B, 3.6D, and delete Section 3.2.D.

1.6 REVISIONS TO DRAWING SHEETS

A. Sheet S-001 – STRUCTURAL NOTES AND DRAWING INDEX (Re-Issued). Delete this sheet in its entirety and replace it with the attached. Updated foundation section to reflect recommendations from Soils Report.

1.7 ATTACHMENTS

A. The following Documents are attached:
1. Geotechnical Exploration by W Geotechnical and Testing, Inc. dated June 29, 2023.
2. Section 312318 – Earthwork for Structures dated 22 May 2023.
3. Sheet S-001 – Structural Notes and Drawing Index dated 10 July 2023.

END OF ADDENDUM TWO

LADNER TESTING, INC.

JACKSON - HATTIESBURG - GULFPORT
(601) 362-5421 (601) 544-5782 (228) 604-2527

REPORT OF GEOTECHNICAL EXPLORATION

FOR

WILLIAM H. MASON ELEMENTARY SCHOOL
RESTROOM ADDITIONS
LAUREL, MISSISSIPPI

JUNE 2023

Prepared By:

W Geotechnical and Testing, Inc.
301 Central Avenue East
Wiggins, MS 39577

LADNER TESTING, Inc.

JACKSON - HATTIESBURG - GULFPORT
(601) 362-5421 (601) 544-5782 (228) 604-2527

June 29, 2023

Laurel School District
P.O. Box 288
303 W. 8th Street
Laurel, MS 39441

RE: Report of Geotechnical Exploration
William H. Mason Elementary School Restroom Additions
Laurel, Mississippi

W Geotechnical Project No. G-1364J
Ladner Project No. 08-23-A

Dear Sir or Madam:

Thank you for retaining Ladner Testing Inc. to complete a geotechnical exploration for the above referenced site. The results of the subsurface exploration, along with boring logs and our engineering report, are attached to this letter.

In general, good soils were encountered at this site. Assuming proper site preparation, including the removal topsoil, debris, loose soils and organic materials, proofrolling, footing bearing surface observation, we recommend that foundations be designed for a maximum net allowable soil bearing pressure of **2,000** psf. These recommendations are more detailed in the appropriate sections of this report along with construction and site preparation recommendations.

Thank you for the opportunity to provide geotechnical engineering services on this project. Should you have questions regarding our findings or need additional consultations, please do not hesitate to contact our office.

Respectfully,

Ladner Testing Laboratories, Inc.

Represented by:

HEATH S. WILLIAMS LICENSED PROFESSIONAL ENGINEER 17702 STATE OF MISSISSIPPI

6/29/23

Benjamin Lunsford, P.E.
Project Engineer

Heath S. Williams, P.E.
Principal Engineer
MS Registration No. 17702

REPORT OF GEOTECHNICAL EXPLORATION
WILLIAM H. MASON ELEMENTARY SCHOOL RESTROOM ADDITIONS –
LAUREL, MS
G-1364J/08-23-A
JUNE 29, 2023

General

This report presents the results of our geotechnical exploration findings and our geotechnical recommendations for a new building addition in Laurel, Mississippi.

Project Information

The information presented in this section is based on information provided and our own site reconnaissance. The site is located at William H. Mason Elementary School, 2726 Old Bay Springs Road in Laurel, Mississippi. The approximate coordinates or the site are 31.724424°, -89.139154°. We understand that the proposed project consists of bathroom additions to an existing school building. Standard commercial construction techniques are anticipated.

If any of the information presented is incorrect or has changed, please advise Ladner Testing, Inc. to allow us to reevaluate our recommendations in the light of changes in the present project concept.

Purposes of Exploration

The purposes of this exploration were to explore the soil and groundwater conditions at the site and to identify any foreseeable special geotechnical considerations needed for the proposed construction. We accomplished the purposes of the study by:

1. Performing a general site reconnaissance and drilling borings to explore the subsurface soil and groundwater conditions,
2. Performing laboratory tests on selected representative soil samples from the borings to evaluate pertinent engineering properties, and
3. Evaluating the field and laboratory data to develop appropriate geotechnical engineering recommendations.

Field Exploration

To explore the subsurface conditions at this site, a total of two (2) Standard Penetration Test (SPT) borings were drilled to a depth of 10 feet below the existing ground surface. Boring locations were determined in the field by a Ladner Testing representative who measured distances and estimated right angles from existing site features, or by use of a handheld GPS. The boring locations should be considered approximate and boring elevations should be considered from the ground surface elevation at the time of our fieldwork on June 7, 2023. The soil test borings were performed with a truck mounted drill rig, which utilized continuous flight solid stem augers to advance the boreholes. Representative soil samples were taken for visual classification and further laboratory testing. The drill crew maintained a field log of the soils encountered in the borings.

Laboratory Testing Program

Representative soil samples were selected and tested in our laboratory to check visual classifications and to determine pertinent engineering properties. The laboratory testing program included visual classifications of all soil samples, and natural moisture content, Atterberg Limit, and sieve analysis testing of selected samples. The laboratory test results are presented on the attached boring logs. An experienced geotechnical technician classified each soil sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System. The group symbols for each soil type are indicated in the appropriate column of the attached boring logs. The geotechnical technician grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between soil types on the boring logs and profiles are approximate; in-situ, the transitions may be gradual. The soil samples will be retained in our laboratory for a period of 60 days, after which, the samples will be discarded unless other instructions are received as to their disposition.

Subsurface Soil Conditions

The subsurface soil conditions are presented in more detail on the attached boring logs. The subsurface conditions discussed in the following paragraphs and those shown on the boring logs represent an estimate of the subsurface conditions based on interpretation of the boring data at discrete test depths and locations using normally accepted geotechnical engineering judgments. We note that the transition between different soil strata is usually less distinct than those shown on the boring logs. Subsurface conditions in unexplored locations may vary somewhat from those reported herein.

The borings performed for this exploration generally encountered Silty Sand and Lean Clay. These strata are generalized in the following paragraphs. For more specific information, refer to the boring logs in the appendix.

Silty Sand

Materials described as silty sand were generally encountered from the ground surface to about 3.5 feet below the ground surface. The sand was mostly medium dense at selected test depths, with SPT n-values ranging from 10 to 20 blows per foot.

Lean Clay

Materials described as lean clay were typically encountered below 3.5 feet from the ground surface to the maximum termination depths of the borings at 10 feet below the existing ground. The clay was occasionally silty. The clay was medium stiff to very stiff, with SPT n-values ranging from 8 to 23 blows per foot.

Groundwater Conditions

Visual observation of the soil samples retrieved during the drilling exploration can often be used in evaluating the groundwater conditions. Groundwater was not recorded during the investigation at this site. Variations in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, and other factors not immediately apparent at the time of this exploration.

Geotechnical Recommendations

The following geotechnical recommendations are based on our observations at the site, interpretation of the field data obtained during the exploration, laboratory test results, and our experience with similar subsurface conditions. In general, good soil conditions were encountered at this site.

Foundation Design Recommendations

Assuming proper site preparation (removal of topsoil, soft/loose soils, organic materials and debris, proofrolling, and footing bearing surface observation), this site appears suitable for the construction of the proposed structure on shallow foundations. We recommend that foundations be designed for a maximum net allowable soil bearing pressure of **2,000** psf.

Settlement values are based on the stated assumption that the site is properly prepared, and any deleterious material will be removed if found during construction. Conventional values for allowable settlement are typically 1 inch of total settlement with 1/2 inch of differential settlement. It is our opinion that for footings constructed in accordance with the requirements outlined in this report, the maximum total settlement is expected to be less than 1 inch, with the maximum differential settlement between adjacent columns expected to be approximately 1/2 inch or less.

To reduce the risk of foundation bearing failure and excessive settlement due to local shear or "punching" action, we recommend that continuous footings have a minimum width of 1.5 feet and that isolated column footings have a minimum lateral dimension of 2 feet. In addition, footings should be placed at a depth to provide adequate bearing capacity and resist undermining of the footing by erosion. For this site, we recommend footing bottoms be placed at a minimum depth of 2 feet below lowest adjacent finished grade.

The connections with the existing structures should be made rigid enough (typically by doweling into the existing foundations) to transfer part of the load of the new structure to minimize differential settlement, or the transition should be made flexible enough (typically by transition slabs) to allow the differential movements without incurring any distress. Properly designed expansion joints should be included in the veneer to minimize unsightly cosmetic cracking due to any differential settlement.

The above bearing capacity and settlement values are based on our engineering experience with similar soil conditions and the anticipated structural loadings, and are to guide the structural

engineer with the design. To minimize difficulties during the foundation installation phase, we recommend that Ladner Testing, Inc. be retained to observe the foundation bearing surfaces and to confirm that the recommended bearing pressures are developed.

Subgrade Preparation

Prior to fill placement, the subgrade preparation should consist of removing all topsoil, soft/loose soils, debris and organic materials. Observation is required to ensure that all the unwanted material is removed. We recommend that the subgrade preparation is extended to the expanded project limits, which are defined as a minimum of 5 feet beyond the footprint of the structures. Site preparation limits should be extended laterally an additional 1 foot for each foot of fill required at any location.

The prepared subgrade must be observed to be free of substantial amount of organic material and of sufficient consistency to support the required structural loads. The resulting subgrade should be evaluated by a qualified geotechnical technician. *Proofrolling of the entire site using a loaded dump truck, having an axle weight of at least 10 tons,* ***is required*** *to aid in identifying any additional localized soft or unsuitable material that should be removed.* Any soft or unsuitable materials encountered during this proofrolling should be removed and replaced with an approved backfill compacted to the criteria below.

Fill Placement

The preparation of proposed subgrade should be observed on a periodic basis by a representative of a qualified construction materials testing company to document that the subgrade is suitable for support of the proposed construction and/or fills. Structural fill materials should consist of approved material with less than 2 percent organic matter, free of debris, with rocks no greater than 6 inches and a Liquid Limit less than 30 and a Plasticity Index less than 15. Unacceptable fill materials include topsoil, ash, low-density soils with a maximum unit weight less than 95 pcf, organic materials, and highly plastic silts and clays. Any unsuitable materials removed during grading operations should be either stockpiled for later use in landscaped areas or placed in approved disposal areas either on site or off site.

Grade control should be maintained throughout the fill placement operations. All fill operations should be observed on a periodic basis by a qualified soil technician from Ladner Testing, Inc. to determine that minimum compaction requirements are being met. A minimum of one compaction test per 2,500 square foot area should be performed in every other lift placed. The elevation and location of the tests should be clearly identified and recorded at the time of fill placement. Fill materials should be placed in lifts not exceeding 8 inches in loose thickness and moisture conditioned to within ± 2 percent of the optimum moisture content to facilitate proper compaction. Structural fill material should be compacted to a minimum of **98 percent** of the maximum dry density obtained in accordance with ASTM Specification D-698, Standard Proctor Method.

Additional Considerations

Exposure to the environment may weaken the soils at the subgrade level if excavations remain open for too long a time. If surface water intrusion or exposure softens the bearing soils, the softened soils must be removed from the excavation bottom immediately prior to placement of fill.

Positive site drainage should be maintained during earthwork operations, which should help maintain the integrity of the soil. Placement of fill on the near surface soils, which have become saturated, may be very difficult. When wet, these soils will degrade quickly with disturbance from contractor operations and will be extremely difficult to stabilize for fill placement.

The surface of the site should be kept properly graded in order to enhance drainage of the surface water away from the proposed building areas during the construction phase. We recommend that an attempt be made to enhance the natural drainage without interrupting its pattern.

The surficial soils contain fines, which are considered moderately erodible. All erosion and sedimentation shall be controlled in accordance with Best Management Practices and current City and DEQ requirements. At the appropriate time, we would be pleased to provide a proposal for construction materials testing and related services.

Closing

This report has been prepared in accordance with generally accepted geotechnical engineering practice. No other warranty is expressed or implied. The evaluations and recommendations presented in this report are based on the available project information, as well as on the results of the exploration. Ladner Testing, Inc. should be given the opportunity to review the final drawings and site plans for this project to determine if changes to the recommendations outlined in this report are needed. Should the nature of the project change, these recommendations should be reevaluated. No third party is given permission to rely on this report or data without the express written consent of Ladner Testing, Inc. We recommend that the construction activities be observed by a qualified geotechnical engineer to provide the necessary overview and to check the suitability of the subgrade soils for supporting the footings. We would be pleased to provide an estimated cost for these services at the appropriate time.

ladner testing laboratories, inc

2832 Utica Avenue/Post Office Box 10778/Jackson, Mississippi 39289-0778 / (601) 362-5421
2123 Glendale Avenue/ Hattiesburg, Mississippi 39402/ (601) 544-5782
P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

PROJECT: 23003 WILLIAM H. MASON ELEMENTARY SCHOOL RESTROOMS ADDITION LAUREL, MS	**CLIENT:** LAUREL SCHOOL DISTRICT P. O. BOX 288 303 W. 8TH STREET LAUREL, MS 39441	**DATE:** 6/7/2023 **LAB NO:** 0008-23-A **BORE NO:** B-1 **TECHNICIAN:** B.H. / T.G.

SAMPLES: | | **AUGER(ASTM D-1452)** | ■ **TUBE(ASTM D-1587)** | X **PENETRATION TEST(ASTM D-1586)**

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		TAN SILTY SAND (0 - 1')		5.9	16.0	2.0	34.0	SM	
	X	GRAY & RED SILTY SAND (1 - 3.5')	MEDIUM	10.7	16.0	2.0	34.9	SM	20
	X	TAN & GRAY SANDY LEAN CLAY (3.5 - 10')	VERY STIFF	12.7	29.0	9.0	50.0	CL	23
5									
	X		MEDIUM						8
10									
15									
20									
25									
30									

WATER DEPTH 0 **FT.** **AFTER** 0 **HRS.** **BORING ELEVATION** 0 **FT.**

WATER DEPTH 0 **FT.** **AFTER** 0 **HRS.** **BORING TERMINATED AT** 10 **FT.**

ladner testing laboratories, inc

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P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

PROJECT: 23003 WILLIAM H. MASON ELEMENTARY SCHOOL RESTROOMS ADDITION LAUREL, MS	**CLIENT:** LAUREL SCHOOL DISTRICT P. O. BOX 288 303 W. 8TH STREET LAUREL, MS 39441	**DATE:** 6/7/2023 **LAB NO:** 0008-23-A **BORE NO:** B-2 **TECHNICIAN:** B.H. / T.G.

SAMPLES: | | **AUGER(ASTM D-1452)** | ■ **TUBE(ASTM D-1587)** | X **PENETRATION TEST(ASTM D-1586)**

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		TAN SILTY SAND (0 - 1')		8.4	18.0	2.0	36.0	SM	
	X	RED & GRAY SILTY SAND (1 - 2.5')	LOOSE	9.3	15.0	2.0	25.9	SM	10
		GRAY & TAN SILTY SAND (2.5 - 3.5')		14.5	16.0	2.0	44.2	SM	
	X	GRAY SANDY SILTY CLAY (3.5 - 5')	HARD	12.1	23.0	7.0	69.4	CL-ML	38
5		TAN & GRAY SANDY LEAN CLAY (5 - 7')		18.6	34.0	17.0	65.6	CL	
		TAN & GRAY SANDY LEAN CLAY (7 - 10')		14.6	24.0	9.0	59.1	CL	
	X		MEDIUM						8
10									
15									
20									
25									
30									

WATER DEPTH 0 **FT.** **AFTER** 0 **HRS.** **BORING ELEVATION** 0 **FT.**

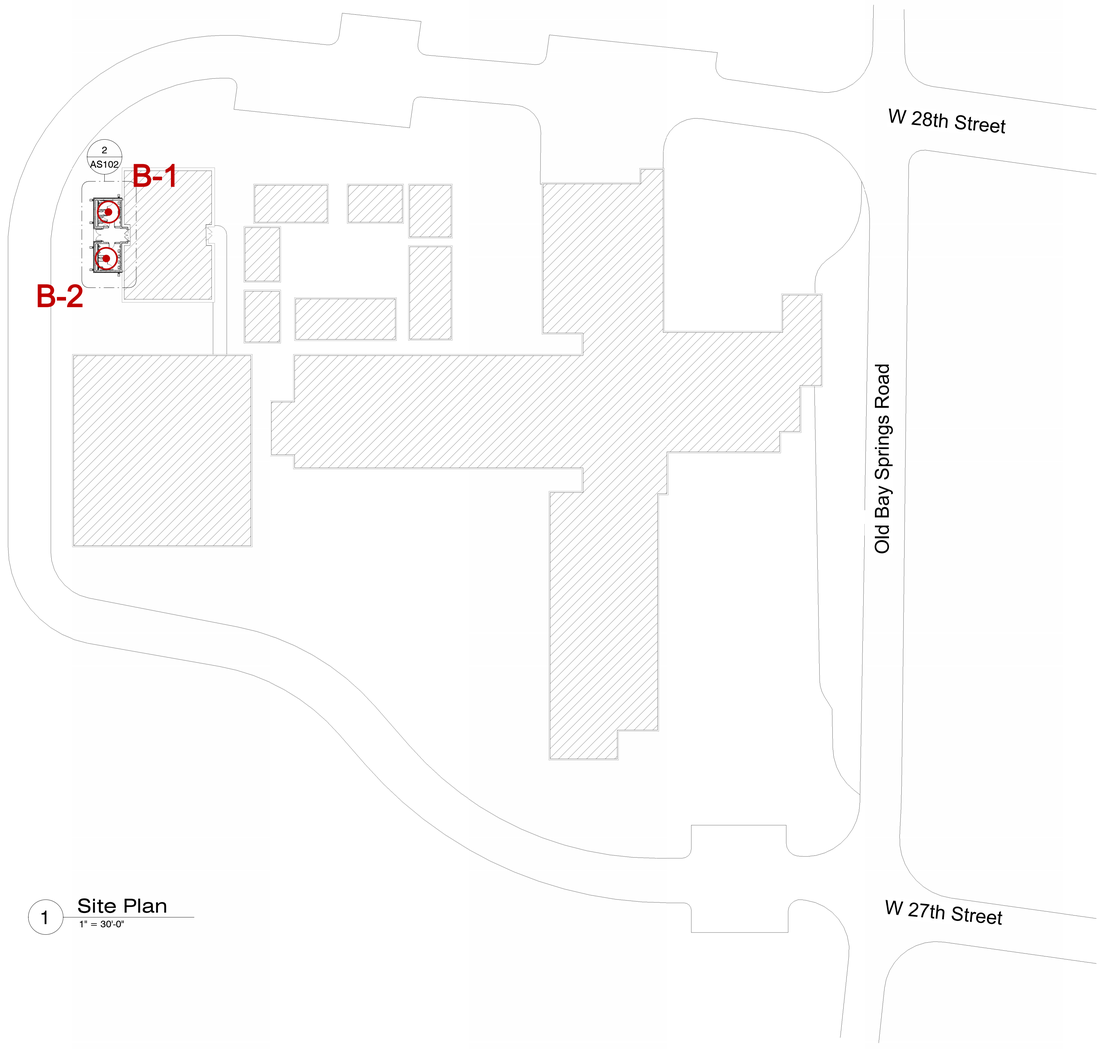
WATER DEPTH 0 **FT.** **AFTER** 0 **HRS.** **BORING TERMINATED AT** 10 **FT.**

General Site Notes

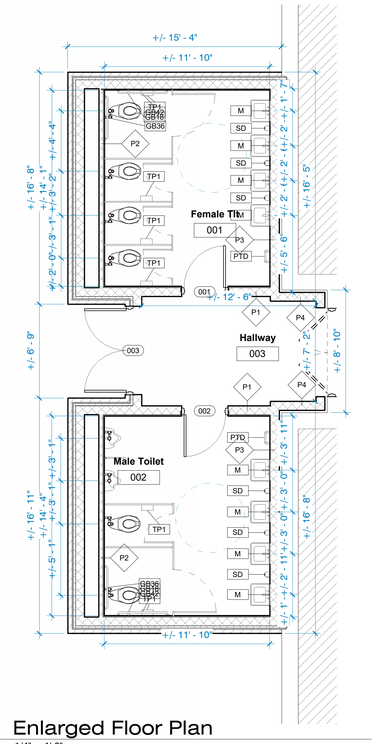
1. See Civil Drawing for finish grades at exterior paving. All paving and grades at perimeter of building to have positve slope away from structures and towards drainage basins.
2. All grassed areas shall be graded to drain to the appropriate inlet or slope to ensure positive drainage away from the building.

Site Plan Legend

Not in Scope



1 Site Plan
1" = 30'-0"



2 Enlarged Floor Plan
1/4" = 1'-0"

DALE BAILEY
AN ASSOCIATION

Architects

One Jackson Place 250
188 East Capitol Street
Jackson, MS 39201
p 601.352.5411

201 Park Court Suite B
Ridgeland, MS 39157
p 601.790.9432

161 Lameuse St. Suite 201
Biloxi, MS 39530
p 228.374.1409

dalebaileyplans.com

Laurel School District

Mason Elementary School Restrooms Addition Project

Laurel, MS

100% Construction Documents

Project No	23003
Date	22 May 2023
Drawn	KLe
Checked	LHo
Revisions	Rev Date

North

AS102

Site Plan

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SECTION 312318 - EARTHWORK FOR STRUCTURES

PART 1 GENERAL

1.1 RELATED SECTIONS

A. Division 1 Sections

1.2 REFERENCES

ASTM D422 – Standard Test Method for Particle-Size Analysis of Soils.

ASTM D698 – Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3).

ASTM D1556 – Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

ASTM D4318 – Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.3 DEFINITIONS

A. Granular Subbase: Fill directly beneath slabs-on-grade.

B. Backfill: Fill immediately behind foundation elements or retaining walls.

C. Structural Fill: Fill under the structure other than the granular subbase.

1.4 SUBMITTALS

A. Upon request, submit soil test reports performed by the Structural Testing/Inspection Agency.

1.5 QUALITY ASSURANCE

A. Refer to the Structural Quality Assurance Plan in the Structural Drawings.

1.6 SURVEY

A. Prior to construction, have structure location staked and certified by a licensed surveyor. If discrepancies between actual lines and elevations exist, notify Architect/Structural Engineer before proceeding with layout of structure.

1.7 SUBSURFACE CONDITIONS

A. Copies of a subsurface investigation of the site will be made available upon request. The data is not intended as a representation or warranty of the continuity of such conditions. Owner will not be responsible for interpretation or conclusions drawn by the Contractor. The data is made

available for the convenience of the Contractor and is not guaranteed to represent all conditions that may be encountered.

B. Contractor may examine the site and make his own subsurface explorations at no additional cost to the Owner. Notify Owner prior to making any subsurface explorations.

1.8 EXISTING UTILITIES

A. Locate existing underground utilities by careful hand excavation. If utilities are to remain in place, provide protection from damage during construction operations.

B. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Do not interrupt existing utility service facilities occupied and used by Owner or others, unless written permission is given by the Architect and then only after temporary utility services have been provided.

C. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult the Architect immediately for directions.

D. Repair damaged utilities to satisfaction of utility owner.

1.9 NOTICE

A. Notify the Architect/Structural Engineer 48 hours prior to the beginning of any excavation work.

PART 2 PRODUCTS

2.1 GRANULAR SUBBASE

A. Granular Subbase: Clean, fine-graded material with at least 10 to 30 percent of particles passing a No. 100 sieve but not contaminated with clay, silt, or organic material. The material shall have a uniform distribution of particle sizes ranging from No. 4 to the No. 200 sieve. Refer to ASTM C 33, Table 1, for limitation of deleterious material finer than No. 200 sieve. Unwashed size No. 10 per ASTM D 448 and manufactured sand from a rock-crushing operation is acceptable.

2.2 BACKFILL

A. Backfill: Sound and free-draining, such as sand, gravel or crushed stone with less than 10% passing the 200 sieve. Maximum diameter shall be 1-1/2 inches.

2.3 STRUCTURAL FILL

A. Structural Fill: Material with rocks not greater than 6 inches having a plasticity index (PI) less than 15 and a liquid limit less than 30.

B. Structural Fill shall be free of organics, debris and deleterious materials.

PART 3 EXECUTION

3.1 STRIPPING

A. Strip vegetation, topsoil, roots, and other unsuitable material to a depth determined by the Structural Testing/Inspection Agency but not less than one foot, nor less than 10 feet outside the perimeter of the structure.

B. Stockpile sufficient amounts of topsoil as required to cover areas to be landscaped with a minimum of six inches of material.

3.2 EXCAVATION

A. Excavation shall be considered unclassified. Excavations shall comply with U.S. Department of Labor, Occupation Safety and Health Administration (OSHA) regulations.

B. Perform excavation to the depths and limits on the Drawings and as specified herein.

C. Do not excavate to full depth when there is probability of frost forming or ground freezing in excavation before concrete is placed.

E. Ground water may be encountered during the foundation excavation. Provide a system for controlling the ground water to a level at least three feet below the lowest point of the excavation.

F. Keep excavations dry by sloping ground away from holes and trenches.

3.3 PROOFROLLING

A. After stripping or excavation and before any fill placement, fill areas shall be proofrolled with a minimum of two coverages of a loaded dump truck or scraper in each of two perpendicular directions.

B. Areas found to be soft or pumping shall have the soft soil removed and replaced with structural fill and compacted as outlined herein.

3.4 PLACEMENT OF STRUCTURAL FILL

A. Do not place structural fill on subgrade that contains frost, mud or is frozen.

B. Structural fill shall be placed and compacted in 8-inch thick loose layers.

C. Compact structural fill to 98 percent of the maximum dry density as measured by Standard Proctor, ASTM D698, with water content within +2/-2 percent of the optimum moisture content.

3.5 PLACEMENT OF BACKFILL

A. Backfill behind wall shall be placed in layers of 5-inches.

B. Compact backfill behind walls to 98 percent of the maximum dry density as measured by Standard Proctor, ASTM D698, with water content within +2/-2 percent of the optimum moisture content.

3.6 PLACEMENT OF GRANULAR SUBBASE

A. Do not place granular subbase on subgrade that contains frost, mud or is frozen.

B. Compact backfill behind walls to 98 percent of the maximum dry density as measured by Standard Proctor, ASTM D698, with water content within +2/-2 percent of the optimum moisture content.

3.7 CLEAN UP

A. Remove excess excavated materials from job site and upon completion leave site in clean condition.

END OF SECTION 312318

STRUCTURAL NOTES

THE STRUCTURAL NOTES DEFINE GENERAL DESIGN AND MATERIAL REQUIREMENTS AND ARE INTENDED TO SUPPLEMENT, BUT NOT REPLACE, THE PROJECT SPECIFICATIONS

DESIGN CRITERIA

1. Building Code: 2018 International Building Code and ASCE 7-16 (except Chapter 14)

   1.1. Building Risk Category: III

2. Design Loads

   2.1. Uniform Floor Live Loads (reduced per Building Code, UNO)

General Areas	100 psf

   2.2. Concentrated Floor Live Loads (distributed over 2.5 ft x 2.5 ft, UNO)

Schools	1,000 lbs

   2.3. Roof Loads

2.3.1. Uniform Roof Live Load (reduced per Building Code)	20 psf
Concentrated Roof Live Load	300 lbs

   2.3.2. Rain Loads: Rain Intensity, i = 8.06 in/hr (15-min duration/ 100 yr MRI)

   2.4. Wind Loads:
   Basic Wind Speed V(ult) = 134 mph; V(asd) = 104 mph
   Wind Exposure C
   Internal Pressure Coefficient, GC_{pi} = +/-0.18 (Enclosed Building)
   Directionality Factor, K_d = 0.85

   2.4.1. Component and Cladding Pressures (psf)

Roof C&C Pressures (psf)				
Eff. Area (sq. ft.)	Zone 1	Zone 1'	Zone 2	Zone 3
10	+16 / -62.4	+16 / -35.8	+16 / -82.3	+16 / -112.1
20	+16 / -58.2	+16 / -35.8	+16 / -77	+16 / -101.5
50	+16 / -52.8	+16 / -35.8	+16 / -70	+16 / -87.5
100	+16 / -48.7	+16 / -35.8	+16 / -64.7	+16 / -77
200	+16 / -44.6	+16 / -30.8	+16 / -59.4	+16 / -66.4
500	+16 / -39.1	+16 / -24.2	+16 / -52.4	+16 / -52.4

Wall C&C Pressures (psf)		
Eff. Area (sq. ft.)	Zone 4	Zone 5
10	+35.8 / -38.8	+35.8 / -47.8
20	+34.2 / -37.2	+34.2 / -44.6
50	+32.1 / -35.1	+32.1 / -40.4
100	+30.5 / -33.5	+30.5 / -37.2
200	+29 / -31.9	+29 / -34
500	+26.9 / -29.8	+26.9 / -29.8

   2.5. Earthquake Loads:
   Seismic Importance Factor, I = 1.25
   Mapped Spectral Response Accelerations, S_S and S_1 = 0.125 and 0.072
   Site Class: D
   Spectral Response Coefficients, S_{DS} and S_{D1} = 0.133 and 0.115
   Seismic Design Category: B
   Basic Seismic-Force-Resisting System: Ordinary Reinforced Masonry Shear Walls
   Response Modification Factor, R = 2.
   Analysis Procedure: Equivalent Lateral Force Procedure

3. Structural Engineer is not responsible for the design of steel stairs, handrails, curtain wall/window wall systems, cold-formed steel framing, or other systems not shown in the Structural Documents. Such systems shall be designed, furnished, and installed as required by other portions of the Construction Documents.

4. Steel floor and roof assemblies and individual beams shall be considered "Restrained" (ASTM E119, Standard Test Methods for Fire Tests of Building Construction and Materials) for determining fireproofing thickness.

5. No explicit provisions have been made for future building expansion.

GENERAL

1. Reference to standards or specifications of technical societies, organizations, or associations means the standard or specification referenced by the governing Building Code shown on the Drawings, unless specifically noted otherwise.

2. Material, workmanship, and design shall conform to the referenced Building Code.

3. For dimensions not shown in the Structural Drawings, see the Architectural Drawings.

4. Contractor responsibilities include, but are not limited to, the following:

   4.1 Coordinate the Structural Documents with the Architectural, Mechanical, Electrical, Plumbing, and Civil Documents. Architect/Structural Engineer shall be notified of any discrepancy or omission prior to installation of associated work.

   4.2 Coordinate Structural Documents with Architectural and MPE Documents for location and quantity of miscellaneous framing for items such as roof drains, suspended or supported mechanical units, etc. Refer to Architectural and MPE Documents for additional miscellaneous structural elements that may not appear in the Structural Documents.

   4.3 Equipment/Framing Verification

   4.3.1 Mechanical Equipment: Submit actual weights of equipment to be used for review at least 3 weeks prior to fabrication and construction. Coordinate opening sizes and locations with Mechanical Contractor.

   4.3.2 Miscellaneous Framing: Verify framing shown on the Structural Drawings for mechanical equipment, Owner-furnished items, partitions, etc. is consistent with the requirements of such items.

   4.4 The structure is stable only in its completed form. Temporary supports required for stability during all intermediate stages of construction shall be designed, furnished, and installed by the Contractor.

   4.5 Contractor has sole responsibility for jobsite safety and complying with all health and safety precautions as required by any regulatory agency. In performing construction observation visits to the jobsite, the Structural Engineer will have no control over, nor responsibility for, the Contractor's means, methods, sequences, techniques, or Procedures in performing the work.

   4.6 Contractor is responsible for locating concrete reinforcement prior to installation of post-installed anchors, through bolts, or other post-installed items in concrete. Existing reinforcement including post-tensioning tendons shall not be cut or otherwise damaged while installing post-installed anchors.

5. Contractor shall field verify all existing conditions, elevations, and site conditions prior to construction and fabrication. Contractor shall immediately notify Structural Engineer of any existing conditions that are in conflict with the Structural Documents.

5. Existing and Unforeseen Conditions

   5.1 Contractor shall field verify all existing conditions, elevations, and site conditions prior to construction and fabrication. Contractor shall immediately notify Structural Engineer of any existing conditions that are in conflict with the Structural Documents.

   5.2 Shop drawing submittals shall be based on field verified dimensions and conditions only. Contractor shall clearly show actual field dimensions on shop drawings.

SUBMITTALS

1. Shop Drawings and Submittals

   1.1 Reproduction of Structural Drawings for shop drawings is not permitted.

   1.2 Electronic drawing files will not be provided to the Contractor.

   1.3 Review of shop drawings will be for conformance with the Construction Documents regarding arrangement and sizes of members and the Contractor's interpretation of the design loads, if applicable, and Construction Document details. Such review shall not relieve the Contractor of the full responsibility to comply with the Construction Documents.

2. Submittals

   2.1 The Structural Quality Assurance Plan and Specifications identify the required submittals. Prior to (or with) the first submittal, Contractor shall submit a list of all required submittals for Engineer's review.

3. Deferred Submittals

   3.1 Deferred Submittals include those portions of the project that are furnished by the Contractor and designed by someone other than the Engineer of Record and are submitted at the time of the application. Deferred Submittals shall be submitted to the Building Official prior to fabrication and installation.

   3.2 Submittal documents for Deferred Submittals:

   3.2.1 Shall be included in the Contractor's scope of services and shall be sealed by an Engineer licensed in the project state. Design of Deferred Submittals shall be in accordance with the governing Building Code indicated above.

   3.2.2 Shall be submitted to the registered design professional in responsible charge who shall review them and forward to the Building Official with a notation indicating the deferred submittal documents have been reviewed and that they have been found in general conformance with the design of the building. Deferred submittal items shall not be installed until the design and submittal documents have been approved by the Building Official.

   3.3 The following shall be considered Deferred Submittals:
   Steel Connections - See "Structural Steel" Section
   Steel Stairs and Handrails
   Pre-engineered Canopies

FOUNDATION

1. Geotechnical Report: William H. Mason Elementary School Restroom Additions
   Prepared By: Ladner Testing, Inc.
   Dated: June 2023
   W Geotechnical Project No. G-1364J
   Ladner Project No. 08-23-A

   1.1 It is recommended that the Contractor become familiar with the subsurface conditions that will be encountered and obtain a copy of the geotechnical report and any supplemental reports. The report(s) may be included as a reference document within the construction documents. Otherwise the Contractor shall contact the Owner to obtain a copy of the report(s).

2. Building Pad Preparation

   2.1 Strip vegetation and topsoil.

   2.2 Proofroll building areas with a minimum of two complete coverages of a loaded dump-truck or scraper in each of two perpendicular directions. Replace soft areas with compacted structural fill.

3. Soil Bearing Capacity: Continuous Footings 2000 psf

REINFORCEMENT

1. Reinforcing Bars: ASTM A615, Grade 60

   1.1 Reinforcing bars are not to be welded.

2. Welded Wire Reinforcement (WWR): ASTM A1064, 8" minimum side and end laps

   2.1 Slabs on Grade: 4" thick - Use WWR6x6-W1.4xW1.4
   6" thick - Use WWR6x6-W2.9xW2.9

   2.2 Composite Slabs: Use WWR6x6-W2.1xW2.1, UNO

3. Reinforcement Splices

   3.1 Reinforcement marked "Continuous" can be spliced at locations determined by Contractor. All other reinforcement shall be spliced only at locations shown or noted, unless approved in writing by Structural Engineer.

   3.2 Splice Lengths (UNO)

   Concrete Reinforcement: Class B Tension Lap
   Masonry Reinforcement: #4 - 16" / #5 - 24"

CAST-IN-PLACE CONCRETE

1. Concrete Properties

   1.1 Normal Weight Structural Concrete

	28-Day, f'c (min.)	w/cm Ratio (max.)	Entrained Air
Footings (Isolated / Continuous)	3,000 psi	----	None Required
Slabs-on-Ground	3,500 psi	0.48	None Required
All Other Structural Concrete	4,000 psi	0.40	5.0 +/- 1.5%

   Note: All concrete shall be assigned the Exposure Classes F0, S0, W0, and C0. (see ACI 318). Minimum properties required due to Exposure Class shall govern if more restrictive than the properties given in the Table above.

2. Construction Joint Locations: No horizontal construction joints are permitted except as shown on the Structural Drawings. Obtain written consent for additional joints.

3. Pipes or ducts shall not exceed one-third the slab or wall thickness unless specifically detailed. See mechanical and electrical drawings for location of sleeves, accessories, etc.

   3.1 Conduit shall not be placed within the slab-on-ground. Conduit shall be installed below the slab-on-ground within the granular subbase.

   3.2 Do not install conduits, pipes, ducts, or sleeves in cast-in-place concrete columns unless approved in writing by licensed design professional.

4. Special Finishes: Refer to Architectural Drawings for molds, grooves, ornaments, clips or grounds required to be encased in concrete and for location of floor finishes and slab depressions.

5. Defect Repair: Honey-combing, spalls, cracks, etc. shall be repaired. Extent of defective area to be determined by the Structural Engineer.

6. Curing

   6.1 Begin curing procedures immediately following commencement of the finishing operation.

   6.2 Concrete shall be moist cured in accordance with ACI 308. See Specification for additional information.

CONCRETE MASONRY

1. Specified Compressive Strength, f'_m = 2,000 psi
   Minimum Net Area Compressive Strength of Masonry Unit: 2,000 psi
   (ASTM C90 w/ Type M or S Mortar)

2. Mortar: Walls below grade Type M
   Bearing walls Type M or S
   Partition walls Type N

3. Coarse Grout: 2,500 psi min. compressive strength conforming to ASTM C476.

   3.1 Grout solid bond beams, reinforced CMU cores, and CMU cores and wall cavities below grade.

   3.2 Masonry webs on each side of grouted cells shall be fully mortared. Exterior single wythe CMU walls shall have head joints fully mortared.

4. Horizontal Joint Reinforcement, UNO:
   Two (2) No. 9 gage longitudinal wires at 16" vertically. Lap wire 6" minimum. Provide accessories for corners, intersections, etc. Use ladder type for walls with vertical reinforcing.

5. Provide open bottom beam block units with 3" deep minimum web openings at horizontal reinforcement locations not located over an opening. A minimum clear space of one bar diameter shall be provided between the reinforcing bars and the face of masonry units.

6. CMU has been designed assuming "running bond" placement. Do not use "stack bond" unless approved by Structural Engineer.

7. Contraction Joints: Unless noted otherwise on the Plans, maximum spacing of 1½ times of wall height or 24 feet (whichever is less) in all concrete masonry walls (including partitions) above grade.

8. Submit written construction procedures prior to the start of masonry construction.

9. Grout fill beam and joist pockets in masonry walls after welds are inspected.

10. Contractor shall submit drawings coordinated with masonry and MPE contractors indicating the MPE penetrations through load bearing and non-load bearing walls. These drawings shall indicate the size and location of all penetrations and shall be submitted to the Architect/Structural engineer prior to installation.

STRUCTURAL STEEL

1. Steel Shapes

   1.1 W-Shapes: ASTM A992 (Grade 50)

   1.2 Angles, Channels, Plates, UNO: ASTM A36

   1.3 Square/Rectangular/Round Hollow Structural Sections (HSS): ASTM A500, Grade B

   1.4 Pipe Structural Sections: ASTM A53, Grade B

2. Bolts, and Studs

   2.1 Bolts: 3/4" Diameter A325 minimum. All connections may be bearing type, UNO. Design bearing type connections for load values with threads included in the shear plane. Submit proposed bolt tightening procedure for review.

   2.2 Headed Studs: AWS D1.1. See Details for Diameter, Length and Spacing. Length given is in-place length after burn-off.

3. Structural steel shall be fabricated and erected according to the "Specification for Structural Steel Buildings" referenced in the referenced Building Code.

4. Connections shall be detailed based on the design information provided in the Structural Documents.

   4.1 Standard Shear Connections: Detail as bolted or welded double-angle, single-plate, single-angle, or tee connections in accordance with the connection tables in the "Manual of Steel Construction" referenced in the referenced Building Code.

   4.1.1 Shear connections not defined in the AISC Manual shall be designed by an Engineer licensed in the project state. This design service shall be included in the Contractor's scope of services. Shop drawings of such connections shall be sealed by the Engineer, completed prior to and submitted with the Structural Steel Shop Drawings.

   4.2 Welded Connections: Prequalified welded joints in accordance with AISC and the Structural Welding Code of the American Welding Society; "Non-prequalified joints" shall be qualified prior to fabrication.

   4.3 Factored Design Forces/Reactions: As shown on the Structural Drawings or, if not shown, the factored design reaction shall be half of the "Maximum Total Uniform Load (LRFD)" tabulated in the "Manual of Steel Construction" referenced in the referenced Building Code.

   4.4 Steel connections not specifically detailed in the Structural Drawings shall be designed by the Contractor. This design service shall be included in the Contractor's scope of services. Shop drawings of such connections shall be sealed by an Engineer licensed in the project state, completed prior to and submitted with the Structural Steel Shop Drawings.

5. Shop Drawings: Submittal shall adequately depict structural members and connections.

6. Welders shall be qualified for the work performed in accordance with AWS D1.1. Welder qualifications shall be certified by the local building authority and verified by the Contractor and the Special Inspector.

7. Shelf Angles Supporting Masonry Veneer

   7.1 All shelf angles supporting exterior building veneer are to be galvanized. Touch-up welds and abrasions in accordance with ASTM A780.

   7.2 Galvanized brick lintel angles receiving paint shall have proper treatment performed to accept paint.

   7.3 Sections and details presented in the structural documents may not be construed as defining the elevation of shelf angles. Elevations of shelf angles must be coordinated with the architectural drawings to ensure shelf angles are positioned at the proper elevation for masonry coursing.

   7.4 Contractor shall submit elevations and plans depicting all masonry shelf angles and their respective elevations for approval by the architect and structural engineer prior to construction.

POST-INSTALLED ANCHORS

1. Post-installed anchors shall only be installed where indicated on the structural drawings, unless approved by engineer of record.

2. The below products are the design basis for this project. Product diameter and embedment shall be as shown in the details. Install products IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII). Refer to the project building code and/or evaluation report for special inspections and proof load requirements. Substitution requests for products other than those listed below may be submitted by the contractor to the Engineer-of-Record (EOR) for review. Substitutions will only be considered for products having a research report recognizing the product for the appropriate application under the project building code. Substitution requests shall include calculations that demonstrate the substituted product is capable of achieving the equivalent performance values of the design basis product.

3. For Anchoring into Concrete

   3.1 Expansion Anchors: Hilti Kwik Bolt TZ (ICC-ES ESR-1917), Simpson Strong-Bolt 2 (ICC-ES ESR-3037), DeWalt/Powers Power-Stud+ SD1 (ICC_ES ESR-2818), or DeWalt/Powers Power-Stud+ SD2 (ICC-ES ESR-2502). Minimum embedment = 6 times anchor diameter, UNO.

   3.2 Screw Anchors: Simpson Titen-HD (ICC-ES ESR-2713), DeWalt Screw-Bolt+ (ICC-ES ESR-3889) or Hilti Kwik HUS-EZ (ICC-ES ESR-3027). Minimum Embedment = 6 times anchor diameter, UNO.

   3.3 Dowel Adhesive

   3.3.1 Adhesive anchors shall be installed in concrete having a minimum age of 21 days at time of anchor installation.

   3.3.2 Dowel adhesive identified in the drawings as installed in a horizontal or upwardly inclined orientation to resist sustained tensile loads shall be installed by certified installers.

   3.3.3 Reinforcing bars conforming to ASTM A615, Grade 60.

   3.3.4 Adhesive for rebar shall have been tested in accordance with ACI 355.4 and ICC-ES AC308 for cracked concrete and seismic applications. Design bond strength has been based on CRACKED CONCRETE, ACI 355.4 temperature category B, and installations into dry holes drilled using a hammer drill into concrete that has cured for at least 21 days.

   3.3.5 Adhesive conforming to Simpson AT-XP (IAPMO-UES ER-263), Simpson SET-XP (ICC-ES ESR-2508), DeWalt/Powers Pure110+ (ICC-ES ESR-3298), DeWalt AC200+ Adhesive (ICC-ES ESR-4027), Hilti HIT-HY 200 SAFE Set Fast Cure Adhesive (ICC-ES ESR-3187), Hilti HIT-RE 500 V3 Safe Set Adhesive (ICC-ES ESR-3814). Minimum Embedment = 12 times anchor diameter, UNO.

4. Contractor shall arrange for an anchor manufacturer's representative to provide onsite installation training for all of their anchoring products specified. The structural Engineer of record must receive documented confirmation that all of the contractor's personnel who install anchors are trained prior to the commencement of anchor installation.

STEEL DECK

1. Steel Roof Deck: See Plans for gage, galvanized

2. Submit shop drawings with the manufacturer's catalog demonstrating compliance with the Contract Documents and the Steel Deck Institute.

ANCHORAGE AND BRACING OF NON-STRUCTURAL COMPONENTS

1. MP&E Suspended Components

   1.1. Pipe and Conduit loads supported by "C" clamps at the edge of structural steel beam flanges cannot exceed 500 pounds. All "C" clamps shall have a retainer strap or similar restraint to prevent the clamp from working free during a seismic event.

   1.2. Total load of mechanical components applied to any one structural steel beam is not to exceed 4000 pounds unless specifically approved by the Structural Engineer.

   1.3. At roof decks, piping is to be supported from the structural steel beams or supplementary steel supports, not supported by the roof deck.

   1.4. See specifications for limitations on hanger loads supported by steel roof deck.

2. Architectural, mechanical, and electrical components shall be properly anchored and braced to resist the seismic forces specified in the referenced Building Code. Refer to the architectural and MPE documents for specific details and additional information.

3. Suspended ducts, pipes, and conduits shall be braced in accordance with the ANSI/SMACNA 001-2008 Seismic Restraint Manual, 3rd Edition. Refer to the MPE documents for specific details and requirements.

DRAWING INDEX	
Sheet Number	**Sheet Name**
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S-101	FOUNDATION AND ROOF FRAMING PLAN
S-300	FOUNDATION SECTIONS AND DETAILS
S-310	TYPICAL CMU SECTIONS AND DETAILS
S-400	ROOF FRAMING SECTIONS AND DETAILS

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THOMAS C. SCHAEFER — REGISTERED PROFESSIONAL ENGINEER — 21331 — STATE OF MISSISSIPPI

Laurel School District
Mason Elementary School Restrooms Addition Project
Laurel, MS

100% Construction Documents

Project No	23003
Date	22 May 2023
Drawn	S.T./S.M.
Checked	W.G./J.W./T.S.
Revisions	Rev Date
1	6/10/23

S-001
STRUCTURAL NOTES AND DRAWING INDEX