



ADDENDUM No. 4

Document No.:

ADD-004

Date:

May 20, 2026

Project Title: **WCDSB St. Greg Addition**
 Project No.: **25-106 – WCDSB Tender RFT 2026-01**
 Owner: **Waterloo Catholic District School Board**
 Prime Consultant: **J.P. Thomson Architects Ltd.**

This Addendum is issued before the award of Contract to inform the Contractor of supplemental information or information which supersedes the work described in the Plans and Specifications dated April 09, 2026 and shall become part thereof. The Contractor shall furnish all materials and labour required for completion of the work described including all incidental or necessary items required to complete the work even though not specifically mentioned.

Item No. 4.1	<p>Refer to attached Specifications, Section 07 51 31 – Built-Up Bituminous Membrane Roofing</p> <p>Attached specification is to supersede the version provided in the original tender documents.</p>
Item No 4.2	<p>Refer to attached Structural Drawings S-100 – S-400</p> <p>.1 Revised Footing Clarification has been provided.</p>
Item No. 4.3	<p>Question 1: Please confirm if there is any sprinkler base builder contractor.</p> <p>Answer 1: Sprinkler works are to be part of the base bid. Refer to drawings FP-1 and FP-2. There are no pre-approved Sprinkler Contractors as per Specifications.</p> <p>Question 2: What is the dowelling requirement for wall type W2?</p> <p>Answer 2: Refer to Structural drawing S-300. W2 is noted as W1b on this sheet. Doweling requirements are noted.</p> <p>Question 3: Question 13 on the drawings has no information on the response just refer to above to which there is no response above to this question.</p> <p>Answer 3: Revised sheet A-400 was provided in Addendum 3 in response to the question. East elevation has been revised to match A-201.</p> <p>Question 4: In addendum 3 question 6 asks about the requirement for deeper footings due to BH1 yet there is no actual answer. We will need to see step footings shown on the drawings or are we to use a structural pad in that location.</p> <p>Answer 4: Refer to above</p> <p>Question 5: Question 11 answer, you are asking us to provide a glazing engineer to determine glass thickness? How are we supposed to price that without the additional cost of hiring said engineer before the tender process is completed. This should be specified.</p> <p>Answer 5: All interior tempered glazing to be 6mm thick for pricing purposes, to be confirmed by glazing trade engineer as per Specifications Section 08 80 50 – Glazing Item 1.4.1.3.7.</p> <p>Question 6: Due to the length of the project, please advise if an asphalt index will be applied, similar to MTO Asphalt Index</p>



	<p>Answer 6: Asphalt Index will not be applied.</p> <p>Question 7: Question 10 (Addendum 3) asks if there is additional rebar required and the response says refer to architectural. All rebar should be shown on the structural drawings.</p> <p>Answer 7: Refer to General Notes on attached Structural Drawing S-100 and review in conjunction with Specifications Section 04 80 00 – Masonry Assemblies, and Section 03 20 00 – Concrete Reinforcing</p> <p>Question 8: can you please provide the concrete seal specifications for the sprinkler room?</p> <p>Answer 8: Refer to Specifications – Section 03 30 00 – Cast-In-Place Concrete, Item 2.5 and 2.6.</p>
	<p>End of Addendum 004</p>

07 51 13-Built-Up Bituminous Membrane Roofing

GENERAL NOTE

Comply with Instructions to Bidders, the General Conditions as amended and with Division 1 requirements.

1.0 GENERAL

1.1 WORK INCLUDED BUT NOT LIMITED TO

- .1 The work required under this section of the specifications shall include all labour, equipment and materials necessary to complete all Roofing & Sheet Metal and Associated Work as indicated on the drawings, specified herein and briefly described as follows:
 - .1 Three (3) ply membrane, hot-applied hybrid built-up asphalt roofing system on deck with roof surfacing.
 - .2 Vapour retarder.
 - .3 All roof insulation and tapered fibreboard underlay.
 - .4 Roof accessories, specialty flashings, mechanical equipment supports, devices etc.
 - .5 Supply, forming and installation of metal coping and base flashings.
 - .6 Sealants.
 - .7 Membrane underlayment at gas line supports.
 - .8 Walkway material.
 - .9 Warranties.

1.2 RELATED SECTIONS

- .1 Refer to Section 04 80 00: Masonry Assemblies
- .2 Refer to Section 05 41 00: Structural steel and miscellaneous metal work.
- .3 Refer to Section 05 31 00: Metal Deck.
- .4 Refer to Section 06 10 10: Parapet and coping framing/blocking and air barrier.
- .5 Refer to Section 07 21 16: Blanket Insulation
- .6 Refer to Section 07 42 13: Metal Wall Cladding

1.3 REFERENCE STANDARDS

- .1 Roofing and sheet metal work will be performed in conjunction with roofing membrane manufacturers written recommendations of the building code and the CRCA.
- .2 CSA-123.32.14 Standard for Dynamic Wind Up-Lift for roofing.
- .3 Factory Mutual Standard 4470 for corrosion resistance of fasteners.
- .4 CAN/ULC-S704-11, Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, faced.
- .5 CAN/ULC-S107 Standard for fire-performance of roof coverings.
- .6 CAN/ULC-S770-09, Determination of Long-Term Thermal Resistance of Closed Cell Insulating Foams.

1.4 EXAMINATION AND COORDINATION

- .1 The Contractor shall examine all drawings and specifications and visit the site for information affecting the execution and completion of the work.
- .2 Roofing Contractor shall co-ordinate all roofing operations with the General Contractor.
- .3 The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.

1.5 PRODUCT HANDLING, STORAGE & DELIVERY

- .1 Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.
- .2 Comply with the manufacturer's written instructions for proper material storage.
 - .1 Store membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins.
 - .2 Store curable materials (adhesives and sealants) between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
 - .3 Store materials containing solvents in dry, well-ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.

- .3 Insulation must be on pallets, off the ground and tightly covered with waterproof materials.
- .4 Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.6 SAFETY

- .1 Respect safety measures described in the manufacturer's instructions and recommendations.
- .2 Throughout roofing installation, maintain a clean site and have one approved ABC fire extinguisher. Respect all safety measures described in technical data sheets.
- .3 The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, provincial and federal requirements that are safety related. Safety shall be the responsibility of the roofing contractor.
- .4 All related personnel shall be instructed daily to be mindful of the full-time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.7 JOB CONDITIONS AND PROTECTION

- .1 Protect surrounding surfaces against damage from roofing work. Where hoisting is necessary, hang tarpaulins to protect walls. Hoisting area to be within a fenced enclosure. The storage of all roofing material and equipment shall be within a fenced enclosure.
- .2 Co-ordinate with the school the time of all school activities, start/end of day, bus arrival/departures, recess and lunch breaks etc. Roofing activities, vehicle movement within the Place of the Work must be suspended during these times.
- .2 Before commencing work, ensure environmental and site conditions are suitable for installation of materials in accordance with the manufacturer's recommendations.
- .3 Assure that substrates are free of bituminous substances, smooth, clean and dry and of sufficient strength to withstand construction traffic and equipment.
- .4 Notify the Architect in writing of unsuitable surfaces and conditions.
- .5 Where roofing is left incomplete at end of day, apply cut offs to prevent moisture entering the roofing system.

1.8 SUBMITTALS

- .1 Prior to starting work, the roofing contractor must submit the following:

- .1 Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work. Provide roof plan showing orientation and types of roof deck, orientation of membrane roofing, and fastening spacings and patterns for mechanically fastened components.
 - .1 Base flashings and built-up terminations. Indicate that details meet requirements of this Section.
 - .3 Tapered insulation, including slopes.
 - .4 Crickets, saddles, and tapered edge strips, including slopes.
 - .5 Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
 - .6 Membrane fastening or adhesion requirements.
- .2 Sample of the manufacturer's Membrane System Warranty.
- .3 Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received.
- .4 Include: CSA A123.21 Dynamic Wind Uplift test report and CAN/ULC-S107 listing certificate.
- .5 Certification from the membrane manufacturer indicating the membrane thickness over the reinforcing scrim (top ply membrane thickness) is nominal .015" (15 mil).
- .6 Certification of the manufacturer's warranty reserve.
- .2 Upon completion of the installed work, submit copies of the manufacturer's final inspection to the consultant prior to the issuance of the manufacturer's warranty.
- .3 Evidence of the manufacturer's warranty reserve shall be included as part of the project submittals for the Consultant review.

1.9 QUALITY ASSURANCE

- .1 This roofing system must be applied by a Roofing Contractor authorized by the membrane manufacturer, having had 5 years experience in the application of this type of roof membrane.
- .2 A technical representative of the membrane supplier shall perform site inspections. The technical representative shall provide written reports regarding the status of the work. Copies shall be submitted to the Architect, Owner and independent testing company within 48 hours of the visit.

- .3 All work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's satisfaction.
- .4 There shall be a supervisor on the job site at all times while work is in progress.
- .5 The membrane roofing system must achieve a UL Class A rating or equivalent.
- .6 Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 - .1 An authorized full-time technical employee of the manufacturer.
- .7 Manufacturer's Installation Instructions: Obtain and maintain on-site access to manufacturer's written recommendations and instructions for installation of products.

1.10 COMPATIBILITY

- .1 Assure that all components are compatible with each other.

1.11 ROOFING INSPECTION

- .1 The Owner/Consultant will appoint an independent inspection company to carry out part time inspections of the roofing and sheet metal material, application and workmanship. This inspection company will act as the Owner's and Architect's agent during the progress of the roofing and sheet metal application. The General Contractor shall pay this roof inspection cost from an allowance in the contract.
- 2. Additionally, the Roofing Membrane Manufacturer representative will make daily site inspections and issue inspection reports to the contractor, consultant and owner.
- .2 There will be a pre-construction meeting arranged with the successful Roofer, Owner, Architect, Contractor, Roofing Membrane Manufacturer and Inspection Company to review job conditions, specifications and workmanship.
- .3 The Roofing Contractor shall notify the testing company and Manufacturer's rep in ample time of his work schedule and all changes thereto, also he shall co-operate fully with the testing company on the job. There must be roofing inspections for all roofing and sheet metal applications and a final inspection of the completed work.
- .4 A copy of the written reports of these roof inspections shall be forwarded directly to the Consultant and Owner by the testing company with additional copies as required to the Roofer and General Contractor. All reports must be in the Owner's hands before final payment for the roof can be authorized.

1.12 WARRANTY

- .1 Submit extended, non-prorated warranties in accordance with the General Conditions of the Contract in accordance with the following items.
- .2 ROOFING APPLICATOR WARRANTY - Roofing applicator to provide a written guarantee to Owner that the roofing installation including all flashings will provide a moisture proof service for a period of two (2) years from the date of total performance of the contract and that any damage resulting from failure to provide this performance shall be repaired to the satisfaction of the Owner at no cost.
- .3 MANUFACTURER SYSTEM WARRANTEE - The roof membrane provider shall provide Manufacturers' Extended System Warranty. The Extended System Warranty will provide a total system guarantee that the membrane provider/manufacture will replace the entire roof assembly to existing deck should the roof fail to provide moisture proof service due to manufacturing, weathering or installation defects, at no cost to the Owner for a period of 20 years, commencing from the date of Substantial Performance of the Work. The Extended System Warranty shall include a maximum wind speed coverage shall be peak gusts of 117 kph. Warranty is to include Preventative Maintenance and Inspections as outlined below.
- .4 WARRANTY MAINTENANCE - Manufacturer is to arrange at no additional cost to the owner Preventative Maintenance and Inspections at the following intervals.
 - .1 Manufacturer is to arrange at no additional cost to the owner preventative maintenance housekeeping inspections and duties in years 2, 5, 10 and 15 (20-year warranty).
 - .2 The following inspections, maintenance and repairs shall be carried out as required by the Membrane Provider/Manufacturer having issued the warranty whether they are leaking or not.
 - .1 Redressing and Sealing of flashing seams
 - .2 Filling and or topping up of pitch pockets
 - .3 Repairs to blisters and ridges to prevent from future leaks
 - .4 Caulking at metal details as required.
 - .5 Removal of light debris from the roof.
 - .6 Cleaning of drain screens.
 - .7 Written inspection report.
- .5 All warranties must be issued by a Canadian Company. American and/or other jurisdictions are not acceptable.

2.0 PRODUCTS

2.1 GENERAL

- .1 All products (including insulation, fasteners, fastening plates and edgings) must be manufactured and supplied by the roofing system manufacturer and covered by the warranty.
- .2 Provided the below performance and technical specifications are met at a minimum, the following are acceptable manufacturers:
 - .1 Tremco
- .3 ROOF AREA A (New Addition) - ASSEMBLY (From Top down)
 - .1 Surfacing Material (Roof Ballast)
 - .2 Membrane: Three (3) Ply Hot-Applied Built-up Asphalt Roofing System
 - .3 Recovery / Protection Board
 - .4 Roof Insulation Type I (Tapered)
 - .5 Roof Insulation Type II (Flat)
 - .6 Vapour Retarder
 - .7 Deck (Hollowcore by others)
- .4 ROOF AREA C (Existing Wing) - ASSEMBLY (From Top down)
 - .1 Surfacing Material (Roof Ballast)
 - .2 Membrane: Three (3) Ply Hot-Applied Built-up Asphalt Roofing System
 - .3 Recovery / Protection Board
 - .4 Roof Insulation Type I (Tapered)
 - .5 Roof Insulation Type III (Flat)
 - .6 Vapour Retarder
 - .7 Existing Deck

2.2 PERFORMANCE REQUIREMENTS

- .1 General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- .2 The roof assembly must meet the requirements of the Ontario Building Code and be tested to Dynamic Uplift Resistance per CSA A123.21. The assembly is to be tested and approved to meet the minimum of 75 psf (3.6 kPa) using a resistance Factor of 0.65.
- .3 Fastening: Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with the requirements and recommendations of the following:
 - .1 FM Global 1-49: Loss Prevention Data Sheet for Perimeter Flashings.

- .2 FM Global 1-29: Loss Prevention Data Sheet for Above Deck Roof Components.
- .3 Comply with the requirements of Division 07 Section "Sheet Metal Flashing and Trim" and "Roof Specialties".
- .4 Exterior Fire-Test Exposure: CAN/ULC-S107, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- .5 Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings from an applicable testing agency.

2.3 SURFACING MATERIAL (ROOF BALLAST)

- .1 Hot-applied Surfacing Adhesive:
 - .1 Hot-melt asphalt adhesive, SEBS-modified elastomeric, ASTM D6152 .
 - .1 Basis of design product: THERMastic 80 Adhesive.
 - .2 Softening Point, min/max, ASTM D36: 90-95 deg. C (195-205 deg. F).
 - .3 Flash point, minimum, ASTM D92: 274 deg. C (525 deg. F).
 - .4 Low Temperature Flexibility, maximum, ASTM D3111: -8 deg. C (18 deg. F).
 - .5 Elongation at 25 deg. C (77 deg. F), minimum, ASTM D412: 800 percent.
 - .6 Elastic Recovery, minimum, ASTM D412: 95 percent.
- .2 Aggregate Surfacing Material:
 - .1 Aggregate Stone Surfacing: Clean, dry, opaque, water-worn or crushed stone, free of sharp edges.
 - .1 Basis of design product: WHITE Aggregate Stone Surfacing.
 - .2 Size, ASTM D1863: No. 6 or 67.
 - .3 Aggregate application rate, average: 19.5 k/m², (400 lb/100 sq ft).
 - .4 Colour, WHITE

2.4 MEMBRANE

- .1 Base Ply Sheet:
 - .1 SBS-modified asphalt coated composite polyester / fiberglass/fiberglass mat reinforced high tensile strength base sheet, ASTM D4601 Type II.
 - .1 Basis of design product: Composite Ply HT.

- .2 Tensile Strength at 25 deg. C (77 deg. F), minimum, ASTM D5147: Machine direction, 725 N (165 lbf/in); Cross machine direction, 660 N (150 lbf/in).
 - .3 Tear Strength at 25 deg. C (77 deg. F), minimum, ASTM D5147: Machine direction, 1150 N (260 lbf); Cross machine direction, 1120 N (230 lbf).
 - .4 Thickness, minimum, ASTM D5147: 1.5 mm (0.060 inch).
- .2 Ply Sheets:
- .1 Asphalt and glass-fibre roofing ply sheet for hot-applied built-up roofing systems, ASTM D2178 Type VI .
 - .2 Basis of design product: THERMglass Type IV.
 - .3 Net Dry Mass of asphalt impregnated glass felt, ASTM D146: 460 g/sq. m (9.5 lb/100 sq. ft.).
 - .4 Breaking Strength, minimum, ASTM D146: Machine direction, 15 kN/m (40 lbf/in); cross machine direction, 12 kN/m (70 lbf/in).
 - .5 Pliability, 13 mm (1/2 inch), ASTM D146: Pass.
- .3 Membrane Flashing Sheets:
- .1 Flashing Sheet, Thermoset: Elastomeric polyester reinforced sheet with EPDM and SBR elastomers.
 - .1 Basis of design product: Elastomeric Sheeting.
 - .2 Breaking Strength, minimum, ASTM D751: Machine direction 1550 N (350 lbf); Cross machine direction 1330 N (300 lbf).
 - .3 Tear Strength, minimum, ASTM D751: Machine direction 342 N (77 lbf); Cross machine direction 342 N (77 lbf).
 - .4 Elongation at Failure, minimum, ASTM D751: Machine direction 30 percent; Cross-machine direction 35 percent.
 - .5 Low Temperature Flexibility, minimum, ASTM D2136: -40 deg. C (-40 deg. F) .
 - .6 Thickness, minimum, ASTM D751: 1.1 mm (0.045 inch).
 - .7 Colour: Black.
- .3 Detailing Fabric:

- .1 Woven Glass Fiber Mesh, Vinyl-Coated: Non-shrinking, non-rotting, vinyl-coated woven glass mesh for reinforcing flashing seams, membrane laps, and other roof system detailing.
 - .1 Basis of design product: BURmesh.
 - .2 Tensile strength, 70 deg. F, min ASTM D146: Warp, 65 lbf/in (285 N); fill, 75 lbf/in (310 N).
 - .3 Color: Aqua green.

2.5 ASPHALT MATERIALS

- .1 Asphalt primer, water-based, polymer modified.
 - .1 Basis of design product: TREMprime WB.
 - .2 Volatile Organic Compounds (VOC), maximum, ASTM D3960: 2 g/L.
 - .3 Colour: Brown/black.
- .2 Hot-melt asphalt adhesive, SEBS-modified elastomeric, ASTM D6152 .
 - .1 Basis of design product: THERMastic 80 Adhesive.
 - .2 Softening Point, min/max, ASTM D36: 195-205 deg. F (90-95 deg. C).
 - .3 Flash point, minimum, ASTM D92: 525 deg. F (274 deg. C).
 - .4 Low Temperature Flexibility, maximum, ASTM D3111: 18 deg. F (-8 deg. C).
 - .5 Elongation at 77 deg. F (25 deg. C), minimum, ASTM D412: 800 percent.
 - .6 Elastic Recovery, minimum, ASTM D412: 95 percent.
- .3 Hot-melt asphalt adhesive, ASTM D312 Type III .
 - .1 Basis of design product: Premium III Adhesive.
 - .2 Softening Point, min/max, ASTM D36: 90 – 96 deg. C (195 – 205 deg. F).
 - .3 Ductility at 25 deg. C (77 deg. F), minimum, ASTM D113: 2.5 cm.
 - .4 Penetration at 25 deg. C (77 deg. F) min/max, ASTM D5: 15–30 dmm.

2.6 RECOVERY / PROTECTION BOARD

- .1 Roof Insulation Cover Board:

- .1 Roof Protection Board: Multi-ply semi-rigid asphaltic protection board composed of a mineral-fortified asphaltic core molded between two asphalt-saturated fiberglass reinforcement mats; designed to be used as a protection layer between the insulation and membrane.
 - .1 Basis of design product: Tremboard AC
 - .2 Size: 1200 by 1500 mm (4 by 5 ft), 3 mm (0.125 inch) thick.
 - .3 Puncture Strength: ASTM D6506; Not less than 108.4 Nm (80 lbf/ft).
 - .4 Compression Strength: ASTM D6506; Not less than 24,130 kPa (3,500 psi).
- .2 Coverboard Adhesive:
 - .1 SEBS-Modified Hot Applied Adhesive
 - .1 Basis of design product: THERMastic 80.
 - .2 Adhesive shall be compatible with all roofing system components, and shall be installed to achieve a continuous, full-bond application.

2.7 CANT STRIPS

- .1 Fibre cants to CAN/CSA-A246-M86, three (3) inch, preformed 45 degree angled.

2.8 ROOF INSULATION TYPE I

- .1 Polyisocyanurate for Roof Areas. Tapered (Not Flat) insulation:
 - RSI: Varies: 1 layer of tapered roof insulation: 3" edge thickness tapered to drains.
- .2 Tapered polyisocyanurate boards to CAN/ULC-S704-2001, meeting the requirements of ULC-S126M and ULC-S107M. Insulation shall be Factory Mutual Class 1 fire rated, I-90 uplift approved board and shall meet all identified code and/or insurance requirements. Polyisocyanurate foam insulation, integrally bonded to inorganic/organic felt facers, manufactured in conformance with all Environment Canada and Provincial Ozone-Depleting Substance Regulations.
- .3 Insulation to conform also to CAN/ULC-S770-00 "Standard Test Method for Determination of Long-Term Thermal Resistance of Closed Cell Thermal Insulating Foams".
- .4 At roof drains provide insulation panels which sump to drains. Panel size 1220mm x 1220mm x 25mm thickness to suit roof insulation. Confirm all dimensions on site.

2.9 ROOF INSULATION TYPE II

- .1 Polyisocyanurate for Roof Areas. Flat (not tapered) insulation. Install under tapered.
 - RSI: R-35 min (installed in 2 layers: 3" base layer at R-17.7 and 3" top layer at R-17.7 – Total R Value = 35.4)

- .2 Flat polyisocyanurate boards to CAN/ULC-S704-2001, meeting the requirements of ULC-S126M and ULC-S107M. Insulation shall be Factory Mutual Class 1 fire rated, I-90 uplift approved board and shall meet all identified code and/or insurance requirements. Polyisocyanurate foam insulation, integrally bonded to inorganic/organic felt facers, manufactured in conformance with all Environment Canada and Provincial Ozone-Depleting Substance Regulations.
- .3 Insulation to conform also to CAN/ULC-S770-00 “Standard Test Method for Determination of Long-Term Thermal Resistance of Closed Cell Thermal Insulating Foams”.
- .4 At roof drains provide insulation panels which sump to drains. Panel size 1220mm x 1220mm x 25mm thickness to suit roof insulation. Confirm all dimensions on site.

2.10 ROOF INSULATION TYPE III

- .1 Polyisocyanurate for Roof Areas. Flat (not tapered) insulation. Install under tapered.

RSI: Installed in 1 layer: 1.5” base layer at R-8.9
- .2 Flat polyisocyanurate boards to CAN/ULC-S704-2001, meeting the requirements of ULC-S126M and ULC-S107M. Insulation shall be Factory Mutual Class 1 fire rated, I-90 uplift approved board and shall meet all identified code and/or insurance requirements. Polyisocyanurate foam insulation, integrally bonded to inorganic/organic felt facers, manufactured in conformance with all Environment Canada and Provincial Ozone-Depleting Substance Regulations.
- .3 Insulation to conform also to CAN/ULC-S770-00 “Standard Test Method for Determination of Long-Term Thermal Resistance of Closed Cell Thermal Insulating Foams”.
- .4 At roof drains provide insulation panels which sump to drains. Panel size 1220mm x 1220mm x 25mm thickness to suit roof insulation. Confirm all dimensions on site.

2.11 VAPOUR RETARDER / AIR & VAPOUR BARRIER

- .1 Air and Vapour Retarder Membrane:
 - .1 Self-adhered, rubberized asphalt or modified bituminous sheet air and vapour barrier membrane.
 - .2 Basis of design product: Tremco AVC Membrane

2.12 GYPSUM BOARD / THERMAL BARRIER

- .1 1/2" Dens-Glass Gypsum Roof Thermal Board.

2.13 FASTENERS AND PLATES

- .1 Fastening Bar: Galvanized sheet steel, 14 gauge (2.0 mm) ASTM A526-71, coating designation G90 commercial, premanufactured with slot holes 25 mm (1 in.) o.c.
- .2 Fasteners: For securing into steel decks, self-tapping, corrosion resistant fasteners, FMRC approved.
- .3 Fastener Plates: Factory Mutual approved and meeting FM standard 4470 for corrosion resistance. Fasteners and plates shall be approved in writing by the manufacturer for intended use.

2.14 AUXILLARY MEMBRANE ROOFING MATERIALS

- .1 General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
 - .1 Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- .2 Flashing Sheet Adhesive:
 - .1 Bonding and Flashing Adhesive, SEBS/SIS modified asphalt, for elastomeric flashing membranes.
 - .1 Basis of design product: Sheeting Bond.
 - .2 VOC, maximum, ASTM D3960: 250 g/L.
 - .3 Adhesion in peel, minimum, ASTM D1876: 0.5 N/mm (3 lbf/in).
 - .4 Lap shear adhesion, minimum, ASTM D816: 124 kPa (18 psi).
 - .5 Color: Black.
- .3 Asphalt Roofing Cement / Mastic:
 - .1 Roof Cement, Asphalt-Based: ASTM D4586, Type II, Class I, fibrated roof cement formulated for use in installation and repair of asphalt ply and modified bitumen roofing plies and flashings; UL-classified for fire resistance.
 - .1 Basis of design product: ELS.
 - .2 Volatile Organic Compounds (VOC), maximum, ASTM D3960: 190 g/L.
 - .3 Non-Volatile Matter, ASTM D4586: 85 percent.
 - .4 Resistance to sag ASTM D4586: 3 mm (1/8 in.) .
- .4 Elastomeric Mastic:
 - .1 Roofing Mastic, Low-Volatile: Modified asphalt elastomeric roof mastic, one-part, trowel-grade, formulated for compatibility and use with specified roofing membranes and flashings.
 - .1 Basis of design product: POLYroof LV.
 - .2 Volatile Organic Compounds (VOC), maximum, ASTM D3960: 300 g/L.
 - .3 Elongation at -34 deg. C (-30 deg. F), minimum, ASTM D412: 100 percent.

- .4 Tensile strength at 25 deg C (77 deg F), ASTM D412: 207 kPa (30 psi).
 - .5 Flexibility at -40 deg. C (-40 deg. F), ASTM D3111: No cracking.
 - .6 Nonvolatile matter, ASTM D4586 : 70 percent.
- .5 Joint Sealant: Elastomeric joint sealant compatible with roofing materials, with movement capability appropriate for application.
- .1 Joint Sealant, Polyurethane: ASTM C920, Type S, Grade NS, Class 50 single-component moisture curing sealant, formulated for compatibility and use in dynamic and static joints; paintable.
 - .1 Basis of design product: TremSEAL Pro.
 - .2 Volatile Organic Compounds (VOC), maximum, ASTM D3960: 40 g/L.
 - .3 Hardness, Shore A, ASTM C661: 40.
 - .4 Adhesion to Concrete, ASTM C794: 35 pli.
 - .5 Tensile Strength, ASTM D412: 2410 kPa (350 psi).
 - .6 Colour: Closest match to substrate.
- .6 Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening built up roofing components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing manufacturer.
- .1 Trufast #15 EHD Fasteners
- .7 Metal Flashing Sheet: Metal flashing sheet is specified in Division 07 Section "Sheet Metal Flashing and Trim."
- .8 Miscellaneous Accessories: Provide miscellaneous accessories recommended by built-up roofing manufacturer.

2.15 WALKWAYS

- 1 Walkway pads, ceramic-granule-surfaced reinforced asphaltic composition slip-resisting pads, manufactured as a traffic pad for foot traffic, 1/2 inch (13 mm) thick minimum.
- .1 Basis of design product: Trem-Tred or Concrete Pavers as detailed.
 - .2 Flexural Strength at max. load, minimum, ASTM C203: 1.5 kPa (218 psi).
 - .3 Granule adhesion (weight loss), maximum, ASTM D4977: 1.1 gram.
 - .4 Impact Resistance at 25 deg. C (77 deg. F), ASTM D3746: No Damage to Roof.
 - .5 Pad Size: 914 by 1220 mm (36 by 48 inch).

2.16 METAL FLASHINGS

- .1 Metal flashings shall be 24 ga. Finish: The paint finish for wall cladding and soffit shall be SMP silicone modified polyester coating system (Weather XL / Signature) as manufactured by Vicwest. The unexposed side shall have a prime coat.

- .2 Colour: Charcoal VW56072. Colour shall be used for pricing only. Final colour selection shall be confirmed with Consultant before ordering.
- .3 Fasteners shall be supplied in accordance with the manufacturer's standard to meet the loading requirements and to maintain a weathertight installation. All exposed fasteners shall match the flashing colour.

2.17 SEALANTS

- .1 Caulking sealants for metal flashings to be one part silicone to conform to C.G.S.B. 19 GP 96. Sealants shall be as manufactured by Canadian General Electric, Dow Corning or approved equal.
- .2 Colour of sealant to match metal flashing colour, obtain approval of colour before ordering sealant.

2.18 ACCESSORIES

- .1 Provide all accessories required for the complete fabrication and installation of all roofing and sheet metal work.

2.19 ROOF DRAINS AND SPECIALTY FLASHINGS

- .1 Products specified are as manufactured by Thaler Metal Industries Ltd. Equivalent products meeting exact specifications of specified products must be approved by Architect and issued by addendum.
 - .1 Vandal-Proof Stack Jack Flashing: Thaler SJ-31. Mounting fastening method per drawings.
 - .2 Hot Pipe Flashing: Thaler MEF - 3A. Use at boiler and domestic hot water heater vents. Co-ordinate with mechanical.
 - .3 Liquid Tight Flexible Conduit Flashing: MEF-2A. Model Type based on conduit size. Coordinate with mechanical and electrical. Where this unit is not possible to use, use Multi-Roof Penetration Roof Flashing: Portals Plus-Alumi-Flash System consisting of Aluminum Flash base; Model PVC 18S-3 8" diameter opening for multi-pipe penetration and black EPDM pipe boot cap Model 481R 4 pipe portal complete with stainless steel gear clamps. Units as manufactured by Portals Plus Inc., Bensenville, IL (630) 595-7320, Fax: (630) 766-5259.
 - .4 Condensing Unit Roof Support: Thaler MERS-900A Air Handling Small Unit support. Mounting fastening method per drawings.
 - .5 Electrical Receptacle Roof Support: Thaler MERS-750A. Mounting fastening method per drawings.
- .2 Refer to Roof Plan Drawings and to mechanical and electrical drawings and schedules for trade sizes of the various pipes and vents through the roof. All

penetration shall have membrane boots and clamps supplied by the membrane manufacturer.

3.0 EXECUTION

3.1 GENERAL

- .1 Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations and weather restrictions.
- .2 Install roofing system in accordance with the submitted drawings and details.

3.2 EXAMINATION and INSPECTION OF SURFACES

- .1 Verify that work of other trades which penetrates roof deck or that requires men and equipment to traverse roof deck has been completed.
- .2 Clean all surfaces removing nails and other loose and foreign materials, oil and grease, dispose of all debris. Ensure substrate is dry and within the requirements of the membrane manufacturer. Inspect all deck surfaces and report any areas in question as to its soundness or structural integrity.
- .3 Do not begin any work before surfaces are smooth, dry, free of ice and debris. Use of calcium or salt is forbidden for ice or snow removal.
- .4 Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - .1 Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - .2 Steel Roof Deck: Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1.6 mm (1/16 inch) out of plane relative to adjoining deck.
- .5 Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 ROOFING SYSTEM INSTALLATION

- .1 Convene a site meeting with the Architect for a pre-installation review of the vapour barrier system.
- .2 Vapour Retarder Installation: Completely seal vapour retarder/air barrier at terminations, obstructions, and penetrations to prevent air movement into roofing system. Seal vapour retarder to vapour barrier in adjacent construction at perimeter of roofing system.

3.4 ROOFING SYSTEM INSTALLATION

- .1 Comply with built-up roofing manufacturer's written instructions for installing roof insulation.
- .2 Coordinate installing membrane roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday.
- .3 Cant Strips: Install and secure preformed 45-degree cant strips at junctures of built-up roofing with vertical surfaces or angle changes greater than 45 degrees.
- .4 Tapered Insulation and Crickets: Install tapered insulation under area of roofing to conform to slopes indicated.
 - .1 Where crickets are indicated or required to provide positive slope to drain, make slope of crickets minimum of two times the roof slope and not less than 1:48 (1/4 inch in 12 inches) .
- .5 Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 6 mm (1/4 inch) with insulation.
 - .1 Cut and fit insulation within 6 mm (1/4 inch) of nailers, projections, and penetrations.
- .6 Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 70 mm (2.7 inch) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 150 mm (6 inches) in each direction.
- .7 Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- .8 Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- .9 Fully Adhered Insulation Application Method: Install insulation boards to concrete deck or concrete topping slab using adhesive system specifically designed and approved by insulating and roofing system manufacturer for application to concrete substrates.
 - .1 Prepare substrate to ensure it is clean, dry, and free of dust, laitance, curing compounds and other contaminants that may impair adhesion. Verify substrate moisture condition is within limits acceptable to the roofing manufacturer.
 - .2 First Layer of Insulation:
Fully adhere insulation boards to substrate using manufacturer approved Low Rise Foam adhesive applied in continuous ribbons, beads, or full-spread application as recommended by the system manufacturer to achieve full contact and resistance to wind uplift.

- .3 Subsequent Layers of Insulation:
Stagger joints between layers, Fully adhere each layer to the previous layer using compatible insulation adhesive applied in accordance with manufacturer's written instructions to ensure continuous bonding with no voids.
- .4 Ensure insulation system is installed to achieve required wind uplift resistance as part of a tested and warranted roofing assembly (FM and/or UL as applicable)
- .10 Cover Board Installation: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 150 mm (6 inches) in each direction. Loosely butt cover boards together. Tape joints if required by roofing manufacturer.
- .1 Apply Low Rise Foam to substrate and immediately bond cover board to substrate.

3.5 HOT-APPLIED ROOFING MEMBRANE INSTALLATION

- .1 Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations in NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing" and as follows:
 - .1 Base-Ply Sheet: One. Adhering Method: Mopped.
 - .2 Number of Ply Sheets: Two. Adhering Method: Mopped.
 - .3 Granular-Surfaced SBS-Modified Asphalt Cap Sheet: One. Adhering Method: Mopped.
 - .4 Surfacing Type: A (aggregate).
- .2 Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- .3 Cooperate with testing agencies engaged or required to perform services for installing roofing system.
- .4 Coordinate installation of roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - .1 Provide tie-offs at end of each day's work configured as recommended by NRCA Roofing Manual Appendix: Quality Control Guidelines - Insulation to protect new and existing roofing.
 - .2 Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.
 - .3 Remove temporary plugs from roof drains at end of each day.

- .4 Remove and discard temporary seals before beginning work on adjoining roofing.
- .5 Retain one of first two paragraphs below. Retain first for traditional roofing asphalt complying with ASTM D312; retain second for SEBS-modified roofing asphalt. Heating and application requirements may differ among roofing manufacturers.
- .6 Hot Roofing Asphalt Heating: Heat asphalt to its equiviscous temperature, measured at the mop cart or mechanical spreader immediately before application. Circulate asphalt during heating. Do not raise asphalt temperature above equiviscous temperature range more than one hour before time of application. Do not exceed asphalt manufacturer's recommended temperature limits during asphalt heating. Do not heat asphalt within 14 deg. C (25 deg. F) of flash point. Discard asphalt maintained at a temperature exceeding finished blowing temperature for more than four hours.
 - .1 Apply hot roofing asphalt within plus or minus 14 deg. C (25 deg. F) of equiviscous temperature and adhere components to asphalt heated to not less than 218 deg. C (425 deg. F) .
- .7 Hot Roofing Asphalt Heating, SEBS-Modified Asphalt: Heat and apply SEBS-modified elastomeric roofing asphalt according to roofing system manufacturer's written instructions.
- .8 Substrate-Joint Penetrations: Prevent roofing asphalt and adhesives from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.6 ROOFING MEMBRANE INSTALLATION

- .1 Base Ply Sheet: Install lapped base ply sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
 - .1 Adhere to substrate in a solid mopping of hot roofing asphalt.
- .2 Ply Sheets: Install ply sheets starting at low point of roofing. Align ply sheets without stretching. Shingle side laps of ply sheets uniformly to achieve required number of plies throughout thickness of roofing membrane. Shingle in direction to shed water. Extend ply sheets over and terminate beyond cants.
 - .1 Embed each ply sheet in a solid mopping of hot roofing asphalt applied at rate required by roofing manufacturer, to form a uniform membrane without ply sheets touching.

3.7 FLASHING AND STRIPPING INSTALLATION

- .1 Install flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to built-up roofing manufacturer's written instructions and as follows:

- .1 Fully adhere flashing sheet to substrate adhered using THERMastic 80 Adhesive in accordance with manufacturer's instructions.
- .2 Extend base flashing up walls a minimum of 300 mm (12 inches) above built-up roofing and 150 mm (6 inches) onto field of built-up roofing. Extend base flashing up and over the entire parapets and down the complete exterior fascia board face above built-up roofing and 150 mm (6 inches) onto field of built-up roofing.
- .3 Mechanically fasten top of flashing 12" o.c. securely at terminations and perimeter of roofing.
- .2 Seal top termination of base flashing with a metal termination bar and a continuous bead of joint sealant.
- .3 Install stripping, according to roofing manufacturer's written instructions, where metal flanges and edgings are set on built-up roofing.
- .4 Flashing-Sheet Stripping: Install flashing-sheet stripping in a continuous coating of compatible mastic/adhesive sealer, as recommended by roofing manufacturer, and extend onto roofing membrane. Apply number of courses recommended by manufacturer.
- .5 Roof Drains: Set 760-by-760 mm (30-by-30 inches) metal flashing in bed of compatible mastic/adhesive sealer, as recommended by roofing manufacturer, on completed built-up roofing. Cover metal flashing with built-up roofing membrane cap-sheet stripping and extend a minimum of 150 mm (6 inches) beyond edge of metal flashing onto field of built-up roofing. Clamp built-up roofing, metal flashing, and stripping into roof-drain clamping ring.
- .6 Install flashing sheet stripping according to roofing manufacturer's written instructions.

3.8 SURFACE AND COATING INSTALLATION

- .1 Hot-Applied Flood Coat and Aggregate Surfacing: Promptly after installing and testing roofing membrane, base flashing, and stripping, flood-coat roof surface with 3.0 kg/sq. m (60 lb/100 sq. ft.) of hot roofing asphalt. While flood coat is hot and fluid, cast the following average weight of aggregate in a uniform course:
 - .1 Aggregate Weight: 20 kg/sq. m (400 lb/100 sq. ft.), unless otherwise indicated in Part 2 product listing.
 - .2 If aggregate surfacing is delayed, promptly apply glaze coat of hot roofing asphalt at a rate of 0.5 kg/sq. m (10 lb/100 sq. ft).

3.9 WALKWAY INSTALLATION

- .1 Walkways, General: Install walkways according to roofing manufacturer's written instructions. Install walkways where indicated on Drawings.

- .2 Walkway Pads: Install walkway pads using units of size indicated or, if not indicated, of manufacturer's standard size according to walkway pad manufacturer's written instructions.
- .3 Sweep away loose aggregate surfacing. Set walkway pads in additional pour coat of hot roofing asphalt.

3.10 METAL FLASHINGS & TRIM

- .1 Complete flashing work using specified materials.
- .2 Unless otherwise specified, nails, staples, screws, bolts, washers and all other metal fasteners, will be made of compatible and rust-proof metals, of same colour as surfaces with which they are in contact.
- .3 Shaping:
 - .1 Take special care when shaping sheet metal with a permanent finish.
 - .2 Bend sheet metal using sheet metal break to profiles and shapes. When possible, use bench and appropriate tools for all shaping, bending and welding work. Form joints with double S-type locks.
 - .3 Foldback all exposed edges by 12 mm (½") to hide and strengthen edges.
 - .4 All corners, fasteners, angles and joint covers must be of same metal, gauge and finish as metal being shaped.
- .4 Installation:
 - .1 All sheet metal work must conform to details, with plumb profiles exempt of all deformities or defects which may hinder appearance.
 - .2 Space angles and fasteners (seams) to allow for normal expansion and contraction. Provide continuous formed lock clips secured to wood coping blocking at 300 mm (12") o/c.
 - .3 No nail or screw can be apparent. All metalwork must be fastened and all corners and angles must be perfectly aligned.
 - .4 Caulk all sheet metal joints and all junctions with other materials.
 - .5 At junctions between roof and masonry surfaces, scrape out joints to a 25 mm (1") depth, insert flashing, fasten and seal with specified sealer.
 - .6 Install appropriate flashing, cap sheet, counter flashing, casings and other accessories to vents, pipes and other ducts to ensure perfect sealing.

3.11 ROOF SPECIALTY FLASHINGS

- .1 Report to the General Contractor in writing any defects of work prepared by other trades and other unsatisfactory site conditions.
- .2 Install flashing in accordance with manufacturer's printed instructions.
- .3 Installation of all flashing and accessories shall be in accordance with manufacturer recommendations.
- .4 Installation of Fall Arrest Anchors shall be tested and certified for the intended capacity and design requirements.

3.12 FIELD QUALITY CONTROL

- .1 Roofing Inspector: Owner will engage a qualified roofing inspector to perform roof tests and inspections and to prepare test reports.
- .2 Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation at commencement and upon completion.
- .3 Notify Architect and Owner 48 hours in advance of date and time of inspection.
- .4 Repair or remove and replace components of built-up roofing where test results or inspections indicate that they do not comply with specified requirements.
- .5 Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.13 PROTECTION AND CLEAN-UP

- .1 Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- .2 Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SECTION

GENERAL NOTES

- 1. GENERAL
a) THE ONTARIO BUILDING CODE, 2024, SHALL BE THE BASIS FOR THE DESIGN AND CONSTRUCTION.
b) ALL DIMENSIONS ON THE STRUCTURAL AND ARCHITECTURAL DRAWINGS MUST BE CHECKED AGAINST EACH OTHER AND EXISTING CONDITIONS...

- h) ALL BLOCK WORK SHALL BE CONSTRUCTED IN RUNNING BOND.
i) WHERE VERTICAL REBARS ARE TO BE GROUDED INTO MASONRY CORES, THE FOLLOWING REQUIREMENTS APPLY:
i) PROVIDE DOWELS FROM FOOTING OR FOUNDATION WALL, SAME SIZE AND SPACING AS THE REBAR. DOWELS SHALL BE MINIMUM 1-1/2" WITH WALL BARS AND CAST INTO THE FOUNDATION WALL 1-2" FOR THE END 20M BARS. PROVIDE MATCHING HOOKED DOWEL TO FOOTING.

- 10. CHANGES
NO CHANGES SHALL BE MADE TO THE DESIGN WITHOUT ENGINEERS PERMISSION.
11. NOTIFICATIONS
CONTRACTOR SHALL NOTIFY ENGINEER OF SIGNS OF DISTRESS OR ANY OTHER INDICATIONS OF ACTUAL OR POTENTIAL DAMAGE TO THE BUILDING.

- 2. REVIEW OF CONSTRUCTION
THE GENERAL CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR FULL SUPERVISION OF CONSTRUCTION WORK. SITE VISITS AND REVIEW BY ALEO ASSOCIATES INC. ARE REQUIRED FOR THE FOLLOWING:
a) DESIGN CONCEPT AND THE GENERAL REVIEW AS REQUIRED BY THE ONTARIO BUILDING CODE.

- 20) ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERRECTED IN ACCORDANCE WITH S16.1 - LATEST EDITION.
b) MATERIALS: ROLLED SHAPES TO C402.2; ROLLED HOLLOW STRUCTURAL STEEL TO C402.1; 350M CLASS C; ROLLED STEEL PLATES TO ASTM A36; COLD FORMED SHAPES TO S16.1.

- 3. DESIGN LOADS AND DATA
GRAVITY LOADS SHALL BE AS NOTED ON FLOOR & ROOF FRAMING PLANS.
a) GROUND SNOW LOAD:
S = 1.5 [S(0.6Cd/Cd) + Sg]

- 4. FOUNDATIONS, EXCAVATING & BACKFILLING
a) FOOTINGS SHALL BE PLACED ON NATURAL UNDISTURBED SOIL AS OUTLINED IN THE GEOTECHNICAL REPORT PREPARED BY CHUNG & VANDER DOELEN ENGINEERING LTD.
b) ALL FOOTING EXCAVATIONS SHALL BE REVIEWED AND APPROVED BY ENGINEER PRIOR TO PLACING CONCRETE.

- 20) ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERRECTED IN ACCORDANCE WITH S16.1 - LATEST EDITION.
b) MATERIALS: ROLLED SHAPES TO C402.2; ROLLED HOLLOW STRUCTURAL STEEL TO C402.1; 350M CLASS C; ROLLED STEEL PLATES TO ASTM A36; COLD FORMED SHAPES TO S16.1.

Table with 3 columns: ITEM, ENGINEERS STAMP, COMMENTS. Includes items like REINFORCING STEEL, CONCRETE MIX DESIGNS, CONCRETE BLOCK MILL REPORT, etc.

- 5. CONCRETE
a) COMPLY TO THE FOLLOWING: CAN 3463.1, A23.2, AND A23.3, LATEST EDITION.
b) CONCRETE ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 20 MPa FOR FOOTINGS, 25 MPa FOR FLOOR SLABS ON GRADE, 30 MPa FOR FOUNDATION WALLS, PIERS, REINFORCED CONCRETE COLUMNS, AND 32 MPa W/ AIR ENTRAINMENT FOR ALL OUTSIDE CONCRETE.

- 20) ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERRECTED IN ACCORDANCE WITH S16.1 - LATEST EDITION.
b) MATERIALS: ROLLED SHAPES TO C402.2; ROLLED HOLLOW STRUCTURAL STEEL TO C402.1; 350M CLASS C; ROLLED STEEL PLATES TO ASTM A36; COLD FORMED SHAPES TO S16.1.

Table with 3 columns: ITEM, FREQUENCY, COMMENTS. Includes items like PROCTOR TEST FOR COMPACTION, SIEVE ANALYSIS, CONCRETE COMPRESSIVE STRENGTH TESTS, etc.

- 6. REINFORCING STEEL
a) REINFORCING STEEL SHALL COMPLY TO CSA G30.18M LATEST EDITION.
b) REINFORCING STEEL SHALL BE DEFORMED, HARD GRADE AND HAVING A MINIMUM YIELD STRENGTH OF 400 MPa (60 KSI).

- 20) ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERRECTED IN ACCORDANCE WITH S16.1 - LATEST EDITION.
b) MATERIALS: ROLLED SHAPES TO C402.2; ROLLED HOLLOW STRUCTURAL STEEL TO C402.1; 350M CLASS C; ROLLED STEEL PLATES TO ASTM A36; COLD FORMED SHAPES TO S16.1.

Table with 3 columns: ITEM, FREQUENCY, COMMENTS. Includes items like FOOTING EXCAVATIONS / FOOTING STRENGTH TESTS, REINFORCING STEEL, etc.

- 7. MASONRY
a) ALL MASONRY WORK SHALL CONFORM TO SECTION 4.4 OF THE ONTARIO BUILDING CODE AND THE CORRESPONDING CSA STANDARD CAN S381.1 LATEST EDITION.
b) THE MINIMUM 28 DAY COMPRESSIVE STRENGTH FOR ALL BLOCK UNITS SHALL BE 15 MPa.

- 20) ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERRECTED IN ACCORDANCE WITH S16.1 - LATEST EDITION.
b) MATERIALS: ROLLED SHAPES TO C402.2; ROLLED HOLLOW STRUCTURAL STEEL TO C402.1; 350M CLASS C; ROLLED STEEL PLATES TO ASTM A36; COLD FORMED SHAPES TO S16.1.

Table with 3 columns: ITEM, FREQUENCY, COMMENTS. Includes items like FOOTING EXCAVATIONS / FOOTING STRENGTH TESTS, REINFORCING STEEL, etc.

DRAWING LEGEND AND ABBREVIATIONS

UNLESS OTHERWISE NOTED, DESIGN LOADS SHOWN ARE SPECIFIED (UNFACTORED) LOADS. TO BE USED FOR ULS DESIGN. FOR POINT LOADS, IF ONLY ONE LOAD IS GIVEN, CONSIDER IT LIVE LOAD. FOR WIND AND SNOW LOADS TO BE USED FOR SLS DESIGN, SEE PLANS.

Table with 3 columns: ABBREVIATION, DESCRIPTION, COMMENTS. Includes items like AB ANCHOR BOLT, AESS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL, ALT ALTERNATE, etc.

SHOP DRAWINGS AND SUBMITTALS

- a) SUBMIT ELECTRONIC PDF COPIES OF ALL SHOP DRAWINGS AND SUBMITTALS UNO.
b) SHOP DRAWINGS AND SUBMITTALS THAT REQUIRE CERTIFICATION BY A QUALIFIED PROFESSIONAL ENGINEER SHALL BE STAMPED SIGNED & DATED (CERTIFIED) BY AN ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.

Table with 3 columns: ITEM, ENGINEERS STAMP, COMMENTS. Includes items like REINFORCING STEEL, CONCRETE MIX DESIGNS, CONCRETE BLOCK MILL REPORT, etc.

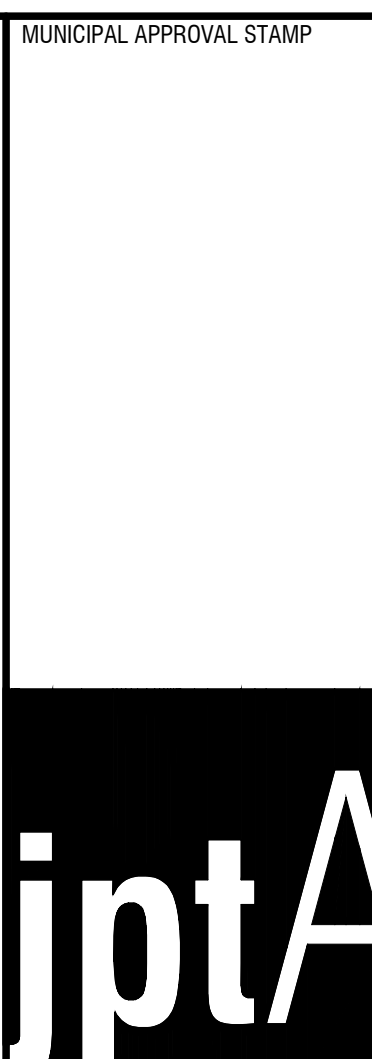
TESTING AND FIELD REVIEWS

- a) THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY UNO.
b) THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE STRUCTURAL ENGINEER OF RECORD, ARCHITECT AND GENERAL CONTRACTOR.

Table with 3 columns: ITEM, FREQUENCY, COMMENTS. Includes items like PROCTOR TEST FOR COMPACTION, SIEVE ANALYSIS, CONCRETE COMPRESSIVE STRENGTH TESTS, etc.

LIST OF DRAWINGS

Table with 3 columns: ABBREVIATION, DESCRIPTION, COMMENTS. Includes items like S100 GENERAL NOTES, S200 FOUNDATION PLAN, NOTES, SCHEDULES, etc.



DATE: 2026-03-02
DRAWN BY: SAS
SCALE: AS NOTED

PROJECT NO: 25-106
ALEO PROJECT NO: 8983
DRAWING NO: S-100

CONSULTANT: ALEO ASSOCIATES INC.
CONSULTANT PROFESSIONAL: P. ALEO
CONSULTANT SPECIAL: P. ALEO

DRAWING INFO: A DETAIL NO., B LOCATION SHEET, C DATE
PROJECT TITLE: St. Gregory Catholic Elementary School Addition and Renovations

CUSTOMER: Waterloo Catholic District School Board
480 Dutton Drive, Waterloo, ON N2L 4G6

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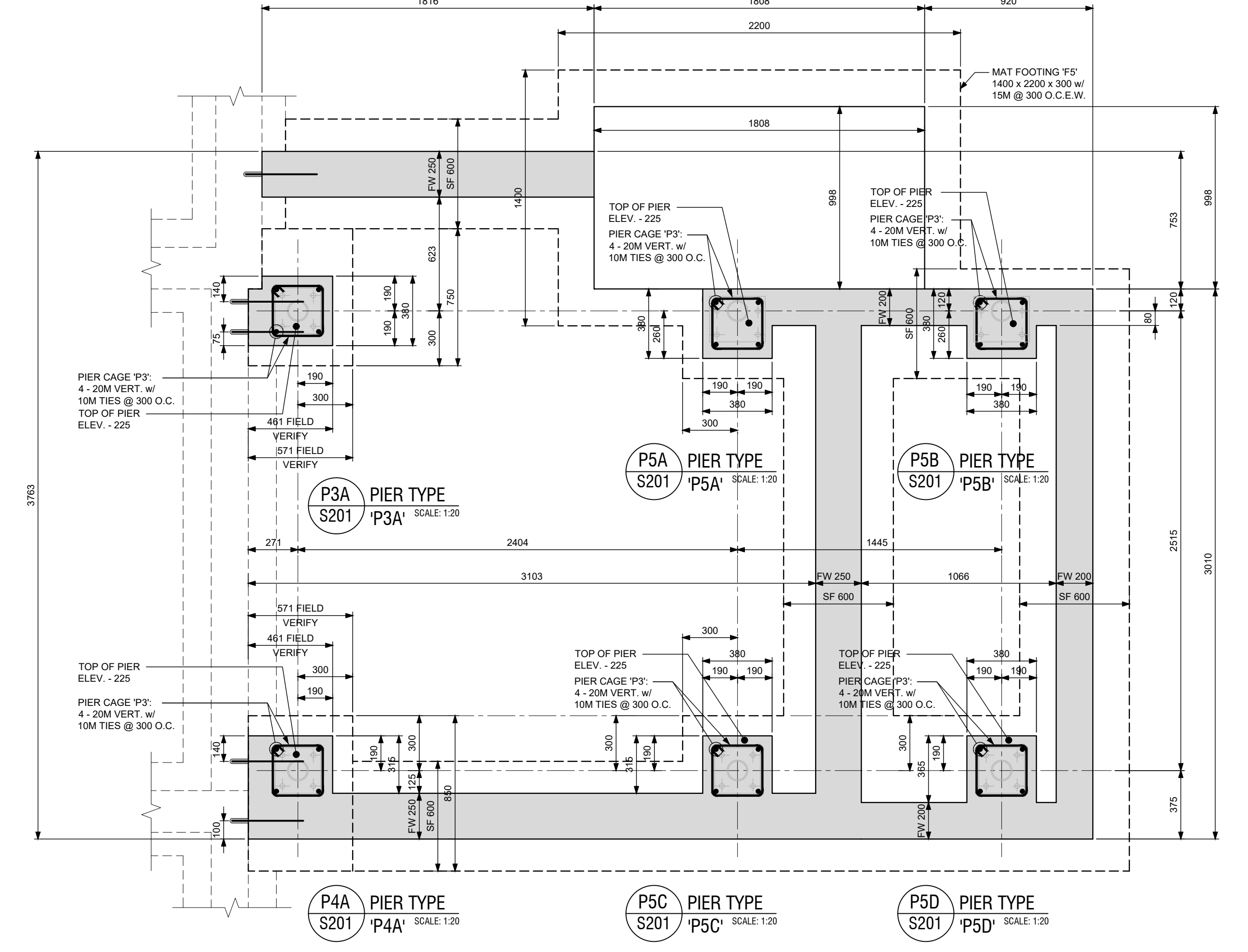
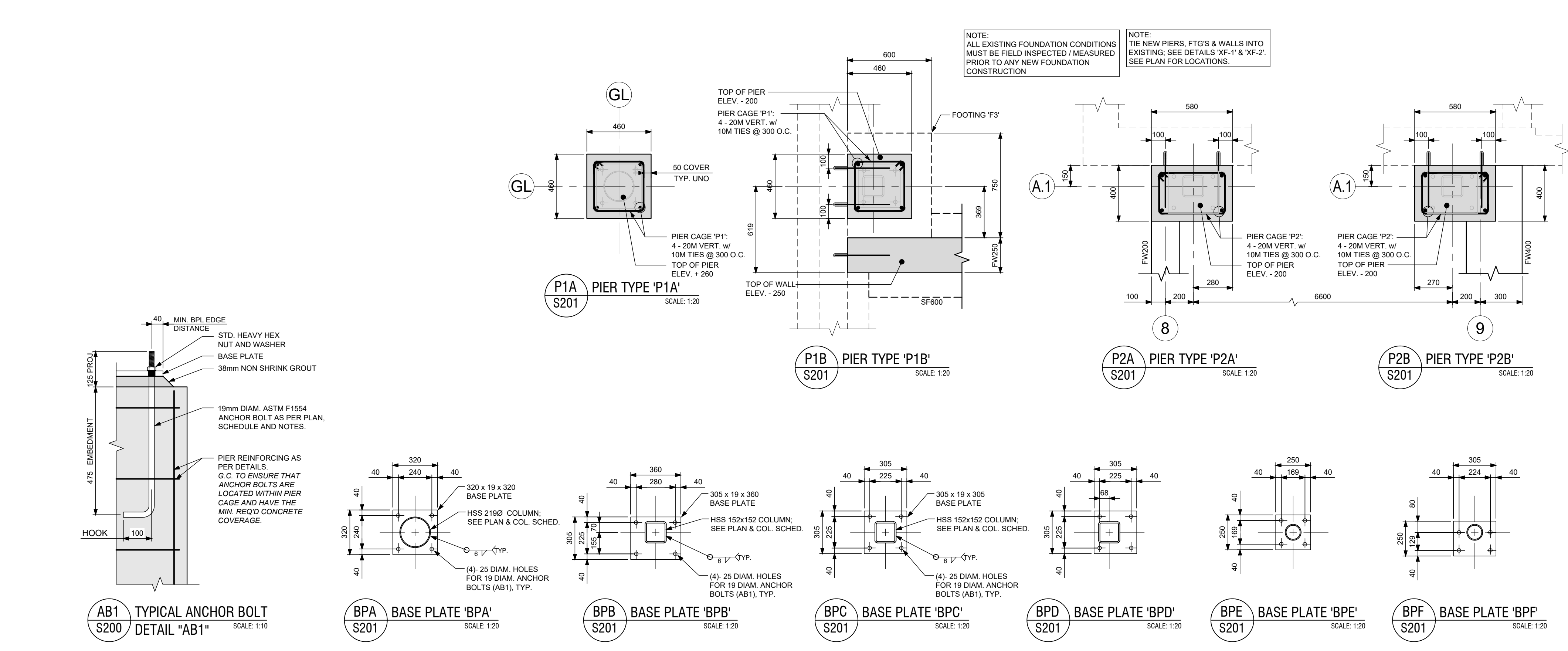
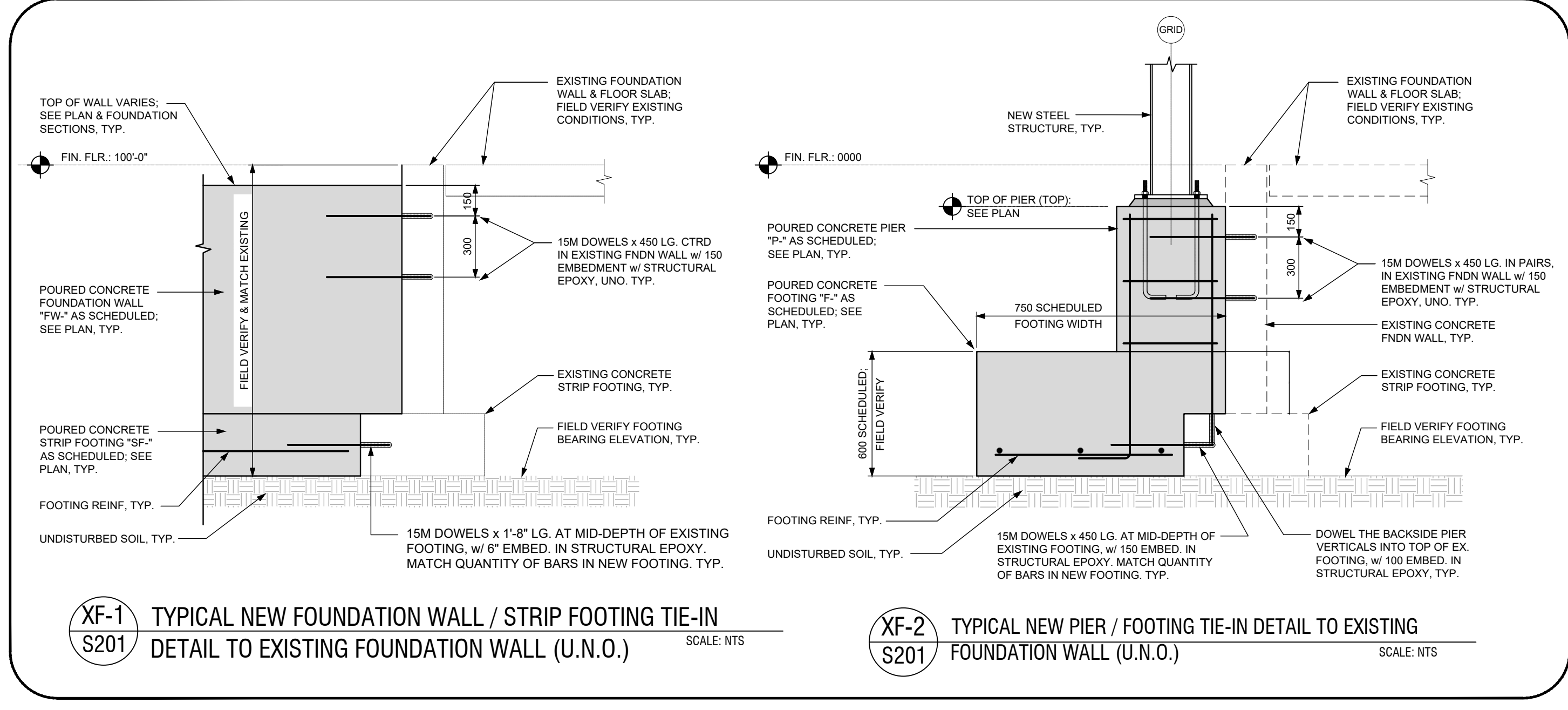
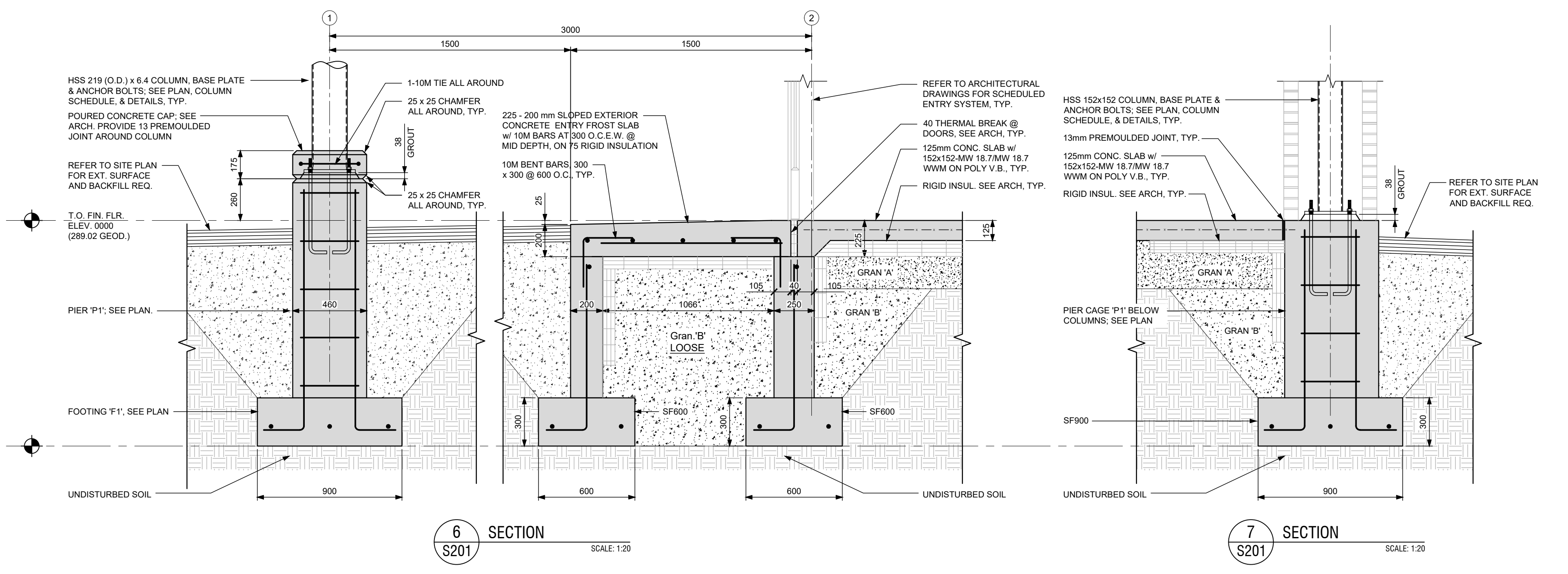
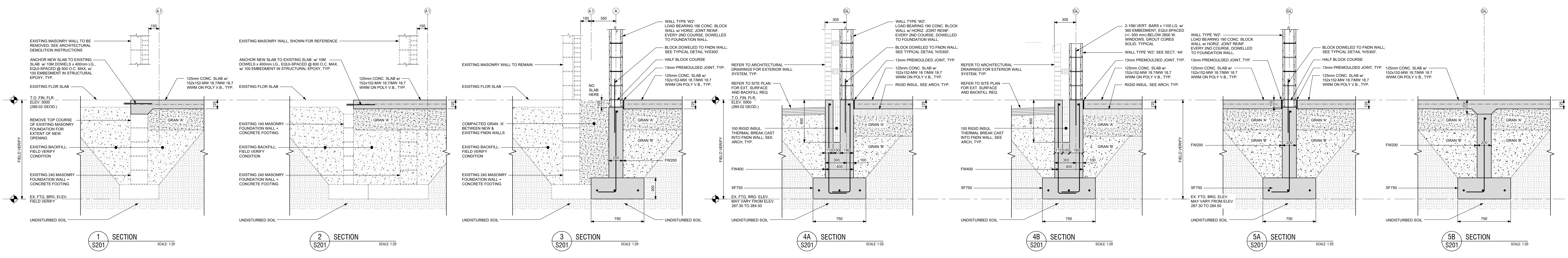
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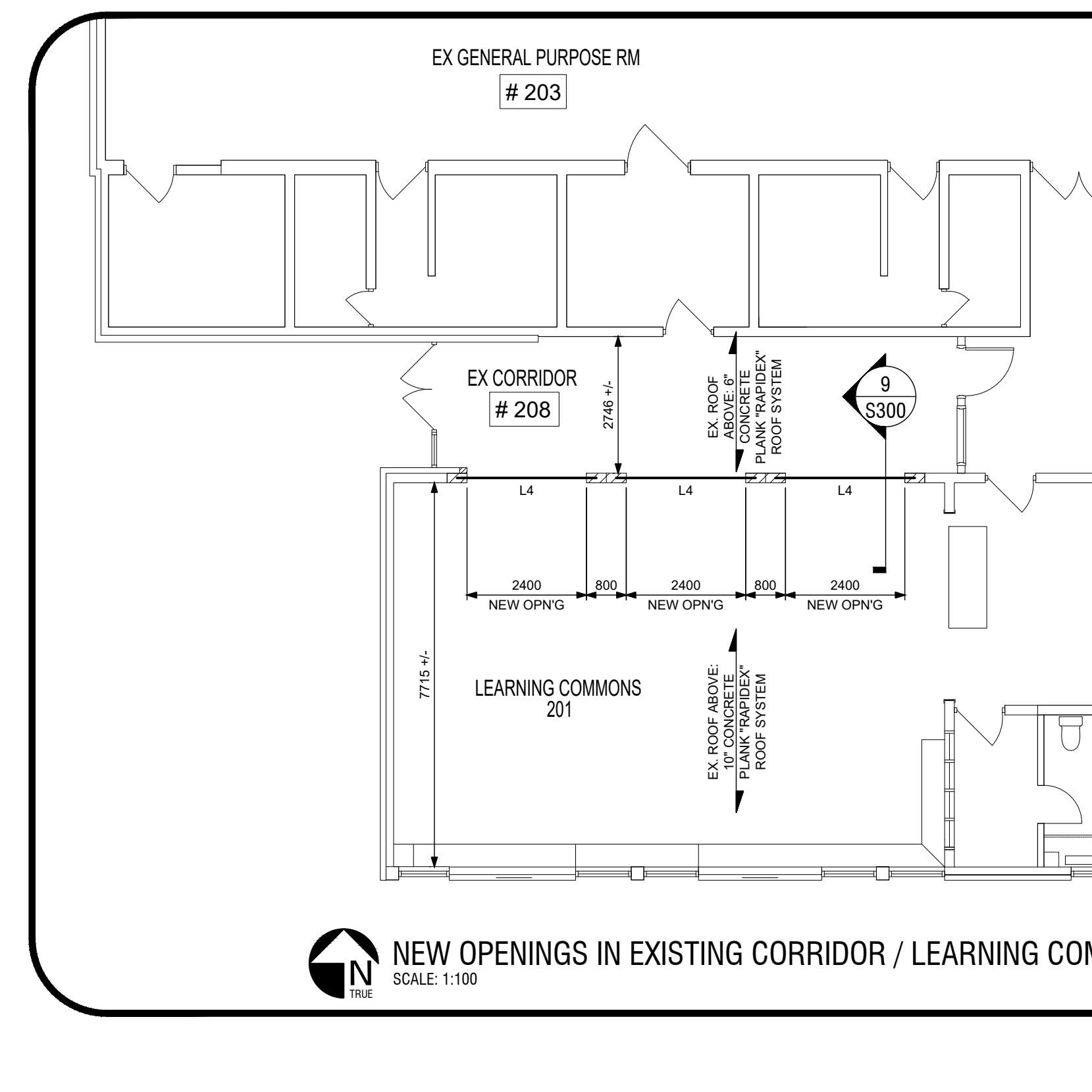
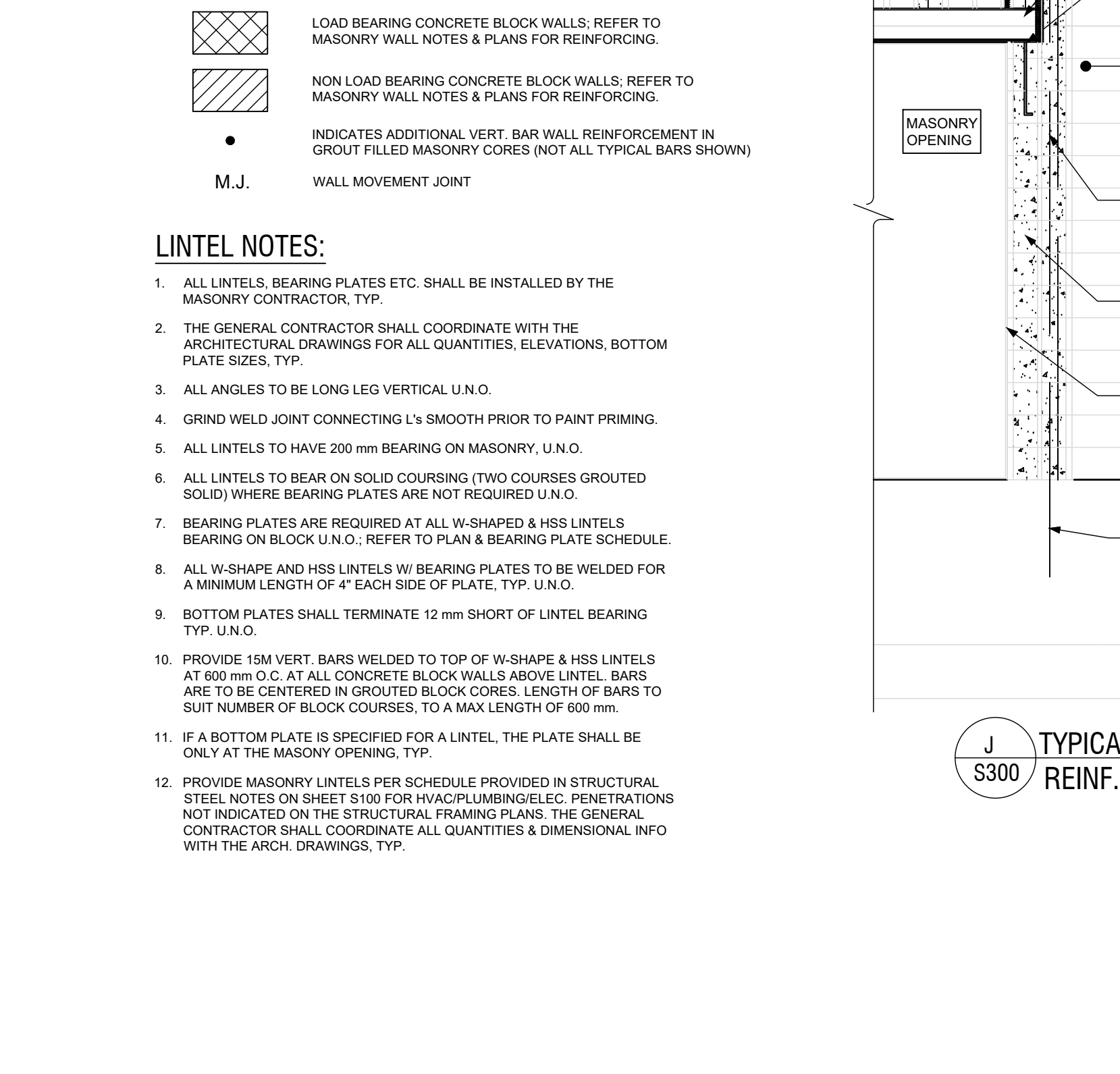
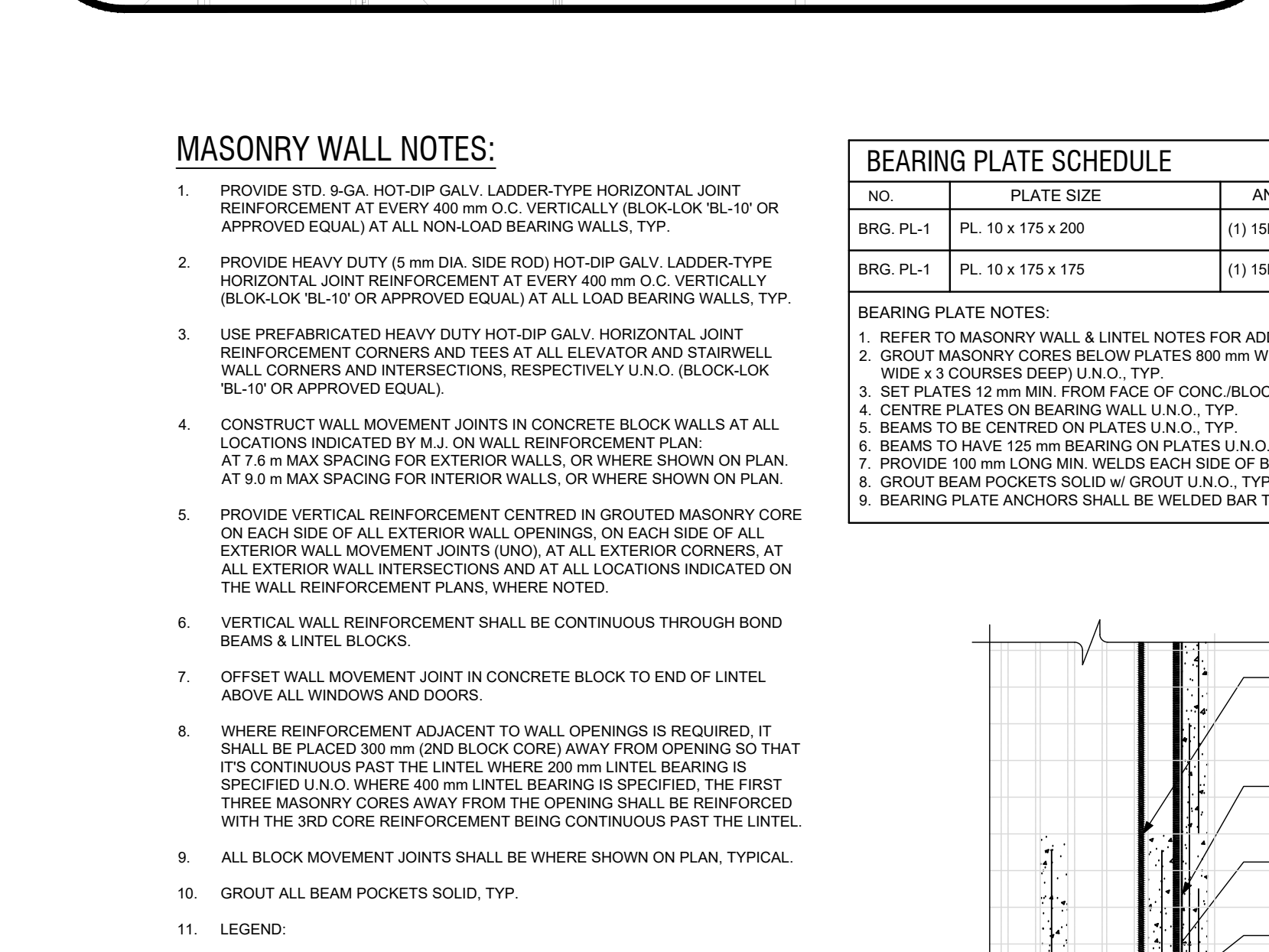
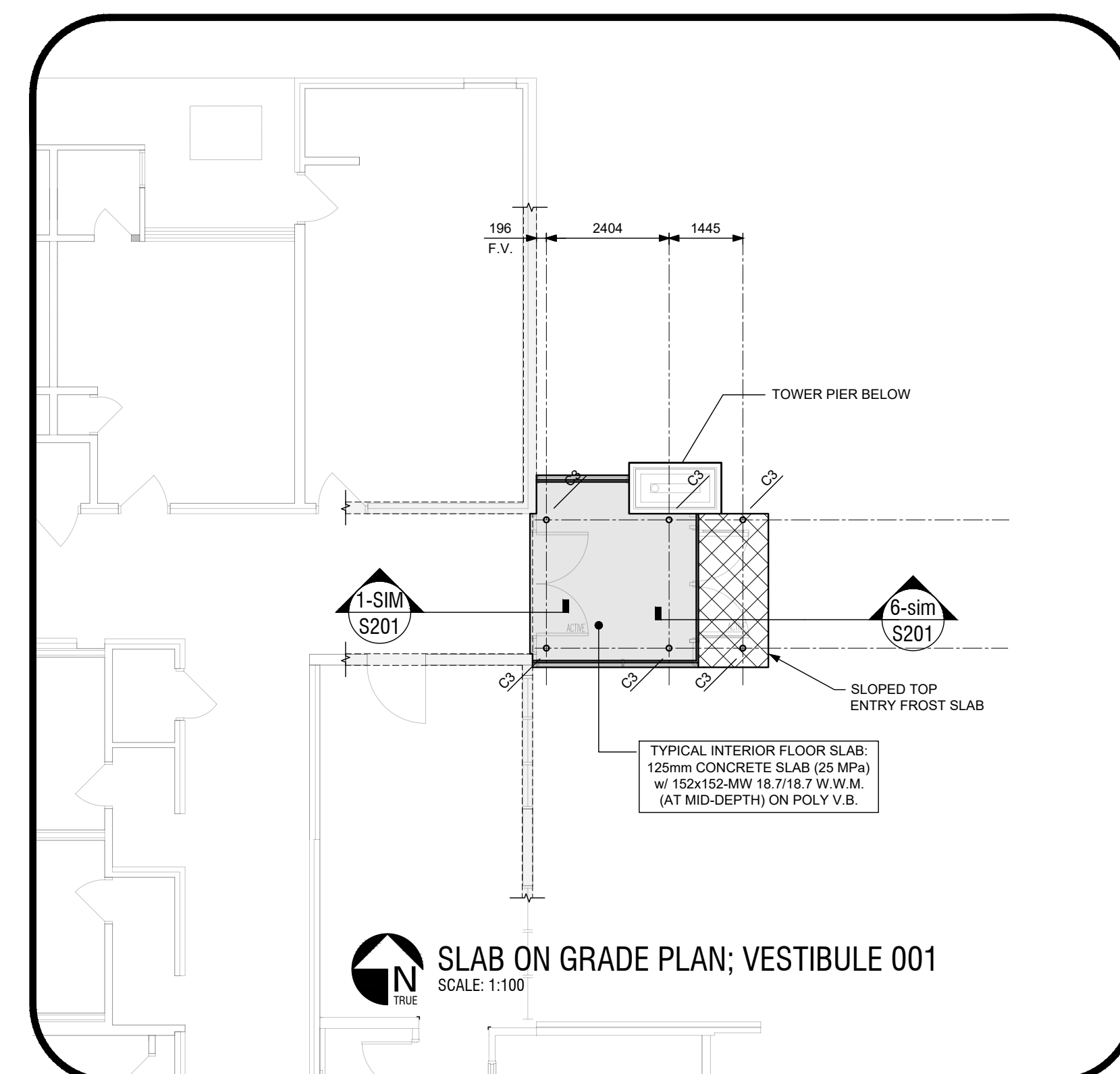
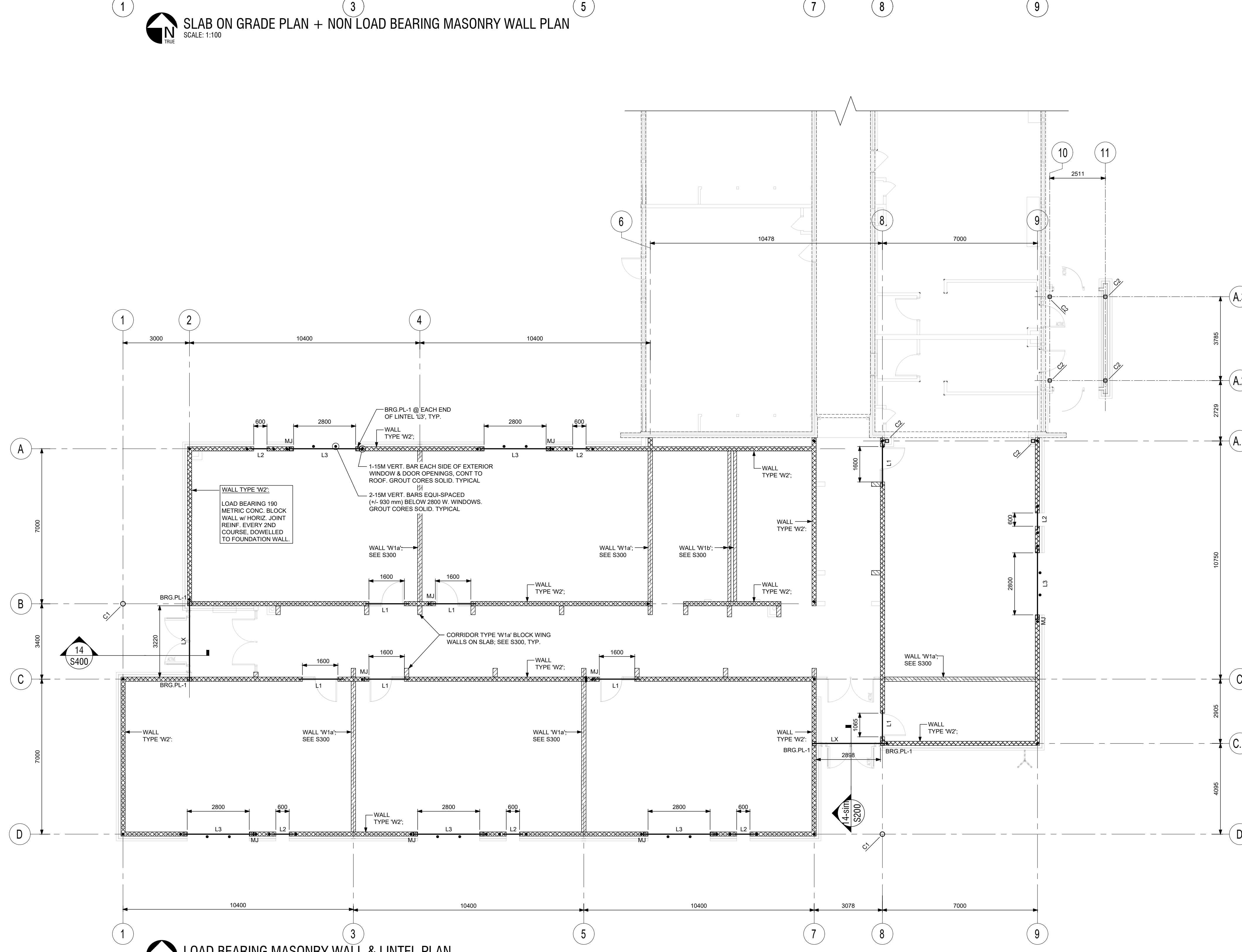
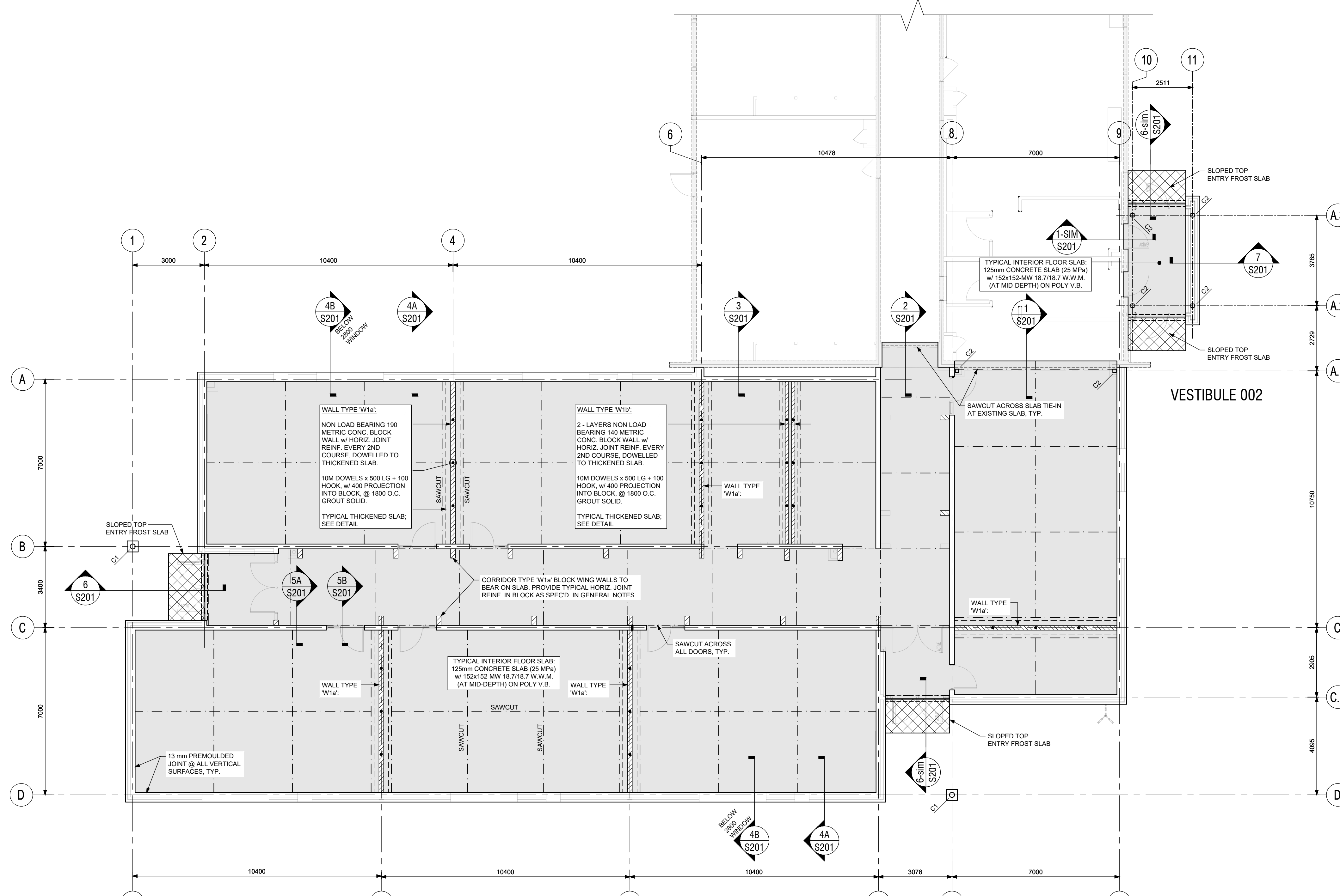
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- FLOOR SLAB-ON-GRADE NOTES:
1. INTERIOR SLAB CONSTRUCTION: 125mm CONCRETE SLAB (S300) WITH 150x150x18 TYPICAL W.W.M. AT MID-DEPTH ON GRANULAR TYPE 1 AS RECD COMPACTED TO 95% SMD ON PROOF ROLLED AND APPROVED SUB-GRADE. SEE NOTE #2 BELOW.
2. EXTERIOR ENTRY FROST SLAB CONSTRUCTION: 225x200 CONCRETE SLAB (S300) WITH AN ENTRANCEMENT W/ 150x150x18 TYPICAL W.W.M. AT MID-DEPTH ON 200mm FROST INSULATION ON POLY V.B. SLAB ON GRANULAR TYPE 1 AS RECD COMPACTED TO 95% SMD ON PROOF ROLLED AND APPROVED SUB-GRADE. SEE NOTE #2 BELOW.
3. FLOOR SLAB GRANULAR TYPE 1 SUB-BASE SHALL BE FOUND ON SILTY CLAY OR SANDY SILTY CLAY.
4. ACCORDING TO THE GEOTECHNICAL REPORT PREPARED BY CHUNG & VANIER SOILS IN ENGINEERING LTD. REPORT NO. 258 DATED JULY 2, 2025, THE BOREHOLE DATA INDICATES THAT THE SILTY CLAY OR SANDY SILTY CLAY ELEVATIONS VARY FROM HIGHEST AT 603.9' TO LOWEST AT 590.5'.
5. FIN. FLR SLAB OPEN W. HIGHEST GEO. ELEV. LOWEST GEO. ELEV. MIN. DEPTH OF GRAN. TYPE 1 AS RECD COMPACTED TO 95% SMD ON PROOF ROLLED AND APPROVED SUB-GRADE. SEE NOTE #2 BELOW.
6. ELEVATION OF ALL FINISHED FLOOR SLABS ON-GRADE = 1000mm TYP.
7. W.W.M. MUST BE SUPPORTED BY CHAIRS AT 750mm O.C. W. TO ENSURE IT IS PROPERLY HELD IN PLACE DURING THE CONCRETE POUR. SAW CUTTERS SHALL BE COMPLETED WITHIN 8 TO 16 HOURS OF PLACING CONCRETE.
8. DO NOT CUT THROUGH W.W.M.
9. PROVIDE SAWCUTS AT ALL DOOR OPENINGS (EXCEPT PARTITIONS); ONE SAWCUT AT EACH SIDE OF WALL.
10. MAXIMUM SPACING OF SAWCUTS IN FEET SHALL BE APPROXIMATELY 25 TIMES THE THICKNESS OF THE SLAB IN FEET UNLESS OTHERWISE STATED OR SHOWN ON THE DRAWINGS.
11. W.W.M. MUST BE SUPPORTED BY CHAIRS AT 750mm O.C. W. TO ENSURE IT IS PROPERLY HELD IN PLACE DURING THE CONCRETE POUR. SAW CUTTERS SHALL BE COMPLETED WITHIN 8 TO 16 HOURS OF PLACING CONCRETE.
12. DO NOT CUT THROUGH W.W.M.
13. PROVIDE SAWCUTS AT ALL DOOR OPENINGS (EXCEPT PARTITIONS); ONE SAWCUT AT EACH SIDE OF WALL.
14. MAXIMUM SPACING OF SAWCUTS IN FEET SHALL BE APPROXIMATELY 25 TIMES THE THICKNESS OF THE SLAB IN FEET UNLESS OTHERWISE STATED OR SHOWN ON THE DRAWINGS.

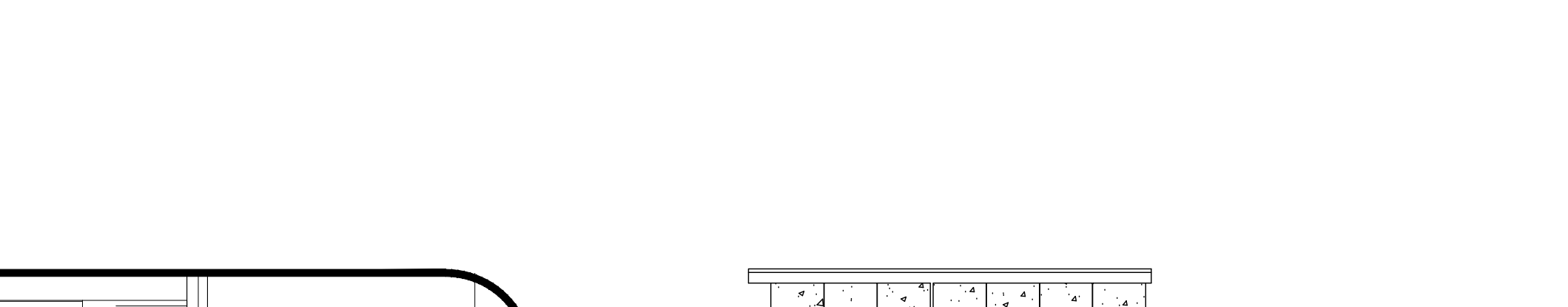
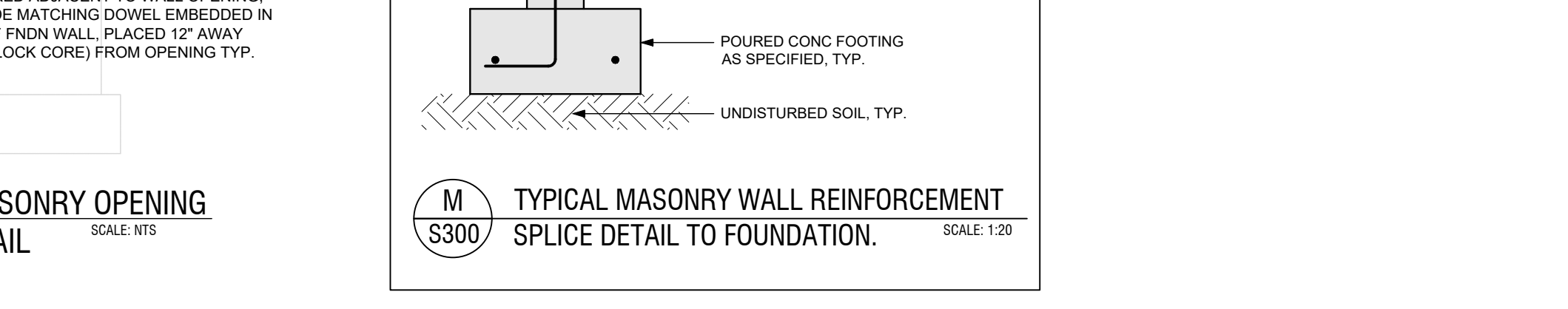
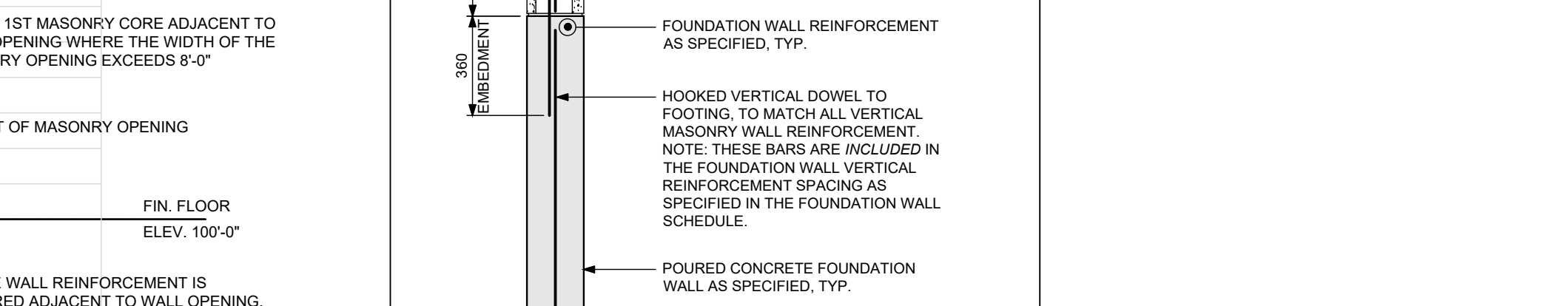
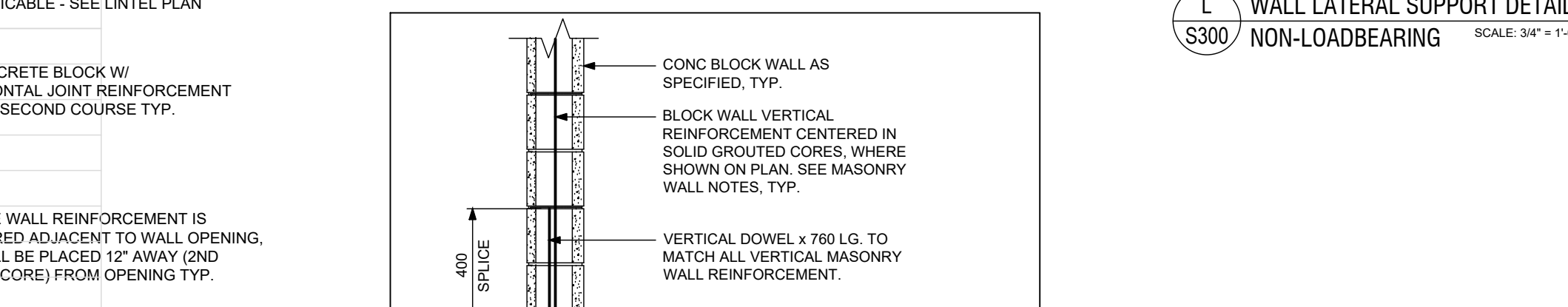
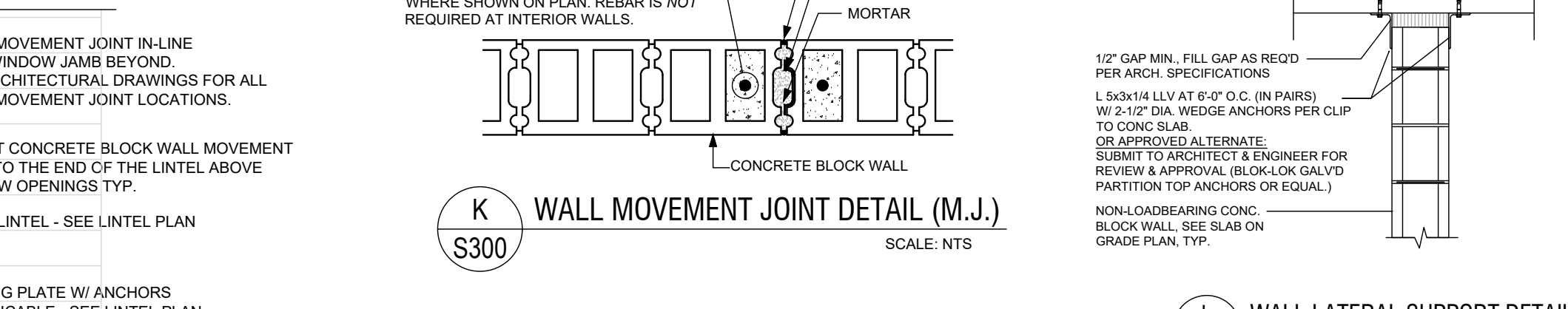
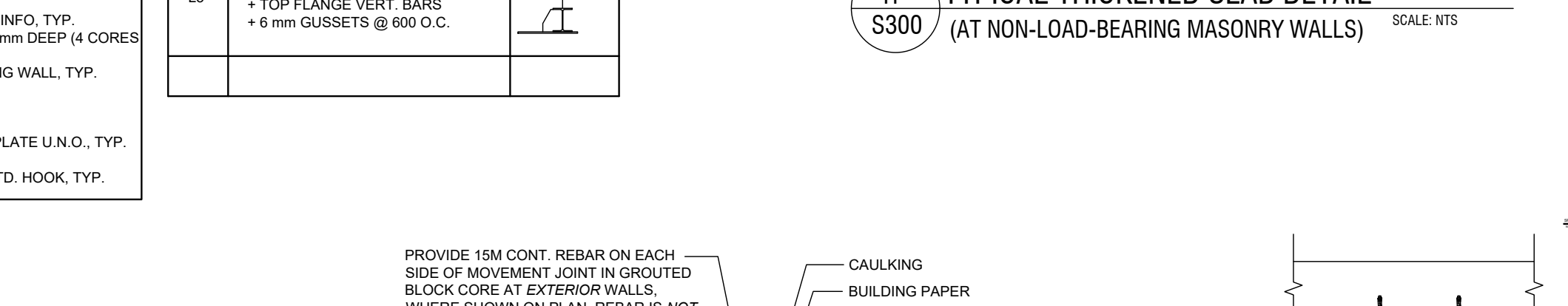
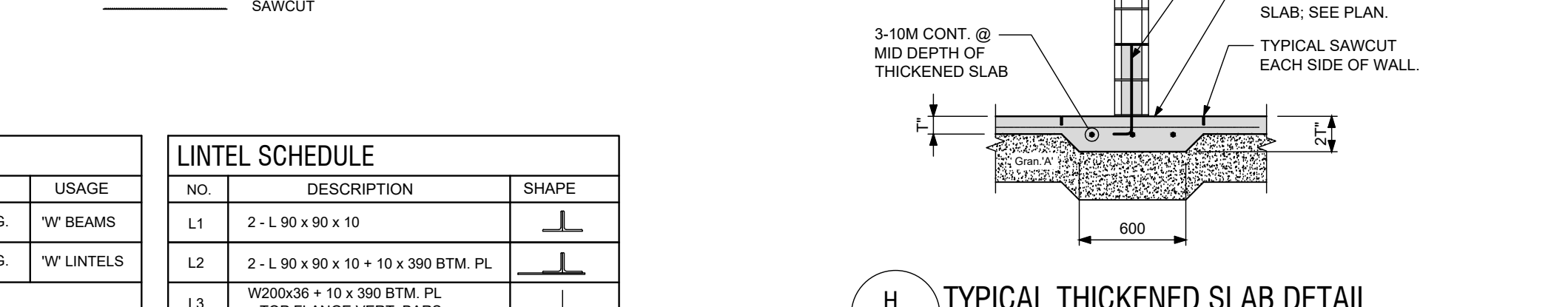
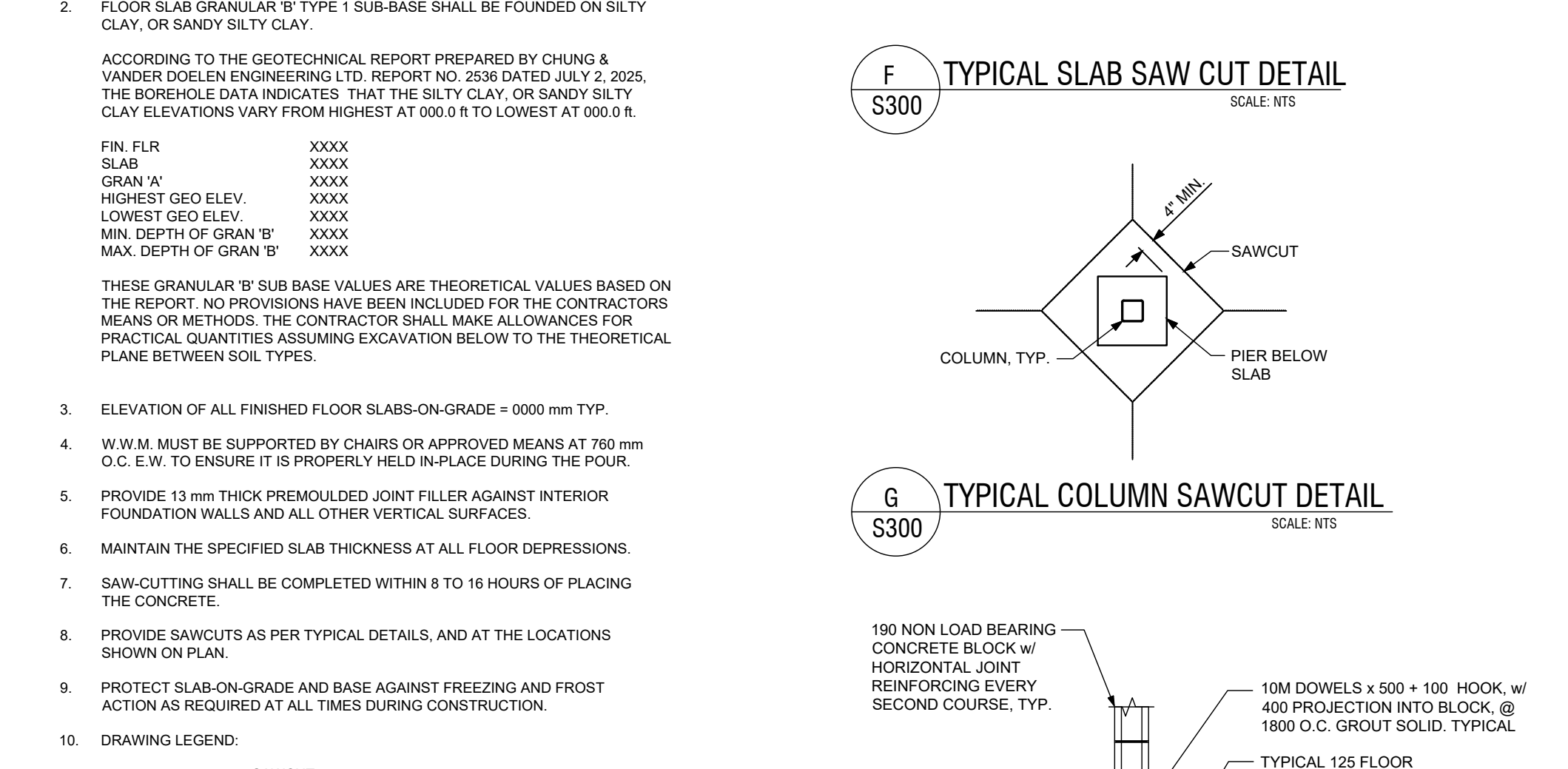


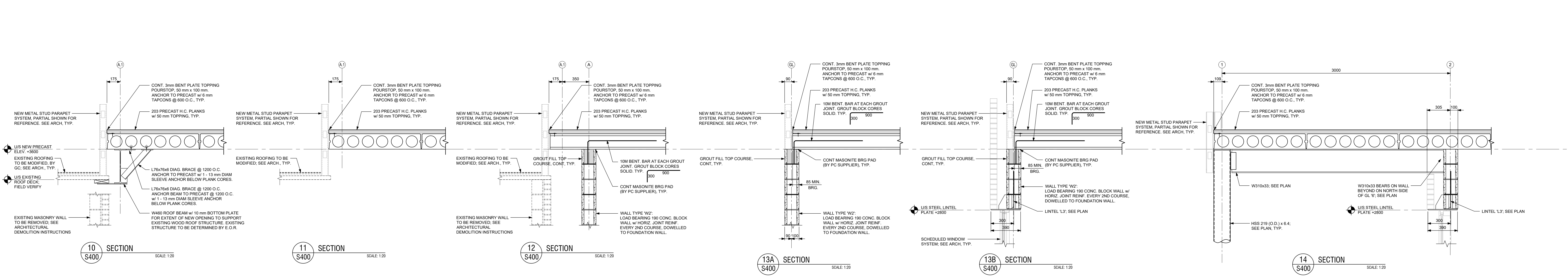
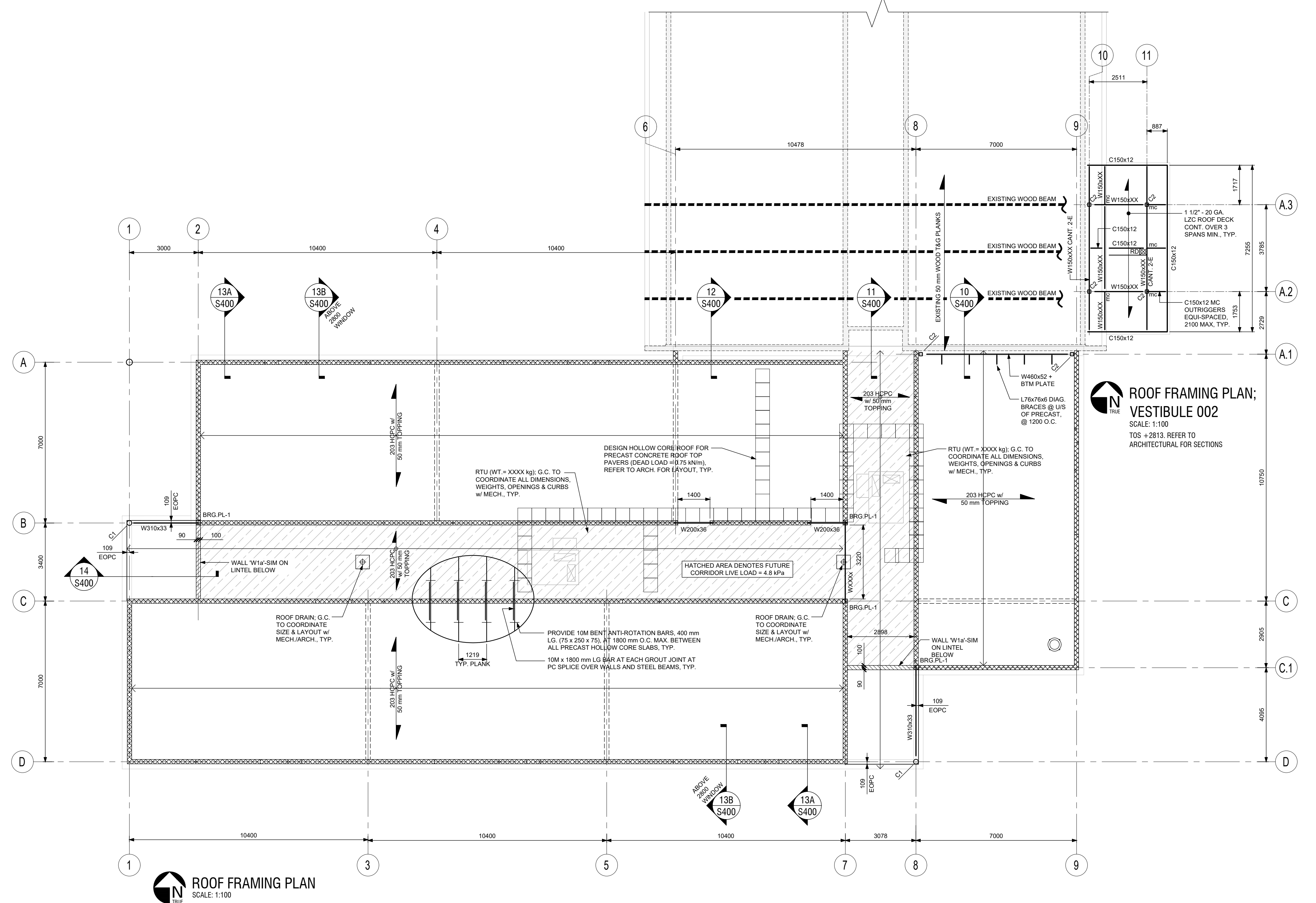
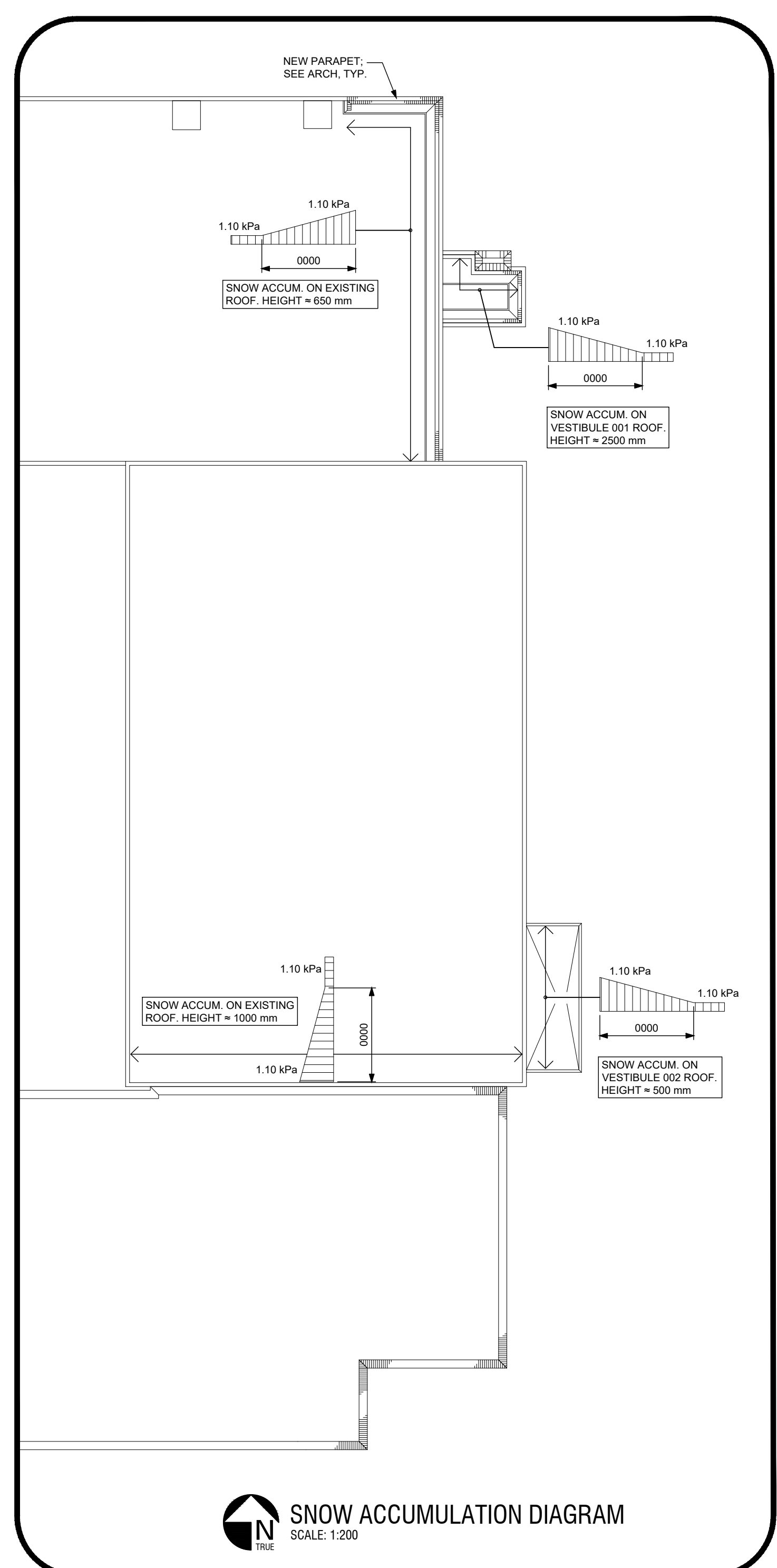
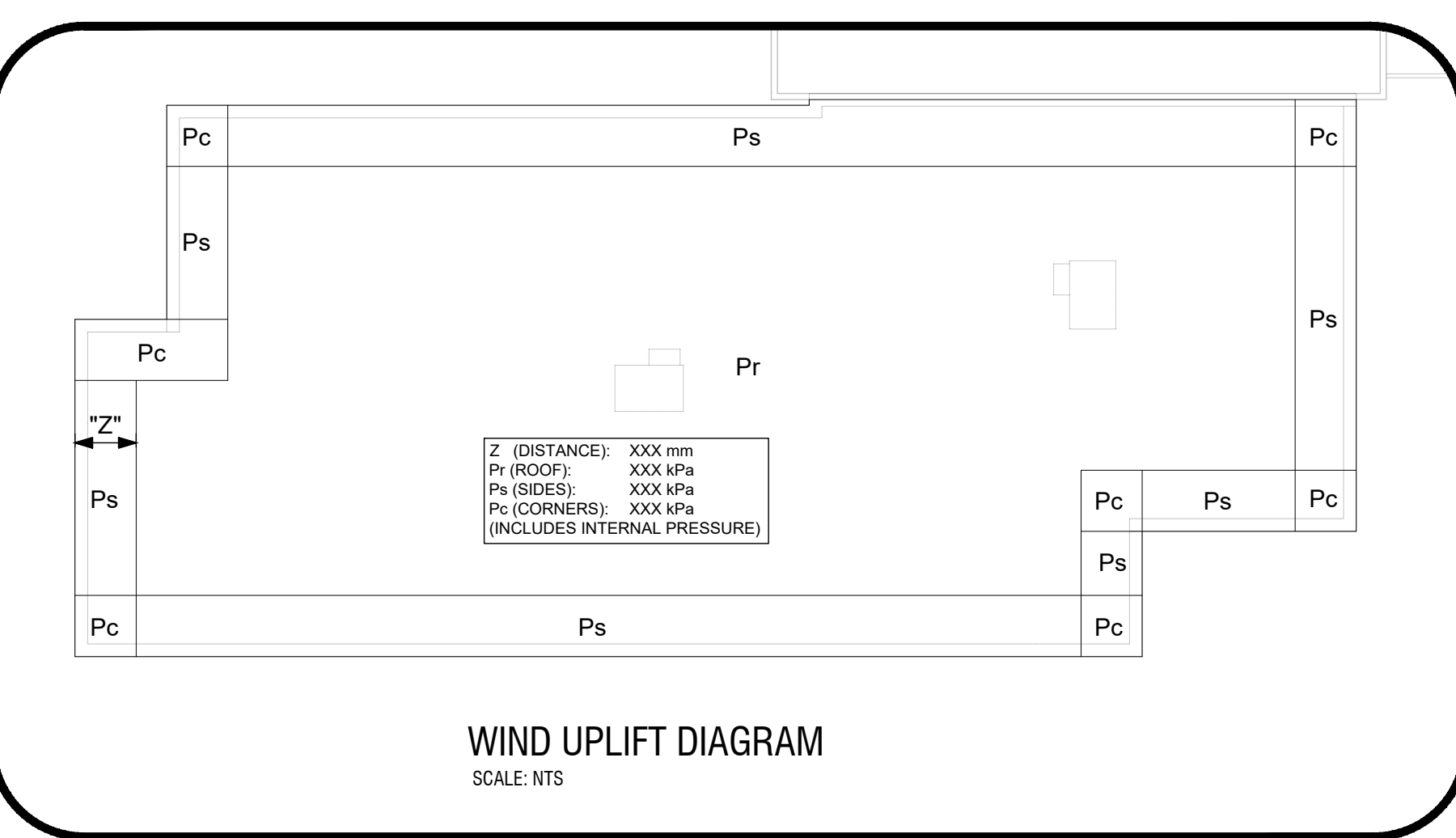
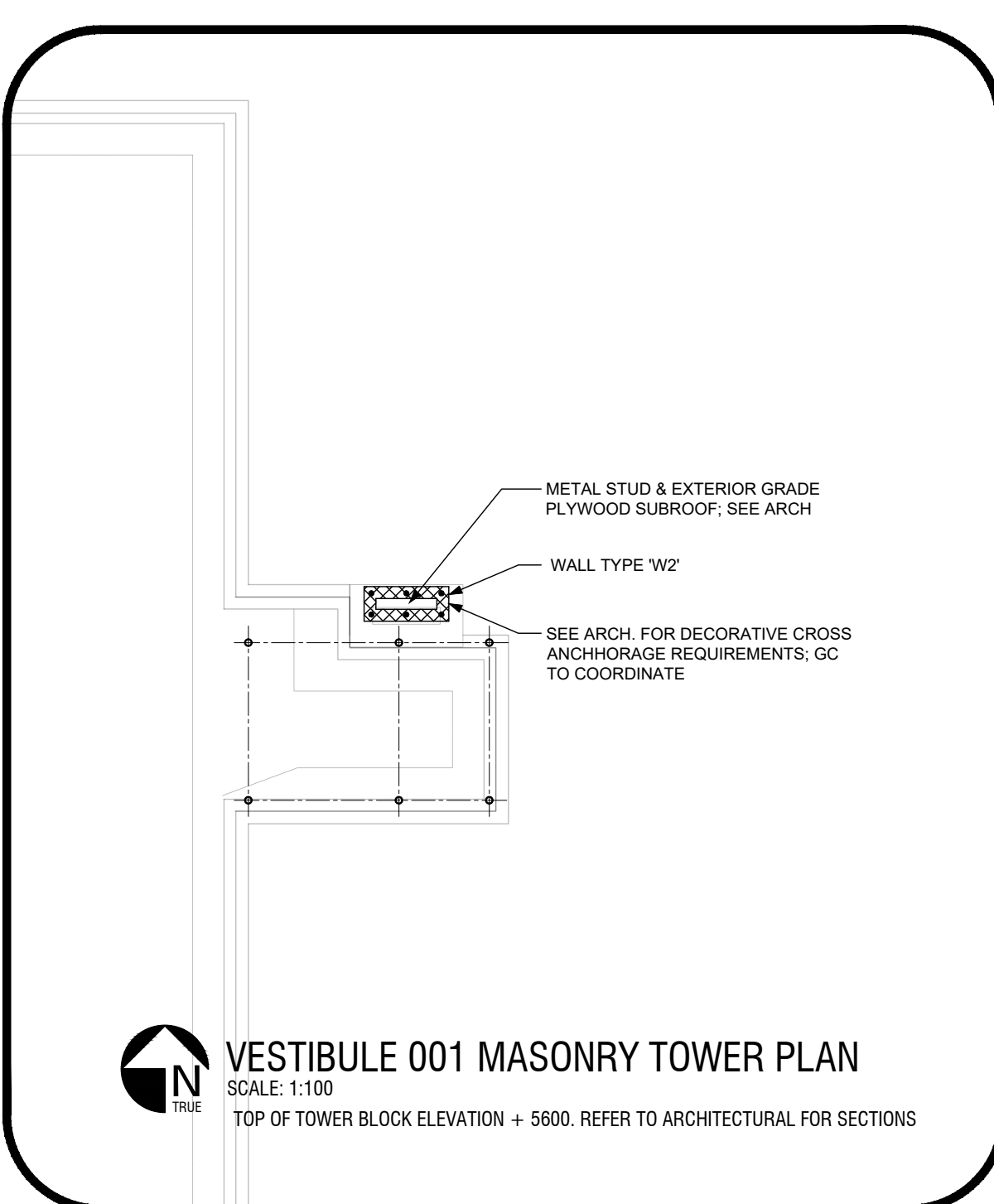
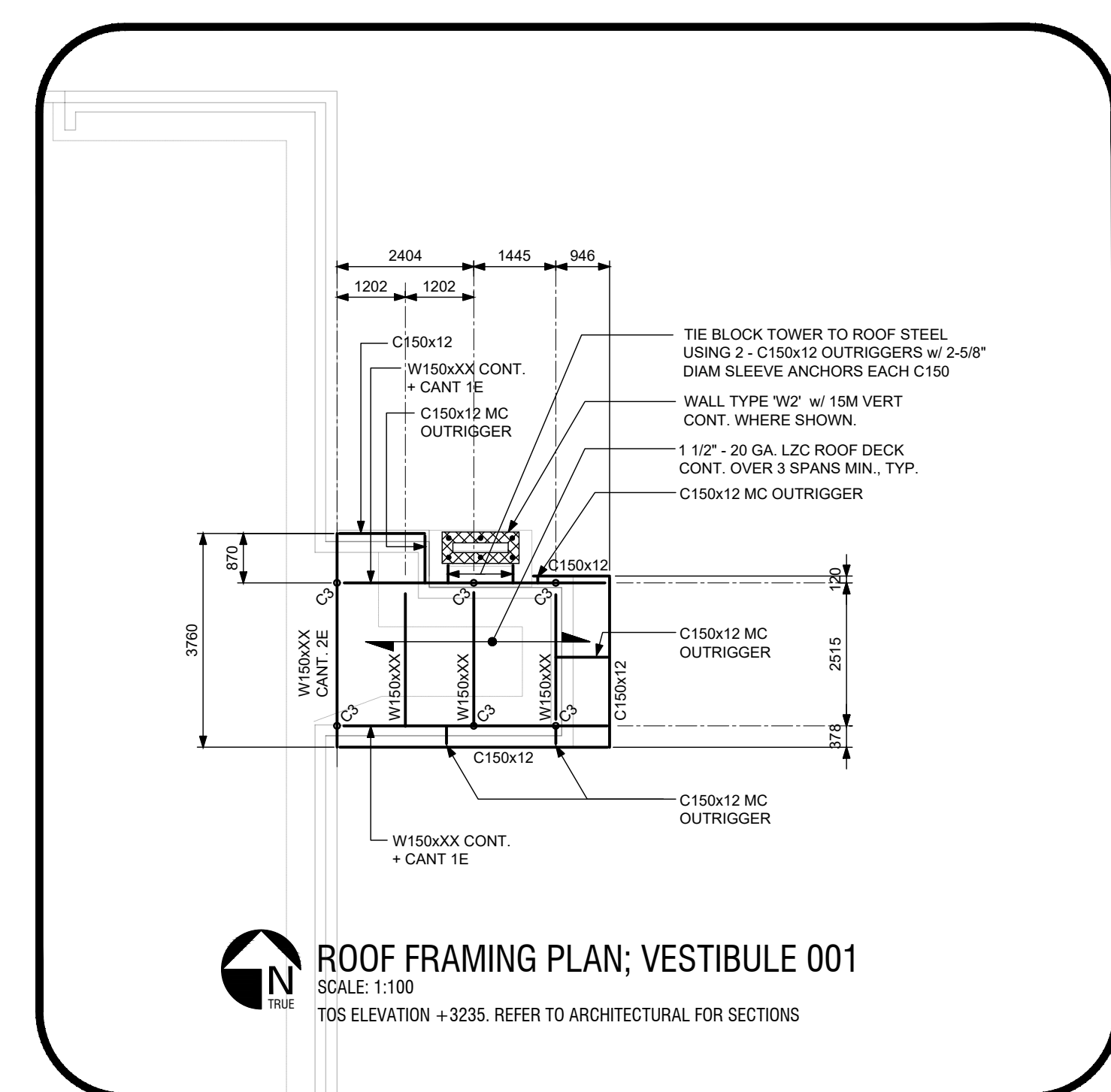
Table with 2 columns: No., Issued for Description, Date. Contains 5 rows of project milestones.

CLIENT:
Waterloo Catholic District School Board
480 Dutton Drive,
Waterloo, ON N2L 4C6

PROJECT TITLE:
St. Gregory Catholic Elementary School Addition and Renovations
34 Osborn St.
Cambridge, ON N1S 3H1

DRAWING TITLE:
ROOF FRAMING PLAN

DATE: 2026-03-02
DRAWN BY: SAS
SCALE: AS NOTED
PROJECT NO: 25-106
ALSO PROJECT NO: 8983
DRAWING NO: S-400



ROOF FRAMING NOTES:

- 1. REFER TO THE STRUCTURAL NOTES ON S100 AND THE SPECIFICATION FOR ADDITIONAL INFORMATION, TYP.
2. ROOF DESIGN LOADS NOTE: THE ROOF IS DESIGNED TO BE A FUTURE SECOND FLOOR.
LIVE LOADS: CLASSROOMS (NON-HATCHED AREAS) 2.4 kPa, CORRIDORS (HATCHED AREAS) 4.8 kPa.
DEAD LOADS: 203 PRECAST HOLLOW CORE w/ 50 mm TOPPING 4.2 kPa, SUPERIMPOSED DEAD LOADS 1.0 kPa.
3. ALLOWABLE LIVE LOAD DEFLECTION = L/80.
4. TYPICAL ROOF CONSTRUCTION: ROOF SYSTEM AS SPECIFIED (SEE ARCH) ON 203 PRECAST HOLLOW CORE SLABS w/ 50 mm TOPPING.
5. PRECAST CONCRETE HOLLOW CORE SLABS SHALL HAVE 10M x 400 mm LG. (9x250x75) ANTI-ROTATION BARS AT 180 mm O.C. TYP.
6. PRECAST SLAB CONTRACTOR SHALL DESIGN AND PROVIDE ALL STEEL HANGERS REQUIRED TO SUPPORT OUT SLABS AT OPENINGS AS REQUIRED, TYP.
7. THE GENERAL CONTRACTOR SHALL PROVIDE DRY PACK GROUT BELOW ROOF SLAB EDGE & BALCONY CAMELS AND SLAB WERE SPECIFIED IN THE STRUCTURAL SECTION FOR DETAILS. GROUT SHALL BE CURED PRIOR TO CONSTRUCTING BEARING WALLS ABOVE TYP.

PRECAST HOLLOW CORE NOTES:

- 1. PRECAST PRE-STRESSED HOLLOW CORE SLABS TO BE DESIGNED IN ACCORDANCE WITH CSA SPECIFICATIONS CSA-A23.3 LATEST EDITION.
2. PRECAST PRE-STRESSED HOLLOW CORE SLAB SUPPLIER TO SUBMIT SHOP DRAWINGS FULLY COORDINATED WITH MECHANICAL FOR REVIEW BY CONSULTANT TEAM. SHOP DRAWINGS SHALL BE STAMPED BY A LICENSED PROFESSIONAL ENGINEER INDICATING ALL DESIGN LOADING CRITERIA.
3. PROVIDE A MINIMUM OF ONE ADDITIONAL HIGH-STRENGTH STEEL STRAND ABOVE THE MINIMUM OBC DESIGN REQUIREMENTS INDICATED ON THE STRUCTURAL DRAWINGS.
4. COORDINATE WITH ALL OTHER RELEVANT TRADES REGARDING OPENINGS, SLEEVES, DAMPERS, REINFORCING STEEL, ANCHORS, INSERTS ETC.
5. PROVIDE LEVEL SURFACES AT BEARING WALLS C/W COORDINATED CONNECTIONS.
6. GROUT KEYS TO BE GROUTED SOLID FULL LENGTH, TYP.
7. PROVIDE ENGINEERED SLAB HANGERS AS REQUIRED AT OPENINGS.
8. GROUT ENDS OR HOLLOW CORE AT ALL HVAC FLOOR OPENINGS FOR A MINIMUM LENGTH OF 1/2' TYP.
9. STYRENE PLUGS TO BE INSTALLED ON OPEN ENDS OF PRECAST, TYP.
10. PROVIDER CONTINUOUS BEARING PADS AT ALL ENDS OF HOLLOW CORE PLANKS, TYP.
11. HOLLOW CORE SUPPLIER TO PROVIDE A GENERAL REVIEW LETTER STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER FOR THE HOLLOW CORE SLAB INSTALLATION.
12. CONNECT PRECAST HOLLOW CORE SLABS TO STRUCTURE AS SPECIFIED IN SECTIONS AND DETAILS ON THE STRUCTURAL DRAWINGS.
13. THE GENERAL CONTRACTOR SHALL COORDINATE, SUPPLY & INSTALL STEEL SHIMS AND SPRING GROUT W/ELL BELOW ALL FLANK CAMBERS, GAPS AND WHERE INDICATED ON THE STRUCTURAL SECTIONS, TYP.

IMPORTANT TYPICAL NOTES:

- 1. COORDINATE W/ ARCH. & MECH. DRAWINGS FOR SIZE & LOCATION OF ALL OPENINGS & PENETRATIONS IN WALLS & SLABS.
2. REFER TO PRECAST CONC. DWGS FOR ALL PRECAST ELEMENTS INCLUDING PRECAST CONNECTIONS, HANGING, DETAILS, ETC.
3. COORDINATE ALL ELEVATIONS OF PRECAST SLABS W/ ARCH.
4. COORDINATE ALL EDGES OF PRECAST SLABS W/ ARCH.