GENERAL NOTES

1. IN THE CASE OF DISCREPANCIES BETWEEN THE GENERAL NOTES, THE PLANS AND THE SPECIFICATIONS, THE CONTRACTOR SHALL RESPECT THE MOST RESTRICTIVE REQUIREMENTS.
2. NO DIMENSIONS ARE TO BE MEASURED ON THE PLANS, EVEN IF THEY ARE TO SCALE.
3. FOR CONSTRUCTION WORK, THE CONTRACTOR MUST HAVE AND USE A COPY OF THE PLANS ISSUED "FOR CONSTRUCTION", SIGNED AND STAMPED BY THE ENGINEER. AT THE START OF WORK, THE VERSION OF THE PLANS ISSUED FOR CONSTRUCTION SHALL NOT DATE BACK MORE THAN SIX (6) MONTHS.
4. THE CONTRACTOR SHALL SUPPLY ALL THE MATERIALS, TOOLS AND WORKFORCE REQUIRED TO COMPLETE THE WORKS SHOWN ON THE PLANS TO THE SATISFACTION OF THE ENGINEER, THE ARCHITECT AND THE CLIENT.
5. IT IS FORBIDDEN TO UNDERTAKE WORKS FOR WHICH THE SHOP DRAWINGS, SAMPLES AND PRODUCT DESCRIPTIONS HAVE NOT BEEN MODIFIED ACCORDING TO THE ENGINEERS COMMENTS.
6. THE CONTRACTOR SHALL EXECUTE ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS STIPULATED IN THE CURRENT VERSIONS OF THE 2012 ONTARIO BUILDING CODE AND THE NATIONAL BUILDING CODE (NBCC 2015).
7. AT ALL TIMES, RESPECT 2010 REGULATIONS ON CONSTRUCTION SITE SAFETY, OHSA AND OTHER APPLICABLE STANDARDS AND LAWS.
8. THE CONTRACTOR SHALL COORDINATE THESE PLANS WITH ARCHITECTURAL PLANS, CIVIL PLANS, MECHANICAL PLANS, ELECTRICAL PLANS AND ALL OTHER PLANS ISSUED FOR THESE WORKS. ALL INCONSISTENCIES MUST BE REPORTED TO THE ENGINEER DURING THE TENDER PERIOD AND BEFORE EXECUTION OF WORKS.
9. DURING THE TENDER PERIOD AND BEFORE THE START OF THE PROJECT, THE CONTRACTOR SHALL BE ENTIRELY REPSONSIBLE FOR CONFIRMING ON SITE, WITH THESE PLANS AND THOSE OF ALL OTHER DISCIPLINES, THE ELEVATIONS AND DIMENSIONS, SITE ACCESS CONDITIONS, SITE CONGESTION, CLIENT REQUIREMENTS AND ALL OTHER INFORMATION THAT MAY BE USEFUL TO HIM. HE MUST NOTIFY THE ENGINEER OF ALL DIMENSIONS OR ELEVATIONS THAT ARE INCONSISTENT WITH THE STRUCTURAL PLANS OR ALL OTHER DISCREPANCIES OR OMISSIONS WITH THE ARCHITECTURAL PLANS. WAIT FOR INSTRUCTIONS. PARTICULAR ATTENTION SHOULD BE GIVEN TO DIFFERENCES IN LEVEL AND RECESSES IN CONCRETE WALLS.
10. COORDINATE ALL WORK WITH THE CLIENT AS WELL AS WITH ALL USERS. THE CONTRACTOR SHALL ENSURE THE SAFETY OF THE RESIDENTS, THE PUBLIC AND THE WORKERS DURING THE COMPLETION OF WORK.
11. THE CONTRACTOR SHALL PRECISELY LOCATE THE BUILDING AND ESTABLISH ALL BENCHMARKS REQUIRED FOR CONSTRUCTION WORK. REFER TO ARCHITECTURAL PLANS AND SURVEYOR PLANS FOR SITE LAYOUT. DO NOT USE STRUCTURAL PLANS FOR SITE LAYOUT.
12. THE CONTRACTOR MUST REVIEW AND CONFIRM THE LOCATIONS OF ALL EXISTING PUBLIC UTILITY SERVICES (SEWERLINES, WATERLINES, ELECTRICITY, TELEPHONE, GAS, ETC.) AS WELL AS ALL EXISTING STRUCTURES AND INFRASTRUCTURE. THESE WORKS ARE NOT SHOWN ON THE STRUCTURAL PLANS. THE CONTRACTOR IS THEREFORE SOLELY RESPONSIBLE FOR LOCATING ALL SERVICES THAT HIS WORK MAY AFFECT AND IS ENTIRELY RESPONSIBLE FOR ALL DAMAGES THAT MAY OCCUR TO THEM.
13. THE CONTRACTOR IS RESPONSIBLE FOR GETTING RID OF ALL WASTE. THE CONTRACTOR SHALL MAINTAIN A CLEAN WORKSITE FREE OF OBSTRUCTIONS.
14. THE CONTRACTOR SHALL PROVIDE STORAGE AREAS AND SECURE WORK AREAS DURING THE COMPLETION OF CONSTRUCTION WORK.
15. THE PLANS SHOW ONLY THE COMPLETED STRUCTURE. THEY DO NOT SHOW TEMPORARY WORKS FOR WHICH THE CONTRACTOR IS RESPONSIBLE AND THAT MAY BE REQUIRED FOR THE COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEMPORARY SUPPORTS DURING THE COMPLETION OF ALL WORKS.
16. STRUCTURAL ELEMENTS ARE DESIGNED FOR LOADS APPLIED ON THE COMPLETED STRUCTURE AND MUST NOT BE USED FOR TEMPORARY SUPPORTS OR BRACING DURING THE ERECTION OF THE STRUCTURE, EXCEPT IF THEY HAVE BEEN EXAMINED AND APPROVED BY THE CONTRACTOR'S ENGINEER, RESPONSIBLE FOR ASSEMBLY PROCEDURES.
17. SOIL CAPACITY : 100 kPa / 150 kPa
18. CONTRACTOR SHALL PERFORM WORK AS PER THE MOST RESTRICTIVE CONDITIONS BETWEEN THE INDICATIONS ON STRUCTURAL & CIVIL DRAWINGS & SPEC AND THE RECOMMANDATIONS INDICATED ON GEOTECHNICAL(S) REPORT(S). CONTRACTOR SHALL NOT PRESENT ADDITIONAL FEES FOR EXECUTION OF WORKS.
19. EXTERIOR WALL FOOTINGS SHALL BE PLACED AT LEAST 1800mm MIN. (U.N.O.) BELOW THE FINISHED EXTERIOR GROUND LEVEL.
20. STRUCTURAL ELEMENTS AND THE SOIL SHALL BE PROTECTED FROM FREEZING AT ALL TIMES.
21. LOADS : SEE PLANS.
22. DURING WORK, LOADS SHALL NOT EXCEED THE DESIGN LOADS SHOWN ON THE PLANS. MAXIMUM DESIGN LOADS MAY ONLY BE APPLIED ONCE THE CONCRETE HAS ACHIEVED 100% OF ITS RESISTANCE.
23. SEISMIC FACTORS (DESIGN CODE : OBC 2012):
    -REFER TO SEISMIC LOAD TABLE
24. WIND FACTORS :
    - REFERENCE WIND VELOCITY PRESSURES : q (1/50) = 0.41 kPa
    - UPLIFT: 1 KPa
    - WIND RISK COEFFICIENT (I W) = 1.0
25. SNOW FACTORS :
    - SNOW LOAD (1/50), Ss = 2.40 kPa
    - SNOW LOAD (1/50), Sr = 0.4 kPa
26. RAIN FACTORS :
    - ONE DAY RAIN (1/50), 150mm
27. THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION BOUNDARIES REQUIRED TO COMPLETE WORK. THE CONTRACTOR MUST PROVIDE FOR THE RESURFACING AND RESTORATION OF AFFECTED SECTORS.
28. THE CONTRACTOR SHALL ENSURE THAT ALL WORK IS COMPLETED WITHIN THE LOT LINES.
29. THE CONTRACTOR MUST PERFORM ALL EXCAVATIONS REQUIRED FOR THE COMPLETION OF THE PROJECT. DURING THESE OPERATIONS, HE MAY NOT REWORK THE SOIL AT THE BOTTOM OF EXCAVATIONS. THE CONTRACTOR SHALL KEEP TRENCHES DRY WITH THE USE OF AN ADEQUATE PUMPING SYSTEM.
30. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY AND THE SHORING/TEMPORARY SUPPORT OF NEW AND EXISTING STRUCTURES AND SOIL STABILITY AT ALL TIMES DURING THE COMPLETION OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE REQUIRED TEMPORARY SUPPORTS AND DETERMINING THEIR EXTENT BASED ON THEIR WORK METHODS AND SCHEDULING. TEMPORARY SUPPORTS MUST BE DESIGNED TO SUPPORT EARTH PRESSURES, CONSTRUCTION LOADS, EXISTING BUILDING LOADS, AND ALL OTHER RELEVANT LOADS. IN ADDITION TO THE TEMPORARY WORKS PLAN REQUIRED FOR TEMPORARY SUPPORTS, THE CONTRACTOR MUST PROVIDE A CONSTRUCTION WORK PROCEDURE AND A DISMANTLING WORK PROCEDURE. ALL OF THESE DOCUMENTS MUST BE SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO, MUST BE IN ACCORDANCE WITH THE APPLICABLE STANDARDS IN FORCE, BE KEPT ON SITE AND BE SENT TO US FOR THE PROJECT FOLDER.
31. THE CONTRACTOR SHALL INSTALL TEMPORARY SUPPORTS FOR NEW AND EXISTING STRUCTURES AND EQUIPMENTS, AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE EQUIPMENTS AND STRUCTURES AND SHALL AVOID DAMAGING THEM. NECESSARY REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE.
32. THE CONTRACTOR SHALL NOT BACKFILL FOUNDATION WALLS BEFORE ALL STABILIZING ELEMENTS ARE IN PLACE.
33. WHERE THERE IS PLUMBING, THE FOOTING LEVEL SHALL BE LOW ENOUGH TO AVOID INTERFERENCE WITH PLUMBING. PROVIDE TRENCHES FOR MECH./ELEC. SERVICES, AS REQUIRED. REFER TO MECH./ELEC. PLANS FOR SERVICE LOCATIONS.
34. REFER TO THE ARCHITECTURAL PLANS AND SPECIFICATIONS FOR THE REQUIRED FIRE RESISTANCE RATING, SPRAYED FIREPROOFING, INTUMESCENT PAINT AND ALL OTHER NECESSARY MEASURES TO ATTAIN IT. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR WATERPROOFING, SEALANTS, ETC.
35. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL PLANS FOR THE LOCATIONS OF PITS, SUMPS, TRENCHES, DEPRESSIONS, GROOVES, CURBS AND SLOPES THAT ARE NOT SHOWN ON THE STRUCTURAL PLANS.
36. OPENINGS AND SLEEVES IN NEW OR EXISTING STRUCTURES ARE PARTIALLY SHOWN ON THE STRUCTURAL PLANS. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL PLANS FOR THE QUANTITY, DIMENSIONS AND LOCATIONS. ALL OPENINGS AND SLEEVES IN FLOORS, ROOFS, WALLS AND STRUCTURAL ELEMENTS MUST BE APPROVED IN WRITING IN ADVANCE BY THE STRUCTURAL ENGINEER.
37. WINDOW LIFTING ANCHORS AND LIFELINES MUST BE IN ACCORDANCE WITH THE NBCC 2015 (LATEST EDITION). THE CONTRACTOR MUST PROVIDE FOR ENGINEERING PLANS (LAYOUT, DESIGN AND STRUCTURE REINFORCEMENT) SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO.
38. GUARDRAILS, STEEL STAIRS, CURTAIN WALLS AND METALLIC STUDS MUST BE IN ACCORDANCE WITH THE NBCC 2015 (LATEST EDITION). THE CONTRACTOR MUST PROVIDE ENGINEERING PLANS SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO.
39. CURTAIN WALLS MUST BE IN ACCORDANCE WITH THE NBCC 2015. FOR ALL CURTAIN WALLS, THE CONTRACTOR MUST PROVIDE THE VERIFICATION, DESIGN, SUPPLY AND INSTALLATION OF ALL REQUIRED ELEMENTS (INCLUDING ANCHOR PLATES) FOR GRAVITY AND LATERAL SUPPORTS, INDICATED OR NOT ON THE STRUCTURAL AND ARCHITECTURAL PLANS. PROVIDE LATERAL SUPPORTS AT EACH STOREY. FOR CURTAIN WALLS SUPPORTED BY ELEMENTS OTHER THAN FOUNDATION WALLS, PROVIDE GRAVITY SUPPORTS AT EACH STOREY. PROVIDE FOR ADJUSTMENTS, MODIFICATIONS AND REINFORCEMENTS, IF NEEDED, OF INDICATED ELEMENTS OR ADDITIONAL REQUIRED ELEMENTS. REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION. THE CONTRACTOR MUST PROVIDE ENGINEERING PLANS SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO.

CONCRETE NOTES

1. ALL CONCRETE WORK MUST BE DESIGNED AND PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE CAN/CSA-A23.1/A23.2/A23.3/A23.4 STANDARDS.
2. CONCRETE IS SPECIFIED BY VARIANT 1 - PERFORMANCE-BASED PROCEDURE, AS INDICATED IN THE CSA A23.1 STANDARD. THE CONTRACTOR AND CONCRETE SUPPLIER MUST MEET ALL CERTIFICATION, DOCUMENTATION AND QUALITY CONTROL REQUIREMENTS.
3. THE CONTRACTOR AND CONCRETE SUPPLIER MUST ENSURE THAT THE WET CONCRETE PROPERTIES AND CURED CONCRETE PROPERTIES MEET THE SITE REQUIREMENTS FOR HANDLING, PLACING AND FINISHING, WHILE ALSO MEETING THE INDICATED PERFORMANCE REQUIREMENTS.
4. THE CONCRETE SUPPLIER MUST BE ACCREDITED BY THE PROVINCIAL CONCRETE ASSOCIATION.
5. CONCRETE : 28-DAY COMPRESSIVE RESISTANCE f'_C AND EXPOSURE CLASS (U.N.O.):
    - TYPICAL (U.N.O.) : 25 MPa, EXPOSURE N
    - FOOTINGS, SLABS ON GRADE AND SLABS ON DECK : 25 MPa, EXPOSURE N
    - PARKING SLABS ON GRADE : 30 MPa, EXPOSURE C-4
    - FOUNDATION WALLS AND PIERS : 25 MPa, EXPOSURE F-2
    - INTERIOR COLUMNS AND SHEAR WALLS : 30 MPa, EXPOSURE N
    - EXTERIOR OR PARKING COLUMNS AND SHEAR WALLS : 35 MPa, EXPOSURE C-1
    - INTERIOR STRUCTURAL SLABS, BEAMS AND STAIRS : 30 MPa MIN. (23 MPa AT 3 DAYS), EXPOSURE N
    - EXTERIOR OR PARKING STRUCTURAL SLABS, BEAMS AND STAIRS AND BALCONIES ALL LEVELS : 35 MPa MIN. (26 MPa AT 3 DAYS), EXPOSURE C-1
    - ALL EXTERIOR ELEMENTS (PIERS, COLUMNS, WALLS, RETAINING WALLS, SLABS, RAMPS, STAIRS, CURBS, SIDEWALKS, ETC.) : 35 MPa EXPOSURE C-1
    - FOR STRUCTURAL SLABS WITH MECHANICAL CONDUITS, PROVIDE THE ADDITION OF SUPERPLASTICIZER IN THE CONCRETE AND A SLUMP OF 150±30mm.
    - FOR SLABS ON DECK, PROVIDE COARSE AGGREGATE 5mm-14mm IN THE CONCRETE.
6. REINFORCING STEEL :
    - REINFORCING BAR (REBAR) : CAN/CSA-G30.18, GRADE 400R EXCEPT GALVANIZED REBAR OR WELDED REBAR GRADE 400W.
    - WELDED WIRE MESH : ASTM A1064/A1064M LATEST EDITION, DELIVERED IN SHEETS ONLY, NO ROLLS.
7. CONCRETE COVER FOR REBAR (U.N.O.) :
    - FOOTINGS : 75mm BOTTOM & SIDES, 50mm TOP
    - FOUNDATION WALLS : 50mm
    - PIERS AND PILASTERS : 38mm
    - EXTERIOR STRUCTURAL SLAB-ON-GRADE: 38mm TOP, BOTTOM AND SIDES
8. SHOP DRAWINGS :
    THE CONTRACTOR SHALL PROVIDE, FOR REVIEW, TWO (2) HARD COPIES AND ONE (1) ELECTRONIC COPY OF THE REINFORCMENT SHOP DRAWINGS TO THE ENGINEER AT LEAST 14 DAYS BEFORE ALL POURS.
9. EPOXY ADHESIVE :
    USE "EPCON A7+" BY "ITW REDHEAD" EPOXY ADHESIVE OR APPROVED EQUIVALENT (U.N.O.) TO BE INSTALLED ACCORDING TO ALL PRODUCT MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
10. NON-SHRINK GROUT :
    IN ACCORDANCE WITH CAN/CSA-A23.1/A23.2 STANDARDS AND HAVING A 28-DAY COMPRESSIVE RESISTANCE OF AT LEAST 50 MPa.
11. ALL FORMWORK MUST BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE CAN/CSA-A23.1/A23.2/A23.3/A23.4 STANDARDS.
12. EXPOSED CONCRETE :
    FORMWORK USED FOR EXPOSED CONCRETE MUST BE NEW; CORNERS AND EDGES MUST BE INTACT AND THE SURFACE MUST BE SMOOTH. FORMWORK THAT LEAVES CONCRETE PROTRUSIONS SHALL NOT BE ACCEPTED (EX. DURAFORM). VERTICAL FORMWORK PANELS MUST BE CONNECTED ONE TO ANOTHER THROUGH THE MEANS OF METAL TIES COMPLETE WITH PLASTIC CONES AT EACH END. SURFACES OF THE FORMWORK MUST BE TREATED WITH A RELEASE AGENT BEFORE INSTALLATION, THE RELEASE AGENT SHALL NOT COME IN CONTACT WITH REINFORCING BARS. JOINTS, ROUGH EDGES AND BURRS SHALL BE CAREFULLY GRINDED. CORRECT ALL DEFICIENCIES ON EXPOSED SURFACES AFTER STRIPPING FORMWORK. HOLES LEFT BY PLASTIC TIE CONES SHALL BE FILLED WITH 'SIKATOP 123 PLUS' BY 'SIKA' TYPE MORTAR. CONCRETE SURFACES SHALL BE CLEANED.

    EXPOSED CONCRETE, SPECIAL FINISH :

    REFER TO ARCHITECTURE FOR SPECIFICATIONS OF EXPOSED CONCRETE WITH SPECIAL FINISH AND REFER TO ARCHITECTURE FOR QUANTITIES, DIMENSIONS AND LOCATIONS.
13. FORMWORK FOR INTERIOR AND EXTERIOR EXPOSED CIRCULAR COLUMNS SHALL HAVE A PLASTIC LINER.
14. ALL EXPOSED CONCRETE ANGLES MUST HAVE A 25mm CHAMFER.
15. THE FORMWORK SUBCONTRACTOR INSTALLING ANCHOR BOLTS AND ANCHOR PLATES IS RESPONSIBLE FOR PROVIDING THE REQUISITE CERTIFICATION FOR INSTALLING ANCHOR BOLTS ACCORDING TO THE ANCHOR PLAN AND CONFIRMING THE CONCRETE RESISTANCE IN ACCORDANCE WITH THE OHSA REQUIREMENTS. THE CERTIFICATE MUST BE SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. THE SUBCONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING DETAILS AND A NEW CERTIFICATE (SIGNED AND SEALED) AFTER ANY MODIFICATIONS OR REPAIRS TO THE ANCHOR BOLTS AND/OR THE CONCRETE.
16. THE CONTRACTOR SHALL INSTALL ANCHOR BOLT TEMPLATES IN THE FORMWORK.
17. OPENINGS AND SLEEVES IN NEW OR EXISTING STRUCTURES ARE PARTIALLY SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR THE QUANTITIES, DIMENSIONS AND LOCATIONS. ALL OPENINGS AND SLEEVES IN FLOORS, ROOFS, WALLS AND STRUCTURAL ELEMENTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER BEFORE BEING INSTALLED OR PERFORMED. PROVIDE OPENING AND SLEEVE LAYOUT PLANS FOR ENGINEER'S REVIEW.
18. FOUNDATIONS AND CONCRETE WALLS :
    - OPENINGS IN CONCRETE WALLS :
        - o PROVIDE ADDITIONAL REINFORCEMENT AROUND ALL OPENINGS, REFER TO TYPICAL DETAIL.
        - o OPENINGS AND SLEEVES ARE NOT NECESSARILY SHOWN ON THE STRUCTURAL DRAWINGS, REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR QUANTITIES, DIMENSIONS AND LOCATIONS.
    - PROVIDE CORNER BARS AT ALL JOINTS AND CORNERS OF WALL, REFER TO TYPICAL DETAIL.
    - FOUNDATION WALL CONTROL JOINTS AND CONSTRUCTION JOINTS:
        - o PROVIDE VERTICAL CONSTRUCTION JOINTS AT 30m MAXIMUM.
        - o PROVIDE CONTROL JOINTS AT 7.5m MAXIMUM. POSITION THE FIRST JOINT AT 4.5m FROM ALL CORNERS.
        - o HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE WALLS ARE NOT PERMITTED, WITH THE EXCEPTION OF THOSE BENEATH SLABS AND THOSE SHOWN ON DRAWINGS.
19. SLAB ON GRADE :
    - SLAB ON GRADE CONTROL JOINTS AND CONSTRUCTION JOINTS :
        - o PROVIDE SAW CUT CONTROL JOINTS WITHIN 6 TO 18 HOURS AFTER THE POURING OF THE SLAB. THE SPACING OF CONTROL JOINTS MUST NOT SURPASS 25 TIMES THE THICKNESS OF THE SLAB AND BE MAXIMUM 5m (5m x 5m PANELS MAXIMUM). THE SAW CUT JOINTS SHALL BE 5mm WIDE BY 25mm DEEP c/w APPROVED JOINT FILLER. REFER TO SPECIFICATIONS AND TYPICAL DETAILS. WHEN SAW CUTS ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL SUBMIT A SAW CUT PATTERN FOR APPROVAL BY THE ENGINEER AND ARCHITECT.
        - o DO NOT PERFORM CONTROL JOINTS IN STRUCTURAL SLABS ON GRADE; PROVIDE CONSTRUCTION JOINTS AS SPECIFIED ON DRAWINGS.
        - o PROVIDE CONSTRUCTION JOINTS AT 30m MAXIMUM, IN BOTH DIRECTIONS.
    - TOLERANCE FOR SLAB ON GRADE SURFACES SHALL BE IN ACCORDANCE WITH CLASS 'A' OF THE 'F' NUMBERS METHOD FROM THE LATEST EDITIONS OF THE CSA-A23.1/A23.2 STANDARDS, UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR SURFACE PREPARATIONS, FINISHES AND ADDITIONAL INFORMATION.
20. MASONRY WALLS :
    PROVIDE 15M x 900lg. DOWELS @ 600c/c BELOW ALL MASONRY WALLS. REFER TO ARCHITECTURAL DRAWINGS FOR QUANTITIES AND LOCATIONS.
21. PROVIDE JOINTS WHEN SPECIFIED OR INDICATED ON THE DRAWINGS. POSITION IN SUCH A WAY AS TO NOT ALTER THE RESISTANCE OF THE STRUCTURE. SUBMIT A JOINT LAYOUT DRAWING FOR REVIEW AT LEAST 2 WEEKS BEFORE CONCRETE POUR.
22. UNLESS NOTED OTHERWISE, PROVIDE CONTINUOUS 38 x 89 (2x4) KEYS AT ALL CONSTRUCTION JOINTS. CENTER ON JOINTS AND ON SIDES OF CHAMFERS.
23. PROVIDE 150mm WATERSTOP AT CONSTRUCTION JOINTS WHEN THE GROUND LEVEL IS HIGHER THAN THE FLOOR SLAB LEVEL.
24. FOR SUMPS WITH AN OPENING NOT SURPASSING 1220x1220mm, USE 150mm WALLS, 200mm BOTTOM SLAB AND 10M REINFORCEMENT @ 200c/c CENTERED BOTH DIRECTIONS, REFER TO TYPICAL DETAIL. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR QUANTITIES AND LOCATIONS.
25. ALL HOUSEKEEPING PADS ANS BASES SHALL BE CONNECTED TO THE SLABS (ON GRADE, ON DECK OR STRUCTURAL) WITH 10M x 250lg. @ 450c/c DOWELS BOTH DIRECTIONS (PROVIDE EPOXY ADHESIVE IF NOT MONOLITHIC) c/w WWM 152x152-18.7/18.7 (IN SHEETS) CENTERED TYP. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR QUANTITIES, DIMENSIONS AND LOCATIONS, NOT SHOWN ON STRUCTURAL DRAWINGS. REFER TO TYPICAL DETAILS.
26. PROVIDE CURBS AROUND ALL OPENINGS AND SLEEVES WHERE REQUIRED IN SLABS (ON GRADE, ON DECK OR STRUCTURAL), 100x100mm CURB c/w CONTINUOUS 1-10M + 10M x 200lg. DOWELS @ 400c/c (PROVIDE EPOXY ADHESIVE IF NOT MONOLITHIC) TYP. U.N.O., REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR QUANTITIES, DIMENSIONS AND LOCATIONS NOT SHOWN ON STRUCTURAL DRAWINGS. REFER TO TYPICAL DETAIL.
27. PROVIDE DEPRESSIONS IN THE CONCRETE SLAB FOR GRATINGS, IF REQUIRED. REFER TO ARCHITECTURAL DRAWINGS FOR QUANTITIES, DIMENSIONS, LOCATIONS AND ADDITIONAL INFORMATION.
28. PROVIDE SUFFICIENTLY LARGE POCKETS AT STEEL COLUMNS TO ALLOW FOR THE INSTALLATION OF BRACING GUSSET PLATES.
29. STEEL COLUMN AND BRACING BASES THAT ARE BELOW THE FINISHED ELEVATION OF THE SLAB ON GRADE SHALL BE CAST IN THE CONCRETE AND SHALL NOT BE IN CONTACT WITH THE BACKFILL.
30. PROVIDE DEPRESSIONS AND/OR POCKETS IN THE CONCRETE FOR ELEVATORS AND LIFTING BEAMS. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATOR SUPPLIER FOR QUANTITIES, DIMENSIONS, LOCATIONS AND ADDITIONAL INFORMATION.
31. PROVIDE ANCHOR PLATES, LINTELS, LATERAL SUPPORTS AND ELEMENTS FOR CURTAIN WALL AND PRECAST CONCRETE PANELS, REFER TO PLAN FOR LOCATIONS, REFER TO ARCHITECTURAL DRAWINGS AND SUPPLIERS FOR LENGTHS, ELEVATIONS AND ADDITIONAL INFORMATION.
32. IT IS STRICTLY PROHIBITED TO ADD WATER TO CONCRETE, NEITHER ON SITE NOR IN THE CONCRETE MIXING TRUCK. CONCRETE THAT HAS BEEN SITTING IN THE MIXING TRUCK (FROM FACTORY UNTIL TIME OF POUR) OR MIXING DRUM FOR MORE THAN TWO HOURS SHALL BE REJECTED.
33. ALL CONCRETE MUST BE VIBRATED.
34. DO NOT USE A STEEL TROWEL TO SMOOTH AIR-ENTRAINED CONCRETE.
35. PROTECT CONCRETE AGAINST FREEZING. DO NOT POUR CONCRETE ON FROZEN SOIL. USE COLD WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1 STANDARD.
36. PROTECT CONCRETE AGAINST EXCESSIVE HEAT AND DRYING. USE HOT WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1 STANDARD.
37. THE CONTRACTOR MUST OBTAIN THE ENGINEER'S AUTHORIZATION BEFORE POURING CONCRETE. IN ADDITION, HE MUST NOTIFY THE ENGINEER A MINIMUM OF 24 HOURS IN ADVANCE BEFORE ANY CONCRETE POUR.
38. THE CONTRACTOR MUST MAINTAIN ACCESS TO WORKS TO ALLOW FOR THE ENGINEER'S REBAR INSPECTIONS BEFORE CLOSING THE FORMWORK.

EXCAVATION AND FILL NOTES

1. BEFORE BEGINNING EXCAVATION WORK, THE CONTRACTOR SHALL CONSULT THE GEOTECHNICAL REPORT AND ALL GENERAL NOTES.
2. REFER TO GEOTECHNICAL REPORTS, ENVIRONMENTAL REPORTS, ARCHITECTURAL DRAWINGS AND SPECIFICATIONS AND CIVIL ENGINEERING DRAWINGS FOR ALL EXCAVATION/FILL WORK.
3. REFER TO THE GEOTECHNICAL REPORTS AND ENVIRONMENTAL STUDIES FOR THE ARRANGEMENTS OF EXISTING EXCAVATION AND FILL MATERIALS.
4. DURING EXCAVATION WORK, THE CONTRACTOR SHALL ENSURE THAT THE SOIL ON SITE IS HOMOGENEOUS AND THAT IT CORRESPONDS WITH THE DESCRIPTION PROVIDED IN THE GEOTECHNICAL REPORT.
5. EXCAVATIONS AND EXCAVATION SLOPES SHALL BE IN ACCORDANCE WITH THE OHSA STANDARDS ACCORDING TO THE TYPE OF SOIL INDICATED IN THE GEOTECHNICAL REPORT.
6. THE CONTRACTOR SHALL PERFORM ALL EXCAVATIONS REQUIRED FOR THE COMPLETION OF THE PROJECT. DURING THESE OPERATIONS, HE CANNOT DISTURB THE SOIL OF THE EXCAVATION FLOOR. IN ADDITION, HE SHALL MAINTAIN DRY CONDITIONS IN THE TRENCHES WITH AN ADEQUATE PUMPING SYSTEM.
7. EXCAVATION WORK SHALL BE PERFORMED FOLLOWING RECTILINEAR OUTLINES, WHILE LEAVING SUFFICIENT SPACE FOR FORMWORK INSTALLATION.
8. THE CONTRACTOR SHALL MANDATE HIS OWN EXPERTS TO DETERMINE THE DIFFICULTIES AND CONSTRUCTION METHODS AND TO BEAR THE COSTS INHERENT TO THE CONSTRUCTION AND MAINTENANCE OF EXCAVATION SLOPES, AS REQUIRED TO ENSURE THEIR STABILITY.
9. TEMPORARY SUPPORT NEEDED FOR EXCAVATIONS SHALL BE INSTALLED WHERE REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LENGTH OF TEMPORARY SUPPORT AND DETERMINING ITS EXTENT BASED ON THE WORK METHODS AND THE WORK SCHEDULING. THE TEMPORARY SUPPORT SHALL BE DESIGNED TO RESIST EARTH PRESSURES, CONSTRUCTION LOADING, EXISTING BUILDING LOADING, AND ALL OTHER RELEVANT LOADINGS. IN ADDITION TO A PROVISIONAL WORK PLAN REQUIRED FOR THE TEMPORARY SUPPORT, THE CONTRACTOR SHALL ALSO SUBMIT A CONSTRUCTION PROCEDURE AND DISMANTLEMENT PROCEDURE FOR THE WORK. ALL OF THESE DOCUMENTS SHALL BE SIGNED AND SEALED BY AN ENGINEER LICENCED IN ONTARIO AND SHALL BE CONSERVED ON SITE AND SHALL BE SENT TO US FOR OUR RECORDS.
10. THE CONTRACTOR SHALL EXERCISE CAUTION DURING EXCAVATION SO AS TO NOT DESTABILIZE THE FOUNDATIONS OF THE EXISTING BUILDING.
11. THE CONTRACTOR SHALL PROTECT ALL SOILS AND FOUNDATIONS FROM FREEZING DURING WORK.
12. GRANULAR FILLS TO BE PLACED SHALL BE IN ACCORDANCE WITH ONTARIO PROVICIAL STANDARDS (OPSS & OPSD). THEY SHALL BE EXEMPT OF SHALE AND ALL OTHER POTENTIAL SWELLABLE MATERIALS. THIS WILL HELP AVOID EVENTUAL HEAVING OF THE SOIL. A DOCUMENT CERTIFYING THE CONFORMITY OF THE FILL MATERIALS SHALL BE SUBMITTED TO THE ENGINEER.
13. ALL MATERIAL USED FOR BACKFILL INSIDE AND OUTSIDE OF FOUNDATION WALLS SHALL BE GRANULAR AND COMPACTED.
14. GRANULAR MATERIAL FILL BELOW SLABS SHALL BE PERFORMED IN SUCCESSIVE UNIFORM LAYERS NOT EXCEEDING 300mm-THICK, UNLESS NOTIFIED OTHERWISE. DIRECTLY BELOW SLABS ON GRADE, PROVIDE A 300mm LAYER OF GRANULAR A CRUSHED STONE COMPACTED TO 98% MODIFIED PROCTOR DENSITY. THE CONTRACTOR SHALL REMOVE ALL ORGANIC MATERIAL AND EXISTING FILL MATERIAL DOWN TO UNDISTURBED SOIL TO REPLACE IT WITH A GRANULAR B TYPE 1 MATERIAL COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
15. THE BACKFILL AROUND FOUNDATION WALLS SHALL BE PERFORMED UP TO THE HEIGHT INDICATED ON THE DRAWINGS, ONLY ONCE ALL OTHER ELEMENTS ARE CONSTRUCTED. THE LEVEL OF FILL ON ONE SIDE OF THE WALL MAY NEVER DIFFER MORE THAN 500mm FROM THE LEVEL OF FILL ON THE OTHER SIDE IN ORDER TO PREVENT THE APPLICATION OF UNANTICIPATED LOADS.
16. REQUIRED DEGREE OF COMPACTION :
    - GRANULAR MATERIALS B TYPE 1 : COMPACT TO A MINIMUM DEGREE OF COMPACTION OF 95% OF THE MAXIMUM DRY DENSITY OBTAINED FROM THE MODIFIED PROCTOR TEST.
    - GRANULAR MATERIALS TYPE 2 : COMPACT TO A MINIMUM DEGREE OF COMPACTION OF 90% OF THE MAXIMUM DRY DENSITY OBTAINED FROM THE MODIFIED PROCTOR TEST.
    - GRANULAR A : C COMPACT TO A MINIMUM DEGREE OF COMPACTION OF 95% OF THE MAXIMUM DRY DENSITY OBTAINED FROM THE MODIFIED PROCTOR TEST.
    - IT IS IMPORTANT TO MAINTAIN AN OPTIMAL DEGREE OF HUMIDITY IN FILL MATERIALS IN ORDER TO OBTAIN THE REQUIRED DEGREE OF COMPACTION.
17. THE FILL AROUND THE PERIMETER OF THE BUILDING SHOULD ALLOW FOR SURFACE WATER TO DRAIN AWAY FROM THE BUILDING, FOR THE CONNECTION OF EARTHWORKS TO EXISTING WORKS AND FOR THE RESTORATION OF THE SITE TO ITS ORIGINAL STATE.
18. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

STEEL NOTES

1. ALL STRUCTURAL STEEL WORK MUST BE DESIGNED, FABRICATED AND EXECUTED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE CAN/CSA S16 STANDARD AND THE NATIONAL BUILDING CODE. BRACING ASSEMBLIES MUST BE IN ACCORDANCE WITH CLAUSE 27 OF CAN/CSA S16 STANDARD.
2. WELDING WORK :
    ALL WELDING WORK MUST BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CAN/CSA-S16. WELDS MUST BE IN ACCORDANCE WITH THE LATEST EDITION OF THE W47.1, W59 AND W186 STANDARDS. THE CONTRACTOR AND THE WELDERS MUST BE MEMBERS IN GOOD STANDING WITH THE CANADIAN WELDING BUREAU (C.W.B.).
3. STEEL GALVANIZATION :
    HOT-DIP GALVANIZATION IN ACCORDANCE WITH THE LATEST EDITION OF ASTM A123/A123M STANDARD. THE WEIGHT OF THE COATING MUST EXCEED 600 g/m² OF SURFACE AREA. GALVANIZED SURFACE RETOUCHING: 2 COATS MIN. BRUSH APPLIED ZINC-RICH COATING WITH A METALLIC ZINC CONTENT OF 87% MIN. IN THE DRY FILM IN ACCORDANCE WITH CAN/CGSB-1.181 STANDARD. THE CONTRACTOR IS RESPONSIBLE FOR RESPECTING ACCEPTED CONSTRUCTION PRACTICES AND RELEVANT GALVANIZATION STANDARDS. WHEN ISSUING SHOP DRAWINGS, HE SHALL NOTIFY THE ENGINEER IF ADJUSTMENTS WERE REQUIRED IN ORDER TO PROCEED WITH GALVANIZATION (PARTICULARLY, WITHOUT LIMITATIONS, FOR EVACUATION HOLES).
4. QUALITY OF STRUCTURAL STEEL :
    - 'W', 'WWF', 'HP' SECTIONS: CAN/CSA-G40.20/G40.21 350W ;
    - PLAQUES, 'C' ET 'L' SECTIONS : CAN/CSA-G40.20/G40.21 300W ;
    - HSS TUBES: ASTM A500 GRADE C ;
    - 'S' SECTIONS: ASTM A992, A572 Gr.50 ;
    - STRUCTURAL BOLTS: ASTM F3125 Gr.A325 ;
    - THREADED ROD AND ANCHOR BOLTS: ASTM A193 Gr.B7 or ASTM F1554 Gr.105 or ASTM A449
5. STEEL PAINT:
    ONE COAT OF FACTORY-APPLIED CPMA 1-73A, GREY COLOUR.
6. STEEL FABRICATOR SHALL BE RESPONSIBLE FOR CHECKING AND CONFIRMING ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL PLANS. ALL DISCREPANCIES MUST BE TRANSMITTED TO THE ENGINEER FOR CLARIFICATION. AWAIT INSTRUCTIONS BEFORE FABRICATION.
7. STEEL FABRICATOR SHALL BE RESPONSIBLE FOR CALCULATING THE ROOF SLOPES. THE ELEVATIONS OF EACH BEAM MUST BE CALCULATED AND PROVIDED WITH THE SHOP DRAWINGS FOR REVISION BY THE CONSULTANTS.
8. THE FABRICATORS/ERECTORS ARE RESPONSIBLE FOR PROVIDING AN ERECTION PROCEDURE AND ASSEMBLY PLAN. THE PROCEDURES AND PLAN MUST BE SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO.
9. STRUCTURAL STEEL ERECTION PROCEDURES, SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO, SHALL BE IN ACCORDANCE WITH THE FOLLOWING DOCUMENTS:
    - CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL PUBLISHED BY CISC;
    - CAN/CSA-S16;
    - STANDARDS IN FORCE; AND
    - OHSA REQUIREMENTS.
10. THE ERECTION PROCEDURE SHALL ENSURE THE STABILITY OF THE STRUCTURE DURING THE CONSTRUCTION PERIOD. IT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING ELEMENTS: LOCATION OF THE CRANE; MATERIAL STORAGE AREA; CONSTRUCTION METHOD; ERECTION SEQUENCE; TEMPORARY STAY CABLES (IF REQUIRED).
11. THE FABRICATORS/ERECTORS ARE RESPONSIBLE FOR THE PROPER SITE DEVELOPMENT REQUIRED FOR CRANES. PROVIDE A BASE THAT WILL DISTRIBUTE THE FORCES ADEQUATELY, BASED ON THE OBSERVED CONDITIONS.
12. THE FABRICATORS/ERECTORS SHALL PROVIDE FOR TEMPORARY BRACING FOR THE STEEL STRUCTURE UP UNTIL THE COMPLETED INSTALLATION OF PERMANENT BRACING AND STABILIZING STRUCTURES.
13. THE FABRICATORS/ERECTORS ARE RESPONSIBLE FOR PROVIDING SIGNED AND SEALED DETAILS AND CERTIFICATES FOR ALL DAMAGES AND/OR MODIFICATIONS TO THE STEEL STRUCTURE, CONNECTIONS, BASEPLATES AND/OR ANCHOR BOLTS.
14. AT NO TIME MAY STRUCTURAL STEEL BE CUT ON SITE PRIOR TO RECEIVING THE STRUCTURAL ENGINEER'S AUTHORIZATION TO DO SO.
15. ALL STEEL THAT IS EXPOSED TO THE ELEMENTS MUST BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE LATEST EDITION OF THE ASTM A123/A123M STANDARD.
16. ALL MASONRY SUPPORTS AND JAMBS MUST BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE LATEST EDITION OF THE ASTM A123/A123M STANDARD.
17. THE CONTRACTOR MUST CONFIRM, WITH THE ARCHITECTURAL PLANS, THE PRECISE LOCATIONS OF STRUCTURAL LINTELS.
18. ALL EXPOSED WELDS MUST BE CONTINUOUS AND GROUND UNTIL SMOOTH.
19. MASONRY SUPPORTS :
    PROVIDE LATERAL SUPPORT FOR MASONRY WALLS, REFER TO TYPICAL DETAILS. PROVIDE 15M x 1200lg. DOWELS @ SAME SPACING AS MASONRY WALL VERTICAL REINFORCING BARS WELDED TO THE STEEL STRUCTURE. REFER TO ARCHITECTURAL DRAWINGS FOR THE LOCATIONS AND QUANTITY OF MASONRY WALLS.
20. ELEVATOR SUPPORTS :
    FOR ALL ELEVATORS, THE CONTRACTOR MUST PROVIDE FOR THE DESIGN, SUPPLY AND INSTALLATION OF ALL SUPPORTS AND ADDITIONAL ELEMENTS, NOT SHOWN ON THE PLANS, REQUIRED AT FLOOR AND ROOF LEVELS AND INTERMEDIATE SUPPORTS REQUIRED BETWEEN FLOOR LEVELS. PROVIDE ADJUSTMENTS, MODIFICATIONS, AND REINFORCEMENTS OF THE INDICATED ELEMENTS OR THE ADDITIONAL REQUIRED ELEMENTS, AS NEEDED. REFER TO THE ARCHITECTURAL PLANS AND THE SUPPLIERS. THE CONTRACTOR MUST PROVIDE ENGINEERING PLANS SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO.
21. PROVIDE REINFORCMENT (AS NEEDED) TO THE STEEL STRUCTURE FOR WINDOW CLEANING AND LIFELINE ANCHORS. REFER TO ARCHITECTURAL AND FABRICATOR PLANS FOR QUANTITY AND LOCATIONS. THE CONTRACTOR MUST PROVIDE ENGINEERING PLANS SIGNED AND SEALED BY AN ENGINEER LICENSED IN ONTARIO.
22. STAIR LANDING NOSING :
    PROVIDE A 4.8mm-THICK BENT COVER PLATE TO MATCH THE PROFILE OF THE STAIR RISER (SEE ARCH.) AT ALL STAIR LANDINGS. GRIND DOWN THE SHARP EDGE AT THE END OF THE PLATE. AT ALL LANDINGS, THE SIDES OF THE BEAMS MUST BE FREE OF BOLTS.
23. SHOP DRAWINGS :
    ALL BOLTED OR WELDED ASSEMBLIES MUST BE DESIGNED AND APPROVED BY AN ENGINEER LICENSED IN ONTARIO AND THE SHOP DRAWINGS MUST SHOW ALL FABRICATION AND ERECTION DETAILS, INCLUDING CROSS-SECTIONS, NOTCHES, ASSEMBLIES, HOLES, BOLTS AND WELDS. SEE SPECIFICATIONS FOR DESIGN REQUIREMENTS. THE CONTRACTOR MUST PROVIDE TO THE ENGINEER, FOR REVIEW, TWO (2) PAPER COPIES AND ONE (1) DIGITAL COPY OF THE SHOP DRAWINGS AND THE STEEL FRAME CALCULATIONS. THE SHOP DRAWINGS AND THE STEEL FRAME CALCULATIONS MUST BE SIGNED AND SEALED BY A COMPETENT ENGINEER LICENSED IN ONTARIO. PROVIDE A MINIMUM OF 7 BUSINESS DAYS FOR THE REVIEW OF THE SHOP DRAWINGS. PROVIDE A MINIMUM OF 5 BUSINESS DAYS FOR ANSWERS TO ALL QUESTIONS RELATED TO THE PREPARATION OF SHOP DRAWINGS.

SEISMIC LOADS

SEISMIC FORCE RESISTING SYSTEM (SFRS)

SFRS: SYSTEM & CONNECTIONS: (2012 OBC CLAUSE 4.1.8.9/4.1.8.10)
LATERAL LOAD RESISTING SYSTEM:
SCREW CONNECTED SHEAR WALLS (WOOD-BASED PANELS)
Rd = 2.5
Ro = 1.7
CSA STANDARD: CAN/CSA-S16-14
APPLICABLE CLAUSE(S): 27.11

SFRS: DIAPHRAGMS & CONNECTIONS: (2012 OBC CLAUSE 4.1.8.15)
CSA STANDARD: CAN/CSA-S16-14

SFRS: SYSTEM FOUNDATIONS: (2012 OBC CLAUSE 4.1.8.16)
CSA STANDARD: CAN/CSA A23.3-14
APPLICABLE CLAUSE(S): 15.2 TO 15.9

☒ FOR ANCHORED FOOTINGS
☐ FOR UNANCHORED FOOTINGS

CONFIRMATION:
FOUNDATIONS HAVE BEEN DESIGNED TO RESIST THE LATERAL LOAD CAPACITY OF SFRS, INCLUDING ALL APPLICABLE AMPLIFICATION FACTORS.

IMPORTANCE FACTOR
(2012 OBC CLAUSE 4.1.8.5)
I_E = 1.0

PROJECT CITY
OTTAWA, ON

SITE CLASS

THE NOTED SITE CLASSIFICATION FOR SEISMIC SITE RESPONSE AND SHEAR WAVE VELOCITY PARAMETERS INDICATED ARE AS REPORTED IN THE GEOTECHNICAL REPORT

☐ A ☐ B ☒ C ☐ D ☐ E ☐ F (SITE SPECIFIC SPECTRUM:)

HORIZONTAL SHEAR WAVE VELOCITY: N/A

PGA	PGV
0.285	0.199

RESPONSE SPECTRUM DATA
☐ PERFORMED
☒ NOT PERFORMED

5% DAMPED SPECTRAL RESPONSE ACCELERATION VALUES
(2012 OBC SUPPLEMENTARY STANDARD SB-1)

Sa(0.2) = 0.446
Sa(0.5) = 0.240
Sa(1.0) = 0.119
Sa(2.0) = 0.056
Sa(5.0) = 0.015
Sa(10.0) = 0.0055

DESIGN SPECTRAL RESPONSE ACCELERATION VALUES (DSRAV)
(2012 OBC CLAUSE 4.1.8.4)

☒ CLASS 'D': (Fa=1.06:Fv=1.27)

S(0.2) = 0.475
S(0.5) = 0.305
S(1.0) = 0.163
S(2.0) = 0.079
S(5.0) = 0.022
S(10.0) = 0.008

STRUCTURAL SEPARATION
☐ THE NEW & EXISTING STRUCTURAL HAVE BEEN SEPARATED IN ACCORDANCE WITH 4.1.8.14 (1) OF THE 2012 OBC.
☒ N/A

SYSTEM RESTRICTION VALUE
IEFaSa(0.2)=0.475 ≥ 0.35 ☐ YES ☒ NO

STATIC PERIOD DATA
(2012 OBC CLAUSE 4.1.8.11(3))
☐ SINGLE-STOREY BUILDING WITH WOOD OR STEEL DIAPHRAM: ☒ YES (2012 OBC CLAUSE 4.1.8.11(4)) ☐ NO (2012 OBC CLAUSE 4.1.8.11(3))

☐ STEEL MOMENT FRAME:

☐ BRACED FRAMES:

☒ SHEAR WALLS: $T_{a\text{-}STATIC} = 0.05(h_n)^{3/4} + 0.004L = 0.212$ sec
$T_{a\text{-}MAX} = 1.5T_{a\text{-}STATIC} = 0.318$ sec
L = 5.0m

HIGHER MODE FACTOR
(2012 OBC CLAUSE 4.1.8.11(5))
Mv =1.0 J = 1.0

FUNDAMENTAL PERIOD BASED DSRAV:
STATIC: S(Ta) = 0.408

STRUCTURAL CONFIGURATION
(2012 OBC CLAUSE 4.1.8.11(9))
TORSIONAL SENSITIVITY ROOF; Bmax = 1.047 < 1.7

IRREGULARITY REVIEW
(2012 OBC CLAUSE 4.1.8.6)

1. VERTICAL STIFFNESS:	☐ YES	NO ☒
2. WEIGHT:	☐ YES	NO ☒
3. VERTICAL GEOMETRIC:	☐ YES	NO ☒
4. IN PLANE DISCONTINUITY:	☐ YES	NO ☒
5. OUT OF PLANE:	☐ YES	NO ☒
6. WEAK STOREY:	☐ YES	NO ☒
7. TORSIONAL:	☐ YES	NO ☒
8. NON-ORTHOGONAL:	☐ YES	NO ☒

CONCLUSION: BUILDING IS ☒ REGULAR ☐ IRREGULAR
DYNAMIC ANALYSIS: ☐ REQUIRED ☒ NOT REQUIRED
DYNAMIC PROCEDURE: METHOD: ☐ MODAL RESPONSE SPECTRUM ☐ NUMERICAL INTEGRATION TIME HISTORY ☒ N/A

ANALYSIS METHOD
☒ EQUIV. STATIC
☐ DYNAMIC

TORSIONAL ECCENTRICITY
☒ ± 0.10 Dnx (4.1.8.11(10a)), ≤ B = 1.7 (EQUIV. STATIC FORCE PROCEDURE)
☐ ± 0.10 Dnx (4.1.8.12(4a)), ≥ B = 1.7 (DYNAMIC ANALYSIS)
☐ ± 0.05 Dnx (4.1.8.12(4b)), < B = 1.7 (DYNAMIC ANALYSIS)

STATIC BASE SHEARS/MOMENTS
(2012 OBC CLAUSE 4.1.8.11)

W = 908 kN
$V_{MIN} = S(2.0)M_vI_EW/(R_dR_o) = 0.0052W$
$V = S(T_a)M_vI_EW/(R_dR_o) = 0.0960W$
V_{MAX} = LARGER OF $\begin{cases} \frac{2}{3} S(0.2)\, I_EW/(R_dR_o) = 0.0745W = 67.6 \text{ kN-GOVERNS} \\ S(0.5)\, I_EW/(R_dR_o) = 0.0718W \end{cases}$

Mbase = 405.7 kNm

LEGEND :

ADD.	: ADDITIONAL
ARB.	: ARBITRARY
ARCH.	: ARCHITECTURE
[B]	: CONTINUOUS BENT STEEL BEAM
B.O.D.	: BOTTOM OF DROP
B.PL.	: BASE PLATE
c/c	: CENTER TO CENTER
(C)	: CONSTANT ELEVATION STEEL BEAM (ELEVATION TO CALCULATE)
CIRC.	: CIRCULAR
CONT.	: CONTINUOUS
CTR or C.	: CENTER
c/w	: COMPLETE WITH
DIA. or ∅	: DIAMETER
2-DIR.	: TWO DIRECTIONS
DIA.	: EACH
E.E.	: EACH END
E.F.	: EACH FACE
E.S.	: EACH SIDE
E.W.	: EACH WAY
EXIST.	: EXISTING
EXT.F.	: EXTERIOR FACE
FTG	: FOOTING
GALV. or (G)	: HOT DIP GALVANIZED
H.P.	: HIGH POINT
GALV.	: HORRIZONTAL
IND.	: INDICATES
INFO.	: INFORMATION
INT.F.	: INTERIOR FACE
INV.	: INVERSE
L.P.	: LEFT END
LG. or lg.	: LENGTH
L.P.	: LOW POINT
LG.	: MANUFACTURER
MAX.	: MAXIMUM
M.C.	: MOMENT CONNECTION
MECH.-ELEC. or M&E	: MECHANICAL-ELECTRICAL
MIN.	: MINIMUM
M.P.	: MODIFIED PROTOR
NEW or (N)	: NEW
N.T.S.	: NOT TO SCALE
MANU.	: PLATE
QTY	: QUANTITY
R.E.	: RIGHT END
REM.	: REMAIN
(S)	: SLOPED STEEL BEAM (ELEVATION TO CALCULATE)
SIM.	: SIMILAR
S.O.G.	: SLAB ON GRADE
S.P.	: STANDARD PROTOR
S:xxx	: SHOE, xxx mm HEIGHT
S:VAR.	: SHOE, VARIABLE HEIGHT
T.& B.	: TOP AND BOTTOM
T.B.D.	: TO BE DETERMINED
T.B.D.O.S.	: TO BE DETERMINED ON SITE
t/o	: TOP OF
T.O.F.	: TOP OF FOOTING
T.O.R.	: TOP OF RAFT
T.O.S.	: TOP OF STEEL
H.	: TYPICAL
U.N.O.	: UNLESS NOTED OTHERWISE
u/s	: UNDERSIDE
VAR.	: VARIABLE
VERT.	: VERTICAL

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Consultant / Consultant :

Consultant / Consultant :

Client / Client :
OTTAWA SOUTH UNITED

Nom du projet / Project name:

OTTAWA SOUTH UNITED FIELD HOUSE

5650 MITCH OWENS ROAD
OTTAWA, ONTARIO

LICENSED PROFESSIONAL ENGINEER
M. FORGUES
100078511
2023/05/31
PROVINCE OF ONTARIO

Émission-Révision / Issue for-Revison:

No.	Date	Description
1	2023.05.31	ISSUED FOR PERMIT

Conçu par / Designed by:
Marc Forgues, P.Eng. PEO# 100078511

Révisé par / Reviewed by:
Marc Forgues, P.Eng. PEO# 100078511

Équipe technique / Technical team:
Mitchel Lavallée

Date / Date: Date 2022
Échelle / Scale:

Discipline / Discipline: STRUCTURE

Titre du feuillet / Drawing title:
GENERAL NOTES

Numéro de projet / Project number: META-003
Page # : S000

iso_A0 (1189x841)

C:\Users\Mitchel.Lavallee\Documents\META-003_STR_ACTIF_Mitchel.LavalleeH64PK.rvt

0 10 20mm 40 60 80 100 120 140 160 180 200mm

GENERAL

STEEL: Fy = 400 MPa

BAR	TENSION	COMPRESSION
10M	450mm	300mm
15M	700mm	450mm
20M	1000mm	600mm
25M	1500mm	750mm
30M	1800mm	900mm
35M	2100mm	1050mm

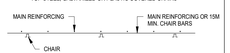
MINIMUM REINFORCEMENT SPLICE

OPENING	BRICK ANGLE SIZE
UP TO 1200mm	L90x90x6
1201 - 1500mm	L90x90x8
1501 - 2100mm	L102x90x8
2101 - 2400mm	L125x90x8
2401 - 2700mm	L125x90x10
2701 - 3610mm	L152x100x10

LOOSE LINTEL SCHEDULE FOR BRICK

BAR LENGTH	NO. OF CHAIRS
8'-0" (2400) OR LESS	3
8'-0" (2400) TO 12'-0" (3600)	4
12'-0" (3600) TO 16'-0" (4800)	5
CHAIRS AT 4'-0" (1200) o/c. MAX.	

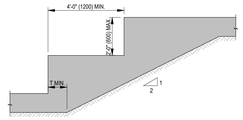
TOP STEEL: GALVANIZED OR PLASTIC COVERED CHAIRS



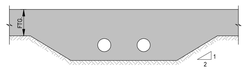
B: BOTTOM STEEL: PLASTIC BOLSTERS SLABS
BOLSTERS @ 48" (1200) c/c MAX. 2-CIR.
BEAMS: BOLSTERS @ 36" (900) c/c MAX.

TYP.REINFORCING CHAIR SCHEDULE

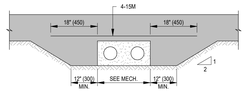
FOOTINGS



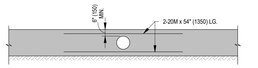
STEP FOOTINGS



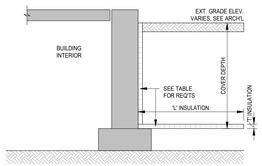
MECHANICAL SERVICES
(UNDER FOOTINGS)



MECHANICAL SERVICES TRENCH
(UNDER FOOTINGS)



MECHANICAL SERVICES
(THROUGH CONTINUOUS STRIP FOOTINGS)



TYPICAL EXTERIOR FOOTING INSULATION DETAIL

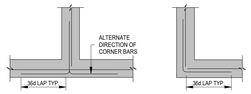
CONFIRM WITH GEOTECHNICAL ENGINEER

COVER DEPTH (mm)	INSULATION DIMENSIONS	
	L insulation (mm)	T insulation (mm)
LESS THAN 24" (600)	NOT RECOMMENDED	
24" (600) TO 30" (750)	72" (1800)	2" (50)
30" (750) TO 36" (900)	48" (1200)	2" (50)
36" (900) TO 48" (1200)	48" (1200)	1 1/2" (38)
48" (1200) TO 60" (1500)	36" (900)	1" (25)
GREATER THAN 60" (1500)	NOT REQUIRED	

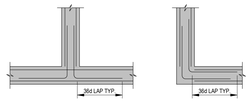
NOTES:

1. CONSULTANT GEOTECHNICAL ENGINEER FOR THERMAL RESISTANCE VALUES OF ACCEPTABLE INSULATION TYPES.
2. INSULATION REQUIRED DOWN OUTSIDE FACE OF FOUNDATION WALL AND OUTWARD FROM WALL AS SHOWN.
3. ALL EXTERIOR FOOTINGS ARE TO FOLLOW THESE REQUIREMENTS UNLESS DIRECTED OTHERWISE BY GEOTECHNICAL ENGINEER.

WALLS



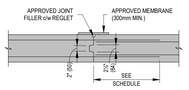
TYPICAL SINGLE LAYER REINFORCED WALL



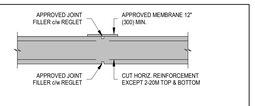
TYPICAL DOUBLE LAYER REINFORCED WALL

SEE PLANS AND SECTION FOR SIZE & REINF OF WALLS

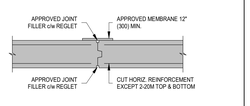
TYP. FDN. WALL INTERSECTION REINF'G



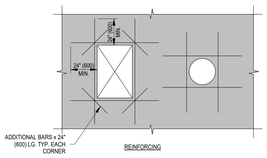
CONSTRUCTION JOINTS
(STANDARD WALLS)



CONTROL JOINTS
(STANDARD WALLS)



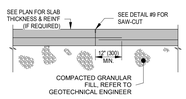
EXPANSION JOINTS
(STANDARD WALLS)



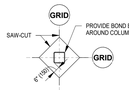
6"-8" (150-200) WALLS: 1-20M ON ONE FACE ALL AROUND OPENING U.N.O.
10" (250) & + WALLS: 1-20M EACH FACE ALL AROUND OPENING U.N.O.

HOLES IN FOUNDATION WALLS

SLAB-ON-GRADE

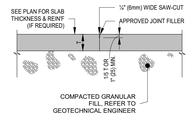


SLAB-ON-GRADE JOINT
(SLAB-ON-GRADE)



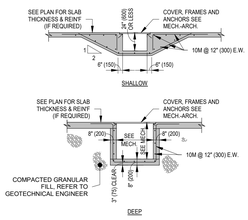
SAW-CUT AT COLUMNS

MAXIMUM SPACING OF SAW CUTS TO BE 3.6m o/c UNLESS NOTED.

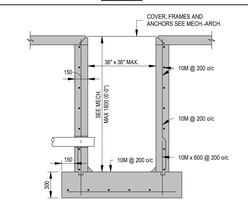


SAW-CUT DETAIL

TRENCHES / PITS



TRENCHES



CATCH BASIN, SUMP PIT & OIL INTERCEPTOR

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Révisé par / Reviewed by:
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Équipe technique / Technical team:
Mitchel Lavallée

Date / Date:
Date 2022

Échelle / Scale:

Discipline / Discipline:
STRUCTURE

Titre du feuillet / Drawing title:

TYPICAL DETAILS

Numéro de projet / Project number:
META-003

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S001

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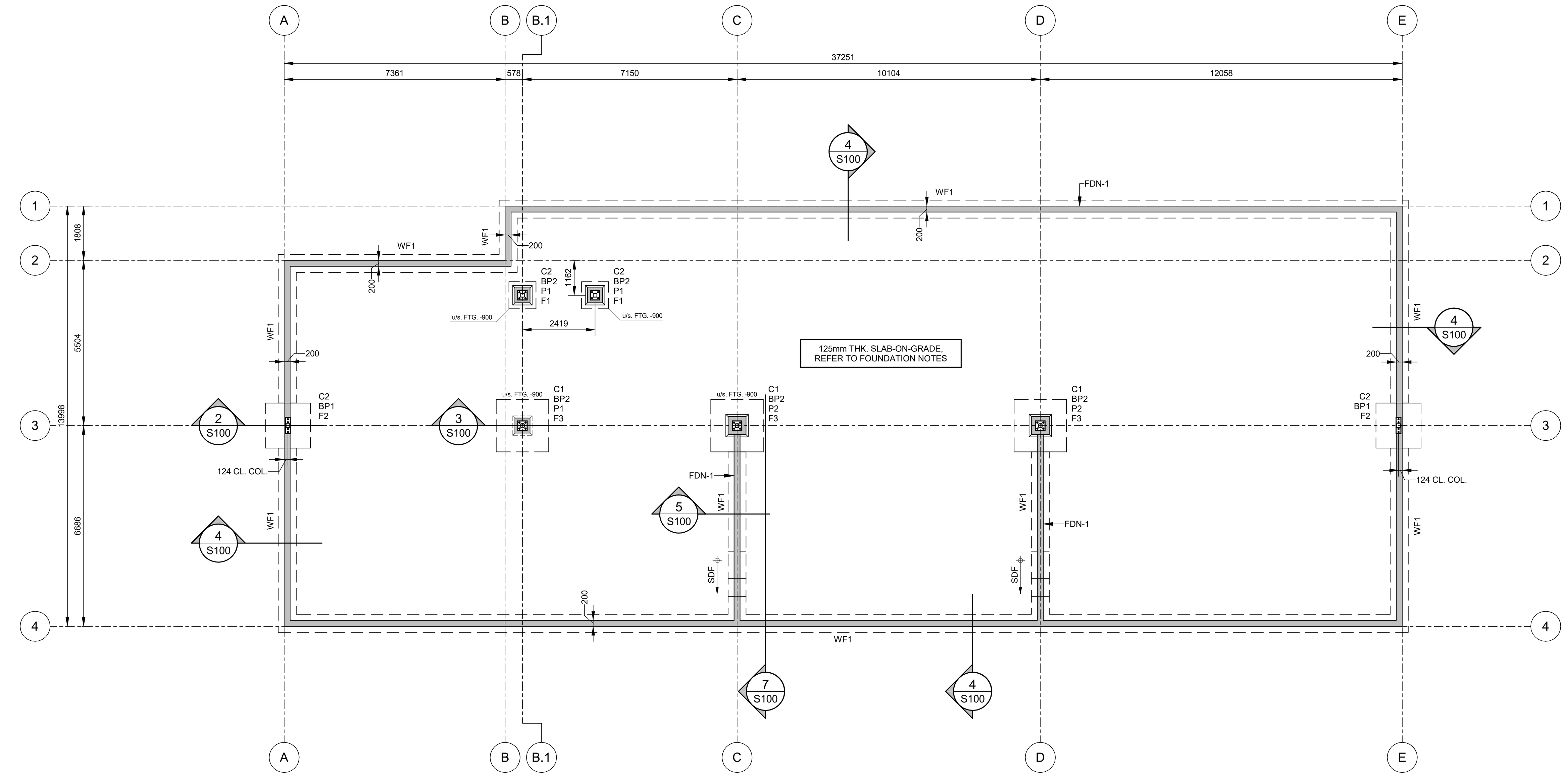
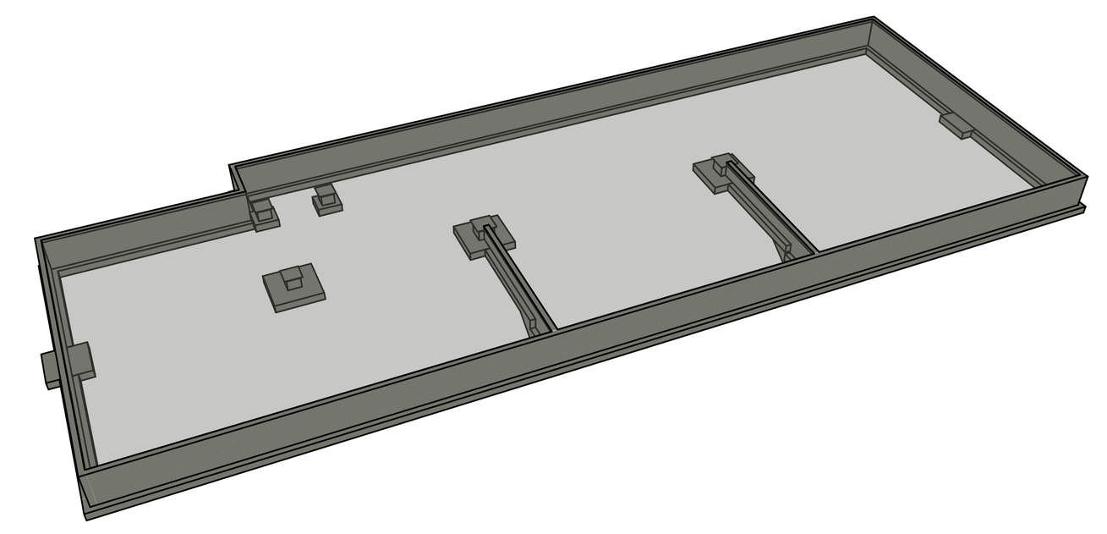
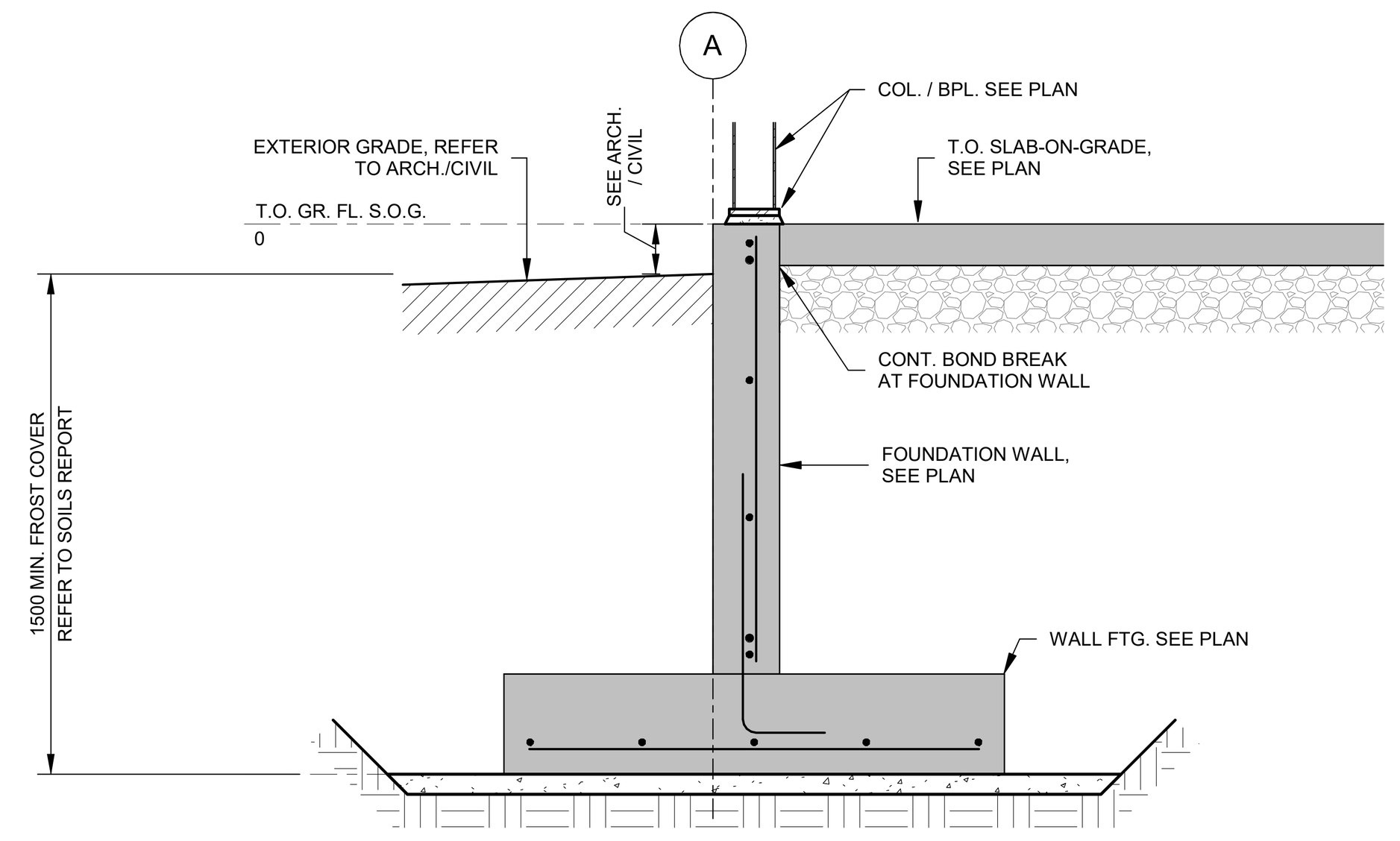
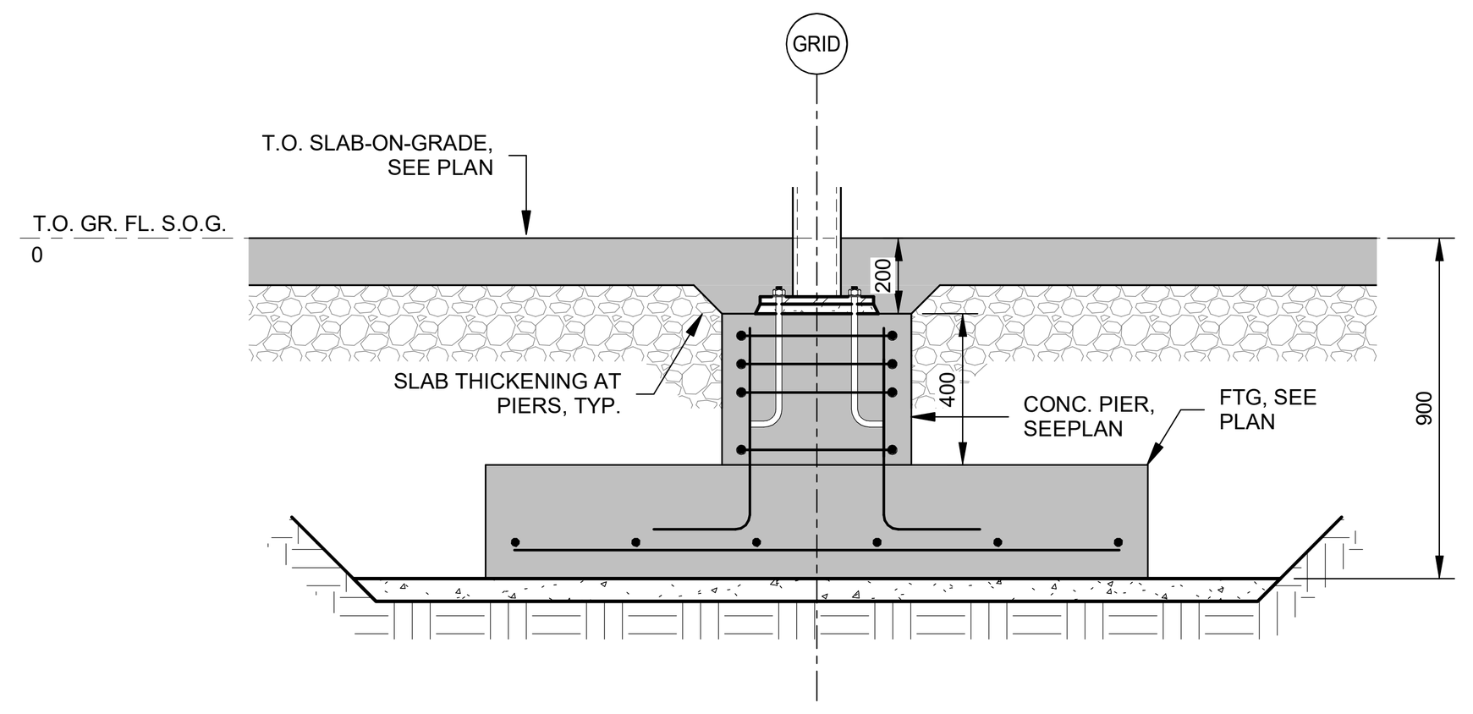


1 S100 FOUNDATION PLAN
1 : 100

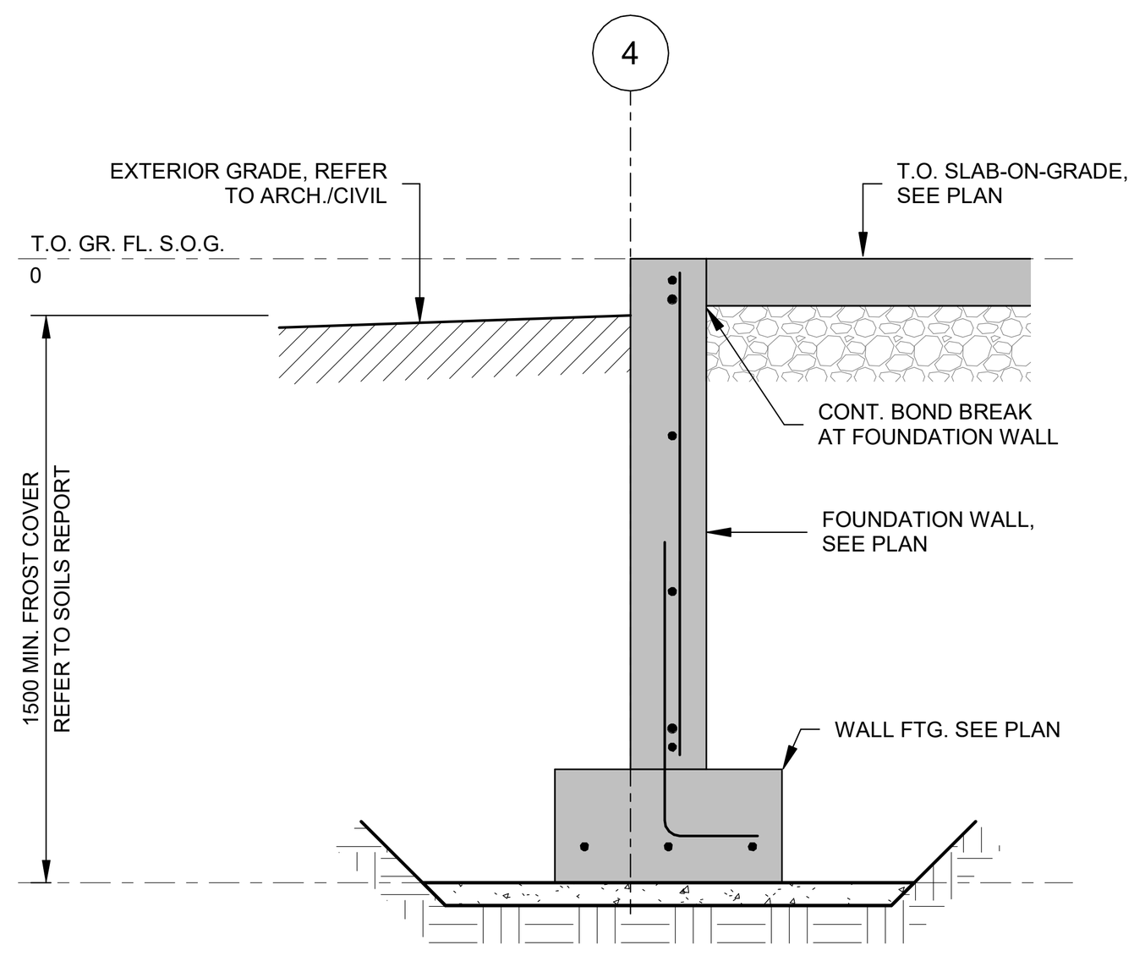




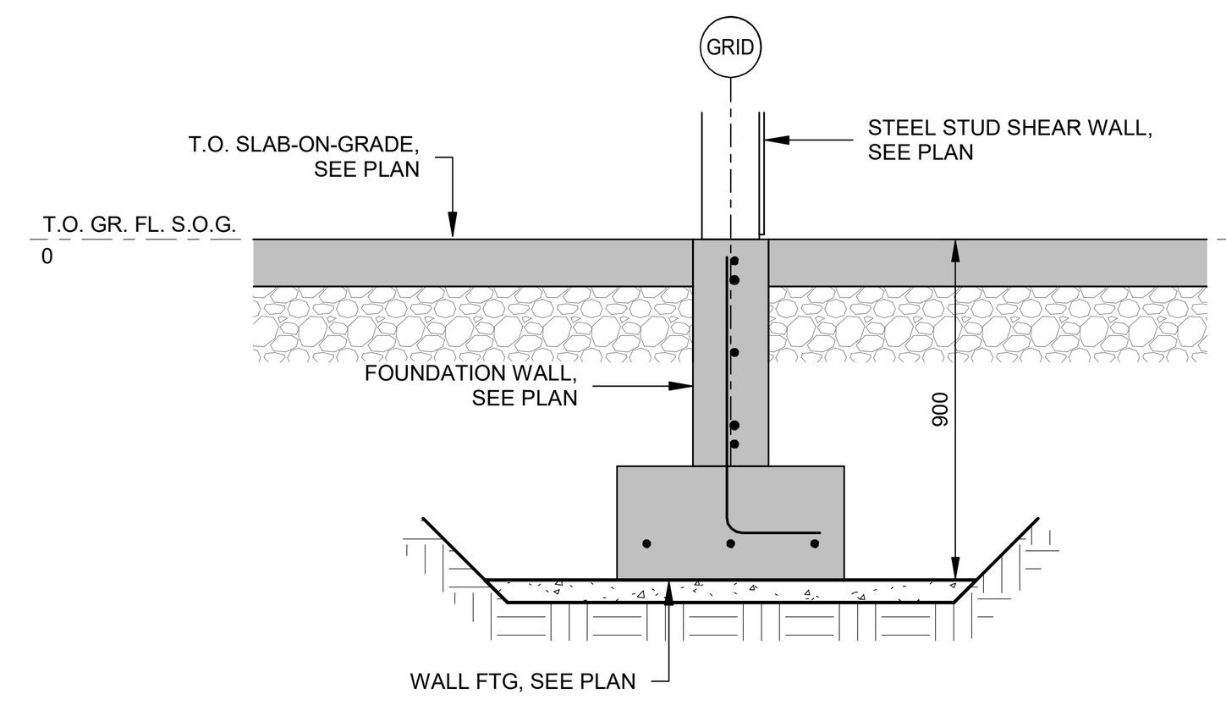
2 S100 SECTION DETAIL
1 : 20



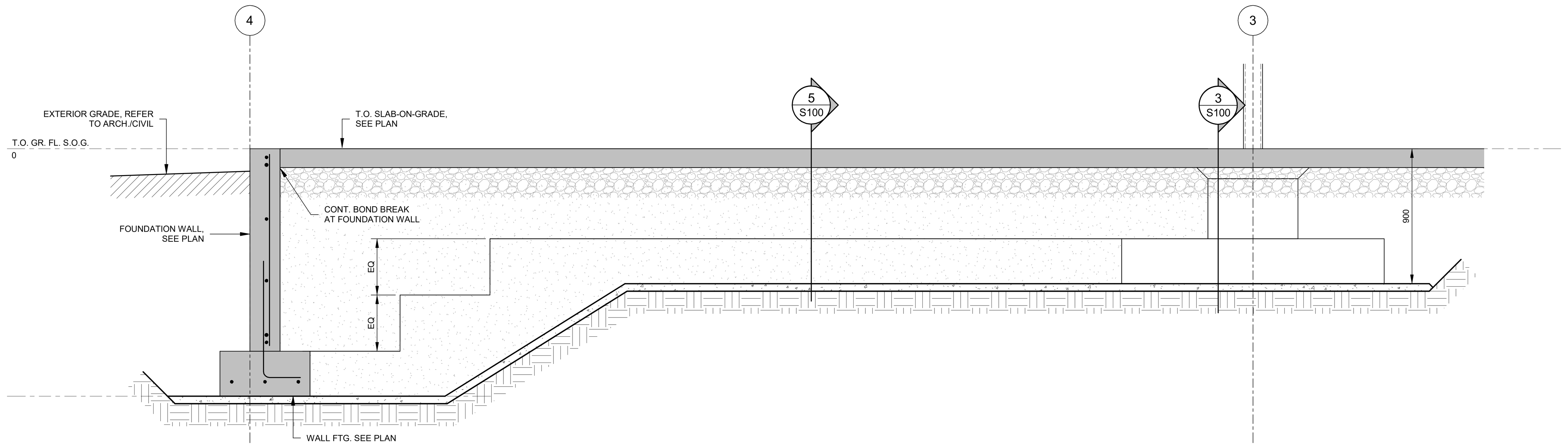
3 S100 SECTION DETAIL
1 : 20



4 S100 SECTION DETAIL
1 : 20

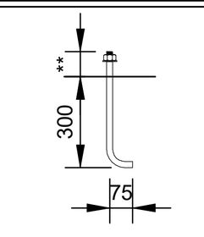


5 S100 SECTION DETAIL
1 : 20



7 S100 SECTION DETAIL
1 : 20

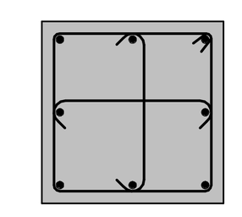
ANCHOR BOLT SCHEMATIC



TYPE 1 ANCHOR BOLT
20mm Ø
w/ NUT & WASHER
(PROVIDE 300 EMB. MIN.)
GRADE: ASTM F1554 Gr.36 OR CAN/CSA-G40.20/G40.21 300W

NOTES:
1. (**) ENSURE TO HAVE PROPER ANCHOR BOLT PROJECTION FROM T.O. PIER / WALL TO SUIT BASE PLATE & GROUT THICKNESS
2. ANCHORS @ BRACEFRAME HAVE BEEN DESIGNED IN ACCORDANCE WITH CL. 4.1.8.16, OBC 2015 & CL. 27.11, CAN/CSA-S16-09

PIER SCHEMATIC



P1 - P2

DOWEL NOTES:
1. DOWELS FROM FOOTING TO MATCH PIER VERTICAL REINFORCING IN SIZE AND SPACING / LAYOUT.
2. DOWELS TO BE FULL HEIGHT OF PIER OR TO HAVE TENSION LAP.

TIES / HAIRPINS NOTE:
1. TIES = TIES (SIMPLE OR DOUBLE) OR TIES + HAIR PINS WHERE REQUIRED

FOUNDATION NOTES

GENERAL:
- SEE 'S000' SERIE DRAWINGS FOR GENERAL NOTES AND TYPICAL DETAILS.
- REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND ELEVATIONS.

T.O. SLAB-ON-GRADE @ EL. 0.0m, TYP. U.N.O.

SLAB-ON-GRADE:
- 125 NON-REINFORCED CONCRETE SLAB-ON-GRADE TYP. U.N.O.
- CONSULT SOILS ENGINEER FOR COMPOSITION AND COMPACTION OF SOILS SUPPORTING SLAB-ON-GRADE.
- SAW-CUT NEW SLAB-ON-GRADE AT SPACING NOT TO EXCEED 3.6m (12'-0") IN EACH DIRECTION 44m2 (144ft2) MAX PER PANEL.
- PROVIDE SLOPES TO FLOOR DRAINS IN CONCRETE SLABS WHERE & IF REQUIRED, REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

FOUNDATION WALLS:
T.O. FOUNDATION WALL @ EL. 0.0m, TYP. U.N.O.

FOOTINGS:
- SEE 'S000' DRAWING AND SOILS REPORT FOR ELEVATIONS AND FOR SOILS CAPACITY REQUIREMENTS. U.S. OF FOOTING EL. VARIES, SEE PLAN
- PROVIDE DOWELS IN FOOTINGS FOR PIERS, & FOUNDATION WALL ABOVE. MATCH NUMBER, SIZE & SPACING IN PIER & FOUNDATION WALL ABOVE
- ALL FOOTINGS TO BE CENTRED ON COLUMNS & FOUNDATION WALLS U.N.O.

PIERS:
- T.O. INTERIOR PIERS @ EL. - 200mm TYP. U.N.O.
- ALL PIERS TO BE CENTRED ON COLUMNS U.N.O.

SCHEDULE - STEEL COLUMN

MARK	DESCRIPTION
C1	HSS 127x127x13
C2	HSS 127x127x6.4

SCHEDULE - BASEPLATE

MARK	DESCRIPTION	ANCHORS	COMMENTS
BP1	150x525x20	(4) TYPE 1	u/s. BPL +25mm
BP2	300x300x20	(4) TYPE 1	u/s. BPL -225mm

SCHEDULE - FOOTING

MARK	SIZE	REINFORCING	COMMENTS
F1	900 x 900 x 300 DP.	3-15M BOT. E.W.	-
F2	1500 x 1500 x 300 DP.	5-15M BOT. E.W.	-
F3	1750 x 1750 x 300 DP.	6-15M BOT. E.W.	-
WF1	600 WIDE x 300 DP.	2-15M BOT. CONT.	-

SCHEDULE - FOUNDATION WALL

MARK	WIDTH	CONT. T&B REINF	VERT. REINF.	HORIZ. REINF	DWLS
FDN-1	200	2-15M T&B CONT.	15M @ 400 o/c. V. CL.	15M @ 400 o/c. H. CL.	15M @ 400 o/c.

SCHEDULE - PIER

MARK	SIZE (mm)	VERT. REINF	TIES	ADD'L TIES	DOWELS	COMMENTS
P1	500 x 500	8-15M	10M @ 200 o/c.	+ 2-10M @ 75 o/c. TOP	8-15M	-
P2	600 x 600	8-15M	10M @ 200 o/c.	+ 2-10M @ 75 o/c. TOP	8-15M	-

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Mitchel Lavallée

Date / Date: Date 2022

Échelle / Scale: AS INDICATED

Discipline / Discipline: STRUCTURE

Titre du feuillet / Drawing title:

FOUNDATION, GROUND FLOOR PLANS AND EXTERIOR WALL ELEVATIONS

Numéro de projet / Project number: META-003

Page # : S100

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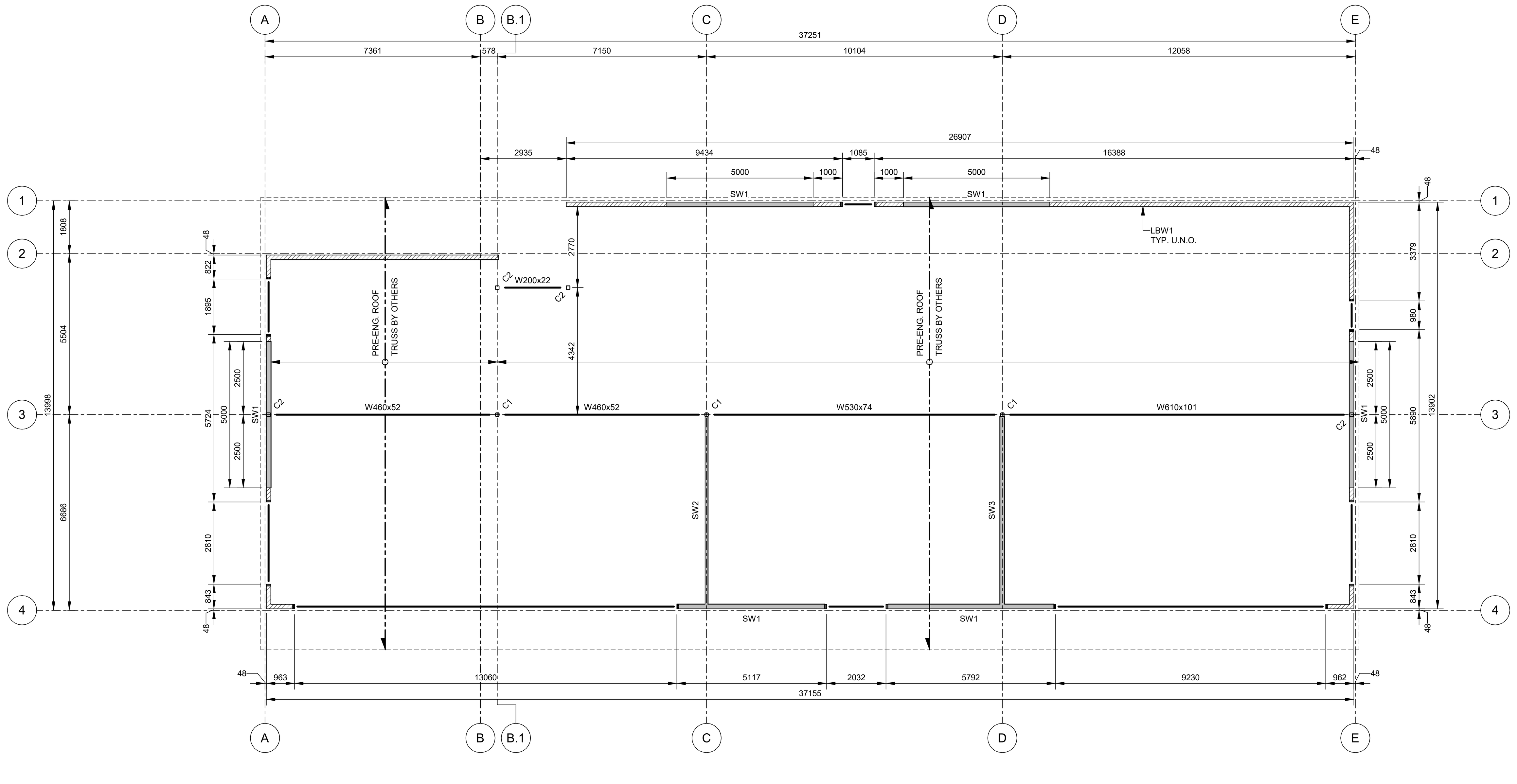
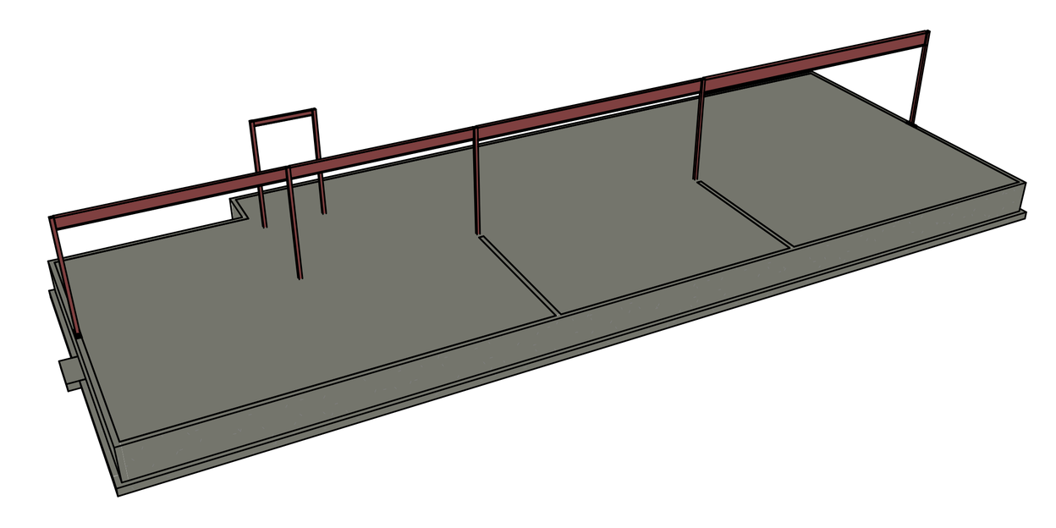
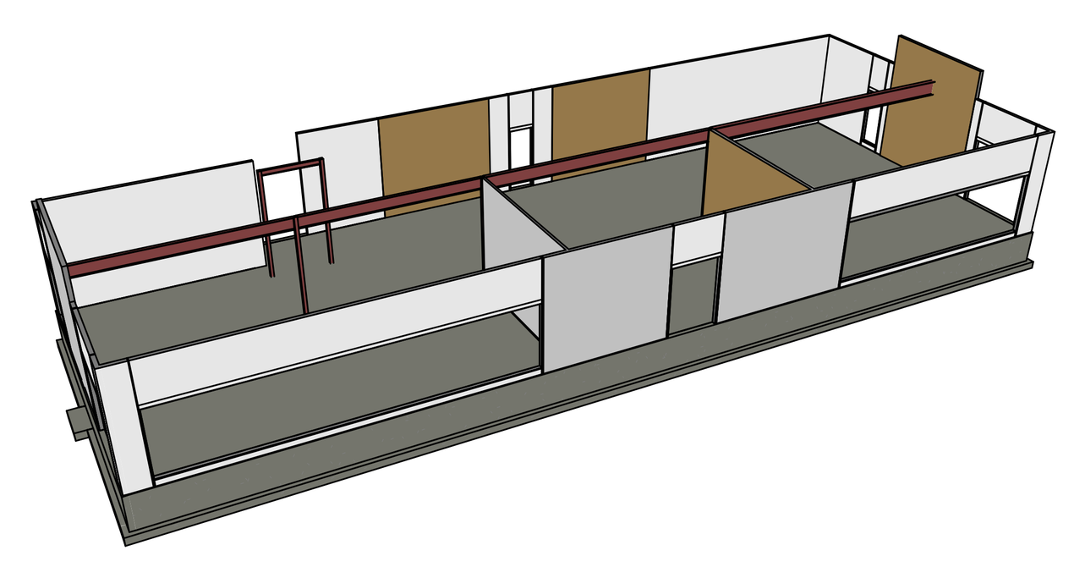
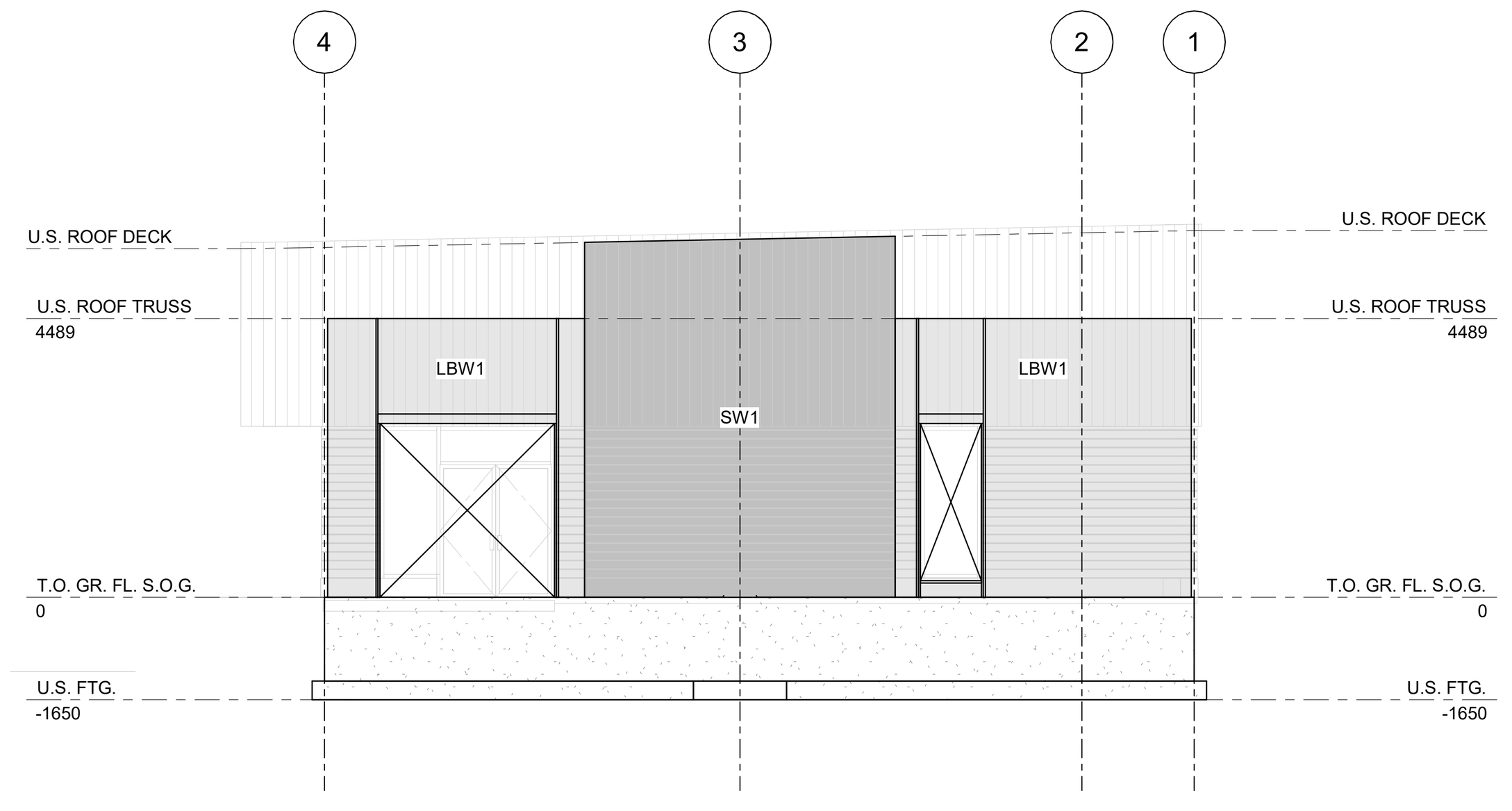


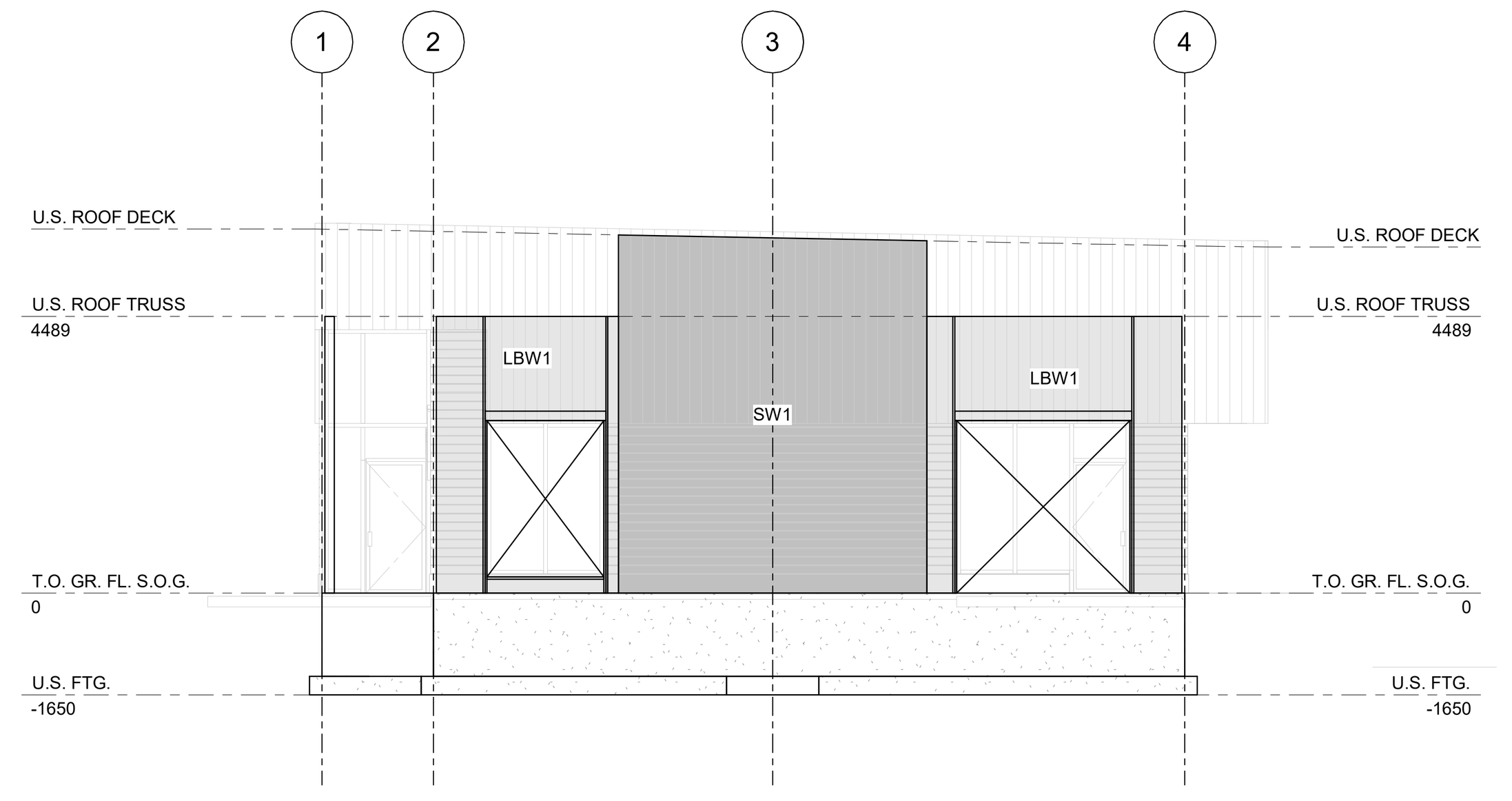
1 / S101 GROUND FLOOR LOAD BEARING WALL LAYOUT
1 : 100







2 / S101 WALL ELEVATION ALONG GRID LINE A
1 : 100



3 / S101 WALL ELEVATION ALONG GRID LINE E
1 : 100

ROOF NOTES

MAIN ROOF
(STEEL DECK)

TOP OF STEEL STUD TRUSS EL. @ H.P.T. = SEE ARCH
TOP OF STEEL STUD TRUSS EL. @ H.P.T. = SEE ARCH

(T.O. STEEL STUD TRUSS = UNDERSIDE OF STEEL DECK)

STEEL DECK:
38mm x 0.76mm P3615 GALV. STEEL DECK U.N.O.
SEE ARCH. FOR PAINTING (IF REQUIRED)

FASTENERS TO STEEL SUD JOISTS:
#10 SCREWS FASTENED AS SFOLOW:
915 / 7 @ SHEAR WALLS
915 / 4 @ OTHER WALLS

SIDELAPS:
#10 SCREWS @ 600 o/c.

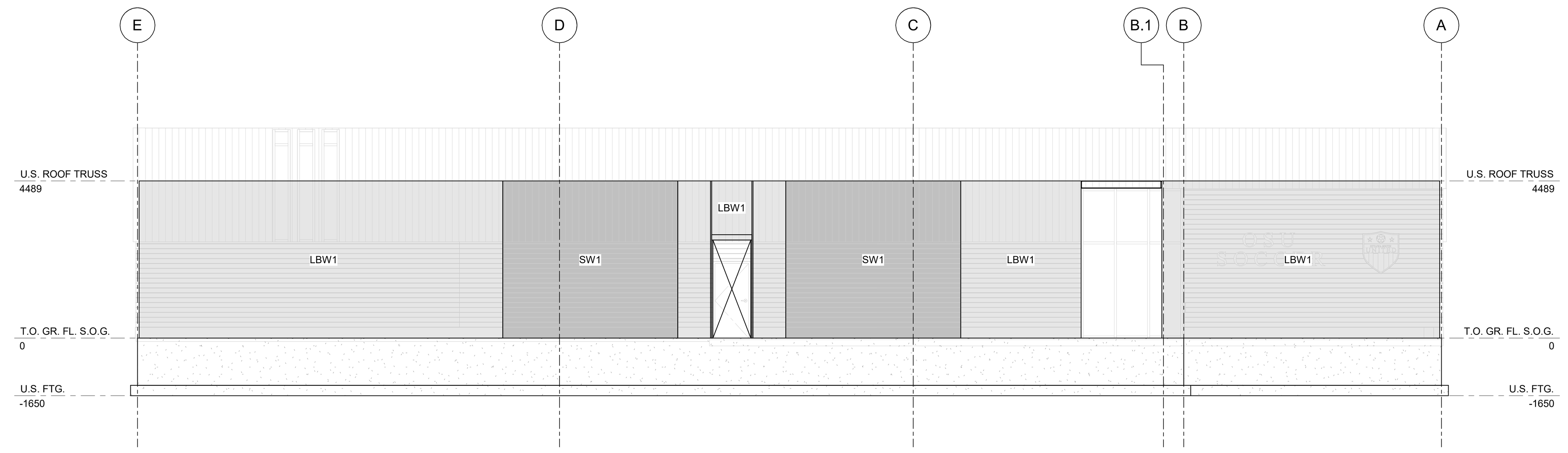
ROOF TRUSSES:
- PRE-ENG STEEL STUD TRUSSES BY OTHERS WITH VARIABLE SLOPED TOP CHORD.

PERIMETER CLOSURE ANGLE:
L64x64x6.4

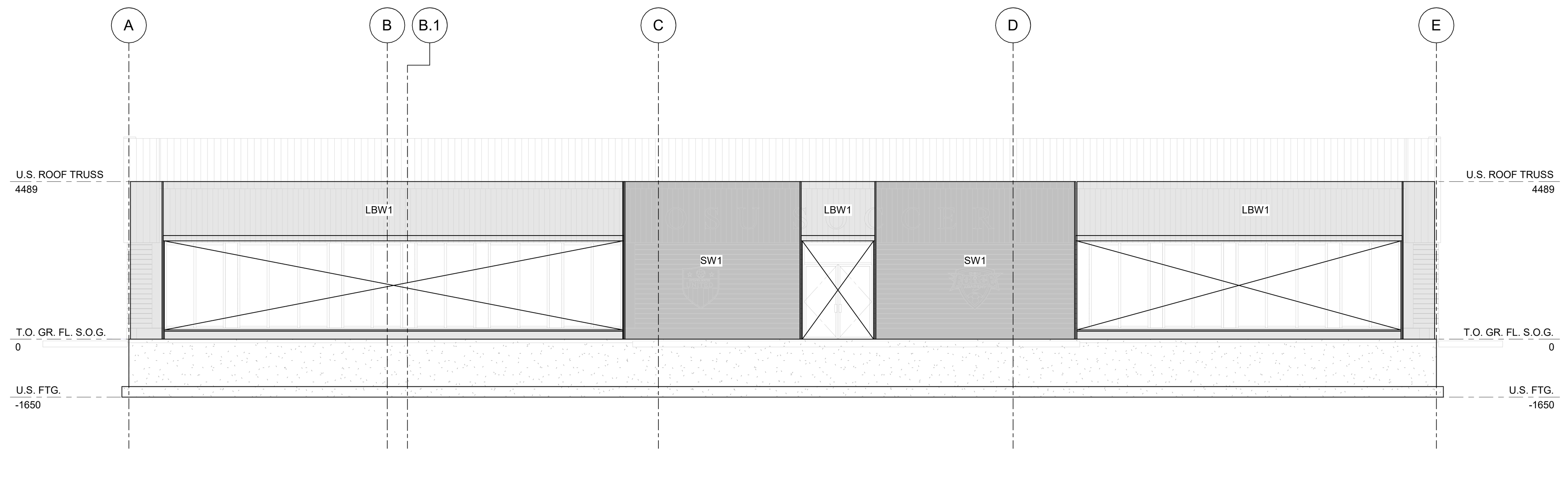
DESIGN LOADS:

DEAD LOAD:
DEAD LOAD = 1.00 kPa
SNOW LOAD = 2.32 kPa

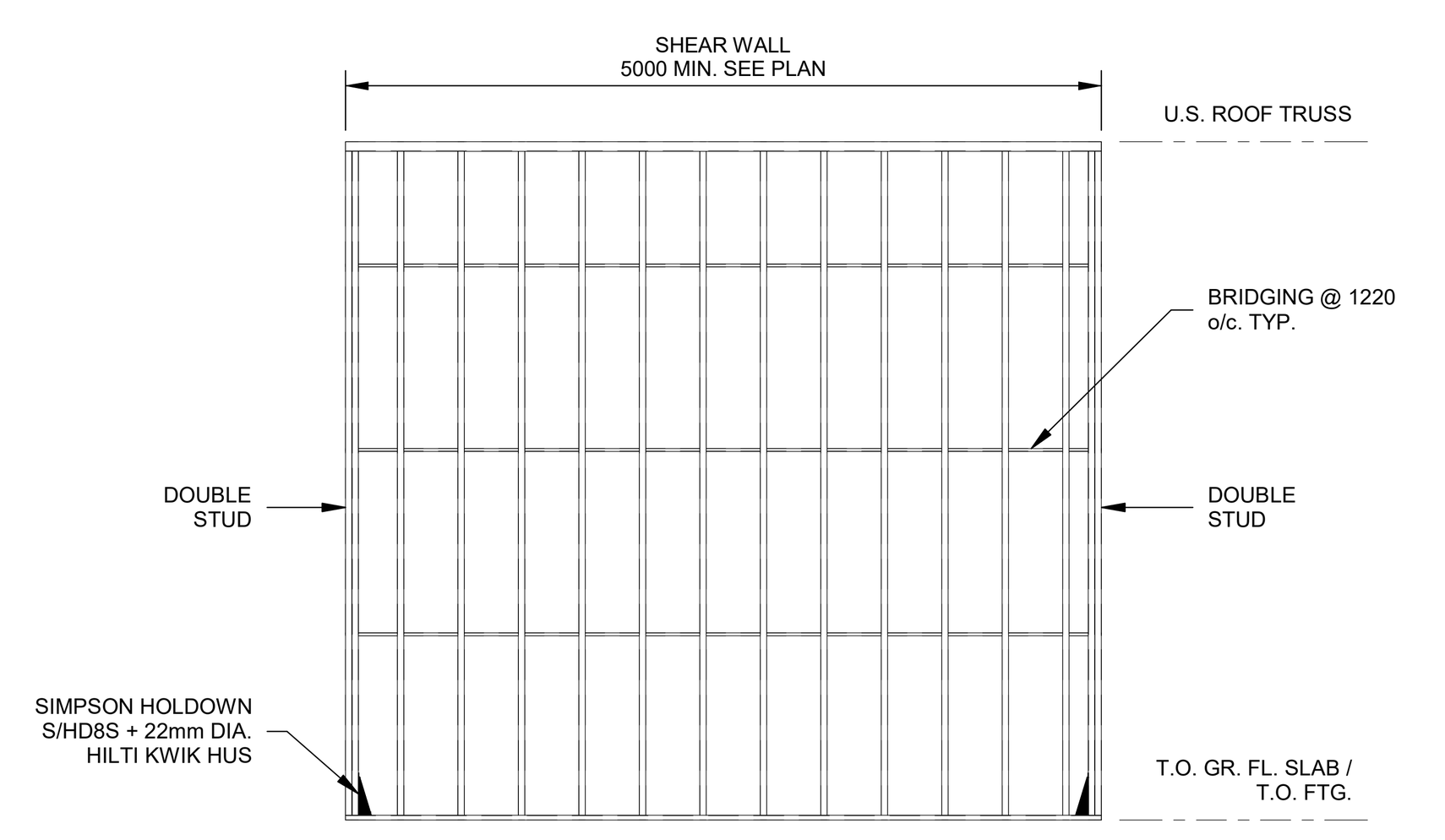
GENERAL NOTES:
- REFER TO 'S000' DRAWINGS FOR GENERAL NOTES AND TYPICAL DETAILS.
- REFER TO ARCH. FOR DIMENSIONS AND ELEVATIONS.
- REFER TO ARCH. DRAWINGS FOR ADDITIONAL SLOPED INSULATION REQUIREMENTS.



4 / S101 WALL ELEVATION ALONG GRID LINE 1
1 : 100



5 / S101 WALL ELEVATION ALONG GRID LINE 4
1 : 100



6 / S101 TYPICAL SHEAR WALL ELEVATION
1 : 50

SCHEDULE - STEEL STUD LOAD BEARING WALL

MARK	WALL WIDTH	VERT. STUDS	BOT TRACK	TOP TRACK	BRIDGING	COMMENTS
LBW1	152	600S162-54 @ 400 o/c.	600T162-54	600T162-54	150U050-54 @ 1220 o/c.	

SCHEDULE - STEEL STUD LOAD BEARING SHEAR WALL

MARK	WALL WIDTH	VERT. STUDS	BOT TRACK	TOP TRACK	BRIDGING	COMMENTS
SW1	152	600S162-54 @ 400 o/c.	600T125-54	600T125-54	150U050-54 @ 1220 o/c.	SEE NOTE #1
SW2	92	362S162-43 @ 400 o/c.	362T125-43	362T125-43	150U050-54 @ 1220 o/c.	SEE NOTE #1
SW3	152	600S162-43 @ 400 o/c.	600T125-43	600T125-43	150U050-54 @ 1220 o/c.	SEE NOTE #1

SHEARWALL NOTES

NOTE #1:
STEEL STUD SHEAR WALL TO HAVE 1-12mm OSB SHEATING ON ONE SIDE WITH BLOCKING AT JOINTS AND SECURED WITH #8 SCREWS @ 150mm o/c. AT PERIMETER AND @ 300mm o/c. IN FIELD

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STEEL STUD LOAD BEARING WALL PLAN & ELEVATIONS

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