Addendum 3
Webster High School – Band Room & Greenhouse Additions w/ Site Improvements

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10/6/2022

This Addendum is hereby made a part of the Contract Documents to the same extent as though it were originally included herein. This Addendum must be acknowledged in the space provided on the Bid Form.

General Information / Attachments

1. Updated Bid Form attached with new Alternates.
2. CM Clarification 1 attached.

Drawings & Specifications

1. Addendum 3 with Narratives attached.

End of Addendum 3

.02 Bid Form - Webster High School

Date of Bid _____

Submitting Company ("Bidder")

Company Name_____

Project State License Number_____

Company Representative

Name_____

Email Address_____

Cell Phone_____

Scope of Work

Bid Package Number_____

Bid Package Description_____

Addenda / CM Clarification

Bidder acknowledges receipt of the following:

Addendum #_____ Dated _____	CM Clarification #_____ Dated _____
Addendum #_____ Dated _____	CM Clarification #_____ Dated _____
Addendum #_____ Dated _____	CM Clarification #_____ Dated _____
Addendum #_____ Dated _____	CM Clarification #_____ Dated _____
Addendum #_____ Dated _____	CM Clarification #_____ Dated _____
Addendum #_____ Dated _____	CM Clarification #_____ Dated _____

Base Bid

By submitting this proposal form, bidder acknowledges receipt of and compliance with Nabholz minimum insurance requirements, Master Contract Agreement, Project Contract Agreement, Performance and Payment Bond requirements, Purchase Order, CCIP Program Addendum, and Safety Standards.
Bidder agrees to complete the Scope of Work listed below for a lump sum of:

Words _____Dollars $ _____

The lump sum bid price above INCLUDES all insurance premiums necessary to meet the insurance requirements and premiums for the Performance, Statutory (Payment), and Defect bonds required for this project (bonds are required for all contracts that are **$50,000** or more).

Alternates

1. **Alternate #1 <u>BUILDING "A" MIDDLE HIGH SCHOOL RESTROOM RENOVATION</u>: Provide ADDITIVE cost to provide all work required for the Staff Restroom A200 Renovation. Refer to Sheets AA1.1, AA7.1 & A-MEP101 for additional information regarding this Alternate.**

   Add/Deduct $ _____

2. **Alternate #2 <u>BUILDING "B" MAIN CLASSROOM 1ST FLOOR RESTROOM RENOVATIONS</u>: Provide ADDITIVE cost to provide all work required for the Restroom Renovations on the 1st floor of Building "B". Refer to Sheets AB0.1, AB0.3, AB0.4, AB1.1, AB2.1, AB2.2, AB2.3, AB7.1, AB9.1, AB9.2 & the "B" MEP Sheets for additional information regarding this Alternate.**

   Add/Deduct $ _____

3. **Alternate #3 <u>BUILDING "B" MAIN CLASSROOM 2ND FLOOR RESTROOM RENOVATIONS</u>: Provide ADDITIVE cost to provide all work required for the Restroom Renovations on the 2nd floor of Building "B". Refer to Sheets AB0.2, AB0.3, AB0.4, AB1.2, AB2.1, AB2.2, AB2.3, AB7.1, AB9.1, AB9.2 & the "B" MEP Sheets for additional information regarding this Alternate.**

   Add/Deduct $ _____

4. **Alternate #4 <u>BUILDING "B" MAIN CLASSROOM 1ST FLOOR SE SECURE ENTRY VESTIBULE RENOVATION</u>: Provide ADDITIVE cost to provide all work required for the 1st floor S-E Secure Entry Vestibule renovation. Refer to Sheets 7/AB0.4, 5/AB2.1, 5/AB2.2, 5/AB2.3, AB7.1, AB9.1, AB9.3, B-E101, 1/B-E201 & the "B" MEP Sheets for additional information regarding this Alternate.**

   Add/Deduct $ _____

5. **Alternate #5 <u>BUILDING "B" MAIN CLASSROOM EXTERIOR RE-LAMPING FIXTURES, NORTH CONCRETE SIDEWALK PAVING, STAIR & PLANTER WORK</u>: Provide ADDITIVE cost to provide all work required for the re-lamping of the Building "B" exterior light fixtures, demolition & replacement of the exterior planters, sidewalks, and stairs on the north & east sides of the Building "B" Main Classroom. Refer to Sheets DS0.3, AS0.3, AS0.4, AS0.5, AS0.6, & 1/B-MEP101.**

   Add/Deduct $ _____

6. **Alternate #6 <u>BUILDING "C" CAFETERIA RENOVATION</u>: Provide ADDITIVE cost to provide all work required for the Cafeteria Rooms C101 & C102 & Serving C103 Renovation. Refer to Sheets AC0.3, AC0.5, AC1.2, AC1.5, AC1.7, AC9.5 & the "C" MEP sheets for additional information regarding the work required in this Alternate.**

   Add/Deduct $ _____

7. **Alternate #7 <u>BUILDING "D" GREEN HOUSE POLYCARBONATE PANELS</u>: Provide DEDUCTIVE cost to provide Polycarbonate Panels at the new Green House structures in lieu of the Acrylic Panels identified for the Base Bid. Refer to Section 131230 - Green House Systems for additional information regarding this Alternate.**

   Add/Deduct $ _____

8. **Alternate #8 <u>WEST PARKING LOT OVERLAY</u>: Provide ADDITIVE cost to provide all work required for the "Middle School" Parking Lot Mill Overlay & Restripe. Refer to Sheet 3/C.4.4 for additional information regarding this Alternate. The referenced "gate" is part of Alternate #9.**

   Add/Deduct $ _____

9. **Alternate #9 <u>DRIVEWAY ENTRY PIPE GATES</u>: Provide ADDITIVE cost to provide 4 pairs of new steel gates. Refer to Sheets DS0.1, AS0.1, AS0.2, C4.3 & C4.4 for locations & additional information regarding this Alternate.**

   Add/Deduct $ _____

Voluntary Alternates

1. **_____ Add/Deduct $ _____**

2. **_____ Add/Deduct $ _____**

Unit Pricing

Where applicable to Scope of Work, provide the following unit prices, which will be used to adjust contract amount for changes to Scope of Work.

1. Undercut and remove from site existing unsuitable **soils** measured as in-place yardage. $_____ / cuyd
2. Fill with specified Type A aggregate. $_____ / cuyd
3. Provide 10lbs of additional floor patch above the quantities identified in the Bid Package, measured per bag $_____ / bag

4. Provide ceiling replacement of acoustical ceiling system in existing building, measured per square foot. $_____ / sqft

5. Additional LF of a temp wall to ceiling as listed in bid the drywall bid package $_____ / LF

6. Add casing at 18" dia. drilled piers, measured per linear foot. $_____ / LF

7. Add casing at 24" dia. drilled piers, measured per linear foot. $_____ / LF

8. Add casing at 36" dia. drilled piers, measured per linear foot. $_____ / LF

9. Add depth at 18" dia. drilled piers, measured per linear foot. $_____ / LF

10. Deduct depth at 18" dia. drilled piers, measured per linear foot. $_____ / LF

11. Add depth at 24" dia. drilled piers, measured per linear foot. $_____ / LF

12. Deduct depth at 24" dia. drilled piers, measured per linear foot. $_____ / LF

13. Add depth at 36" dia. drilled piers, measured per linear foot. $_____ / LF

14. Deduct depth at 36" dia. drilled piers, measured per linear foot. $_____ / LF

15. Add for (1) standard electrical duplex receptacle within 100 ft. $_____ / EA

16. Add for (1) standard data outlet within 100 ft of final termination. $_____ / EA

17. Add for the cost to replace an individual fire suppression sprinkler head $_____ / EA

Work in Progress & Project Specific Qualifications

Bidder shall submit with their proposal a Work in Progress (WIP) Report that lists the ten (10) largest projects currently being constructed. Moreover, final evaluation of Bidder's proposal shall be conditional on review of WIP Report, and Bidder's experience with similar scope and projects.

Completion Time

All Work shall be completed within the schedules prepared by and agreed to by Nabholz. Bidder shall provide adequate manpower and submit documentation for approval necessary to work within the timeframe scheduled. Estimated time period for construction is December 2022-March 2024.

Bid Security

Bid Security is required for subcontract proposals greater than $50,000 – 5% Bid Bond. Obligee is Nabholz Construction Corporation.

Bidder must include the cost of a Performance and Payment Bond in their bid and meet the requirements set forth in the "Project Contract" if their bid includes installation labor of any kind. Failure to do so may result in bid being deemed "non-responsive" and result in disqualification.

Verification Information Required

Indicate the percentage rate for the bond cost. _____. Cost shall be included in Base Bid.

Name of Surety Agent _____

Surety Agent Phone Number _____

Acceptance of Contract Forms

Bidder acknowledges that they have reviewed and accept the Contract Performance and Administration, Sample Master Contract, Sample Project Contract, Payment and Performance Bonds, Sample Purchase Order, Contractor-Controlled Insurance Program Addendum to Master Contract and the Nabholz Safety Standards forms linked in Section 6.04. Proposed modifications must be submitted with bid.

Signature

Bidder agrees that this proposal remains valid for a period of 60 days. Bidder understands that Nabholz and the Owner reserve the right to reject any or all bids. Bidder acknowledges Nabholz minimum insurance requirements and understands that the Master Contract shall be the basis of any contract offered by Nabholz Construction to Bidder. Proposed modifications of Master Contract language must be submitted with bid. Attach additional sheets if necessary. Upon receipt of notice of acceptance of bid, Bidder agrees to execute and return the contract and required insurance certificates within two weeks of notification.

By _____ **Title** _____

Printed name of individual signing this proposal _____

Contact phone number _____

Date _____

END OF PROPOSAL FORM

TPS – Webster High School Band Room & Green House Addition with Site Improvements
10-6-2022

CM Clarification's – 1

Item No. CM 1.1 **All Bid Packages**: Updated Bid Form attached. Changes are bolded for clarity. Fill out bid form completely including all alternates and unit prices. Do not modify the bid form.
Item No. CM 1.2 **All Bid Packages**: Pre-Bid walks are only mandatory for the following packages: 02.0 Demolition, 02.1 Abatement, 03.0 Concrete, 04.0 Masonry, 08.3 Storefront, Glass, and Glazing, 09.0 Light Gauge Framing, 09.2 Tile and Commercial Flooring, 09.4 Painting, 10.0 Doors, Frames, Hardware, 22.1 Plumbing, 23.1 HVAC, 26.2 Electrical, 31.1 Earthwork, Storm Drainage, and Site Utilities, 32.1 Asphalt Paving.
Item No. CM 1.3 **04.0 Masonry**: Core fill insulation in CMU to be included in Masonry scope.
Item No. CM 1.4 **04.0 Masonry**: Tooth CMU on 4/AC1.5 into existing.
Item No. CM 1.5 **07.3 Roofing, Flashing, Sheet Metal**: This bid package is responsible for removing existing cap flashing that is being replaced with new.
Item No. CM 1.6 **13.1 Pre-Manufactured Greenhouse, 26.2 Electrical**: Electrician to install controls provided by greenhouse contractor. Electrician to provide power for all mechanical fixtures installed by Greenhouse package.
Item No. CM 1.7 **13.1 Pre-Manufactured Greenhouse, 26.2 Electrical**: All grow lights referenced in lighting keynote L3 are to be provided and hung by Greenhouse contractor. Electrical package will provide power.
Item No. CM 1.8 **26.2 Electrical**: This package is to provide and install all greenhouse lighting except for the grow lights referenced in lighting keynote L3.
Item No. CM 1.9 **13.1 Pre-Manufactured Greenhouse, 22.1 Plumbing**: Plumbing package to include all plumbing fixtures, services, connections, and hardware in pre-manufactured greenhouse. Coordinate installation with Greenhouse contractor.
Item No. CM 1.10 **13.1 Pre-Manufactured Greenhouse**: Include all equipment listed in specification section 131230-2.2.
Item No. CM 1.11 **All Bid Packages**: An additional pre-bid walk will be held on October 10, at 4PM.
Item No. CM 1.12 **10.0 Doors, Frames, & Hardware (Supply & Installation), 13.1 Pre-Manufactured Greenhouse**: Greenhouse contractor to provide and install all aluminum frames, doors, and hardware (excluding cores) associated with the greenhouse system. Doors, Frames, and Hardware contractor to supply and install all FRP doors. Coordinate install with Greenhouse contractor.
Item No. CM 1.13 **08.3 Storefront, Glass, Glazing, 10.0 Doors, Frames, & Hardware**: At openings D100A and D100B Doors, Frames, and Hardware contractor will provide and install FRP doors in aluminum storefronts provided and installed by Storefront, Glass, and Glazing contractor.
Item No. CM 1.14 **13.1 Pre-Manufactured Greenhouse**: Include all metal flashing, tapes, and sealants necessary to connect greenhouse structure to existing building.
Item No. CM 1.15 **03.0 Concrete, 31.1 Earthwork, Storm Drainage, Site Utilities**: Earthwork package to provide curb inlet tops for concrete contractor to install.
Item No. CM 1.16 **03.0 Concrete, 31.1 Earthwork, Storm Drainage, Stie Utilities**: 03.0 Concrete package to replace the concrete paving referenced in 31.1, section B, note 17.
Item No. CM 1.17 **03.0 Concrete, 31.1 Earthwork, Storm Drainage, Site Utilities**: 03.0 Concrete package will demo all sidewalks that are shown to "remove and replace" unless specifically noted otherwise.
Item No. CM 1.18 **03.0 Concrete, 31.1 Earthwork, Storm Drainage, Site Utilities**: The north entry stairs in 31.1 section B note 43/45 is referring to the Existing High School Building north entry stairs.
Item No. CM 1.19 **22.1 Plumbing, 10.1 Building Specialties (Supply & Installation):** 22.1 Plumbing to supply and install the eyewash station and all accessories including the privacy curtain as it is a complete kit.

Item No. CM 1.20 **09.0 Light Gauge Framing, Drywall, Acoustical**: Include minor adjustments to acoustical panel locations to reach acoustical performance preferences of architect.
Item No. CM 1.21 **09.0 Light Gauge Framing, Drywall, Acoustical**: Include all acoustical absorbers and diffusers as specified and the accompanying acoustical notes on AC1.6.
Item No. CM 1.22 **09.0 Light Gauge Framing, Drywall, Acoustical, 02.0 Demolition**: The multistall restrooms in Building B (High School) have 6" & 4" glazed up to 6' with stucco over unfinished block above. At the 6' line there is a "band" about 4" high that sticks out ½" from the other glazed block and stucco. 02.0 Demolition will chip out the glazed block "band" to create an even surface. 09.0 Framing will then laminate the wall with backerboard over the existing block. Demolition contractor to coordinate with Framing contractor to get to an acceptable level of flatness.
Item No. CM 1.23 **02.0 Demolition, 22.1 Plumbing**: Plumbing to make safe and Demolition package to demolish fixtures that are not shown to be salvaged. If fixture is to be salvage or reused then plumbing will remove, store, and replace/return to owner.
Item No. CM 1.24 **22.1 Plumbing**: Include cutting back walls as needed for new plumbing.
Item No. CM 1.25 **03.0 Concrete**: Concrete to cut existing asphalt back 1' everywhere where new curb and gutter is installed against existing asphalt. Prep subgrade from existing asphalt out to new curb and gutter.
Item No. CM 1.26 **09.2 Flooring**: Include continuous wood floor reducer on sheet S1.3 detail 3.
Item No. CM 1.27 **05.2 Structural and Miscellaneous Steel (Supply & Installation), 09.0 Light Gauge Framing, Drywall, Acoustical**: 05.2 Steel package to include supply and installation of metal decking for the interior concrete ramp and 4" reinforced concrete floor shown in detail 2 on AC5.3. Light gauge framing supports for ramp to be provided and installed by 09.0 Framing package.
Item No. CM 1.28 **03.0 Concrete, 07.3 Roofing**: 03.0 Concrete package to include concrete and reinforcement at interior concrete ramp and 4" thick concrete floor shown in detail 2 on AC5.3.
Item No. CM 1.29 **03.0 Concrete, 32.1 Asphalt Paving**: ADA & traffic signage to be provided and installed by 32.1 Asphalt package.
Item No. CM 1.30 **03.0 Concrete**: Include concrete paving at ADA parking stalls as shown in C4.3.
Item No. CM 1.31 **31.1 Earthwork, Storm Drainage, and Site Utilities**: Do not include cut of unsuitable soils at Building D (Greenhouse Addition). Provide unit price for cut and fill as shown on bid form.
Item No. CM 1.32 **08.2 Coiling Doors and Service Doors, 10.0 Doors, Frames, Hardware (Supply & Installation), 23.1 Heating Ventilation, Air Conditioning**: Contractor to submit FEMA-rated doors, louvers, windows, shutters shop drawings indicating connections to wall are to be submitted to structural engineer of record.
Item No. CM 1.33 **04.0 Masonry**: Include Specification section 047200 Architectural Cast Stone.
Item No. CM 1.34 **22.1 Plumbing, 26.2 Electrical**: Include Specification section 263213 Gaseous Emergency Engine Generators.
Item No. CM 1.35 **22.1 Plumbing**: Provide all gas, exhaust, and mechanical connections and regulators for a complete and functioning Emergency Generator.

ADDENDUM

GS HELMS + ASSOCIATES

TO: ALL OFFICIAL PLAN HOLDERS

ADDENDUM NUMBER: **THREE**

PROJECT: Tulsa Public Schools
Webster High School
Band Room & Green House Additions w/ Site Improvements
1919 West 40th Street
Tulsa Oklahoma

PROJECT NUMBER: 21-03000

DATE: 10.05.22

The following are modifications and / or clarifications to the Bidding Documents dated June 16, 2022 & Addenda #1 & #2. This addendum forms a part of the Contract Documents and is subject to all Contract requirements as if included in original documents. Failure to acknowledge receipt of this addendum on the Bid Form may subject Bidder to disqualification.

3.1 ATTACHMENTS

A.	Section 000125 Addendum to Geotechnical Eng. Report	New
B.	Section 012300 – Alternates	Revised
C.	Section 047200 – Architectural Cast Stone	New
D.	Section 263213 – Gaseous Emergency Engine Generators	Revised
E.	Civil Addendum #3 Narrative	New
F.	Sheet C1.0 – General Notes	Revised
G.	Sheet C3.0 – General Notes	Revised
H.	Sheet C4.3 – Site Plan	Revised
I.	Sheet C4.4 – Site Plan	Revised
J.	Sheet C5.3 – Grading Plan	Revised
K.	Sheet C6.3 – Utility Plan	Revised
L.	Sheet C7.0 – Storm Profiles	Revised
M.	Sheet C7.1 – Storm Details	Revised
N.	Sheet C8.2 – Details	Revised
O.	Sheet C8.4 – Details	Revised
P.	Sheet S1.0 – Foundation Plan – Band Room Addition Bldg. “C”	Revised
Q.	Sheet S1.1 – Wall Sections, Foundation Details	Revised
R.	Sheet S1.2 – Details – Band Room Addition Building “C”	Revised
S.	Sheet S1.3 – Interior Ramp Framing Plan & Details	Revised
T.	Sheet S2.0 – Roof Framing Plan	Revised
U.	Sheet S2.2 – Saferoom Criteria	Revised
V.	Sheet D-MP102 – Enl. Mech. & Plumb. Floor Plans Bldg. “D”	Revised

GSHELMS+ Associates, LLC 424 e. main st. Jenks, OK 74037 918.298.7257 www.gshelms.com

3.2 CHANGES / CLARIFICATIONS TO SPECIFICATIONS

A. Specification Project Manual, Table Of Contents, Division 04 – Masonry, Add Specification “Section 047200 – Architectural Cast Stone”.
B. Section 000125 – Addendum to Geotechnical Engineering Report dated July 8, 2022 added as part of this addendum attached.
C. Section 012300 – Alternates; Revised specification section attached.
D. Section 047200 – Architectural Cast Stone, new specification section added as part of this addendum attached.
E. Section 083350 – Tornado Resistant Coiling Door;
   1. Paragraph 2.01, B: Cornell Storm Defender Door shall be an approved product.
   2. Paragraph 2.02, A. Delete reference to “polymeric insulation core”; coiling doors are not required to be insulated.
F. Section 084113 - Entrances and Storefronts: Paragraph 2.01, E; The Kawneer, framed 8225TL Outswing Casement Window set inside the 451T framing shall be an approved product.
G. Section 102600 – Wall Protection Panels: Paragraph 2.01; Add B, Pawling Pro-Tek WC-40 WPP & CG-20 Corner Guards shall be approved products.
H. Section 124920 – Manual Roller Shades: Paragraph 2.01, B.2., Add “SWF Crosshatch R300 (Ebony/Stone), & U300(Shadow/Ebony) are approved if meeting the specifications of 2.02, A.1.”
I. Section 230600 Heating, Ventilating, and Air Conditioning;
   1. 2.12, B. Exhaust Fans, Approved Manufacturers; add “5. Twin City Fan”.
   2. 2.13, B. Roof Hoods, Approved Manufacturers; add “7. Twin City Fan”.
J. Section 263213 – Gaseous Emergency Engine Generators, Revised specification section attached.

3.3 CHANGES / CLARIFICATIONS TO DRAWINGS

A. Sheets C1.0, C3.0, C4.3, C4.4, C5.3, C6.3, C7.0, C7.1, C8.2, & C8.4; revised sheets attached. Refer Wallace Engineering narrative for further information regarding revisions.
B. Sheet S1.0 – Foundation Plan – Band Room Addition Bldg. C; revised sheet attached.
C. Sheet S1.1 – Wall Sections, Foundation Details; revised sheet attached.
D. Sheet S1.2 – Details, Band Room Addition – Building “C”; revised sheet attached.
E. Sheet S1.3 – Interior Ramp Framing Plan & Details; revised sheet attached.
F. Sheet S2.0 – Roof Framing Plan; revised sheet attached.
G. Sheet S2.2 – Saferoom Criteria; revised sheet attached.
H. Sheet AB0.3 – Enlarged Demolition Floor Plans, Main Classroom Building “B”; Enlarged Floor Plans 1,2,3&4/AB0.3, add note “Remove the 2 ½” high ceramic tile band (at approx. 5’-8” aff) & grout that protrudes out from the wall down to flush with the adjacent lower tile block and the stucco above.”
I. Sheet AB2.1 – Enlarged Floor Plans – Main Classrooms Building “B”; Enlarged Floor Plans 1,2,3&4/AB2.1, add note “Fully adhere & Secure ¼” Durorock above the cove base up to 7’-4” aff under the new Ceramic Tile, re: sheets AB9.1 & AB9.2. Add aluminum Schluter Trim to cover the ends & edges of the C.T. and the Durorock at the top, sides and bottom of the Ceramic Tile & at door & access door frames, etc.”

J. Sheet AB9.3 – Secure Entry Reception Desk Enlarged Plan & Interior Elevations Building “B”; Enlarged Plan 1/AB9.3, Change interior elevation marker “9/AB9.3” to “6/AB9.3, and change interior elevation marker “6/AB9.3” to “9/AB9.3”.

K. Sheet AC1.2 – Partial Upper Level Floor Plan – Cafeteria Renovation – Bldg “C”;
   1. 1/AC1.2, Partial Upper Level Floor Plan Cafeteria Renovation; Add note: “All work shown in Rooms C101, C102 & C103 are part of Alternate #6.
   2. 1/AC1.2, Partial Upper Level Floor Plan Cafeteria Renovation; Delete the reference to “Alternate #1 Cafeteria Table & Trash Kiosk Island”, it is all part of Alternate #6, Cafeteria Renovation.
   3. 2,3 & 4/AC1.2 – Kiosk & Table Sections, Delete reference to “Part of Alt. #1”, they are all part of Alternate #6, Cafeteria Renovation.

L. Sheet B-P102 – Enlarged First & Second Floor Plumbing Plans, Main High School Classroom Building “C”; Keynote #5. Add note, “Extent of removal & replacement of galvanized water pipe is back to the main riser.”

M. Sheet D-MP102 – Enlarged Mechanical & Plumbing Floor Plans – Green House Addition Building “D”; revised sheet attached.

END OF ADDENDUM THREE

GSHELMS+ Associates, LLC 424 e. main st. Jenks, OK 74037 918.298.7257 www.gshelms.com

Terracon

July 8, 2022

GS Helms & Associates, LLC
424 East Main Street
Jenks, Oklahoma 74119

Attn: Mr. Greg Helms
P: (918) 583-5300
E: greg.helms@gshelms.com

Re: Addendum to Geotechnical Engineering Report
Modifications to Earthwork Recommendations – Band Classroom Addition
Webster High School Classroom Additions
Tulsa, Oklahoma
Terracon Project No. 04225018

Dear Mr. Helms:

On June 24, 2022, Terracon, GS Helms, and Nabholz had a tele-meeting in which the grading plan dated June 14, 2022 and construction sequencing was discussed. Based on the information discussed during that meeting, we are submitting this addendum to our March 14, 2022 Geotechnical Engineering Report to present modifications to the earthwork recommendations for the planned Band Classroom Addition.

Based on the Grading Plan (sheet C5.3) dated June 14, 2022, the Band Room building has a design finished floor elevation of 655 feet. Fill depths up to about 12 feet above existing grade will be required to reach the final floor slab subgrade elevation. The deepest fills will occur within the northeastern of building area where it is located over the existing drainage channel. In addition to the fills placed above the existing grades, we anticipate that additional fill thickness up to approximately 8.5 feet will be placed to backfill undercuts that are made to remove unsuitable soils in the vicinity of the existing drainage channel. As discussed in our geotechnical report, boring B-2 which was located near the existing drainage channel encountered approximately 8.5 feet low strength, unstable soils that are not suitable for support of new fills and floor slabs and therefore, would require full-depth removal. In summary, fill depths up to approximately 20 feet are anticipated to reach the final floor slab subgrade level.

We understand the following construction sequencing will occur to grade the building pad:

- Install the storm drain box located near the northeast corner of the building and place backfills associated with installation of the box, and perform the undercut and backfill procedure associated with removal of unsuitable soils in the vicinity of the existing drainage channel
- Perform subgrade preparation and place fills to grade the building area and surrounding area up the top of grade beam elevation, approximately 647.7 feet

- Install drilled pier foundations and grade beams, and walls around the building perimeter
- Backfill inside of the perimeter building walls to bring the building area up to the final floor slab subgrade elevation (approx. 654.3 feet)

We provide the following earthwork recommendations for the Band Classroom addition based on the grading plan and construction sequencing.

Earthwork Recommendations – Band Classroom Addition

Earthwork should begin with performing the recommendations presented in the **Site Preparation** subsection of the **Earthwork** section of our March 14, 2022 Geotechnical Engineering Report. This includes undercutting the full-depth of low strength, unstable soils such as those encountered in boring B-2 to a depth of about 8.5 feet. As discussed previously, boring B-2 was located near the existing drainage channel. Removal of the low strength, unsuitable soils should occur beneath the building area and extending laterally at least 10 feet beyond the building limits. All fill used to backfill the undercut to remove unsuitable soils and extending up to elevation 642 feet should consist of an approved ODOT Type A aggregate base.

After completing the **Site Preparation** subsection recommendations and backfilling the undercuts required to remove unsuitable soils, the building area should be filled up to the top of grade beam elevation using an approved, locally available broken shale. The shale material should be broken-down and thoroughly blended to develop a well-graded predominately soil-like mixture having a plasticity index of 18 or less, at least 15 percent fines (material passing the No. 200 sieve, based on dry weight), and maximum rock size of about 3 inches.

After the perimeter building walls have been built, fill placement inside of the walls will be performed to complete construction of the building pad. This fill, up to 30 inches below the final floor slab subgrade level, should be constructed using an approved ODOT Type A aggregate base. Fill used for the upper 30 inches of the building pad should consist of LVC material as defined in our geotechnical report. Alternatively, aggregate base could be used for the top 30 inches of the building pad in lieu of LVC material, if desired.

The recommendations presented in the **Fill Compaction Requirements** subsection of the **Earthwork** section of our March 14, 2022 Geotechnical Engineering Report should be followed for placement and compaction of the aggregate base, broken shale, and LVC fill materials discussed in this letter. Per the table in that report subsection, fill placed below elevation 650.3 feet (corresponds to 4 feet below final building subgrade) should be compacted to at least 98 percent of the material's standard Proctor maximum dry density, while fills above elevation 650.3 feet should be compacted to at least 95 percent.

To satisfy the recommendations in the **Floor Slabs** section of our March 14, 2022 Geotechnical Engineering Report, there should be at least 30 inches of LVC material in-place below the building

floor slab. It may be necessary to perform some undercutting at the location of the existing stairway into the building to allow for placement of the 30-inch thick LVC zone.

Terracon should provide observation and testing during subgrade preparation and fill construction to verify that the intentions of our recommendations are met.

Based on performing the earthwork recommendations presented, herein, we anticipate post-construction floor slab settlement could be on the order of ½ inch or less.

Provided the earthwork recommendations presented, herein, are carried-out successfully, the settlement monitoring recommended in our March 14, 2022 Geotechnical Engineering Report should not be required provided the anticipated floor slab settlement can be tolerated.

All other recommendations presented in our March 14, 2022 Geotechnical Engineering Report that have not been specifically amended herein remain applicable.

General Comments

This letter has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made.

We trust this report provides you with the information you require at this time. Please contact us with any questions.

Sincerely,
Terracon
Cert. of Auth. #CA-4531 exp. 6/30/23

Bradley M. Watts, P.E.
Oklahoma No. 16526

7/8/2022

SECTION 012300
(Revised for Addendum #3 dated 10-05-2022)

ALTERNATES

PART 1 GENERAL

1.01 SUMMARY

A. This section identifies the various Alternates to be bid as part of this project. It describes the general changes to be included in the project if the Alternate is made a part of the Work. The Alternates can only be made part of the Work by specific inclusion in the Owner-Contractor Agreement or by Change Order.

B. Each Alternate will be reviewed by the Owner and the Architect and either accepted or rejected at the Owner's decision.

C. Alternate Bid prices shall remain in effect for 90 days beyond date of execution of the Owner-Contractor Agreement.

D. Alternate Bid prices shall be included in the spaces provided on the Bid Form. All Alternates must be bid by the applicable trades, or the Bid may be rejected.

E. Owner retains all rights to choose any one, combination of, or none of the alternates.

1.02 DESCRIPTION OF ALTERNATES

A. **ALTERNATE #1 – BUILDING "A" MIDDLE HIGH SCHOOL RESTROOM RENOVATION:**

Provide ADDITIVE cost to provide all work required for the Staff Restroom A200 Renovation. Refer to Sheets AA1.1, AA7.1 & A-MEP101 for additional information regarding this Alternate.

B. ALTERNATE #2 – BUILDING "B" MAIN CLASSROOM 1ST FLOOR RESTROOM RENOVATIONS:

Provide ADDITIVE cost to provide all work required for the Restroom Renovations on the 1st floor of Building "B". Refer to Sheets AB0.1, AB0.3, AB0.4, AB1.1, AB2.1, AB2.2, AB2.3, AB7.1, AB9.1, AB9.2 & the "B" MEP Sheets for additional information regarding this Alternate.

C. ALTERNATE #3 – BUILDING "B" MAIN CLASSROOM 2ND FLOOR RESTROOM RENOVATIONS:

Provide ADDITIVE cost to provide all work required for the Restroom Renovations on the 2nd floor of Building "B". Refer to Sheets AB0.2, AB0.3, AB0.4, AB1.2, AB2.1, AB2.2, AB2.3, AB7.1, AB9.1, AB9.2 & the "B" MEP Sheets for additional information regarding this Alternate.

D. ALTERNATE #4 – BUILDING "B" MAIN CLASSROOM 1ST FLOOR SE SECURE ENTRY VESTIBULE RENOVATION:

Provide ADDITIVE cost to provide all work required for the 1st floor S-E Secure Entry Vestibule renovation. Refer to Sheets 7/AB0.4, 5/AB2.1, 5/AB2.2, 5/AB2.3, AB7.1, AB9.1, AB9.3, B-E101, 1/B-E201 & the "B" MEP Sheets for additional information regarding this Alternate.

E. ALTERNATE #5 – BUILDING "B" MAIN CLASSROOM EXTERIOR RE-LAMPING FIXTURES, NORTH CONCRETE SIDEWALK PAVING, STAIR & PLANTER WORK:

Provide ADDITIVE cost to provide all work required for the re-lamping of the Building "B" exterior light fixtures, demolition & replacement of the exterior planters, sidewalks and stairs on the north & east sides of the Building "B" Main Classroom. Refer to Sheets DS0.3, AS0.3, AS0.4, AS0.5, AS0.6, & 1/B-MEP101.

F. ALTERNATE #6 – BUILDING "C" CAFETERIA RENOVATION:

Provide ADDITIVE cost to provide all work required for the Cafeteria Rooms C101 & C102 & Serving C103 Renovation. Refer to Sheets AC0.3, AC0.5, AC1.2, AC1.5, AC1.7, AC9.5 & the "C" MEP sheets for additional information regarding the work required in this Alternate.

G. ALTERNATE #7 – BUILDING "D" GREEN HOUSE POLYCARBONATE PANELS:

Provide DEDUCTIVE cost to provide Polycarbonate Panels at the new Green House structures in lieu of the Acrylic Panels identified for the Base Bid. Refer to Section 131230 – Green House Systems for additional information regarding this Alternate.

H. ALTERNATE #8 – WEST PARKING LOT OVERLAY:

Provide ADDITIVE cost to provide all work required for the "Middle School" Parking Lot Mill Overlay & Restripe. Refer to Sheet 3/C.4.4 for additional information regarding this Alternate. The referenced "gate" is part of Alternate #9.

I. ALTERNATE #9 – DRIVEWAY ENTRY PIPE GATES:

Provide ADDITIVE cost to provide 4 pairs of new steel gates. Refer to Sheets DS0.1, AS0.1, AS0.2, C4.3 & C4.4 for locations & additional information regarding this Alternate.

Note: All FEMA Tornado Safe Room Signage shown on sheets AC1.11, AC1.12 & AC1.13 are part of the project Base Bid regardless of which building they are to be mounted inside.

END OF SECTION

SECTION 047200

ARCHITECTURAL CAST STONE

PART 1 GENERAL

1.01 SCOPE

A. All labor, materials and equipment to provide the Cast Stone shown on architectural drawings and as described in this specification.

B. Manufacturer shall furnish Cast Stone covered by this specification.

C. Installing contractor shall unload, store, furnish all anchors, set, patch and clean the Cast Stone as required.

1.02 RELATED SECTIONS

A. Section 016000 – Product Requirements

B. Section 041000 – Mortar and Grout

C. Section 048100 – Brick Unit Masonry

D. Section 079000 – Joint Protection

1.03 REFERENCES

A. ASTM C 150 - Standard Specification for Portland Cement.

B. ASTM C 1116 – Standard Specification for Fiber-Reinforced Concrete and Shotcrete.

C. ASTM C 1364 – Standard Specification for Architectural Cast Stone.

D. Cast Stone Institute Standard Specification.

1.04 DEFINITIONS

A. Cast Stone - a refined architectural concrete building unit manufactured to simulate natural cut stone, used in unit masonry applications.
   1. Dry Cast Concrete Products – manufactured from zero slump concrete.
      a. Vibrant Dry Tamp (VDT) casting method: Vibratory ramming of earth moist, zero-slump concrete against a rigid mold until it is densely compacted.
   2. Wet Cast Concrete Products – manufactured from measurable slump concrete.
      a. Wet casting method: manufactured from measurable slump concrete and vibrated into a mold until it becomes densely consolidated.

1.05 SUBMITTALS

A. Comply with Section 016000 – Product Requirements.

B. Samples: Submit pieces of the Cast Stone that are representative of the general range of finish and color proposed to be furnished for the project.

C. Test results: Submit manufacturers test results of Cast Stone previously made by the manufacturer.

D. Shop Drawings: Submit manufacturers shop drawings including profiles, cross-sections, reinforcement, exposed faces, arrangement of joints, anchoring methods, anchors, annotation of stone types and their location.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Manufacturer shall have sufficient plant facilities to produce the shapes, quantities and size of Cast Stone required in accordance with the project schedule.
   2. Manufacturer shall submit a written list of projects similar in scope and at least three (3) years of age, along with owner, architect and contractor references.

B. Standards: Comply with the requirements of the Cast Stone Institute Technical Manual and the project specifications. Where a conflict may occur, the contract documents shall prevail.

PART 2 PRODUCTS

2.01 ARCHITECTURAL CAST STONE

A. Physical properties: Provide the following:
   1. Compressive Strength - ASTM C 1194: 6,500 psi (45 Mpa) minimum for products at 28 days.
   2. Absorption - ASTM C 1195: 6% maximum by the cold water method, or 10% maximum by the boiling method for products at 28 days.
   3. Air Content – ASTM C173 or C 231, for wet cast product shall be 4-8% for units exposed to freeze-thaw environments. Air entrainment is not required for VDT products.

B. Job site testing – One (1) sample from production units may be selected at random from the field for each 500 cubic feet (14 m^3) delivered to the job site.
   1. Three (3) field cut cube specimens from each of these samples shall have an average minimum compressive strength of not less than 85% with no single specimen testing less than 75% of design strength as allowed by ACI 318.
   2. Three (3) field cut cube specimens from each of these samples shall have an average maximum cold-water absorption of 6%.
   3. Field specimens shall be tested in accordance with ASTM C 1194 and C 1195.

2.02 RAW MATERIALS

A. Portland cement – Type I or Type III, white and/or grey, ASTM C 150.

B. Coarse aggregates - Granite, quartz or limestone, ASTM C 33, except for gradation, and are optional for the VDT casting method.

C. Fine aggregates - Manufactured or natural sands, ASTM C 33, except for gradation.

D. Colors - Inorganic iron oxide pigments, ASTM C 979 except that carbon black pigments shall not be used.

E. Admixtures- Comply with the following:
   1. ASTM C 260 for air-entraining admixtures.

2. ASTM C 494 for water reducing, retarding or accelerating admixtures.
3. Other admixtures: integral water repellents and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance or through laboratory testing.
4. ASTM C 618 mineral admixtures of dark and variable colors shall not be used in surfaces intended to be exposed to view.
5. ASTM C 989 granulated blast furnace slag may be used to improve physical properties. Tests are required to verify these features.

F. Water – Potable

G. Reinforcing bars:
1. ASTM A 615/A 615M. Galvanized or epoxy coated when cover is less than 1-1/2 inches (37 mm).
2. Welded Wire Fabric: ASTM A 82 where applicable for wet cast units.

H. All anchors, dowels and other anchoring devices and shims shall be standard building stone anchors commercially available in a non-corrosive material such as zinc plated, galvanized steel, brass, or stainless steel Type 302 or 304.

2.03 COLOR AND FINISH

A. Match existing cast stone on adjacent building areas.

B. All surfaces intended to be exposed to view shall have a fine-grained texture similar to natural stone, with no air voids in excess of 1/32 in (0.8 mm) and the density of such voids shall be less than 3 occurrences per any 1 $in.^2$ (25 mm^2) and not obvious under direct daylight illumination at a 5 ft (1.5m) distance.

C. Units shall exhibit a texture approximately equal to the existing units when viewed under direct daylight illumination at a 10 ft (3 m) distance.
1. ASTM D 2244 permissible variation in color between units of comparable age subjected to similar weathering exposure.
a. Total color difference – not greater than 6 units.
b. Total hue difference – not greater than 2 units.

D. Minor chipping resulting from shipment and delivery shall not be grounds for rejection. Minor chips shall not be obvious under direct daylight illumination from a 20-ft (6 m) distance.

E. The occurrence of crazing or efflorescence shall not constitute a cause for rejection.

F. Remove cement film, if required, from exposed surfaces prior to packaging for shipment.

2.04 REINFORCING

A. Reinforce the units as required by the drawings and for safe handling and structural stress.

B. Minimum reinforcing shall be 0.25 percent of the cross section area.

C. Panels, soffits and similar stones greater than 24 in. (600 mm) in one direction shall be reinforced in that direction. Units less than 24 in. (600 mm) in both their length and width dimension shall be non-reinforced unless otherwise specified.

D. Welded wire fabric reinforcing shall not be used in dry cast products.

2.05 CURING

A. Cure units in a warm curing chamber approximately 100ºF (37.8ºC) at 100 percent relative humidity for approximately 12 hours, or cure in a 100 percent moist environment at a minimum 70ºF (21.1ºC) for 16 hours after casting. Additional yard curing at 95 percent relative humidity shall be 350 degree-days (i.e. 7 days @ 50°F (10°C) or 5 days @ 70°F (21°C)) prior to shipping. Form cured units shall be protected from moisture evaporation with curing blankets or curing compounds after casting.

2.06 MANUFACTURING TOLERANCES

A. Cross section dimensions shall not deviate by more than ±1/8 inch (3 mm) from approved dimensions.

B. Length of units shall not deviate by more than length/ 360 or ±1/8 inch (3 mm), whichever is greater, not to exceed ±1/4 inch (6 mm).
   1. Maximum length of any unit shall not exceed 15 times the average thickness of such unit unless otherwise agreed by the manufacturer.

C. Warp, bow or twist of units shall not exceed length/ 360 or ±1/8 inch (3 mm), whichever is greater.

D. Location of dowel holes, anchor slots, flashing grooves, false joints and similar features – On formed sides of unit, 1/8 inch (3 mm), on unformed sides of unit, 3/8 inch (9 mm) maximum deviation.

2.07 PRODUCTION QUALITY CONTROL

A. Testing.
   1. Test compressive strength and absorption from specimens selected at random from plant production.
   2. Samples shall be taken and tested from every 500 (14 m^3) cubic feet of product produced.
   3. Perform tests in accordance ASTM C 1194 and C 1195.
   4. New and existing mix designs shall be tested for strength and absorption compliance prior to producing units.

2.08 DELIVERY, STORAGE AND HANDLING

A. Mark production units with the identification marks as shown on the shop drawings.

B. Package units and protect them from staining or damage during shipping and storage.

C. Provide an itemized list of product to support the bill of lading.

PART 3 EXECUTION

3.01 EXAMINATION

A. Installing contractor shall check Cast Stone materials for fit and finish prior to installation. Do not set unacceptable units.

3.02 SETTING TOLERANCES

A. Comply with Cast Stone Institute Technical Manual.

B. Set stones 1/8 inch (3 mm) or less, within the plane of adjacent units.

C. Joints, plus - 1/16 inch (1.5 mm), minus - 1/8 inch (3 mm).

3.03 JOINTING

A. Joint size:
   1. At stone/brick joints 3/8 inch (9.5 cm).
   2. Stone/stone joints exposed on top 3/8 inch (9.5 mm).

B. Joint materials:
   1. Mortar, Type N, ASTM C 270.
   2. Use a full bed of mortar at all bed joints.
   3. Flush vertical joints full with mortar.
   4. Leave all joints with exposed tops or under relieving angles open for sealant.
   5. Leave head joints in copings and projecting components open for sealant.

C. Location of joints:
   1. As shown on shop drawings.
   2. At control and expansion joints unless otherwise shown.

3.04. SETTING

A. Drench units with clean water prior to setting.

B. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.

C. Set units in full bed of mortar, unless otherwise detailed.

D. Rake mortar joints 3/4 inch (18 mm) for pointing.

E. Remove excess mortar from unit faces immediately after setting.

F. Tuck point unit joints to a slight concave profile.

3.05 JOINT SEALANT

A. Comply with requirements of Section 07900.

B. Prime ends of units, insert properly sized backing rod and install required sealant.

3.06 REPAIR AND CLEANING

A. Repair chips with touchup materials furnished by manufacturer.

B. Saturate units to be cleaned prior to applying an approved masonry cleaner.

C. Consult with manufacturer for appropriate cleaners.

3.07 INSPECTION AND ACCEPTANCE

A. Inspect finished installation according to Bulletin #36.

B. Do not field apply water repellant until repair, cleaning, inspection and acceptance is completed.

END OF SECTION

SECTION 263213

GASEOUS EMERGENCY ENGINE GENERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes packaged engine generators for emergency use with the following features:

1. Dual fuel engine.
2. Gaseous fuel system.
3. Control and monitoring.
4. Generator overcurrent and fault protection.
5. Generator, exciter, and voltage regulator.
6. Outdoor engine generator enclosure.
7. Vibration isolation devices.
8. Finishes.

B. Related Requirements:
1. Section 263600 "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine generators.
2. Gas Piping: Comply with requirements of Owner’s current vendor.
3. Gas Train: Comply with NFPA 37.

1.3 DEFINITIONS

A. EPS: Emergency power supply.

B. EPSS: Emergency power supply system.

C. LP: Liquid petroleum.

D. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Include thermal damage curve for generator.

3. Include time-current characteristic curves for generator protective device.
4. Include fuel consumption in cubic feet per hour at 0.8 power factor at 0.5, 0.75, and 1.0 times generator capacity.
5. Include generator efficiency at 0.8 power factor at 0.5, 0.75, and 1.0 times generator capacity.
6. Include airflow requirements for cooling and combustion air in cubic feet per minute at 0.8 power factor, with air-supply temperature of 95, 80, 70, and 50 deg F. Provide Drawings indicating requirements and limitations for location of air intake and exhausts.
7. Include generator characteristics, including, but not limited to, kilowatt rating, efficiency, reactances, and short-circuit current capability.

B. Shop Drawings:

1. Include plans and elevations for engine generator and other components specified.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Identify fluid drain ports and clearance requirements for proper fluid drain.
4. Design calculations for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.
5. Vibration Isolation Base Details: Detail fabrication, including anchorages and attachments to structure and supported equipment. Include base weights.
6. Include diagrams for power, signal, and control wiring. Complete schematic, wiring, and interconnection diagrams showing terminal markings for EPS equipment and functional relationship between all electrical components.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For manufacturer and testing agency.

B. Seismic Qualification Data: Certificates, for engine generator, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: With engine and generator mounted on rails, identify center of gravity and total weight, including full fuel tank, supplied enclosure, external silencer, skid-mounted load bank, and each piece of equipment not integral to the engine generator, and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Source Quality-Control Reports: Including, but not limited to, the following:

1. Certified summary of prototype-unit test report.
2. Certified Summary of Performance Tests: Certify compliance with specified requirement to meet performance criteria for sensitive loads.
3. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
4. Report of sound generation.
5. Report of exhaust emissions showing compliance with applicable regulations.
6. Certified Torsional Vibration Compatibility: Comply with NFPA 110.

D. Field quality-control reports.

E. Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.
b. Operating instructions laminated and mounted adjacent to generator location.
c. Training plan.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Testing Agency Qualifications: Accredited by NETA.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.8 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Cummins Onan, Genset - Cummins GFPA model generator or comparable product by one of the following:
1. Cummins Onan; Industrial Business Group.
2. Caterpillar; Engine Div.
3. Kohler Co.; Generator Division.
4. Generac.
5. Only approved bidders shall supply equipment provided under this contract. Equipment by other suppliers that meets the requirement of this specification are acceptable, if approved not less than 2 weeks before scheduled bid date. Proposals must include a line by line compliance statement based on this specification.

B. Source Limitations: Obtain packaged engine generators and auxiliary components from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. B11 Compliance: Comply with B11.19.

B. NFPA Compliance:

1. Comply with NFPA 37.
2. Comply with NFPA 70.
3. Comply with NFPA 110 requirements for Level 2 EPSS.

C. Engine Exhaust Emissions: Comply with EPA Tier 3 requirements and applicable state and local government requirements.

D. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by engine generator, including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

E. Environmental Conditions: Engine generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

1. Ambient Temperature: 5 to 104 deg F.
2. Relative Humidity: Zero to 95 percent.
3. Altitude: Sea level to 1000 feet.

2.3 ENGINE GENERATOR ASSEMBLY DESCRIPTION

A. Factory-assembled and -tested, water-cooled engine, with brushless generator and accessories.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

C. EPSS Class: Engine generator shall be classified as Class 12 according to NFPA 110.

D. Genset: (Refer to Drawings)
1. Service Load: 60 kVA.
2. Power Factor: 0.8 Insert number, lagging.
3. Frequency: 60 Hz.
4. Voltage: 240-V ac.
5. Phase: Single-phase, three-wire delta.

E. Induction Method: Turbo charged aftercooled.

F. Governor: Adjustable isochronous, with speed sensing.

G. Mounting Frame: Structural-steel framework to maintain alignment of mounted components without depending on concrete foundation. Provide lifting attachments sized and spaced to prevent deflection of base during lifting and moving.

1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and engine generator center of gravity.

H. Capacities and Characteristics:

1. Power Output Ratings: Nominal ratings as indicated at 0.8 power factor excluding power required for the continued and repeated operation of the unit and auxiliaries, with capacity as required to operate as a unit as evidenced by records of prototype testing.
2. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.

I. Engine Generator Performance:

1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage, from no load to full load.
2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
3. Steady-State Frequency Operational Bandwidth: 0.5 percent of rated frequency, from no load to full load.
4. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.
5. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
6. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
7. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
8. Start Time: Comply with NFPA 110, Type 10, system requirements.

J. Engine Generator Performance:

1. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.

    a. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.

2. Steady-State Voltage Operational Bandwidth: 1 percent of rated output voltage, from no load to full load.
3. Transient Voltage Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 second.
4. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency, from no load to full load.
5. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.

6. Transient Frequency Performance: Less than 2-Hz variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within three seconds.
7. Output Waveform: At no load, harmonic content, measured line to neutral, shall not exceed 2 percent total with no slot ripple. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
8. Sustained Short-Circuit Current: For a three-phase, bolted short circuit at system output terminals, system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.
9. Excitation System: Performance shall be unaffected by voltage distortion caused by nonlinear load.

    a. Provide permanent magnet excitation for power source to voltage regulator.

10. Start Time: Comply with NFPA 110, Type 60, system requirements.

2.4 ENGINE

A. Fuel: Natural Gas is preferred primary fuel source.

B. Rated Engine Speed: 1800 rpm.

C. Lubrication System: Engine or skid mounted.

1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.

D. Engine Fuel System: The engine fuel system shall be installed in strict compliance to the engine manufacturer's instructions.
1. Natural Gas.
    a. Carburetor.
    b. Fuel-Shutoff Solenoid Valves: One (1).
    c. Flexible Fuel Connectors: One (1).

2. Fuel Filters: One for each fuel type.
3. Manual Fuel Shutoff Valves: One for each fuel type.
4. Flexible Fuel Connectors: Minimum one for each fuel connection.
5. LP gas flow adjusting valve.
6. Fuel change gas pressure switch.

E. Jacket Coolant Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 2 equipment for heater capacity and with UL 499.

F. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine generator mounting frame and integral engine-driven coolant pump.

1. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
2. Size of Radiator: Adequate to contain expansion of total system coolant, from cold start to 110 percent load condition.
3. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant-system pressure for engine used. Equip with gage glass and petcock.
4. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.
5. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, UV-, and abrasion-resistant fabric.

    a. Rating: 50-psig maximum working pressure with coolant at 180 deg F, and noncollapsible under vacuum.
    b. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.

G. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.

1. Configuration: Vertical air discharge.
2. Radiator Core Tubes: Aluminum.
3. Size of Radiator: Adequate to contain expansion of total system coolant, from cold start to 110 percent load condition.
4. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant-system pressure for engine used. Equip with gage glass and petcock.
5. Fan: Driven by multiple belts from engine shaft.
6. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.
7. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.

H. Muffler/Silencer: Commercial type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.

1. Minimum sound attenuation of 12 dB at 500 Hz.
2. Sound level measured at a distance of 23 feet from exhaust discharge after installation is complete shall be 90 dBA or less.

I. Air-Intake Filter: Standard-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

J. Starting System: 12-V electric, with negative ground.

1. Components: Sized so they are not damaged during a full engine-cranking cycle, with ambient temperature at maximum specified in "Performance Requirements" Article.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: As required by NFPA 110 for system level specified.
4. Battery: Lead acid, with capacity within ambient temperature range specified in "Performance Requirements" Article to provide specified cranking cycle at least twice without recharging.

5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
6. Battery Stand: Factory-fabricated, two-tier metal with acid-resistant finish designed to hold the quantity of battery cells required and to maintain the arrangement to minimize lengths of battery interconnections.
7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
8. Battery Charger: Current-limiting, automatic-equalizing and float-charging type designed for lead-acid batteries. Unit shall comply with UL 1236 and include the following features:

    a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
    b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 to 140 deg F to prevent overcharging at high temperatures and undercharging at low temperatures.
    c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
    d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
    e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
    f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

2.5 CONTROL AND MONITORING

A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of engine generator. When mode-selector switch is switched to the on position, engine generator starts. The off position of same switch initiates engine generator shutdown. When engine generator is running, specified system or equipment failures or derangements automatically shut down engine generator and initiate alarms.

B. Manual Starting System Sequence of Operation: Switching On-Off switch on the generator control panel to the on position starts engine generator. The off position of same switch initiates engine generator shutdown. When engine generator is running, specified system or equipment failures or derangements automatically shut down engine generator and initiate alarms.

C. Provide minimum run-time control set for 30 minutes, with override only by operation of a remote emergency-stop switch.

D. Comply with UL 508A.

E. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the engine generator. Mounting method shall isolate the control panel from engine generator vibration. Panel shall be powered from the engine generator battery.

1. Wall-Mounting Cabinet Construction: Rigid, self-supporting steel unit complying with NEMA ICS 6.

F. Control and Monitoring Panel:

1. Digital controller with integrated LCD display, controls, and microprocessor, capable of local and remote control, monitoring, and programming, with battery backup.
2. Instruments: Located on the control and monitoring panel and viewable during operation.

    a. Engine lubricating-oil pressure gage.
    b. Engine-coolant temperature gage.
    c. DC voltmeter (alternator battery charging).
    d. Running-time meter.
    e. AC voltmeter, for each phase.
    f. AC ammeter, for each phase.
    g. AC frequency meter.
    h. Generator-voltage adjusting rheostat.

3. Controls and Protective Devices: Controls, shutdown devices, and common visual alarm indication as required by NFPA 110 for Level 2 system, including the following:

    a. Cranking control equipment.
    b. Run-Off-Auto switch.
    c. Control switch not in automatic position alarm.
    d. Overcrank alarm.
    e. Overcrank shutdown device.
    f. Low water temperature alarm.
    g. High engine temperature pre-alarm.
    h. High engine temperature.
    i. High engine temperature shutdown device.
    j. Overspeed alarm.
    k. Overspeed shutdown device.

    l. Coolant low-level alarm.
    m. Coolant low-level shutdown device.
    n. Coolant high-temperature prealarm.
    o. Coolant high-temperature alarm.
    p. Coolant low-temperature alarm.
    q. Coolant high-temperature shutdown device.
    r. EPS load indicator.
    s. Battery high-voltage alarm.
    t. Low-cranking voltage alarm.
    u. Battery-charger malfunction alarm.
    v. Battery low-voltage alarm.
    w. Lamp test.
    x. Contacts for local and remote common alarm.
    y. Low-starting air pressure alarm.
    z. Low-starting hydraulic pressure alarm.
    aa. Air shutdown damper alarm when used.
    bb. Air shutdown damper shutdown device when used.
    cc. Generator overcurrent-protective-device not-closed alarm.

G. Connection to Datalink:

1. A separate terminal block, factory wired to Form C dry contacts, for each alarm and status indication.

2. Provide a CAT 6 network connection for datalink transmission for remote data terminals using Owner protocols.

H. Common Remote Panel with Common Audible Alarm: Comply with NFPA 110 requirements for Level 2 systems. Include necessary contacts and terminals in control and monitoring panel. Remote panel shall be powered from the engine generator battery.

I. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator unless otherwise indicated.

2.6 GENERATOR OVERCURRENT AND FAULT PROTECTION

A. Overcurrent protective devices for the entire EPSS shall be coordinated to optimize selective tripping when a short circuit occurs. Coordination of protective devices shall consider both utility and EPSS as the voltage source.

1. Overcurrent protective devices for the EPSS shall be accessible only to authorized personnel.

B. Generator Circuit Breaker: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489.

1. Tripping Characteristics: Adjustable long-time and short-time delay and instantaneous.
2. Trip Settings: Selected to coordinate with generator thermal damage curve.
3. Shunt Trip: Connected to trip breaker when engine generator is shut down by other protective devices.
4. Ground-Fault Indication: Comply with NFPA 70, "Emergency System" signals for ground-fault. Integrate ground-fault alarm indication with other generator-set alarm indications.
5. Mounting: Adjacent to or integrated with control and monitoring panel.

2.7 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

A. Comply with NEMA MG 1.

B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.

C. Electrical Insulation: Class H.

D. Temperature Rise: 125 / Class H environment.

E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.

F. Enclosure: Drip-proof.

G. Instrument Transformers: Mounted within generator enclosure.

H. Voltage Regulator: SCR type, separate from exciter, providing performance as specified and as required by NFPA 110.

1. The voltage regulation system shall be microprocessor-controlled, full wave rectified, and provide a pulse-width modulated signal to the exciter. No exceptions or deviations to these requirements will be permitted.

I. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

J. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

K. Subtransient Reactance: 15 percent, maximum based on the rating of the engine generator set.

2.8 OUTDOOR ENGINE GENERATOR ENCLOSURE

A. Description: Sound-attenuating, weatherproof steel housing manufacturer standard enclosure.

1. Sound Attenuation Level: 85 dBA or less.

B. Construction:
1. Structural Design and Anchorage: Comply with ASCE/SEI 7 for wind loads up to 100 mph.
2. Hinged Doors: With padlocking provisions. Restraint/Hold back hardware to prevent door to keep door open at 180 degrees during maintenance. Rain lips over all doors.
3. Hardware: All hardware and hinges shall be stainless steel.
4. Thermal Insulation: Manufacturer's standard materials and thickness selected in coordination with winter interior temperature within operating limits required by engine generator components to operate at full rated load with a static pressure drop equal to or less than 0.5 inches of water.
5. Muffler Location: Standard enclosure.

C. Engine-Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for two hours with ambient temperature at top of range specified in system service conditions.

1. Louvers: Fixed-engine, cooling-air inlet and discharge. Stormproof and drainable louvers prevent entry of rain and snow.
2. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.

D. Convenience Outlets: Factory-wired, GFCI. Arrange for external electrical connection.

E. Exterior Beacon Light: Provide a YELLOW LED weatherproof running light/beacon to illuminate when generator is running.

F. Site Provisions:
1. Lifting: Complete assembly of engine generator, enclosure shall be designed to be lifted into place as a single unit, using spreader bars.

2.9 VIBRATION ISOLATION DEVICES

A. Vibration Isolation: Generators installed on grade shall be provided with elastomeric isolator pads integral to the generator, unless the engine manufacturer requires use of spring isolation.

2.10 FINISHES

A. Indoor and Outdoor Enclosures and Components: Powder-coated and baked over corrosion-resistant pretreatment and compatible primer. Manufacturer's standard color or as directed on the drawings.

2.11 SOURCE QUALITY CONTROL

A. Prototype Testing: Factory test engine generator using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

1. Tests: Comply with NFPA 110, Level 2 Energy Converters. In addition, the equipment engine, skid, cooling system, and alternator shall have been subjected to actual prototype tests to validate the capability of the design under the abnormal conditions noted in NFPA110. Calculations and testing on similar equipment which are allowed under NFPA110 are not sufficient to meet this requirement.

B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
1. Test engine generator set manufactured for this Project to demonstrate compatibility and functionality.
2. Full load run.
3. Maximum power.
4. Voltage regulation.
5. Steady-state governing.
6. Single-step load pickup.
7. Simulated safety shutdowns.
8. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine generator performance.

B. Examine roughing-in for piping systems and electrical connections to verify actual locations of connections before packaged engine generator installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Construction Manager and Owner no fewer than 3 working days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Owner's written permission.

3.3 INSTALLATION

A. Comply with NECA 1 and NECA 404.

B. Comply with packaged engine generator manufacturers' written installation and alignment instructions and with NFPA 110.

C. Equipment shall be installed by the contractor in accordance with final submittals and contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions and instructions included in the listing or labeling of UL listed products.

D. Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The contractor shall also perform interconnecting wiring between equipment sections (when required), under the supervision of the equipment supplier.

E. Equipment shall be installed on concrete housekeeping pads. Equipment shall be permanently fastened to the pad in accordance with manufacturer’s instructions and seismic requirements of the site.

F. Equipment shall be initially started and operated by representatives of the manufacturer. All protective settings shall be adjusted as instructed by the consulting engineer.

G. All equipment shall be physically inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.

H. On completion of the installation by the electrical contractor, the generator set supplier shall conduct a site evaluation to verify that the equipment is installed per manufacturer’s recommended practice.

3.4 CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping and specialties.

B. Connect fuel, cooling-system, and exhaust-system piping adjacent to packaged engine generator to allow service and maintenance.

C. Connect engine exhaust pipe to engine with flexible connector.

D. Gaseous Fuel Connections:

1. Connect fuel piping to engines with a gate valve and union and flexible connector.
2. Install manual shutoff valve in a remote location to isolate gaseous fuel supply to the generator.
3. Vent gas pressure regulators outside building a minimum of 60 inches from building openings.

E. Ground equipment according to NFPA 70.

F. Provide a minimum of one 90-degree bend in flexible conduit routed to the engine generator from a stationary element.

G. Balance single-phase loads to obtain a maximum of 10 percent unbalance between any two phases.

3.5 IDENTIFICATION

A. Install a sign indicating the generator neutral is bonded to the main service neutral at the main service location per NFPA 70 installation type or as indicated on drawings.

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

B. Tests and Inspections:

1. Perform tests recommended by manufacturer and each visual and mechanical inspection and electrical and mechanical test listed in first two subparagraphs below, as specified in NETA ATS. Certify compliance with test parameters.

    a. Visual and Mechanical Inspection:

        1) Compare equipment nameplate data with Drawings and the Specifications.
        2) Inspect physical and mechanical condition.
        3) Inspect anchorage, alignment, and grounding.
        4) Verify that the unit is clean.

    b. Electrical and Mechanical Tests:

        1) Perform insulation-resistance tests according to IEEE 43.

            a) Machines Larger Than 200 hp Test duration shall be 10 minutes. Calculate polarization index.
            b) Machines 200 hp or Less: Test duration shall be one minute. Calculate the dielectric-absorption ratio.

        2) Test protective relay devices.
        3) Verify phase rotation, phasing, and synchronized operation as required by the application.
        4) Functionally test engine shutdown for low oil pressure, overtemperature, overspeed, and other protection features as applicable.
        5) Perform vibration test for each main bearing cap.
        6) Conduct performance test according to NFPA 110.
        7) Verify correct functioning of the governor and regulator.

2. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, single-step full-load pickup test.
3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.

a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
c. Verify acceptance of charge for each element of the battery after discharge.
d. Verify that measurements are within manufacturer's specifications.

4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine generator system before and during system operation. Check for air, exhaust, and fluid leaks.
6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg. Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
7. Exhaust Emissions Test: Comply with applicable government test criteria.
8. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
9. Harmonic-Content Tests: Measure harmonic content of output voltage at 25 and 100 percent of rated linear load. Verify that harmonic content is within specified limits.
10. Noise Level Tests: Measure A-weighted level of noise emanating from engine generator installation, including engine exhaust and cooling-air intake and discharge, at 2 locations 25 feet from edge of the generator enclosure, and compare measured levels with required values.

C. Coordinate tests with tests for transfer switches and run them concurrently.

D. Test instruments shall have been calibrated within the past 12 months, traceable to NIST Calibration Services, and adequate for making positive observation of test results. Make calibration records available for examination on request.

E. Leak Test: After installation, charge exhaust, coolant, and fuel systems and test for leaks. Repair leaks and retest until no leaks exist.

F. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation for generator and associated equipment.

G. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

H. Remove and replace malfunctioning units and retest as specified above.

I. Retest: Correct deficiencies identified by tests and observations, and retest until specified requirements are met.

J. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

3.7 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's authorized service representative. Include quarterly preventive maintenance and exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation.

B. The generator set supplier shall maintain service parts inventory for the entire power system at a central location which is accessible to the service location 24 hours per day, 365 days per year. The inventory shall have a commercial value of $3 million or more. The manufacturer of the generator set shall maintain a central parts inventory to support the supplier, covering all the major components of the power system, including engines, alternators, control systems, paralleling electronics, and power transfer equipment.

C. The generator set shall be serviced by a local service organization that is trained and factory certified in generator set service. The supplier shall maintain an inventory of critical power system replacement parts in the local service location. Service vehicles shall be stocked with critical replacement parts. The service organization shall be on call 24 hours per day, 365 days per year. The service organization shall be physically located within 100 miles of the site.

D. The manufacturer shall maintain model and serial number records of each generator set provided for at least 20 years.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators.

END OF SECTION 263213

5 OCTOBER 2022

ADDENDUM 03 to the Bidding Documents for:

WEBSTER HIGH SCHOOL BAND ROOM & GREEN HOUSE ADDITIONS

wallace design collective

Project Number 21-030000

Drawings Dated 14 June 2022

The contents of this ADDENDUM 03 supersede and supplement all portions of the above referenced bidding documents (*including project manual and **all** associated drawing sets*) with which ADDENDUM 03 conflicts.

NOTES:
The revisions to city comments are addressed in this addendum.

PROJECT MANUAL

None.

DRAWINGS

C1.0, GENERAL NOTES
Item 1. Added Sheet C8.4 DETAILS

C3.0, GENERAL NOTES
Item 1. No longer removing section of road pavement in the middle of the site.

C4.3, SITE PLAN
Item 1. Sidewalk added in the northwest corner of the sheet. This sidewalk is to allow a path of travel that is not directly over the existing inlet.

C4.4, SITE PLAN
Item 1. Pavement removal and replacement in the road no longer needed. This was apparently already done as part of another project.

C5.3, GRADING PLAN
Item 1. Match existing grade for the new sidewalk in the northwest corner of the sheet.
Item 2. Grading adjustment to the berm on the east side of the site. Junction box 1 raised. This berm is to keep water off the neighbor to the east.

C6.3, UTILITY PLAN
Item 1. Callouts to junction box details updated.

C7.0, STORM PROFILES
Item 1. Junction structure 1 rim elevation changed.

C7.1, STORM DETAILS
Item 1. Callouts to junction box details updated.

C8.2, DETAILS
Item 1. Junction Box details removed from this sheet. (Added on C8.4)

C8.4, DETAILS
Item 1. Sheet added.

Item 2. Junction box details updated.

ATTACHMENTS

C1.0, C3.0, C4.4, C4.4, C5.3, C6.3, C7.0, C7.1, C8.2, C8.4

END OF ADDENDUM 03

GENERAL:

CONDUCT SITE CLEARING OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS,STREETS,WALKS AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION. STREETS AND ROADWAYS SHALL BE THOROUGHLY CLEANED AND/OR SWEPT ON A DAILY BASIS OR MORE FREQUENTLY AS REQUIRED BY THE GOVERNING AUTHORITY. RESTORE DAMAGED IMPROVEMENTS TO ORIGINAL CONDITION AS ACCEPTABLE TO PARTIES HAVING JURISDICTION.

THE CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES IN ACCORDANCE WITH LOCAL AUTHORITIES.

ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE DITCHES AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS.

UNLESS SPECIFIED OTHERWISE, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CITY OF TULSA STANDARDS, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY STANDARDS AND OKLAHOMA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND/OR THE APPROPRIATE LOCAL AUTHORITIES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, PERMIT FEES, LICENSES, LICENSE FEES, AND TAP FEES, ETC.

ALL ELEVATIONS IN PAVED AREAS ARE TOP OF FINISHED PAVEMENT UNLESS OTHERWISE NOTED.

RELOCATION OF ANY UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM ENGINEER BEFORE ANY UTILITY RELOCATION.

NO DIMENSION MAY BE SCALED. REFER UNCLEAR ITEMS TO THE ENGINEER FOR INTERPRETATION.

OKIE:

ALL CONTRACTORS SHALL NOTIFY UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING OF THE INTENT TO EXCAVATE NO LESS THAN 72 HOURS PRIOR TO SUCH EXCAVATION (EXCLUSIVE OF SATURDAYS, SUNDAYS AND HOLIDAYS) AND CALL "OKIE" AT 1-800-522-6543.

EXISTING UTILITY LOCATIONS SHOWN SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. LOCATIONS OF UNDERGROUND UTILITIES ON THESE DRAWINGS ARE APPROXIMATE ONLY AND BASED ON ACTUAL FIELD LOCATIONS OF VISIBLE STRUCTURES AND PLAN COMPUTATIONS.

SITE WORK AND GRADING:

ALL FEATURES OF THIS PROJECT INCLUDING, BUT NOT LIMITED TO, SIDEWALKS AND CURB RAMPS SHALL COMPLY WITH THE AMERICAN DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES, AND THE INTERIM FINAL RULES FOR PUBLIC RIGHT-OF-WAY, PUBLISHED IN THE FEDERAL REGISTER, SEPTEMBER 2010. WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THIS ACT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURES. THE CONTRACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK WHICH IS NOT IN FULL COMPLIANCE WITH THE ADA WITHOUT PRIOR, WRITTEN PERMISSION FROM THE ENGINEER. ANY WORK WHICH IS NOT PERFORMED WITHIN THE GUIDELINES OF THE ADA, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

CROSS SLOPES FOR SIDEWALKS SHALL NOT EXCEED 1:50
RAMP SLOPES SHALL NOT EXCEED 1:12
GRADES EXCEEDING 5% WILL BE TREATED AS A RAMP SLOPE

FINISHED SUBGRADE SURFACE SHALL NOT BE MORE THAN 0.1 FEET ABOVE OR BELOW ESTABLISHED FINISHED SUBGRADE ELEVATIONS AND ALL GROUND SURFACES SHALL VARY UNIFORMLY BETWEEN INDICATED ELEVATIONS. FINISHED DITCHES SHALL BE GRADED TO ALLOW FOR PROPER DRAINAGE WITHOUT PONDING AND IN A MANNER THAT WILL MINIMIZE EROSION.

GEOTECHNICAL:

GEOTECHNICAL REPORT PROVIDED BY TERRACON CONSULTANTS, INC., DATED MARCH 14, 2022.

SURVEY:

EXISTING TOPOGRAPHY IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY SISEMORE & ASSOCIATES, DATED APRIL 6, 2022.

Chiseled Square	Benchmark	Benchmark
ELEV=664.82	ELEV=644.67	ELEV=641.39
N=409239.83	N=408132.23	N=407336.34
E=2554577.45	E=2555808.05	E=2555892.67

EROSION CONTROL NOTES:

ALL EROSION CONTROL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE EROSION CONTROL PLAN, STORMWATER POLLUTION PLAN, AND CITY OF TULSA STANDARDS AND SPECIFICATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A STABILIZED CONSTRUCTION ENTRANCE, AND FOR CLEANING OF VEHICLE WHEELS IN ACCORDANCE WITH THE CITY OF TULSA STANDARDS AND SPECIFICATIONS.

SILT FENCES: PLACEMENT OF SILT FENCES SHALL BE AS SHOWN ON THE DEMOLITION & EROSION CONTROL PLAN. FENCING WHICH BECOMES DAMAGED SHALL BE REPLACED PROMPTLY. DEPOSITS OF SILT WHICH BUILD UP BEHIND DIKES MAY BE DISKED INTO THE SITE BEFORE PLACEMENT OF TEMPORARY COVER. AFTER TEMPORARY COVER IS PLACED OR AFTER LANDSCAPING COMMENCES, SILT SHALL BE REMOVED AND DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

TEMPORARY EROSION CONTROL:

ALL DISTURBED EARTH SURFACES WHICH ARE NOT PAVED OR BUILDING PADS SHALL BE LANDSCAPED OR REVEGETATED WITH A TEMPORARY COVER, DEPENDING ON THE PLANTING SEASON, AS OUTLINED BELOW.

PLANT TYPE	PER ACRE	PER 1000 SQ. FT.	PLANTING DATE	DEPTH OF SEEDING
ANNUAL RYEGRASS	40 LBS.	0.9 LBS.	09/05-11/30	¼ INCH
ELBON RYE	2 BU.	3.0 LBS.	08/15-11/30	2 INCH
WHEAT	2 BU.	3.0 LBS.	08/15-11/30	2 INCH
OATS	3 BU.	2.5 LBS.	08/15-11/30	2 INCH
SORGHUMS	60 LBS.	1.4 LBS.	03/01-09/15	2 INCH
SUDAN GRASS	60 LBS.	1.4 LBS.	04/01-09/15	2 INCH

PRIOR TO SEEDING, NEEDED EROSION CONTROL PRACTICES SHALL BE INSTALLED.

THE SUBGRADE SHALL BE LOOSENED EVENLY TO A DEPTH OF 2 TO 3 INCHES AND 10-20-10 FERTILIZER (10 LBS. PER 1000 SQ. FT. OR 450 LBS. PER ACRE) SHALL BE MIXED WITH THE LOOSENED SOIL BY DISKING OR OTHER SUITABLE MEANS.

SOIL SHALL BE TESTED AND LIME TREATED IF REQUIRED BY TESTING FIRM.

SEEDS MAY BE DRILLED OR BROADCAST UNIFORMLY.

SEEDING IMPLEMENTS SHOULD BE USED AT RIGHT ANGLES TO THE SLOPE TO MINIMIZE EROSION.

MULCH SHALL BE USED ON ALL SLOPES GREATER THAN 5 PERCENT OR AS NEEDED.

THE AREA SHALL BE WATERED DAILY OR AS OFTEN AS NECESSARY TO MAINTAIN ADEQUATE SOIL MOISTURE UNTIL THE PLANTS EXCEED 1 INCH IN HEIGHT.

AS-BUILTS:

THE CONTRACTOR SHALL KEEP ON SITE A CURRENT SET OF THE APPROVED CONSTRUCTION WORKING DRAWINGS AT ALL TIMES. THE CONTRACTOR SHALL MARK (IN RED INK) ALL APPROVED CHANGES INCURRED FOLLOWING ISSUANCE OF THE INITIAL DRAWINGS. THESE CHANGES MAY BE INITIATED FROM FIELD CONDITIONS OR CHANGES MADE BY THE DESIGN ENGINEER. EXCEPT FOR MINOR FIELD ADJUSTMENTS, ALL CHANGES SHALL BE REVIEWED AND AGREED TO BY THE DESIGN ENGINEER PRIOR TO FINAL APPROVAL OF THE PROJECT. THE CONTRACTOR SHALL SUBMIT THE WORKING DRAWINGS TO THE ENGINEER OF RECORD (DESIGN ENGINEER) AFTER FINAL INSPECTION OF PROJECT TO SERVE AS A BASIS FOR DEVELOPMENT OF RECORD DRAWINGS.

PERMANENT EROSION CONTROL PRACTICES:

BERMUDA GRASS SOLID SLAB SOD SHALL BE USED ON THIS PROJECT IN ALL DISTURBED AREAS.

LAWN AREAS SHALL BE FERTILIZED ACCORDING TO TIME OF INSTALLATION

MAY 1 - AUGUST 31: APPLY 16-8-8 FERTILIZER AT A RATE OF SIX (6) POUNDS PER 1000 SQ FT TO LAWN AREAS

SEPTEMBER 1 - APRIL 30: APPLY 10-20-10 FERTILIZER AT A RATE OF TEN (10) POUNDS PER 1000 SQ FT TO LAWN AREAS

TOP SOIL SHALL BE PROVIDED AND LOOSENED EVENLY TO A DEPTH OF 2 TO 3 INCHES AND FERTILIZER SHALL BE MIXED WITH THE LOOSENED SURFACE SOIL BY DISKING OR OTHER SUITABLE MEANS.

TOP SOIL SHALL BE TESTED FOR pH AND SHALL BE TREATED WITH LIME AS REQUIRED.

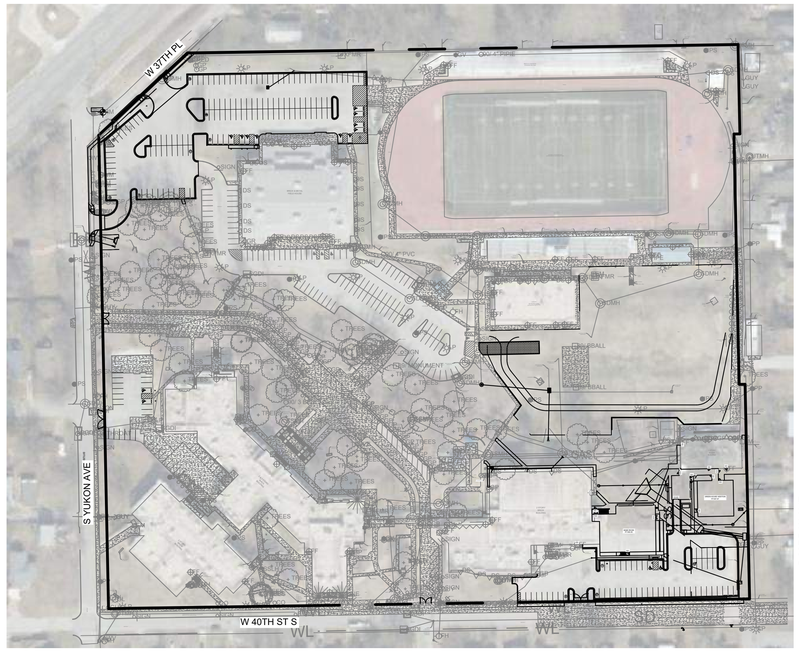
THE AREA SHALL BE WATERED DAILY OR AS OFTEN AS NECESSARY TO MAINTAIN ADEQUATE SOIL MOISTURE UNTIL FINAL ACCEPTANCE OR ONE MONTH.

SODDED AREAS SHALL BE PREPARED AND PLACED IN ACCORDANCE WITH CITY OF TULSA SPECIFICATIONS. STAKE SOD ON SLOPES GREATER THAN 4:1.

NOTE: CITY OF TULSA LANDSCAPING ZONING CODE IS NOT APPLICABLE FOR SECTION 65.040 STREET TREES, 65.050 INTERIOR PARKING LOT LANDSCAPING, AND 65.060 VEHICULAR USE AREA BUFFERS.

Construction Plans for

WEBSTER HIGH SCHOOL
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET
TULSA, OK 74107



LEGAL DESCRIPTION

LOTS 4 TO 23 INCLUSIVE BLOCK 1. LOTS 7 TO 26 INCLUSIVE BLOCK 2. ALL OF BLOCK 3. ALL OF BLOCK 4. AND LOTS 8 TO 27 INCLUSIVE BLOCK 5. OF CLINTON HOMESITES ADD. TO RED FORK, TULSA COUNTY, OKLAHOMA INCLUDING

WEST 38TH STREET VACATED FROM EAST SIDE OF SOUTH YUKON AVE. TO CENTER LINE OF ALLEY AT EAST PROPERTY LINE.

WEST 39TH STREET, VACATED FROM EAST SIDE OF SOUTH YUKON AVE TO CENTER LINE OF ALLEY AT EAST PROPERTY LINE.

SOUTH WACO AVE. FROM N. LINE OF W 38TH ST. TO N. LINE OF W 40TH ST.

AND ALL EASEMENTS IN BLOCKS 1-2-3-4-5 AS SHOWN ON THE PLAT.

IMPERVIOUS AREA TABLE

TOTAL DISTURBED AREA	3.41 ACRES
EXISTING IMPERVIOUS AREA	93,528.40 SF
PROPOSED IMPERVIOUS AREA	105,803.22 SF
INCREASE IN IMPERVIOUS AREA	12,274.82 SF

120 0 60 120
1" = 120'

TULSA COUNTY
OKLAHOMA

Location Map

LIST OF SHEETS

LEGEND

660	EXISTING MAJOR CONTOUR	BM	BENCH MARK	BC	BOT OF CURB
662	EXISTING MINOR CONTOUR	CO	CLEANOUT	CI	CAST IRON
660	NEW MAJOR CONTOUR		DOWN GUY	CLR	CLEAR
662	NEW MINOR CONTOUR	EP	EMERGENCY PHONE	CJ	CONSTRUCTION JOINT
X	FENCE	FO	FIBER OPTIC MANHOLE	CPP	CORRUGATED POLYPROPYLENE PIPE
T	TELEPHONE OVERHEAD	FDC	FIRE DEPT CONNECTION	DB	DRAINAGE BASIN
	POWER LINE OVERHEAD	FH	FIRE HYDRANT	DIP	DUCTILE IRON PIPE
G	GAS LINE		GAS / OIL WELL	DGDI	DOUBLE GRATE CURB INLET
O	OIL LINE	GM	GAS METER	DO	DOOR OPENING
PUG	POWER UNDERGROUND	LP	LIGHT POLE	EJ	EXPANSION JOINT
TUG	TELEPHONE UNDERGROUND		LIGHT POLE	EL	ELEVATION
TVUG	TV UNDERGROUND	P	POWER MANHOLE	FF	FINISH FLOOR
W	WATER LINE		POWER POLE	FG	FINISH GRADE
SS	SANITARY SEWER LINE	PB	PULL BOX	FL	FLOWLINE
	FLOW LINE DITCH	SS	SANITARY MANHOLE	HB	HOSE BIB
	ODOT TEMPORARY SILT FENCE	ST	STEAM MANHOLE	HDPE	HIGH DENSITY POLYETHYLENE
SF	SILT FENCE	S	STORM MANHOLE	IRR	IRRIGATION
	PROPERTY LINE	T	TELEPHONE MANHOLE	IST	INLET SEDIMENT TRAP
		TPED	TELEPHONE PEDESTAL	LF	LINEAR FEET
		XFMR	TRANSFORMER PAD	OHD	OVERHEAD DOOR
			VALVE		
		WH	WATER HYDRANT		
		WM	WATER METER		
			WATER WELL		
		LS	LIFT STATION MANHOLE		

PAVT	PAVEMENT	
PE	POLYETHYLENE	
PVC	POLY VINYL CHLORIDE	
R	RADIUS	
RD	ROOF DRAIN	
R/W	RIGHT OF WAY	
RCP	REINF CONCRETE PIPE	
RJ	RESTRAINED JOINT	
SGDI	SINGLE GRATE CURB INLET	
SF	SQUARE FEET	
SJ	SAW JOINT	
TC	TOP OF CURB	
TG	TOP OF GRATE	
TOF	TOP OF FOOTING	
TP	TOP OF PAVEMENT	
TR	TOP OF RIM	
TS	TOP OF SIDEWALK	
TW	TOP OF WALL	
UNO	UNLESS NOTED OTHERWISE	

UTILITIES NOTE

CONTRACTORS SHALL DIRECT ALL WORK WITH ALL UTILITY COMPANIES THROUGH TPS PERSONNEL, MR. TRACY DELAUGHTER (918-746-6890). CONTRACTORS SHALL NOT CONTACT UTILITY COMPANIES DIRECTLY WITHOUT PRIOR APPROVAL OF OWNER.

COT UTILITIES:

ENGINEERING SERVICES
CHRIS KOVAC
UTILITIES COORDINATION MANAGER
2317 S JACKSON AVE, SUITE S-206
TULSA, OKLAHOMA 74107
918.596.9649
CKOVAC@CITYOFTULSA.ORG

FIRE:

CITY OF TULSA FIRE DEPARTMENT
FIRE MARSHAL, RICK BRUDER
1760 NEWBLOCK PARK DRIVE
TULSA, OKLAHOMA 74127
918.596.5584

GAS:

OKLAHOMA NATURAL GAS COMPANY
ATTN: BRANDON RAINBOLT
918.947.7098
BRANDON.RAINBOLT@ONG.COM

TELEPHONE:

AT&T COMMUNICATION INC.
ATTN: KEVIN BENDER
5305 EAST 71ST STREET
TULSA, OKLAHOMA 74135
918.859.9147

CABLE TELEVISION:

COX COMMUNICATIONS
ATTN: CRAIG BARNES
11811 E. 51ST STREET S.
TULSA, OKLAHOMA 74146
918.286.4754

ELECTRIC:

AEP/PUBLIC SERVICE COMPANY OF OKLAHOMA
ATTN: STEVE WILLIAMS
5223 SOUTH GARNETT
TULSA, OKLAHOMA 74146
918.250.7716

ENGINEER:

JORDAN RODICH, P.E.
WALLACE DESIGN COLLECTIVE
123 MARTIN LUTHER KING JR BLVD
TULSA, OKLAHOMA 74103
918.584.5858

OWNER:

TULSA PUBLIC SCHOOLS
MR. TRACY DELAUGHTER
3027 S NEW HAVEN
TULSA, OK 74114
918-746-6890

PROPERTY NOT WITHIN CITY OF TULSA REGULATORY FLOODPLAIN
FEMA PANEL # 40143C0332L

BEFORE YOU DIG 800-522-OKIE CALL OKIE

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

1

IDP DESCRIPTION

- ADDED VOLUME TO EXISTING DETENTION POND
- EXTENSION OF PUBLIC STORM SEWER
- 8" PRIVATE SANITARY SEWER CONNECTION
- NEW FIRE HYDRANT
- CURB AND GUTTER, SIDEWALK, AND DRIVEWAYS.
- ADJUST SANITARY MANHOLE TO GRADE.

ENGINEER'S STATEMENT

BY MY SIGNATURE ON THESE CONSTRUCTION DOCUMENTS, I HEREBY CERTIFY THAT I AM FAMILIAR WITH THE ADOPTED ORDINANCES AND REGULATIONS OF THE CITY OF TULSA GOVERNING THE ITEMS IN THE IDP DESCRIPTION; THAT THESE PLANS HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION; AND THAT THE ABOVE AND FOREGOING PLANS COMPLY WITH ALL GOVERNING ORDINANCES AND THE ADOPTED STANDARDS OF THE CITY OF TULSA TO THE BEST OF MY KNOWLEDGE AND BELIEF.

#	REVISION	DATE
	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
10/5/2022

PROJECT NO.:	21-030000
FILE:	C1.0
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257
wb: gshelms.com

424 e. main st.
jenks, ok 74037

wallace design collective

wallace design collective, pc
structural · civil · landscape · survey
123 north martin luther king jr. boulevard
tulsa, oklahoma 74103
918.584.5858 · 800.364.5858

OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:

TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

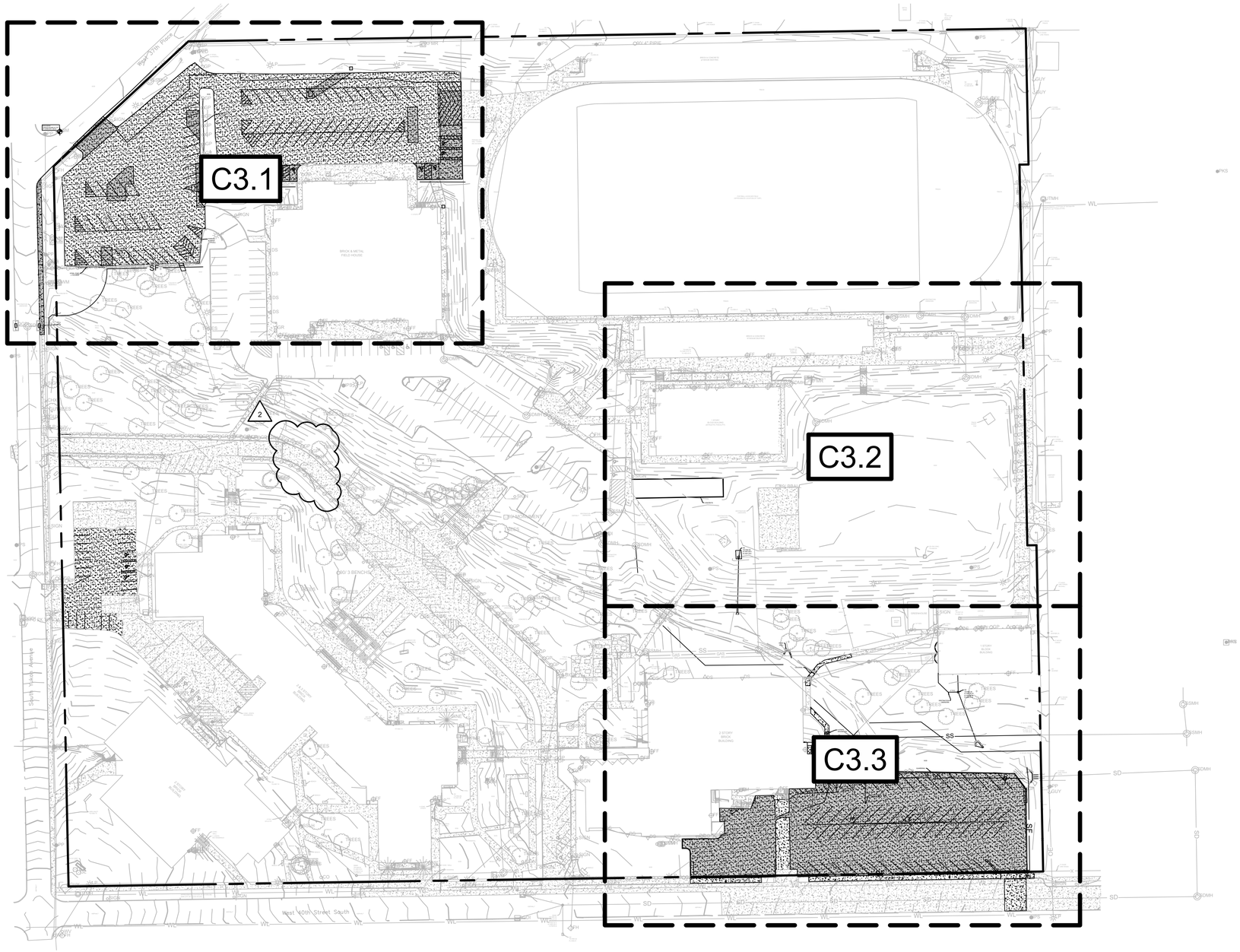
SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

C1.0

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

BEFORE YOU DIG CALL OKIE

CAUTION
NOTICE TO CONTRACTOR

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#	REVISION	DATE
	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
10/5/2022

PROJECT NO.:	21-030000
FILE:	C3.0
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
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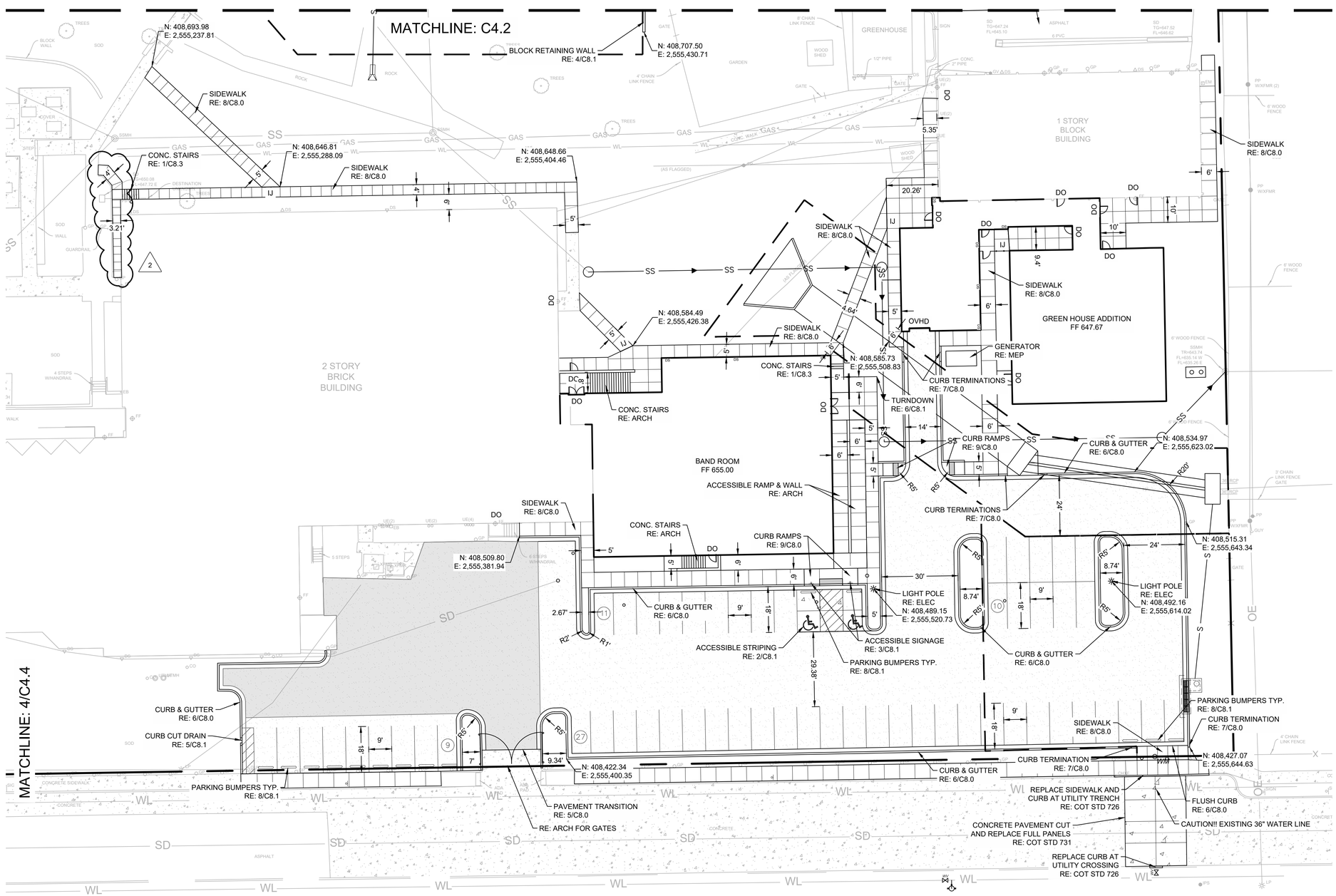
OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:
TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:
OVERALL DEMOLITION & EROSION CONTROL PLAN

SHEET NUMBER:
C3.0



10 0 5 10
1" = 10'

GENERAL SITE NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL MUNICIPAL REGULATIONS AND CODES, WHICHEVER IS MORE STRINGENT.
2. ALL WORK AND MATERIALS SHALL COMPLY WITH O.S.H.A. STANDARDS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
4. REFER TO LANDSCAPE PLANS FOR GRASS, TREES AND PLANTED MATERIALS.
5. ALL DIMENSIONS AND COORDINATES ARE FROM BACK OF CURB UNLESS SHOWN OTHERWISE.
6. CONCRETE PAVING SECTIONS SHALL BE SAWCUT AT 12' MAXIMUM SPACING EACH.
7. BUILDING COORDINATES ARE TO OUTSIDE FACE OF WALL.
8. ALL SIDEWALK JOINTS SHALL BE TOOLED WITH SPACING EQUAL TO THE WIDTH OF THE SIDEWALK. RE: 8/C8.0
9. ALL NEW CONCRETE SIDEWALK SHALL HAVE ISOLATION JOINTS WHERE ABUTTING BUILDINGS, EXISTING PAVEMENT, WALLS, AND CURBS. RE: 1/C8.1
10. CONSTRUCTION JOINTS ARE TO BE DOWELED AT LOCATIONS WHERE THE CONTRACTOR STOPS PAVING AND RESUMES THE NEXT DAY. RE: 1/C8.1
11. ALL CONCRETE PAVEMENT JOINTS ARE TO BE SAW CUT AND SEALED UNLESS OTHERWISE NOTED. RE: 1/C8.1
12. TRAFFIC ACCESS ON ALL STREETS SHALL BE MAINTAINED AT ALL TIMES. CONTRACTOR MUST MAINTAIN PROPER CONSTRUCTION SIGNAGE AND TRAFFIC CONTROL IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LEGEND

- CONCRETE PAVEMENT — RE: 4/C8.0
- ASPHALT PAVEMENT — RE: 4/C8.0
- HEAVY DUTY ASPHALT PAVEMENT — RE: 4/C8.0
- 2" MILL AND OVERLAY. RE: 4/C8.0 FOR SURFACE COURSE AND TACK COAT

NOTE: CITY OF TULSA LANDSCAPING ZONING CODE IS NOT APPLICABLE FOR SECTION 65.040 STREET TREES, 65.050 INTERIOR PARKING LOT LANDSCAPING, AND 65.060 VEHICULAR USE AREA BUFFERS.

CAUTION
NOTICE TO CONTRACTOR

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BEFORE YOU DIG CALL OKIE 1-800-522-OKIE

#	REVISION	DATE
	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022

SEALS:
LICENSED PROFESSIONAL ENGINEER — JORDAN RODICH — 26545 — OKLAHOMA — 10/5/2022

PROJECT NO.:	21-030000
FILE:	C4.3
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
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wb: gshelms.com
424 e. main st.
jenks, ok 74037

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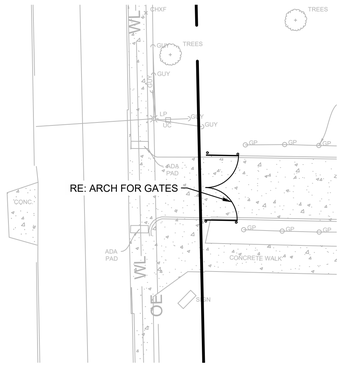
123 north martin luther king jr. boulevard
tulsa, oklahoma 74103
918.584.5858 · 800.364.5858

OKLAHOMA CA #1460 EXP DATE: 6/30/23

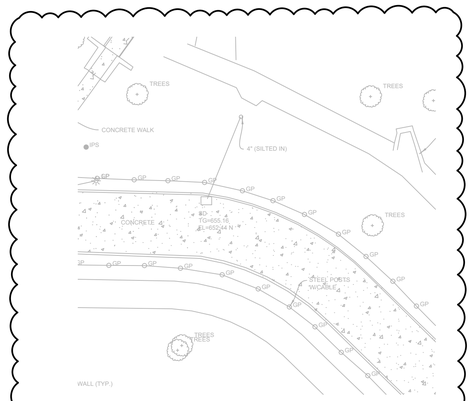
PROJECT TITLE: TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE: SITE PLAN

SHEET NUMBER: C4.3

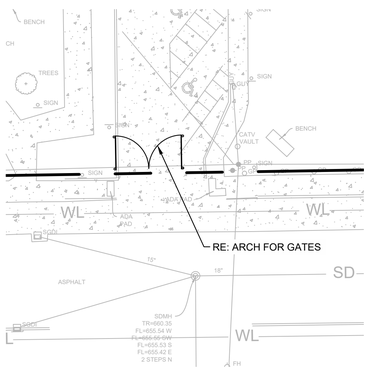


1 WEST EXIT
SCALE: 1:20

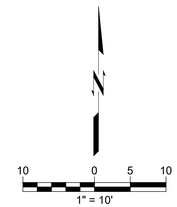


2 MAIN ROAD PAVEMENT REPAIR
SCALE: 1:20

3 MIDDLE SCHOOL PARKING LOT
SCALE: 1:20



4 SOUTH ENTRANCE
SCALE: 1:20



GENERAL SITE NOTES

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LEGEND

- CONCRETE PAVEMENT
  RE: 4/C8.0
- ASPHALT PAVEMENT
  RE: 4/C8.0
- HEAVY DUTY ASPHALT PAVEMENT
  RE: 4/C8.0
- 2" MILL AND OVERLAY. RE: 4/C8.0 FOR SURFACE COURSE AND TACK COAT

NOTE: CITY OF TULSA LANDSCAPING ZONING CODE IS NOT APPLICABLE FOR SECTION 65.040 STREET TREES, 65.050 INTERIOR PARKING LOT LANDSCAPING, AND 65.060 VEHICULAR USE AREA BUFFERS.

BEFORE YOU DIG 1-800-522-OKIE CALL OKIE

CAUTION
NOTICE TO CONTRACTOR

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GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022
#	REVISION	DATE

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
10/5/2022

PROJECT NO.:	21-030000
FILE:	C4.4
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
ph: 918.298.7257
wb: gshelms.com
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jenks, ok 74037

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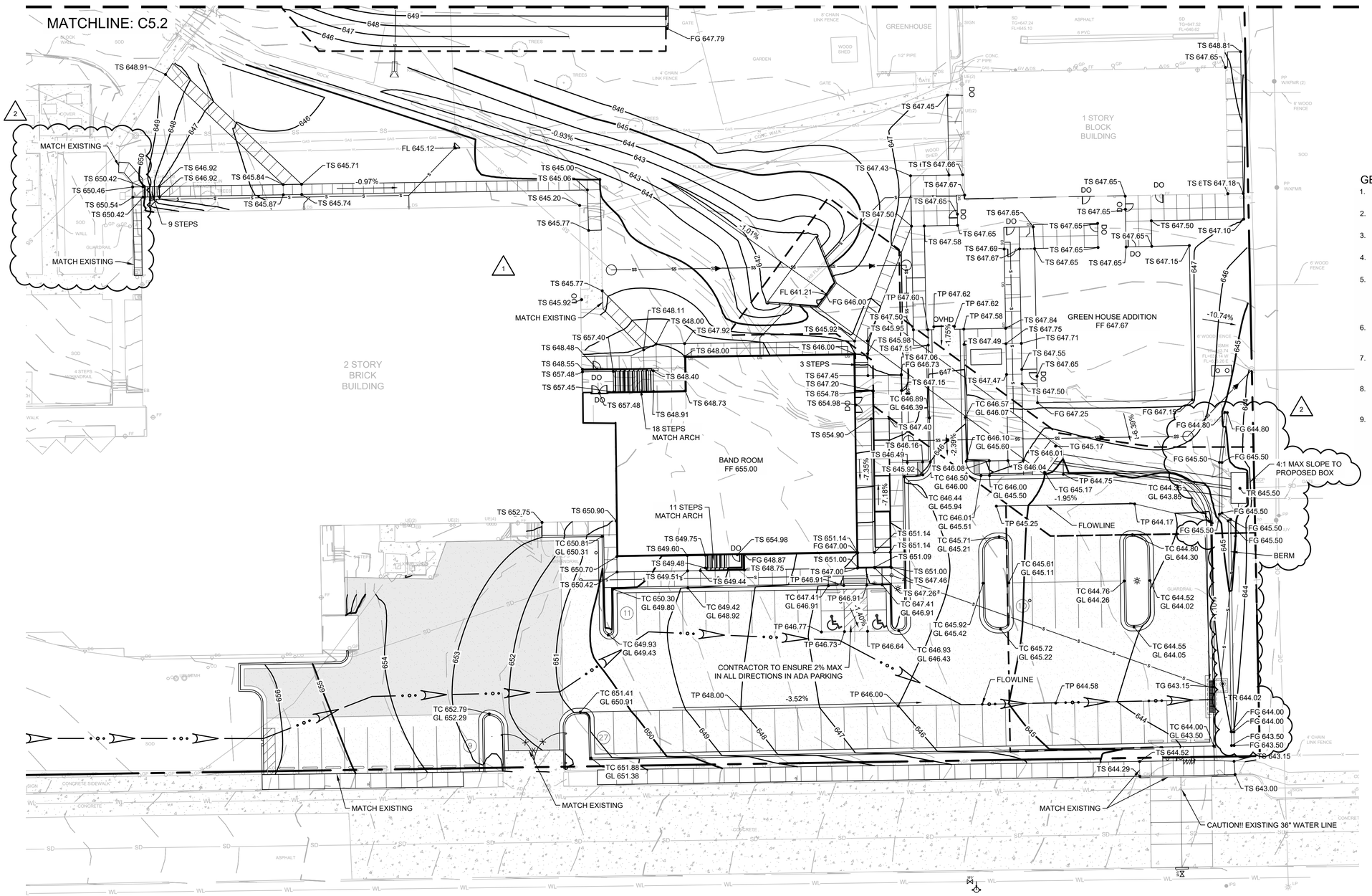
tulsa, oklahoma 74103
918.584.5858 · 800.364.5858

OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:
TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C4.4



20 0 10 20
1" = 20'

GENERAL GRADING NOTES

1. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED & INSPECTED AND APPROVED BY LOCAL AUTHORITIES.
2. ALL CUT OR FILL SLOPES SHALL BE 4:1 OR FLATTER UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND STRUCTURES FOR ALL GRASSED AND PAVED AREAS.
4. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO THE SAME.
5. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY ACCESS ROADS AND SHALL MAINTAIN POSITIVE DRAINAGE OF ENTIRE SITE THROUGHOUT CONSTRUCTION AND AVOID PONDING OR RUTTING. TEMPORARY DEWATERING, INCLUDING PUMPING, MAY BE REQUIRED AND SHALL BE INCLUDED IN THE SCOPE OF WORK.
6. ALL SIDEWALKS TO HAVE MAXIMUM LONGITUDINAL SLOPE OF 5% AND MAXIMUM CROSS SLOPE OF 2%. ALL RAMPS TO HAVE MAXIMUM LONGITUDINAL SLOPE OF 8.33% AND MAXIMUM CROSS SLOPE OF 2%.
7. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES ARE TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
8. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
9. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATER TIGHT.

CAUTION

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1	ADDENDUM 2	9/1/2022
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SEALS:

LICENSED PROFESSIONAL ENGINEER — JORDAN RODICH — 26548 — OKLAHOMA — 10/5/2022

PROJECT NO.:	21-030000
FILE:	C5.3
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:

GS HELMS + ASSOCIATES

ph: 918.298.7257 | wb: gshelms.com

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OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:

TULSA PUBLIC SCHOOLS

WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

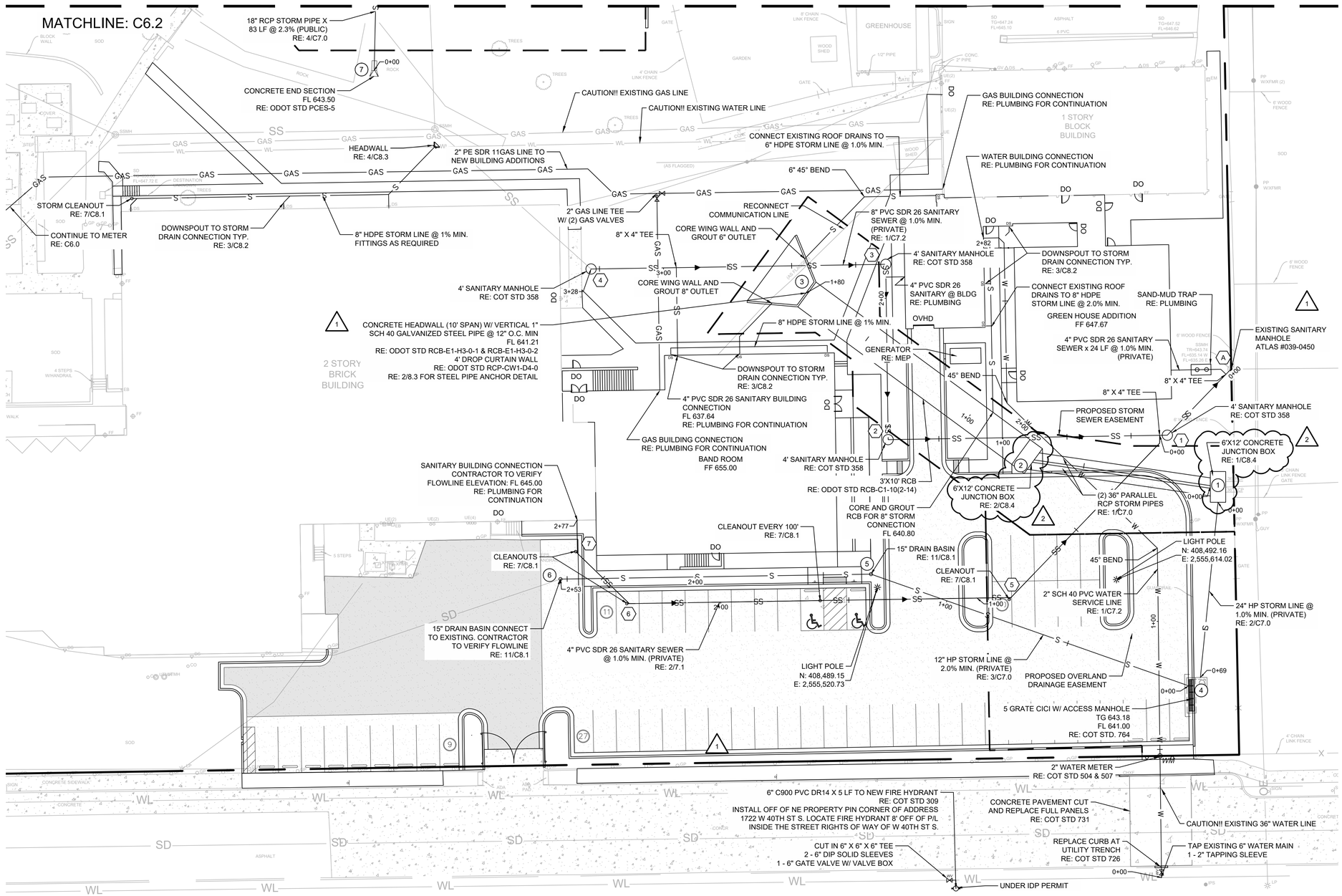
SHEET TITLE:

GRADING PLAN

SHEET NUMBER:

C5.3

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332



GENERAL UTILITY NOTES

1. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
2. PRIOR TO CONSTRUCTION, LOCATION OF SITE UTILITIES SHALL BE VERIFIED BY CONTRACTOR WITH THE PROPER UTILITY COMPANY PROVIDING SERVICE.
3. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES' INSPECTORS BEFORE CONNECTING TO ANY EXISTING LINE IN ACCORDANCE WITH LOCAL REQUIREMENTS.
4. CONTRACTOR IS TO COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
5. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE SPECIFICATIONS OF THE LOCAL AUTHORITIES REGARDING TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
6. TERMINATE SERVICE PIPING 5' FROM BUILDING WALL UNTIL BUILDING PIPING SYSTEMS ARE INSTALLED. TERMINATE PIPING WITH VALVE AND CAP PLUG OR FLANGE AS REQUIRED FOR PIPING MATERIAL. MAKE CONNECTIONS TO BUILDING PIPING SYSTEMS WHEN THOSE SYSTEMS ARE INSTALLED.
7. ALL PIPING SHALL BE INSTALLED WITH A MINIMUM OF 30" OF COVER, UNLESS NOTED OTHERWISE.
8. UTILITY TRENCH DETAIL RE: 1/C8.2. STORM TRENCH DETAIL RE: 2/C8.2.
9. REFER TO MEP FOR CONTINUATION OF UTILITIES AT BUILDING.
10. REFER TO PLUMBING AND/OR FIRE PROTECTION SHEETS FOR FIRE LINE LEAD-IN LOCATION AND DETAIL.
11. CONSTRUCT CLAY TRENCH PLUG THAT EXTENDS AT LEAST 5 FEET OUT FROM THE FACE OF THE BUILDING EXTERIOR. THE PLUG MATERIAL SHALL CONSIST OF CLAY COMPACTED AT A WATER CONTENT AT OR ABOVE THE SOILS OPTIMUM WATER CONTENT. THE CLAY FILL SHALL BE PLACED TO COMPLETELY SURROUND THE UTILITY LINE AND BE COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY.
12. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR OR REPLACE THE EXISTING STRUCTURE AS NECESSARY.
13. RESTRAINED JOINTS SHALL BE PROVIDED ON 4" AND LARGER WATER LINES AT ALL BENDS TEES AND FIRE HYDRANTS FOR A MINIMUM 2 JOINTS BOTH SIDES OF FITTING PER AWWA MINIMUM STANDARDS.
14. CONTRACTOR SHALL UTILIZE AWWA AND FACTORY MUTUAL TEST AND CERTIFICATIONS FOR ALL UNDERGROUND FIRE PROTECTION LINES AS A MINIMUM. LOCAL OR STATE AUTHORITIES MAY REQUIRE MORE STRINGENT TESTING WHICH SHALL BE PROVIDED BY THE GC IF REQUIRED.
15. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATER TIGHT.
16. PROVIDE SLEEVE WITH LINK-SEAL (OR APPROVED EQUAL) AT GRADE BEAM PENETRATION LOCATIONS (RE: STRUCTURAL FOR DETAIL).

CAUTION

NOTICE TO CONTRACTOR

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BEFORE YOU DIG 1-800-522-OKIE CALL OKIE

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022
#	REVISION	DATE

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
10/5/2022

PROJECT NO.:	21-030000
FILE:	C6.3
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:
GS HELMS + ASSOCIATES
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tulsa, oklahoma 74103
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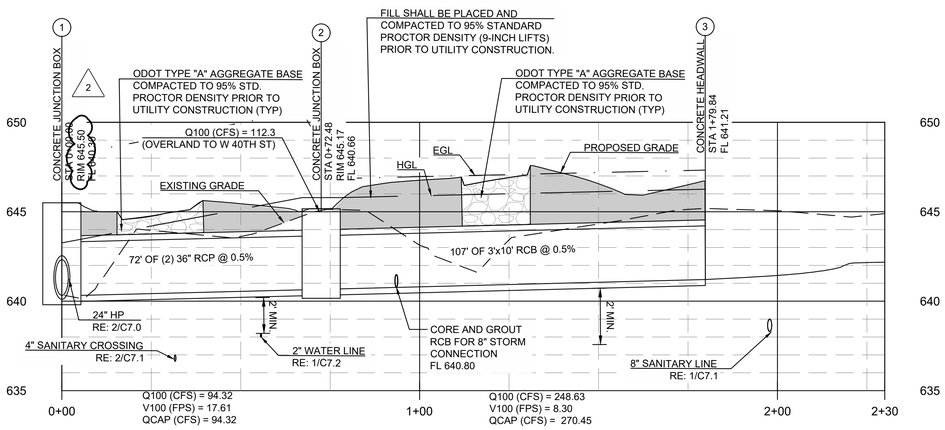
OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:
TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

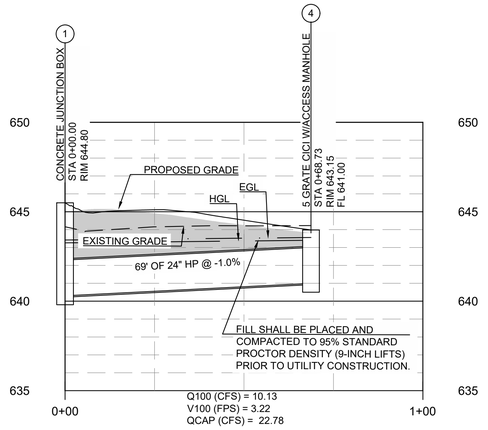
SHEET TITLE:
UTILITY PLAN

SHEET NUMBER:
C6.3



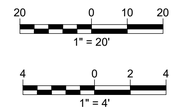
1 STORM A (PUBLIC)

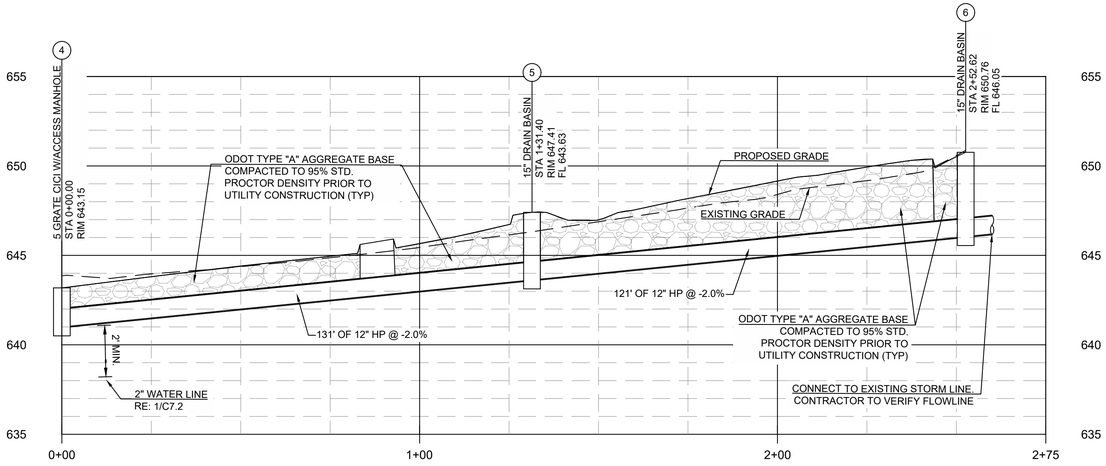
SCALE: HORIZ: 1:20 VERT: 1:4



2 STORM B (PRIVATE)

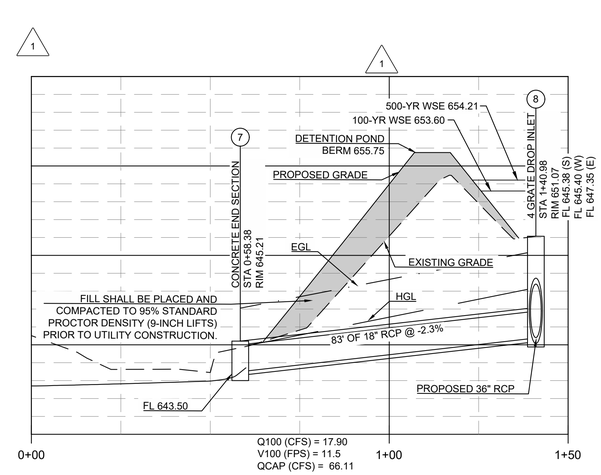
SCALE: HORIZ: 1:20 VERT: 1:4





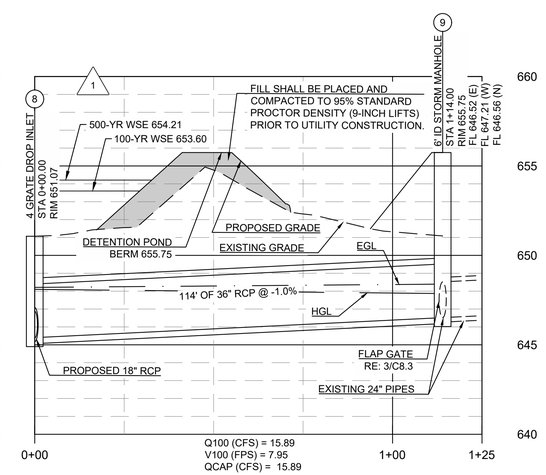
3 STORM C (PRIVATE)

SCALE: HORIZ: 1:20 VERT: 1:4



4 STORM D (PUBLIC)

SCALE: HORIZ: 1:20 VERT: 1:4



5 STORM E (PRIVATE)

SCALE: HORIZ: 1:20 VERT: 1:4

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

CAUTION

NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.

#	REVISION	DATE
	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022

SEALS:

JORDAN RODICH 26548 LICENSED PROFESSIONAL ENGINEER OKLAHOMA
10/5/2022

PROJECT NO.:	21-030000
FILE:	C7.0
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:

GS HELMS + ASSOCIATES

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wb: gshelms.com

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tulsa, oklahoma 74103
918.584.5858 · 800.364.5858

OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:

TULSA PUBLIC SCHOOLS

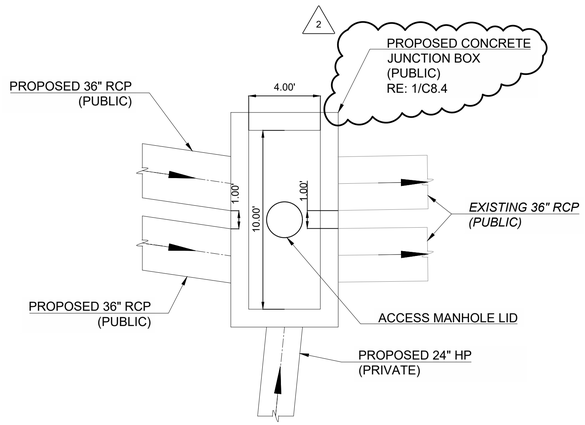
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

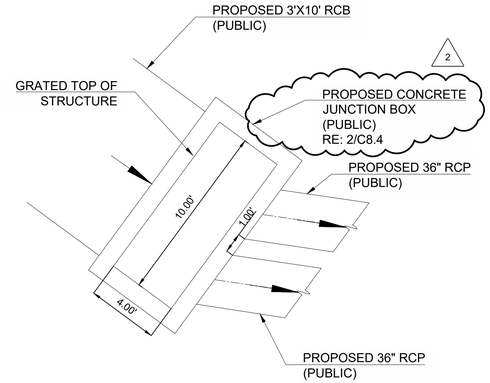
STORM PROFILES

SHEET NUMBER:

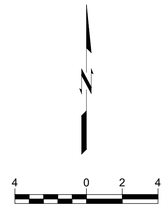
C7.0

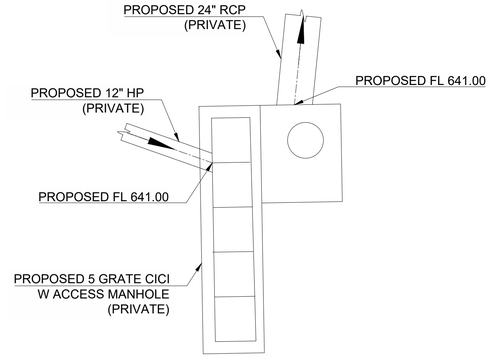


1 STORM JUNCTION BOX 1
SCALE: 1:4

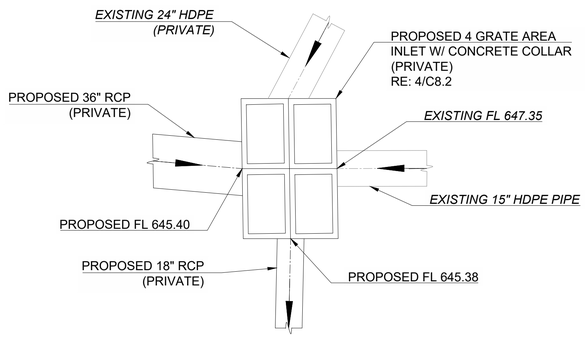


2 STORM JUNCTION BOX 2
SCALE: 1:4

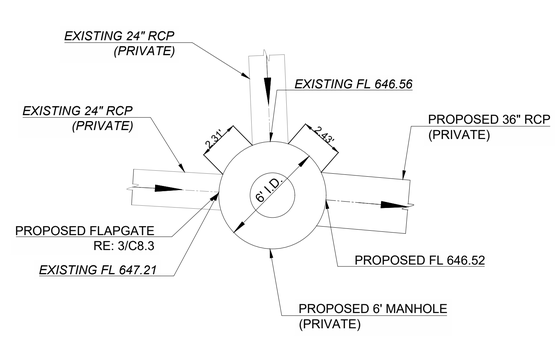




3 STORM INLET 4
SCALE: 1:4



4 STORM INLET 8
SCALE: 1:4



5 STORM MANHOLE 9
SCALE: 1:4

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1-800-522-OKIE
CALL OKIE

CAUTION
NOTICE TO CONTRACTOR

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GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022

SEALS:

LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
10/5/2022

PROJECT NO.:	21-030000
FILE:	C7.1
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:
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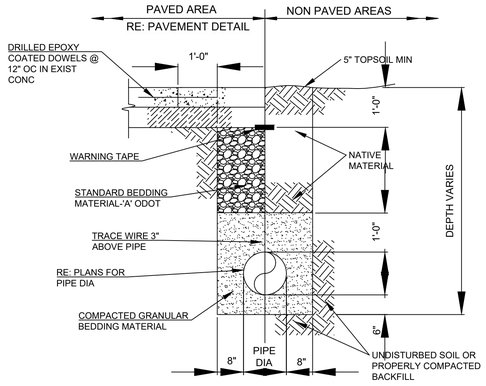
tulsa, oklahoma 74103
918.584.5858 · 800.364.5858

OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:
TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:
STORM DETAILS

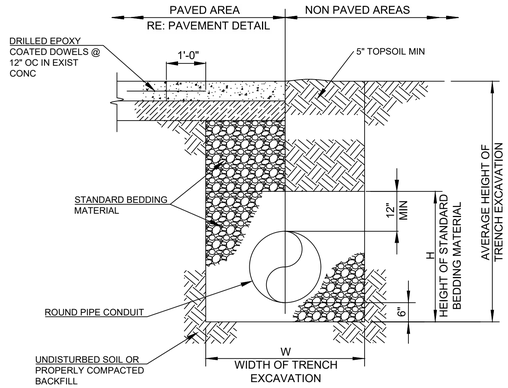
SHEET NUMBER:
C7.1



TRENCH NOTE:
BRACING AND SHEATHING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND OSHA SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF THE CONTRACTOR.

BEDDING NOTE:
UNDER PAVING ODOT TYPE "A" AGGREGATE BASE MUST BE TO THE TOP OF THE TRENCH. ODOT TYPE "A" AGGREGATE BASE TO BE COMPACTED TO 95% STANDARD PROCTOR.

1 PIPE TRENCH-ALL PIPES EXCEPT STORM SEWER
SCALE: NTS



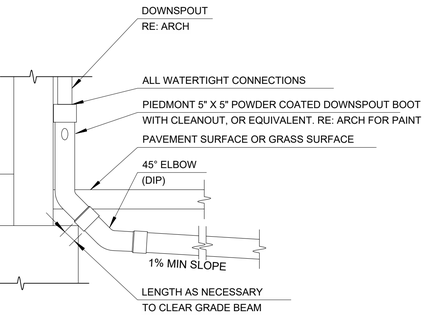
LIMITS OF STANDARD BEDDING
MATERIAL QUANTITIES FOR BEDDING MATERIAL DO NOT INCLUDE THE SPACE WITHIN AND BOUNDED BY THE OUTER SURFACE OF THE PIPE CONDUIT.

TRENCH NOTE:
BRACING AND SHEATHING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND OSHA SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE RESPONSIBILITY OF THE CONTRACTOR.

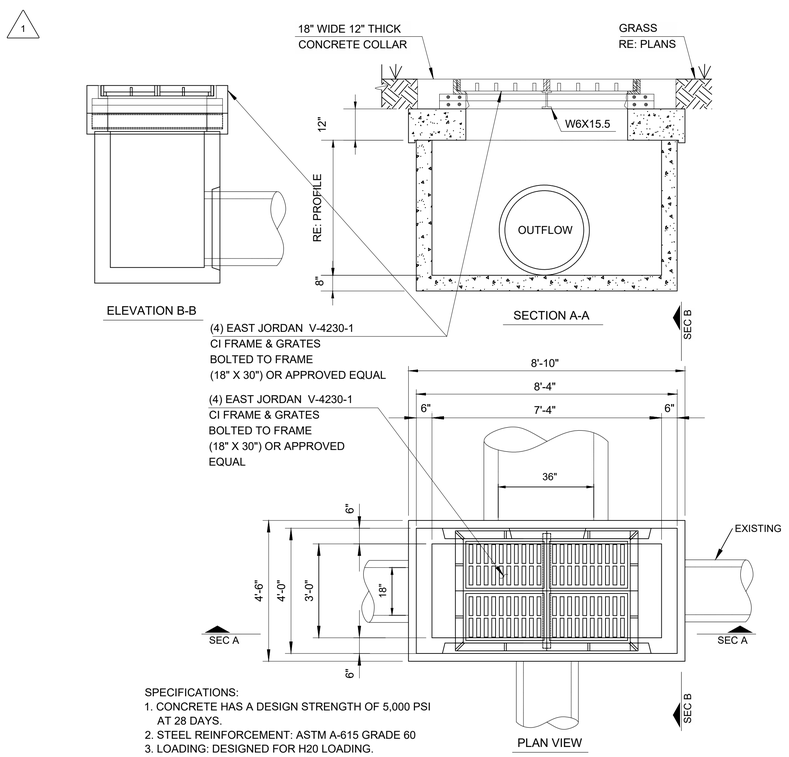
BEDDING NOTE:
STANDARD BEDDING MUST BE ODOT TYPE "A" AGGREGATE BASE.
UNDER PAVING ODOT TYPE "A" AGGREGATE BASE MUST BE TO THE TOP OF THE TRENCH. ODOT TYPE "A" AGGREGATE BASE TO BE COMPACTED TO 95% STANDARD PROCTOR.

PIPE SIZE, IN.	TRENCH WIDTH, FT.
ID < 24"	OD + 2'
24" > ID < 36"	OD + 2.5'
36" > ID < 60"	OD + 3.5'
ID > 60"	OD + 4'

2 STANDARD PIPE BEDDING DETAIL FOR STORM SEWER
SCALE: NTS



3 DOWNSPOUT TO STORM DRAIN CONNECTION
SCALE: NTS



SPECIFICATIONS:
1. CONCRETE HAS A DESIGN STRENGTH OF 5,000 PSI AT 28 DAYS.
2. STEEL REINFORCEMENT: ASTM A-615 GRADE 60
3. LOADING: DESIGNED FOR H20 LOADING.
4. CI CASTINGS: ASTM A-48, CLASS 30 / 35.

4 4 GRATE DROP INLET
SCALE: NTS

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022

SEALS:
LICENSED PROFESSIONAL ENGINEER
JORDAN RODICH
26548
OKLAHOMA
10/5/2022

PROJECT NO.:	21-030000
FILE:	C8.2
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:
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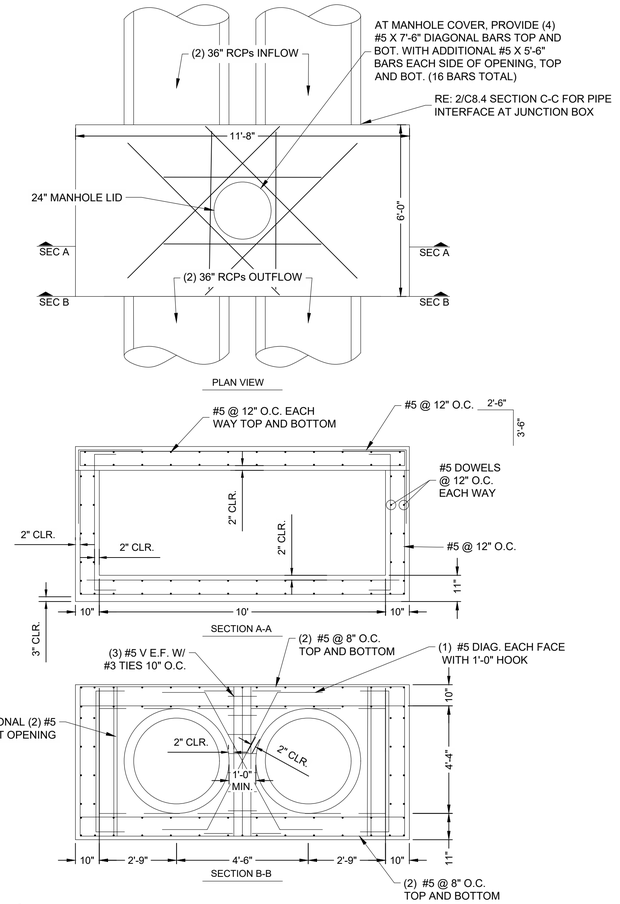
OKLAHOMA CA #1460 EXP DATE: 6/30/23

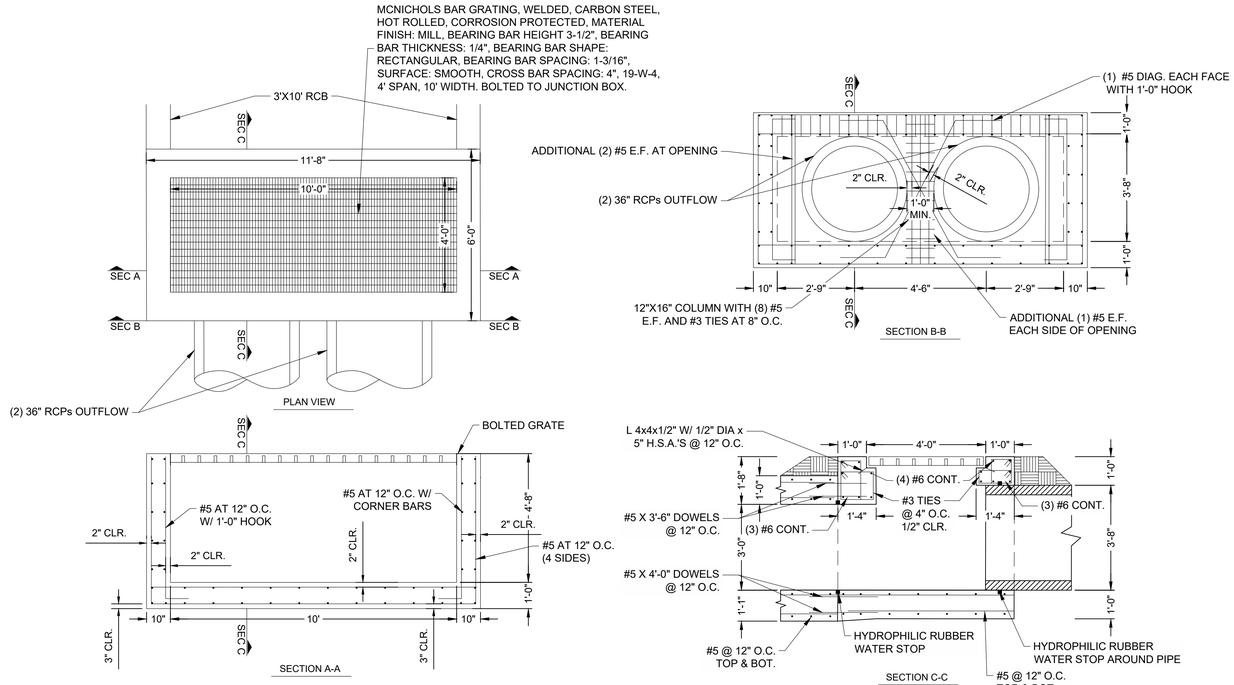
PROJECT TITLE:
TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:
DETAILS

SHEET NUMBER:
C8.2



1 4'X10' JUNCTION BOX #1
SCALE: NTS



2 4'X10' JUNCTION BOX #2
SCALE: NTS

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
	100% CONSTRUCTION DOCUMENTS	6/14/2022
1	ADDENDUM 2	9/1/2022
2	ADDENDUM 3	10/5/2022

SEALS:

PROJECT NO.:	21-030000
FILE:	C8.4
ISSUE DATE:	6.14.22
SCALE:	AS NOTED
DRAWN BY:	JE
CHECKED BY:	JR
APPROVED BY:	JR

ARCHITECT:
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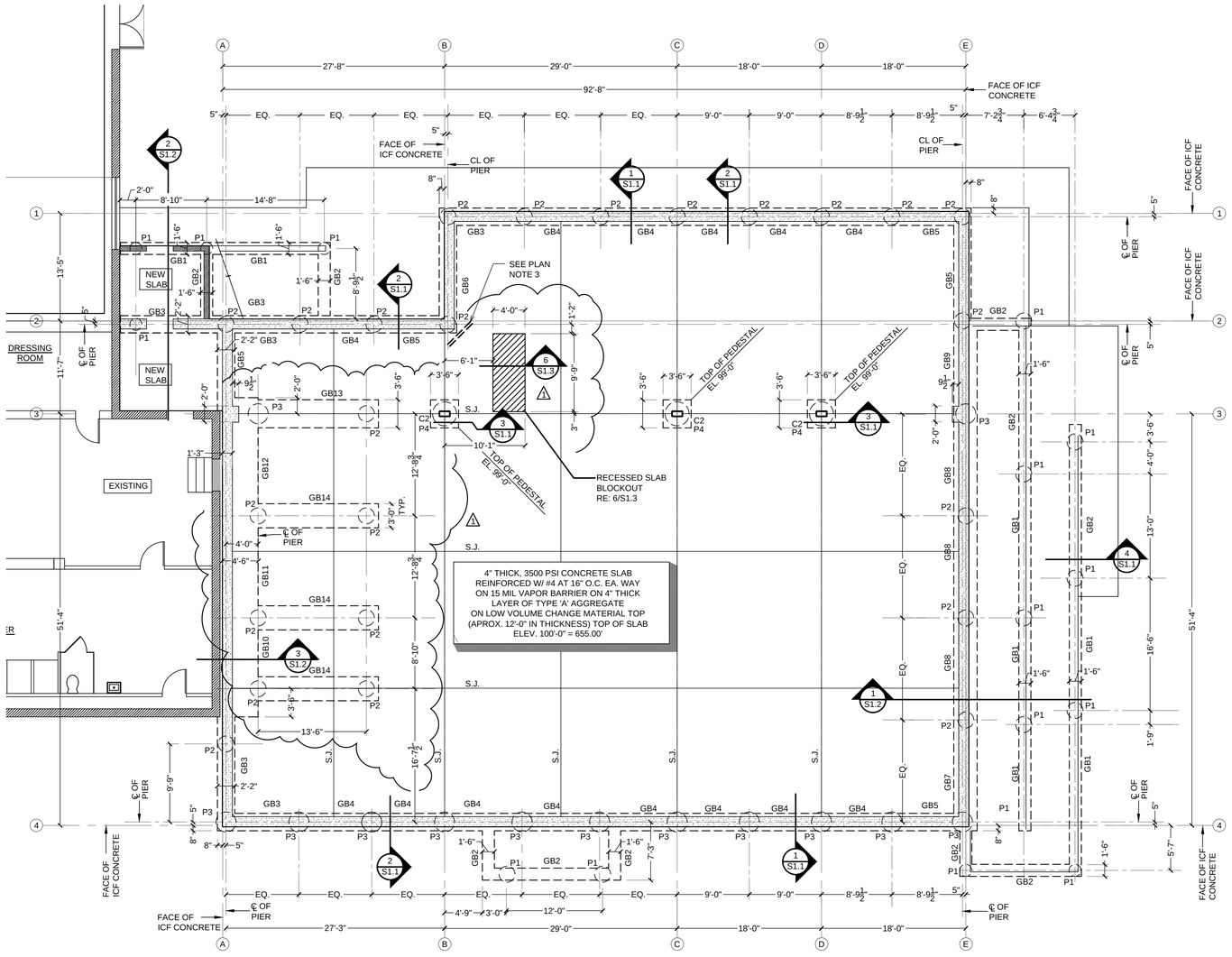
OKLAHOMA CA #1460 EXP DATE: 6/30/23

PROJECT TITLE:
TULSA PUBLIC SCHOOLS
WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:
DETAILS

SHEET NUMBER:
C8.4



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

NORTH

GRADE BEAM SCHEDULE

MARK	SIZE (B x D)	REINFORCEMENT	BAR TYPE (℄ PIER ℄ PIER)	STIRRUPS
GB1	18 x 36	3 - #6 TOP 3 - #6 BOTTOM		2 AT 10" EQ. END, BAL AT 10" O.C.
GB2	18 x 36	3 - #6 TOP 3 - #6 BOTTOM		2 AT 10" EQ. END, BAL AT 10" O.C.
GB3	26 x 36	5- #8 TOP 5 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 10" O.C.
GB4	26 x 36	5- #8 TOP 5 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 10" O.C.
GB5	26 x 36	5- #8 TOP 5 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 10" O.C.
GB6	26 x 36	5- #8 TOP 5 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 10" O.C.
GB7	35 x 36	7 - #8 TOP 7 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 16" O.C.
GB8	35 x 36	7 - #8 TOP 7 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 16" O.C.
GB9	35 x 36	7 - #8 TOP 7 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 16" O.C.
GB10	54 x 36	10 - #8 TOP 2 - #6 SIDES 10 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 16" O.C.
GB11	54 x 36	10 - #8 TOP 2 - #6 SIDES 10 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 16" O.C.
GB12	54 x 36	10 - #8 TOP 2 - #6 SIDES 10 - #8 BOTTOM		2 AT 10" EQ. END, BAL AT 16" O.C.
GB13	42 x 36	8 - #8 TOP 2 - #6 SIDES 8 - #8 BOTTOM		6 AT 3" AT CANTI, END, BAL AT 10" O.C.
GB14	36 x 36	8 - #8 TOP 2 - #6 SIDES 7 - #8 BOTTOM		6 AT 3" AT CANTI, END, BAL AT 10" O.C.

DRILLED PIER SCHEDULE

MARK	SHAFT DIAMETER	REINFORCEMENT	
P1	18"	5 - #6 VERT., #3 TIES AT 12" O.C.	2'-0" INTO STRATUM
P2	24"	6 - #7 VERT., #3 TIES AT 14" O.C.	2'-0" INTO STRATUM
P3	30"	6 - #7 VERT., #3 TIES AT 16" O.C.	2'-0" INTO STRATUM
P4	36"	7 - #8 VERT., #3 TIES AT 16" O.C.	5'-0" INTO STRATUM

1. PIERS TO REBAR INTO GRAY MODERATELY HARD TO HARD, SHALE BEDROCK APPROXIMATELY 18'-6" BELOW GRADE.

FOUNDATION & SLAB NOTES

1. S.J. ON PLAN INDICATES 3/16" WIDE x 1" DEEP SAWED JOINT.
2. SAW CUTTING OF SLAB JOINTS TO OCCUR WITHIN 12 HOURS AFTER SLAB POUR.
3. INDICATES 2-#4 4'-0" RE-ENTRANT BARS WITHIN SLAB.
4. PROVIDE #4x5'-0" RE-ENTRANT BARS WITHIN SLAB AT PLUMBING PIPE PENETRATIONS THRU SLAB.
5. CONTRACTOR TO PLACE AND MONITOR LOW VOLUME CHANGE MATERIAL PER GEOTECHNICAL ENGINEERS RECOMMENDATIONS.
6. TOP 30" OF SOIL AT GRADE IS TO BE REMOVED AND REPLACED WITH LOW VOLUME CHANGE MATERIAL.

CONTRACTOR TO PROVIDE SHORING OF CONCRETE STEM WALLS DURING CONSTRUCTION. SHORING IS TO BE DESIGNED BY A PROFESSIONAL ENGINEER WITH DESIGN SUBMITTED FOR REVIEW / CONFORMANCE.

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS ISSUE FOR BIDDING	06.16.22
1	ADDENDUM #3	10.05.22

SEALS:

REGISTERED PROFESSIONAL ENGINEER
ERON DEWAYNE SHELTON
21658
OKLAHOMA
30SEP22

PROJECT NO.:	21-03000
FILE:	
ISSUE DATE:	06.16.22
SCALE:	AS NOTED
DRAWN BY:	
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
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wb: gshelms.com | jenks, ok 74037

RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.23

PROJECT TITLE: TULSA PUBLIC SCHOOLS

WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS W/ SITE IMPROVEMENTS

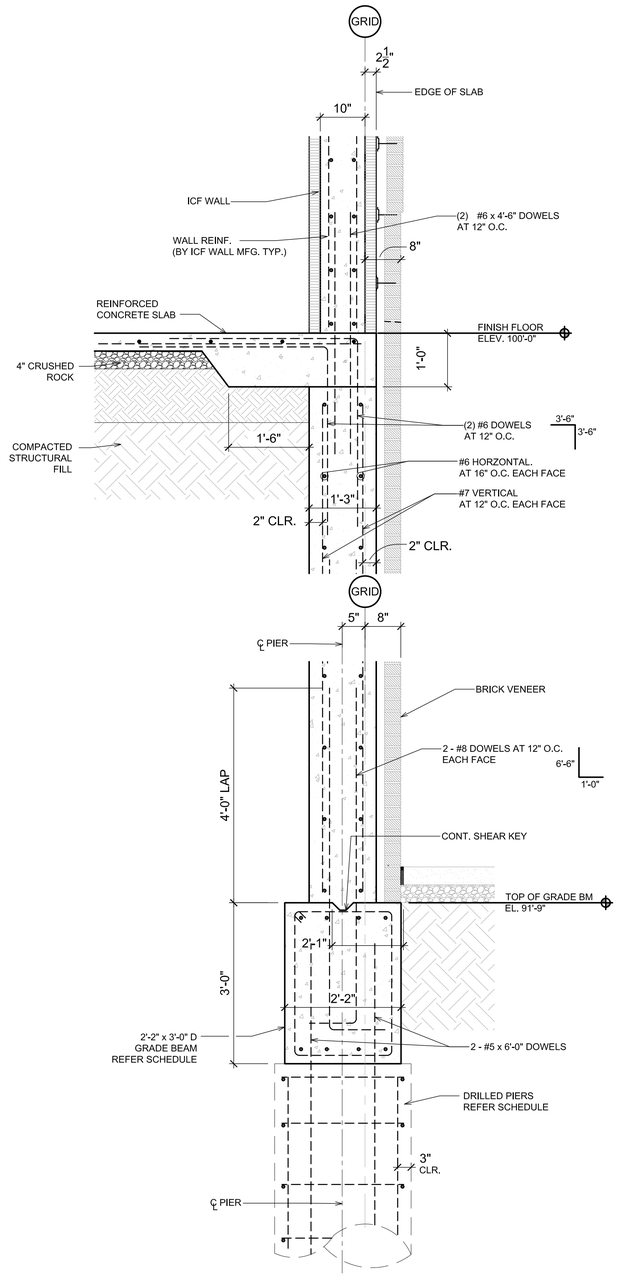
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

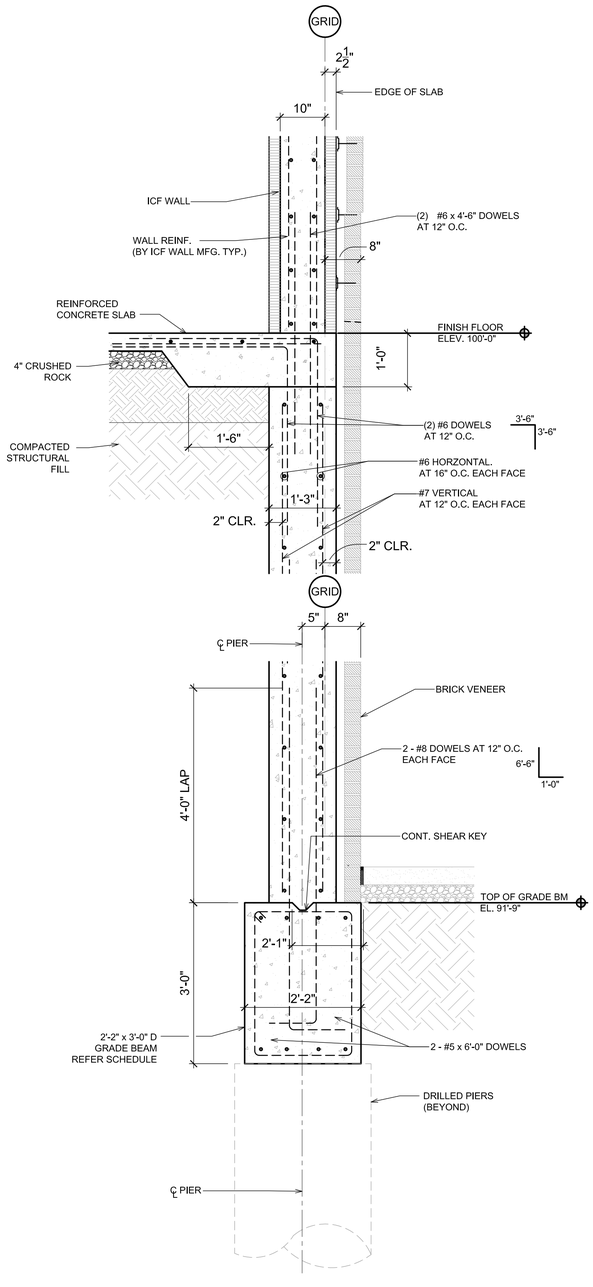
FOUNDATION PLAN
BAND ROOM ADDITION BLDG. C

SHEET NUMBER:

S1.0



1 DETAIL
SCALE: 3/4" = 1'-0"



2 DETAIL
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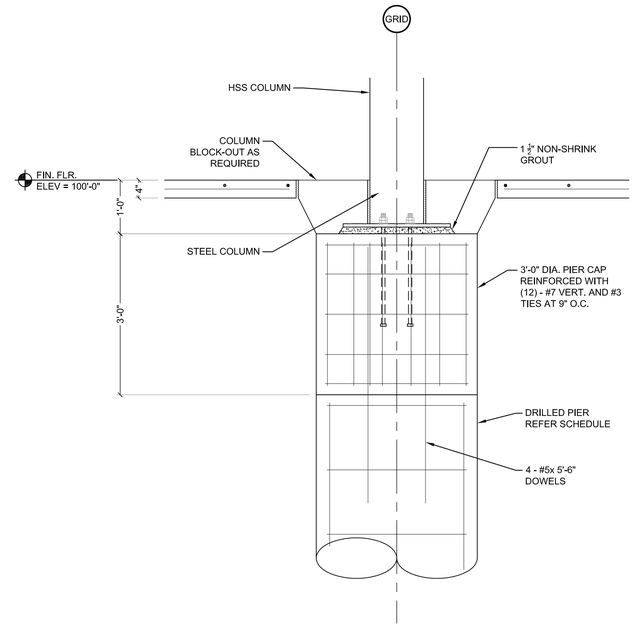

3 DETAIL
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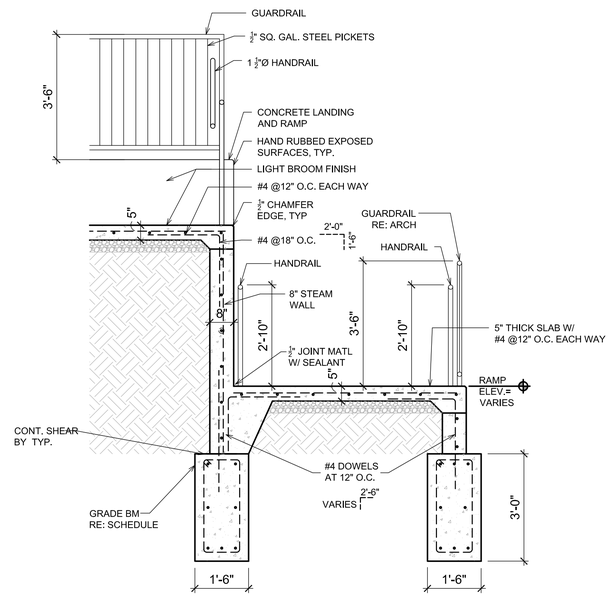

4 DETAIL
SCALE: 1/2" = 1'-0"

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
0	CONSTRUCTION DOCUMENTS ISSUE FOR BIDDING	06.16.22
1	ADDENDUM #3	10.05.22

SEALS:

PROJECT NO.:	21-03000
FILE:	
ISSUE DATE:	06.16.22
SCALE:	AS NOTED
DRAWN BY:	
CHECKED BY:	GSH
APPROVED BY:	GSH

ARCHITECT:
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RICHARDS & ASSOCIATES, INC.
424 EAST MAIN STREET JENKS, OK
405.627.9584 FAX 918.355.9309
C.A. #4458 EXP. DATE 06.30.23

PROJECT TITLE: TULSA PUBLIC SCHOOLS

WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
W/ SITE IMPROVEMENTS

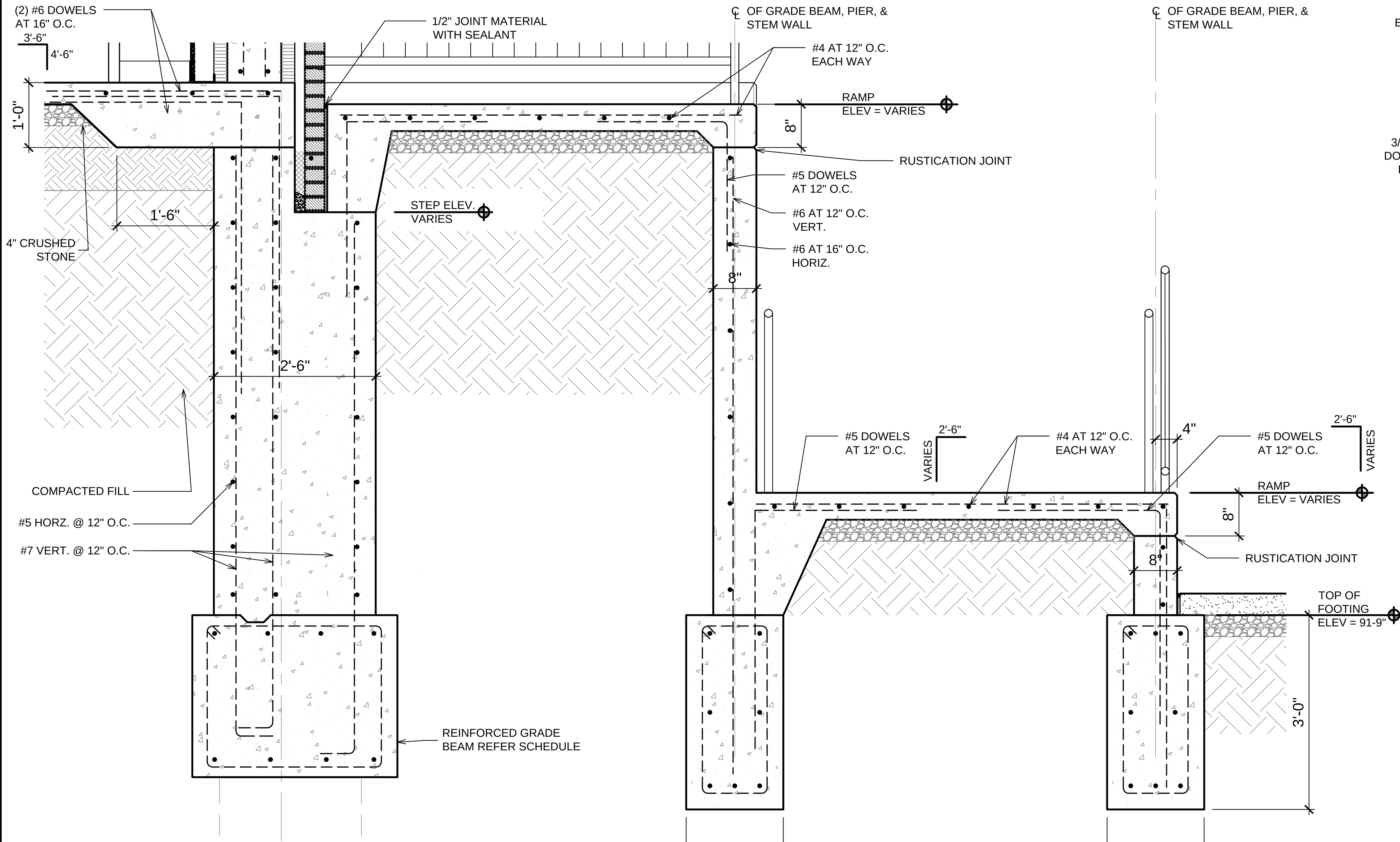
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

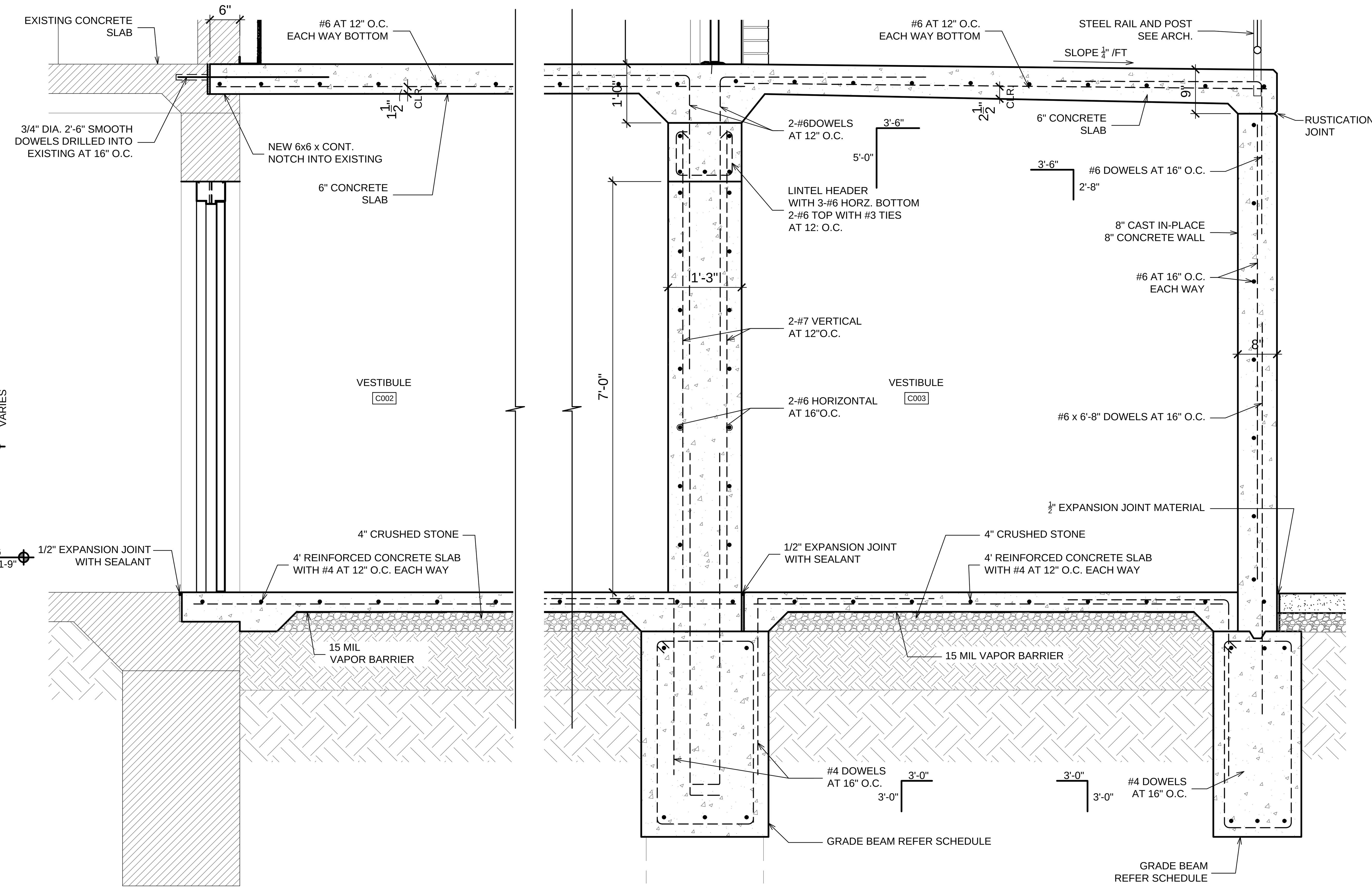
WALL SECTIONS
FOUNDATION DETAILS

SHEET NUMBER:

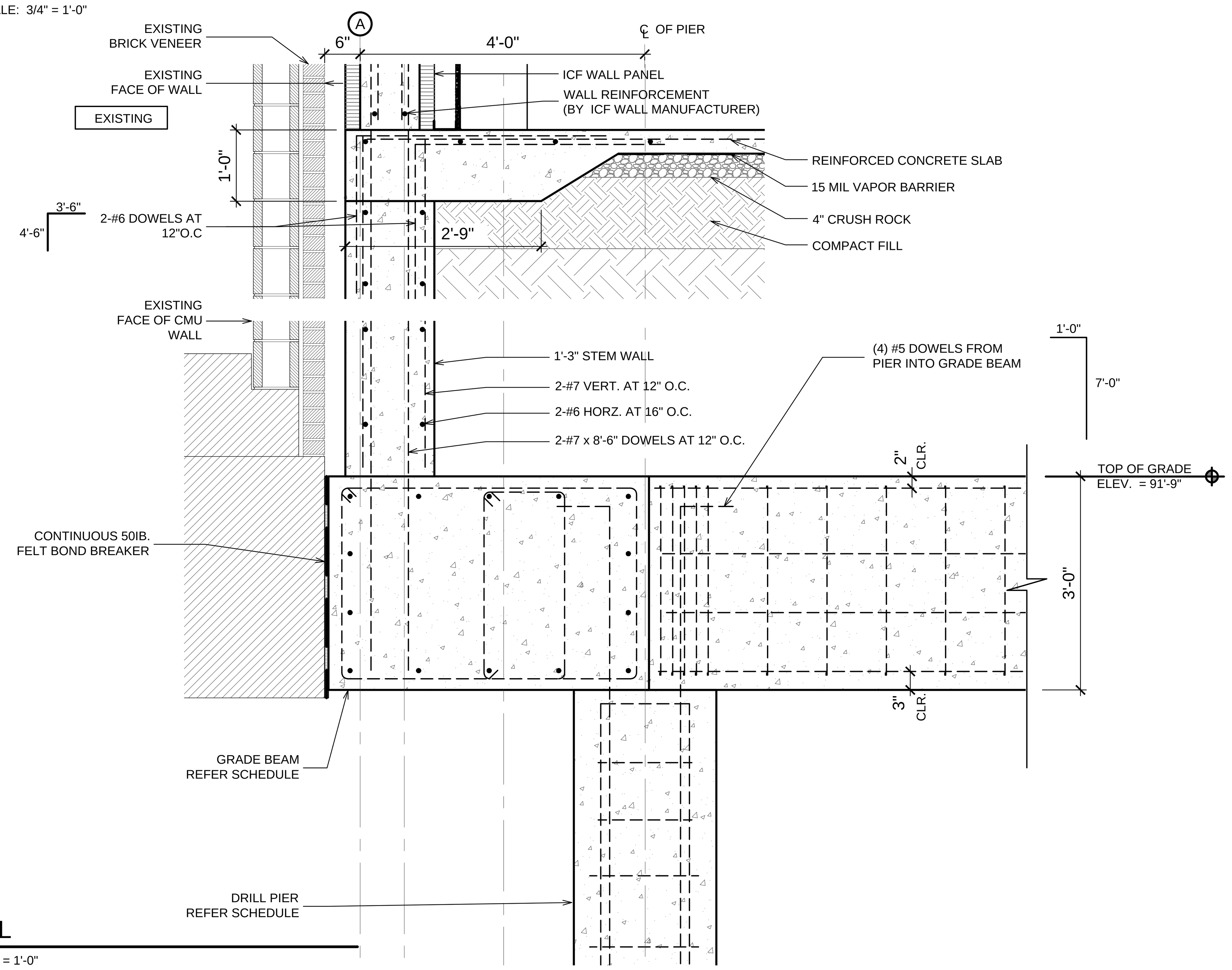
S1.1



1 DETAIL
SCALE: 3/4" = 1'-0"



2 DETAIL
SCALE: 3/4" = 1'-0"



3 DETAIL
SCALE: 3/4" = 1'-0"

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SEALS:

REGISTERED PROFESSIONAL ENGINEER
ERON DEWAYNE ... 26698
OKLAHOMA
30OCT22

PROJECT NO.:	21-03000
FILE:	AC5.1
ISSUE DATE:	06.16.22
SCALE:	AS NOTED
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TULSA PUBLIC SCHOOLS

WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS W/ SITE IMPROVEMENTS

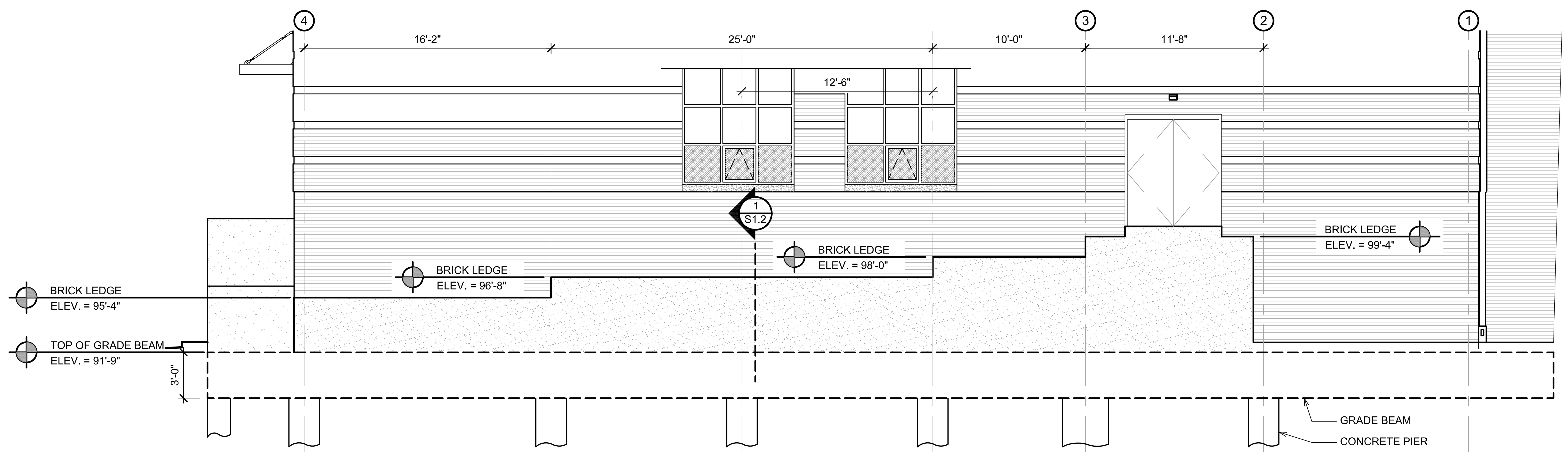
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

DETAILS
BAND ROOM ADDITION - BUILDING "C"

SHEET NUMBER:

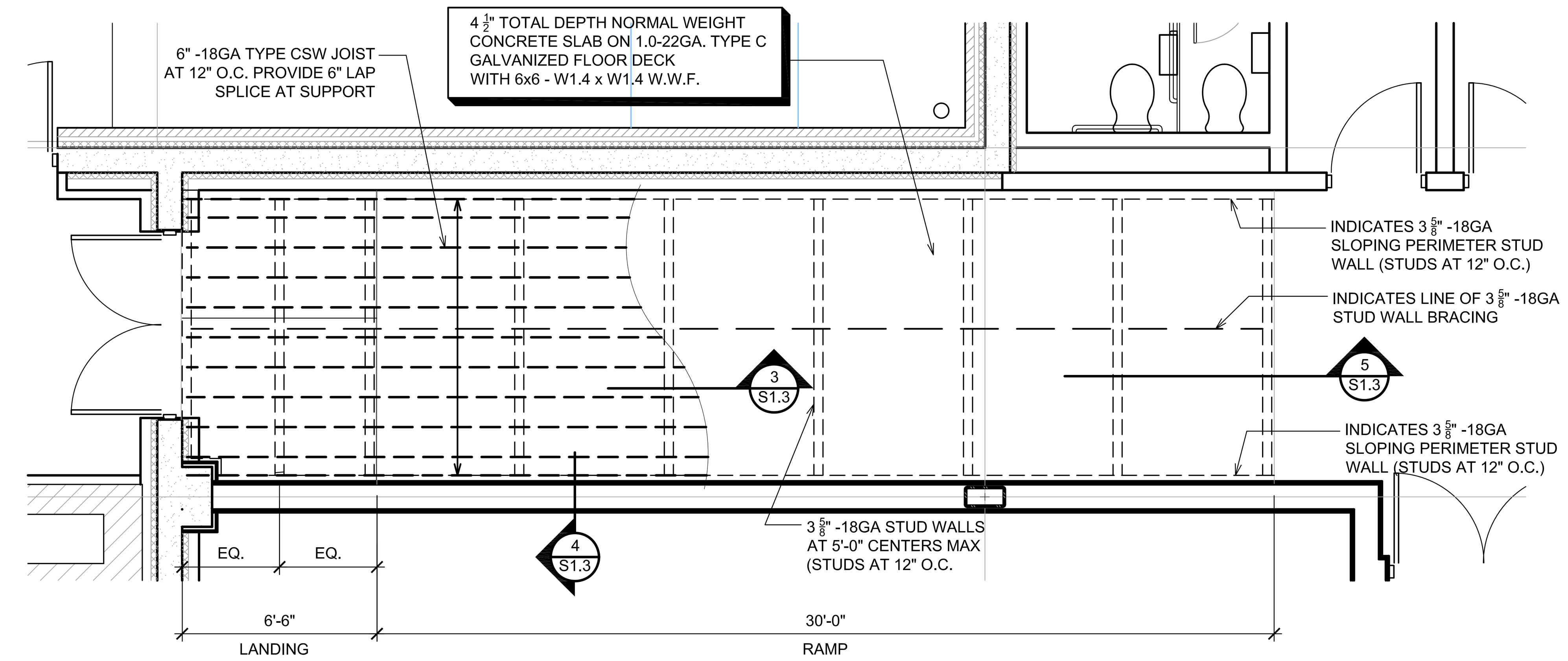
S1.2



1 PARTIAL ELEVATION AT EXTERIOR RAMP BLDG "C"
SCALE: 3/16" = 1'-0"

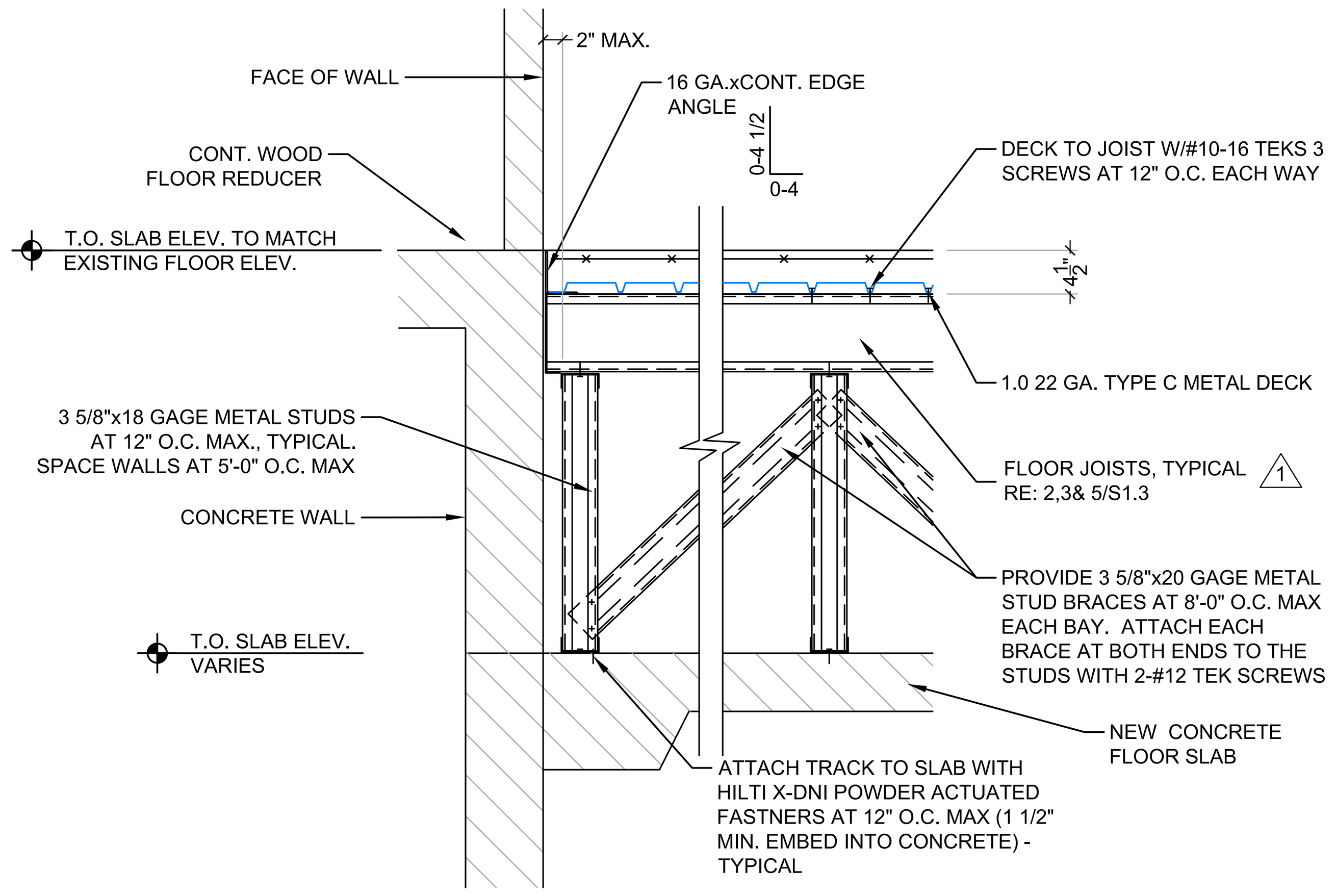
PLAN NOTES

1. CONCRETE TO HAVE STEEL TROWEL FINISH.
2. POWER ACTUATED FASTENERS FOR ATTACHING FLOOR TRACK MUST PENETRATE THICKNESS OF EXISTING FLOOR AND EMBED INTO THICKNESS OF SOLID CONCRETE SPECIFIED.

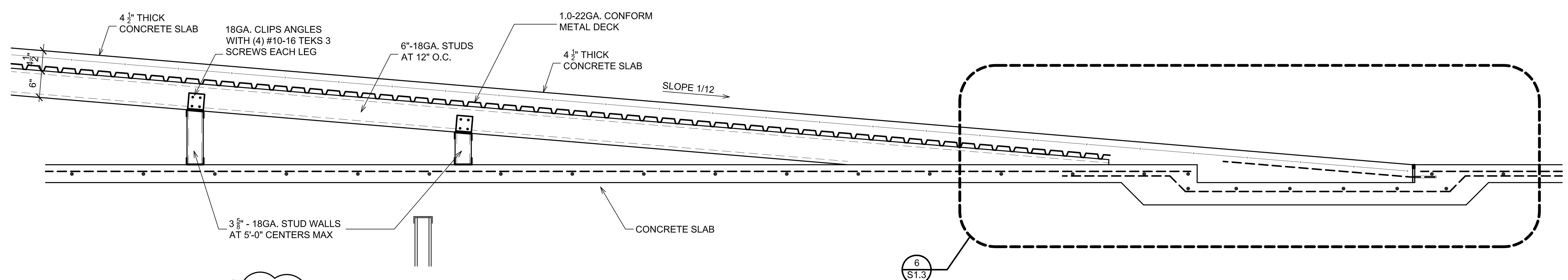


2 ENLARGED FLOOR PLAN - BAND ROOM ADDITION RAMP FRAMING
SCALE: 1/4" = 1'-0"

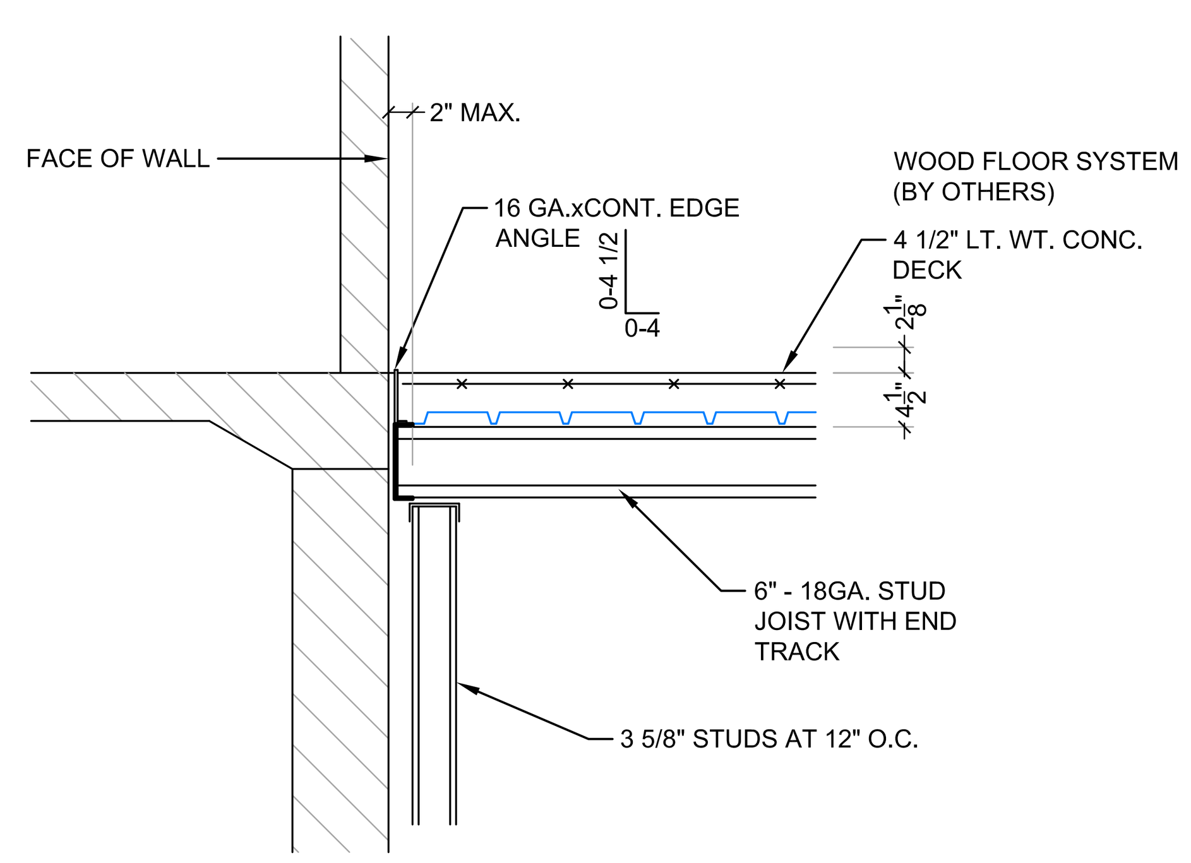
NORTH



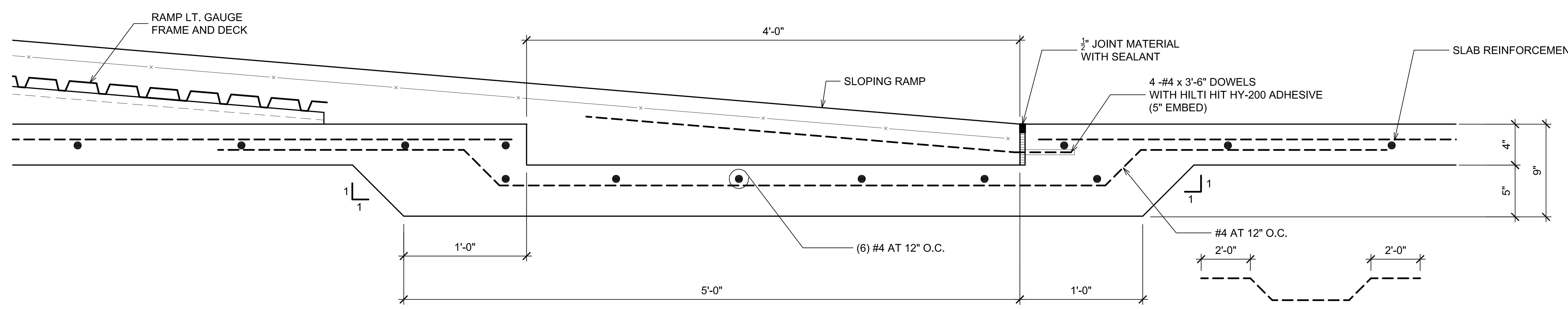
3 DETAIL SECTION AT RAMP
SCALE: 3/4" = 1'-0"



5 DETAIL SECTION AT RAMP
SCALE: 3/4" = 1'-0"



4 DETAIL SECTION AT RAMP
SCALE: 3/4" = 1'-0"



6 DETAIL AT LOW END RAMP
SCALE: 1 1/2" = 1'-0"

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SEALS:

REGISTERED PROFESSIONAL ENGINEER ERON DEWAYNE OKLAHOMA 30 OCT 22

PROJECT NO.:	21-03000
FILE:	S1.3
ISSUE DATE:	06.16.22
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C.A. #4458 EXP. DATE 06.30.23

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WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS BAND ROOM & GREEN HOUSE ADDITIONS W/ SITE IMPROVEMENTS

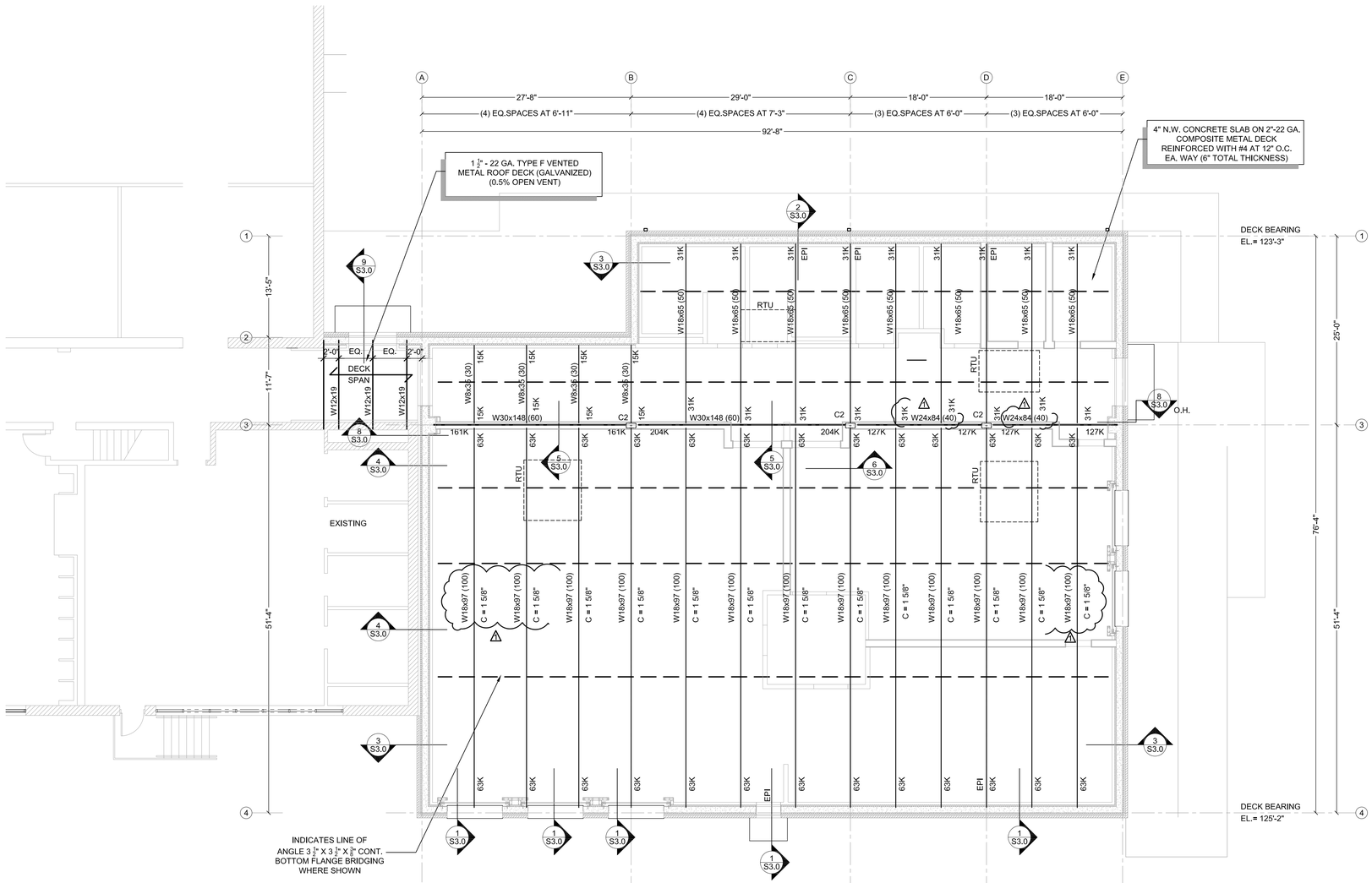
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

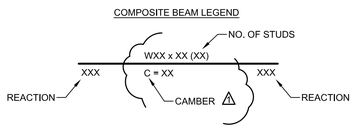
BAND ROOM ADDITION - EXTERIOR RAMP ELEVATION
INTERIOR RAMP FRAMING PLAN AND DETAILS - BLDG"C"

SHEET NUMBER:

S1.3



COMPOSITE BEAM LEGEND



1 ROOF FRAMING PLAN

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

NORTH

COLUMN SCHEDULE	
MARK	COLUMN SIZE
C1	HSS 4x4x3/8
C2	HSS 12x8x1/2

NOTE:
1. REFER TO SHEET S0.3 FOR COMPLETE COLUMN SCHEDULE WITH BASE PLATE AND ANCHOR BOLT SIZES AND LOCATIONS.

ROOF FRAMING NOTES

1. REFER STRUCTURAL GENERAL NOTES FOR METAL ATTACHMENT.
2. COORDINATE ROOF DRAIN LOCATIONS WITH ARCHITECTURAL AND MECHANICAL.
3. REFER TO SHEET S0.3 FOR RTU FRAMING DETAIL.
4. MECHANICAL CONTRACTOR TO COORDINATE ALL RTU LOCATIONS AND ROOF OPENINGS PRIOR TO RTU FRAME FABRICATION.
5. REFER TO SHEET S0.3 FOR COMPLETE COLUMN SCHEDULE WITH BASE PLATE AND ANCHOR BOLT SIZES AND LOCATIONS.

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WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS BAND ROOM & GREEN HOUSE ADDITIONS W/ SITE IMPROVEMENTS

1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

ROOF FRAMING PLAN

SHEET NUMBER:

S2.0

LIMIT OF LIABILITY

THE DESIGN INCLUDED HEREIN FOR THE STORM SHELTER IS BASED ON EXTENSIVE RESEARCH OF THE CAUSES AND EFFECTS OF WINDSTORM DAMAGE TO BUILDINGS. SHELTERS DESIGNED AND BUILT TO THESE DESIGNS SHOULD PROVIDE A HIGH DEGREE OF OCCUPANT PROTECTION DURING TORNADOES. ANY SUBSTITUTION OF EITHER MATERIALS OR DESIGN CONCEPTS MAY DECREASE THE LEVEL OF OCCUPANT PROTECTION AND/OR INCREASE THE POSSIBILITY OF PERSONAL INJURY DURING A SEVERE WIND EVENT.

BECAUSE IT IS NOT POSSIBLE TO PREDICT OR TEST ALL CONDITIONS THAT MAY OCCUR DURING SEVERE WINDSTORMS, OR CONTROL THE QUALITY OF CONSTRUCTION. RICHARDS AND ASSOCIATES DOES NOT WARRANT THE DESIGN. RICHARDS AND ASSOCIATES HAS NOT MADE AND DOES NOT MAKE ANY REPRESENTATION, WARRANTY, OR COVENANT, EXPRESSED OR IMPLIED, WITH RESPECT TO THE DESIGN, CONDITION, QUALITY, DURABILITY, OPERATION, FITNESS OF USE, OR SUITABILITY OF THE SHELTER IN ANY RESPECT WHATSOEVER. RICHARDS AND ASSOCIATES SHALL NOT BE OBLIGATED OR LIABLE FOR ACTUAL, INCIDENTAL,CONSEQUENTIAL, OR OTHER DAMAGES OF OR TO USERS OF THE SHELTERS OR ANY OTHER PERSON OR ENTITY ARISING OUT OF OR IN CONNECTION WITH THE USE, CONDITION, AND/OR PERFORMANCE OF SHELTERS BUILT FROM THIS DESIGN OR FROM THE MAINTENANCE THEREOF.

SAFEROOM DESIGN NOTES

A. SAFE ROOM DESIGN INFORMATION:

1. **TORNADO SAFE ROOM LOCATION: RE: A0.2 FOR FLOOR PLAN REPRESENTING THE ENTIRE FACILITY AND INDICATING THE LOCATION OF THE SAFE ROOM.**
2. **TORNADO SAFE ROOM WIND DESIGN: THIS TORNADO SAFE ROOM CONFORMS TO THE PROVISIONS OF FEMA-P-361, *DESIGN AND CONSTRUCTION GUIDANCE FOR COMMUNITY SAFE ROOM, THIRD EDITION / MARCH 2015***
3. **SAFE ROOM WIND SPEED: 250 MPH (3 SECOND GUST)**
4. **IMPORTANCE FACTOR I : 1.0**
5. **WIND EXPOSURE CATEGORY: CAT. C**
6. **INTERNAL PRESSURE COEFFICIENT, GC_{Pi}: +/- 0.55**
7. **TOPOGRAPHIC FACTOR K_{ZT}: 1.0**
8. **DIRECTIONAL FACTOR K_D: 1.0**
9. **FLOOD PLAIN: THE TORNADO SAFE ROOM WILL NOT BE CONSTRUCTED IN A 100YR OR A 500YR FLOOD PLAIN.**
10. **TORNADO SAFE ROOM ENEVELOPE: CONSISTS OF STEEL REINFORCED 10" ICF CONCRETE WALL PANELS AND REINFORCED CONCRETE COMPOSITE ROOF DECK PANELS. THE ENVELOPE IS DESIGNED TO WITHSTAND 250 MPH WIND SPEEDS (3 SECOND GUST) AND HAS MISSILE IMPACT RESISTANCE RATING TO WITHSTAND 15-LB 2X4 TRAVELLING HORIZONALLY AT 100 MPH AND 15-LB 2X4 TRAVELLING VERTICALLY AT 67 MPH. ALL STRUCTURAL CONSTRUCTION DOCUMENTS HAVE BEEN SIGNED AND SEALED BY STRUCTURAL ENGINEERS.**
11. **TORNADO SAFE ROOM OCCUPANCY LOAD: 694 OCCUPANTS (3,454 / 5 OCC/SF AND 4 WHEELCHAIR SPACES @ 10SF PER UNIT=3,494 NET SQ. FT) PER FEMA P-361.**
12. **USABLE SAFE ROOM FLOOR AREA: 5,298 GROSS SQUARE FEET, IS REDUCED TO 3,454 NET USABLE SQUARE FEET PER FEMA P-361. SEE USABLE SAFE ROOM FLOOR PLAN AREA FOR OCCUPANCY DRAWING 1/A0.3 FOR TORNADO SAFE ROOM AREA DIVISIONS AND BREAKDOWNS.**
13. **MECHANICAL VENTILATION: MECHANICAL VENTILATION SYSTEMS EXCEEDS THE REQUIREMENTS OF FEMA P-36 WITH AN EMERGENCY POWER SYSTEM.**
14. **FLOOD HAZARD: THE SAFE ROOM SHALL BE CONSTRUCTED OUTSIDE OF A 500YR FLOOD PLAIN AT AN ELEVATION OF 723.50 FEET.**
15. **SAFE ROOM AND MECHANICAL FLOOR ELEVATIONS: SAFE ROOM IS AT AN ELEVATION OF 676.98 FEET AND THE MECAHNICAL FLOOR ELEVATION IS AT AN ELEVATION OF 676.98 FEET.**
16. **ALL EMERGENCY LIGHTING HAS A 2 HOUR BACKUP.**
17. **THE NEW CLASSROOM/SAFE ROOM ADDITION IS SEPARATED FROM THE REST OF THE BUILDING BY TWO HOUR RATED FIRE SEPARATION WALLS.**

B. DESIGN CRITERIA

1. **BUILDING CODE - 2018 IBC BUILDING CODE, INCLUDING LOCAL SUPPLEMENTS, ASCE 7-16, AND FEMA P-361 (2021 FOURTH EDITION) TORNADO PERFORMANCE CRITERIA.**
2. **LATERAL LOADS -**
   - **A. WIND LOAD IN ACCORDANCE WITH THE ASCE 7-16, (USING METHOD 2- ANALYTICAL PROCEDURE)**

     BASIC WIND SPEED . . . . . V = 250 MPH (3 SECOND GUST)
     WIND IMPORTANCE FACTOR . . . . I = 1.0
     WIND EXPOSURE C
     INTERNAL PRES. COEFF. .... GCpi = +/-0.55 (PARTIALLY ENCLOSED)

C. ICF CONCRETE -

1. **ALL ICF CONCRETE PRODUCTS SHALL BE DESIGNED IN ACCORDANCE WITH THE BUILDING CODE, ACI 318-19 AND PCI DESIGN HANDBOOK FOURTH EDITION. SHOP DRAWINGS AND CALCULATIONS OF PRECAST/PRESTRESSED PRODUCTS AND CONNECTIONS SHALL BE SUBMITTED BEARING THE SEAL OF AN ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. PRECAST/PRESTRESSED SUPPLIER SHALL BE CERTIFIED BY PCI.**
2. **ADDITIONAL DESIGN REQUIREMENTS ARE -**
   - **A. PRECAST MEMBERS AND THEIR CONNECTIONS SHALL BE DESIGNED FOR THE LOADS SHOWN ON THE DRAWINGS, IN ADDITION TO THE SELF WEIGHT OF THE MEMBER AND FOR ALL THE CONDITIONS NOTED IN ACI 318-19. CONNECTIONS SHALL BE DESIGNED FOR FORCES AND MOVEMENTS DUE TO VOLUMETRIC CHANGES RESULTING FROM TEMPERATURE CHANGE, ELASTIC DEFORMATIONS, CREEP AND SHRINKAGE.**
3. **MATERIALS SHALL MEET THE FOLLOWING REQUIREMENTS -**

28 DAY CONCRETE COMPRESSIVE STRENGTH

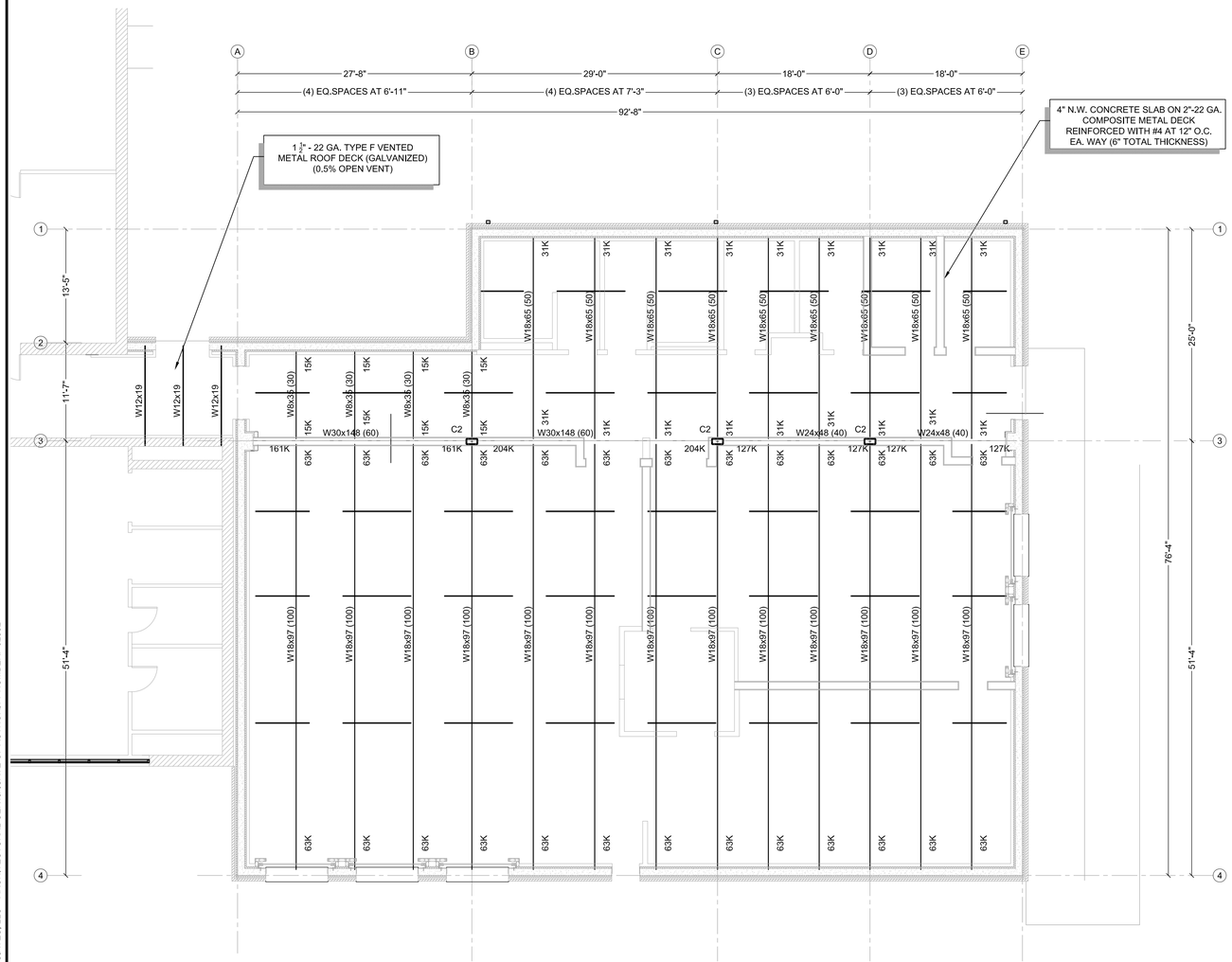
LOCATION	MINIMUM F'c (PSI)	UNIT WEIGHT (PCF)
INT. WALL PANELS	5000	150
EXT. WALL PANELS	5000	150

REINFORCING	ASTM	GRADE (KSI)
REINFORCING BARS	A615	60
WELDED REINFORCING BARS	A706	60
WELDED WIRE FABRIC	A185	60
PRESTRESSING STRAND(LOW RELAX)	A416	270

4. **CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL DRAWINGS AND SHALL VERIFY LOCATION OF ALL PLATES, ANCHORS, ETC. IN ICF MEMBERS REQUIRED BY OTHER TRADES.**

D. MISCELLANEOUS -

1. **SHOP DRAWINGS SHALL BE ORIGINAL DRAWINGS, PREPARED BY CONTRACTOR, SUBCONTRACTOR, SUPPLIER OR DISTRIBUTOR.**
2. PER P-361 SECTION E1.2.2.4, THE REGISTERED DESIGN PROFESSIONAL SHALL VISIT THE SITE DURING CONSTRUCTION FOR OBSERVATIONS.
3. CONTRACTOR TO SUBMIT FEMA-RATED DOORS / LOUVERS / WINDOWS / SHUTTERS SHOP DRAWINGS INDICATING CONNECTIONS TO WALL ARE TO BE SUBMITTED TO STRUCTURAL ENGINEER OF RECORD.



1 ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

NORTH

A. SAFEROOM GENERAL INFORMATION

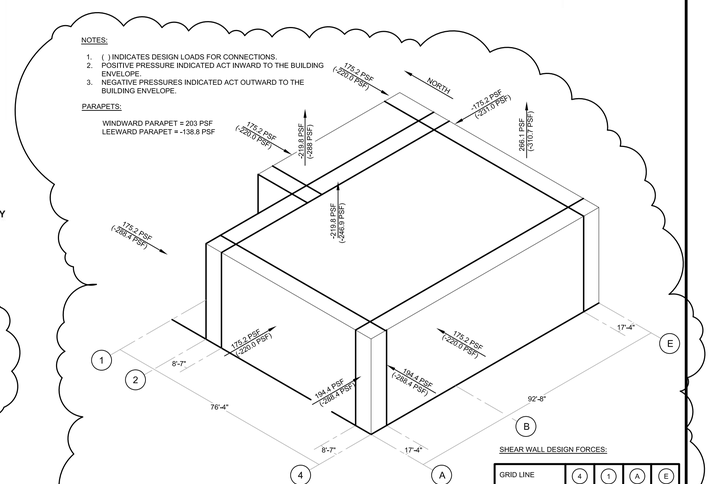
1. TYPE OF SHELTER: TORNADO
2. TORNADO SAFE ROOM WIND DESIGN: THIS TORNADO SAFE ROOM CONFORMS TO THE PROVISIONS OF FEMA-P-361, DESIGN AND CONSTRUCTION GUIDANCE FOR COMMUNITY SAFE ROOM, THIRD EDITION / MARCH 2015
3. ROOF SYSTEMS HAVE BEEN SELECTED IN ACCORDANCE WITH DEBRIS IMPACT TESTING IN ACCORDANCE WITH ASTM E 1886 AT TEXAS TECH UNIVERSITY (REFER SUMMARY REPORT DATED JUNE 2003 PREPARED BY WIND SCIENCE AND ENGINEERING RESEARCH CENTER). REFER SECTION A1 4" THICK CONCRETE- #4 REBAR REINFORCEMENT 12 INCHES ON CENTER EACH WAY (TESTED FOR 162 MPH) – 67 MPH REQUIRED.
4. ICF WALL SHALL MEET DEBRIS IMPACT TESTING (15 POUND 2X4 AT 100 MPH) IN ACCORDANCE WITH ASTM E 1886 AT TEXAS TECH UNIVERSITY (REFER SUMMARY REPORT DATED JUNE 2003 PREPARED BY WIND SCIENCE AND ENGINEERING RESEARCH CENTER).
5. INDIVIDUAL ICF WALL SHALL BE CONNECTED TO TRANSFER SHEAR ACROSS PANEL JOINTS AND PERFORM AS A SINGLE SHEAR WALL ALONG CONTINUOUS WALL RUNS.
6. FURNISH EMBEDDED STEEL PLATES IN AND OPENINGS THRU ICF ELEMENTS PER STRUCTURAL., ARCHITECTURAL, AND MECHANICAL DRAWINGS.

B. SAFEROOM DESIGN LOADS

1. **DEAD LOAD:** SELF WEIGHT OF MATERIALS, UNLESS NOTED OTHERWISE
2. **ROOF DEAD LOAD:**
   - A. 6" CONCRETE COMPOSITE SLAB..... 75 PSF
   - B. BUILT-UP ROOF/INSULATION..... 44 PSF
   - C. MISC. (LIGHTING, DUCTWORK, PIPING, ETC.)..... 8PSF
   - D. TOTAL ROOF ..... 127 PSF
3. **LIVE LOADS**
   - A. ROOF LIVE LOAD (SHELTER)..... 100 PSF
4. **SAFEROOM WIND PARAMETERS**
   - A. GOVERNING CODE ..... ICC 500-2014
   - B. IMPORTANCE FACTOR, I 1.0
   - C. EXPOSURE CATEGORY..... C
   - D. INTERNAL PRESSURE COEFFICIENTS, GCPI..... ±0.55
   - E. TOPOGRAPHIC FACTOR, KZT 1.0
   - F. DIRECTIONALITY FACTOR, KD..... 1.0
   - 5. WIND VELOCITY, v ..... 250 MPH
6. **SEISMIC DESIGN CRITERIA:**
   - A. GOVERNING CODE ..... ASCE 7-10
   - B. IMPORTANCE FACTOR, I 1.25
   - C. SOIL SITE CLASSIFICATION ..... D
   - D. 0.2 SEC. MAPPED SPECTRAL ACCELERATION, Ss..... 0.131
   - E. 1.0 SEC.MAPPED SPECTRAL ACCELERATION, S1 ..... 0.068
   - F. SEISIC DESIGN CATEGORY ..... B
   - G. SEISMIC PARAMETERS:
   - H. SEISMIC FORCE RESISTING SYSTEM: .....ORDINARY PRECAST SHEAR WALLS
   - I. RESPONSE MODIFICATION COEFFICIENT, R..... 3.0
   - J. SYSTEM OVERSTRENGTH FACTOR, 0 ..... 2.5
   - K. DEFLECTION AMPLIFICATION FACTOR, Cd 3.0
   - L. ANALYSIS PROCEDURE: ..... EQUIVALENT LATERAL FORCE METHOD
   - M. SEISMIC RESPONSE COEFFICIENT, Cs 0.115

6 RAIN LOAD

A. RAIN (10.2 IN/ HOUR) .....42 PSF



SHEAR WALL DESIGN FORCES:

GRID LINE	4	1	A	E
LATERAL FORCE	227.3 k	23.9k	187.2 k	187.2 k

2 WIND LOADING DIAGRAM
NOT TO SCALE

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WEBSTER HIGH SCHOOL - 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS W/ SITE IMPROVEMENTS

1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

SAFEROOM CRITERIA

SHEET NUMBER:

S2.2

PLUMBING KEYNOTES: (PX)

P1. CONNECT NEW VENT PIPING TO EXISTING AT THIS APPROXIMATE LOCATION. CONTRACTOR TO VERIFY EXACT SIZE AND LOCATION OF EXISTING VENT.

P2. ALL EXTERIOR CLEANOUTS SHALL BE FLUSH WITH FINISHED GRADE AND SET IN 2'x2' CONCRETE PAD A MINIMUM OF 6" DEEP.

P3. DRAIN EMERGENCY EYE WASH TO FLOOR SINK. PROVIDE A TURN DOWN AND 2 INCH AIR GAP AT FLOOR SINK.

P4. PROVIDE A PLASTER TRAP IN WASTE PIPE OF SINK. TRAP SHALL BE EQUAL TO PRACTICON GELCO TRAP 64 OUNCE.

P5. COORDINATE FINAL LOCATION OF FLOOR DRAIN WITH WATER HEATER AND WATER RISER.

P6. INSTALL WATER HEATER ON MINIMUM 4 INCH CONCRETE PAD. PAD SHALL EXTEND A MINIMUM 4 INCHES IN ALL DIRECTION OF WATER HEATER AND HAVE CHAMFERED EDGES.

P7. COORDINATE LOCATION OF FLOOR SINK WITH EMERGENCY EYEWASH AND SHOWER.

P8. WATER RISER IN MECHANICAL ROOM. INSTALL SLEEVE FOR ALL WATER PIPING PASSING THROUGH SLAB. EXTEND SLEEVE A MINIMUM OF 2 INCHES ABOVE FINISHED FLOOR. SEAL SPACE BETWEEN SLEEVE AND PIPE WITH WATER PROOF CAULKING. PROVIDE A SHUT-OFF VALVE AT 18" ABOVE FINISHED FLOOR. INSTALL SYSTEM DRAIN VALVE AT 24" ABOVE FINISHED FLOOR. DRAIN VALVE SHALL HAVE 3/4" MALE THREAD.

P9. DROP WATER PIPE DOWN THROUGH SLAB AND ROUTE TO GREENHOUSE.

P10. PROVIDE SLEEVES FOR ALL PIPING PASSING THROUGH OR UNDER FOOTINGS AND SLAB ON GRADE. INSTALL WATERPROOF CAULKING FOR ALL SLAB ON GRADE PENETRATIONS.

P11. DROP WATER PIPE DOWN TO EMERGENCY EYEWASH/SHOWER. CONNECT TO MIXING VALVE AND FROM MIXING VALVE TO EQUIPMENT. LOCATE MIXING VALVE FOR COMPLETE ACCESS.

P12. LOCATE ALL SHUT-OFF VALVES FOR COMPLETE ACCESS. INSTALL BLUE DOT ON CEILING GRID AT VALVE LOCATION. PROVIDE ACCESS PANEL IN GYP BOARD CEILINGS.

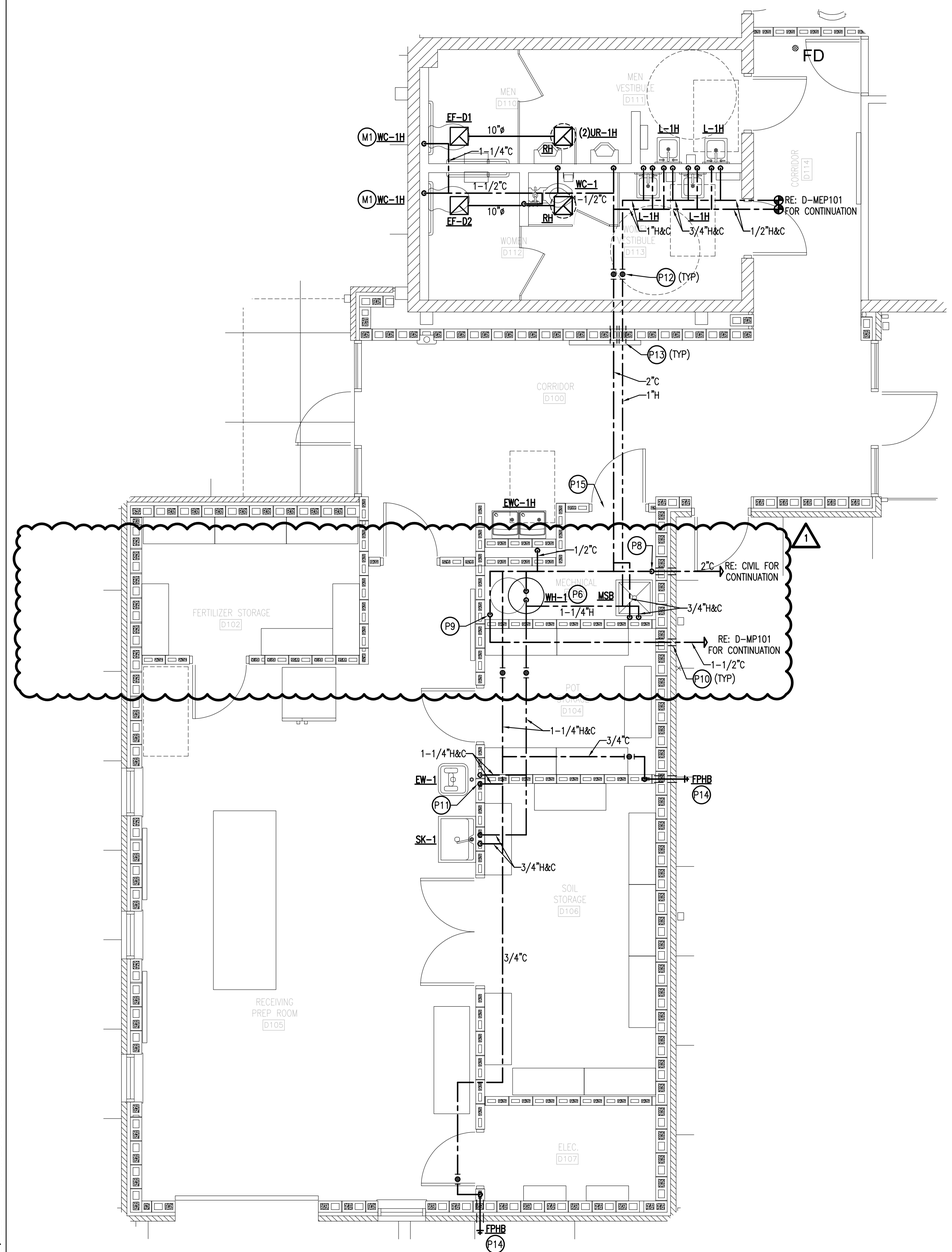
P13. SLEEVE ALL PIPING PASSING THROUGH CMU WALLS.

P14. INSTALL FPHB AT 18" ABOVE FINISHED GRADE. PROVIDE SLEEVE THROUGH CMU WALL. PROVIDE SHUT-OFF VALVE. ALL SHUT-OFF VALVES SHALL BE FULLY ACCESSIBLE.

P15. SEAL ALL PENETRATIONS THROUGH FIRE WALL. SEAL SHALL HAVE A FIRE STOP RATING TO MATCH FIRE WALL RATING.

MECHANICAL KEYNOTES: (MX)

M1. INSTALL CEILING EXHAUST FAN. ROUTE DUCTWORK TO ROOF HOOD. ALL EXHAUST DUCT FROM FAN TO ROOF HOOD SHALL BE FULLY INSULATED WITH 2" DUCTWRAP.

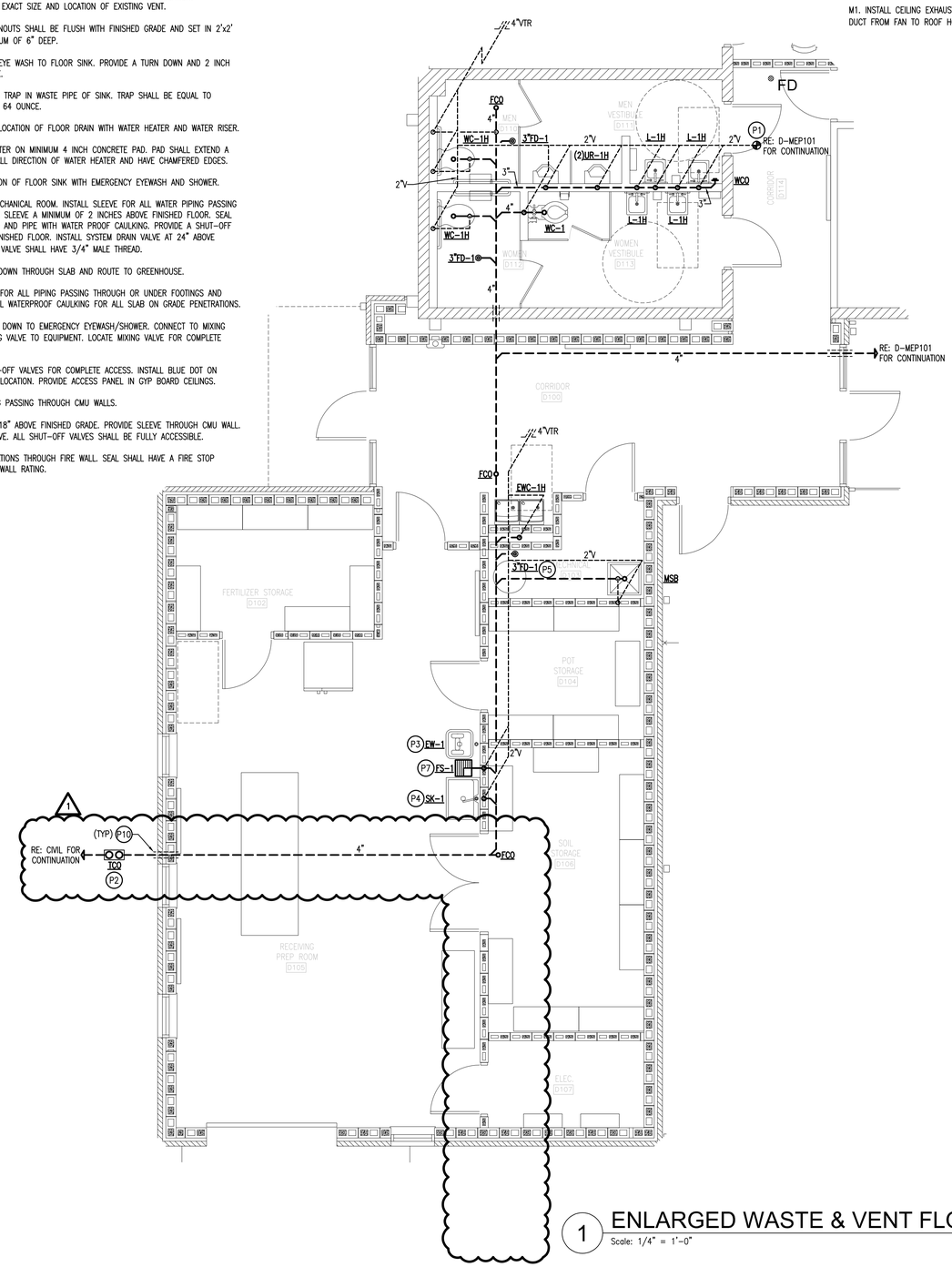


2 ENLARGED WATER & GAS PLUMBING FLOOR PLAN-NEW

Scale: 1/4" = 1'-0"

GREEN HOUSE ADDITION BUILDING D

NORTH



1 ENLARGED WASTE & VENT FLOOR PLAN-NEW

Scale: 1/4" = 1'-0"

GREEN HOUSE ADDITION BUILDING D

NORTH

GSHELMS & ASSOCIATES, LLC ARCHITECTURAL CERTIFICATE OF AUTHORITY NUMBER: 02332

#	REVISION	DATE
–	100% CONSTRUCTION DOCUMENTS	06.16.22
1	ADDENDUM #3	10.05.22

SEALS:

PROFESSIONAL ENGINEER
GAYLE D. GWINUP
15478
OKLAHOMA
10/5/2022

PROJECT NO.:	21-03000
FILE:	
ISSUE DATE:	06.16.22
SCALE:	AS NOTED
DRAWN BY:	DMS,DSP
CHECKED BY:	DLW,STM
APPROVED BY:	GDG,TEM

ARCHITECT:

GS HELMS + ASSOCIATES

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ALLIED ENGINEERING GROUP, LLC
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CA 3479 EXP. 06/30/2022

PROJECT TITLE: TULSA PUBLIC SCHOOLS

WEBSTER HIGH SCHOOL – 2021 BOND PROJECTS
BAND ROOM & GREEN HOUSE ADDITIONS
W/ SITE IMPROVEMENTS
1919 WEST 40TH STREET, TULSA, OK

SHEET TITLE:

ENLARGED MECHANICAL AND PLUMBING FLOOR PLANS
GREEN HOUSE ADDITION BUILDING D

SHEET NUMBER:

D-MP102