

GENERAL

1.

THIS IS A METRIC PROJECT. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE IN MILLIMETERS AND ALL FORCES ARE IN METRIC UNITS (PER TG-ABBR-02).
2.

"WSP-S" REFERS TO WSP CANADA STRUCTURAL CONSULTANT.
3.

PRIOR TO CONSTRUCTION, REVIEW STRUCTURAL DRAWINGS IN CONJUNCTION WITH DRAWINGS PROVIDED BY ALL OTHER CONSULTANTS. CONFIRM ALL DIMENSIONS, ELEVATIONS AND HEADROOM CLEARANCES, AND COORDINATE ALL OPENINGS, SLEEVES AND EMBEDDED ITEMS. REPORT ANY DISCREPANCIES OR CONFLICTS BEFORE PROCEEDING WITH THE WORK.
4.

DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT WRITTEN PERMISSION FROM WSP-S.
5.

EXISTING STRUCTURAL INFORMATION IS BASED UPON DRAWINGS PREPARED BY BAL-MER SERVICES LTD. CONSULTING ENGINEERS, DATED MARCH 1968.
7.

VERIFY EXISTING DIMENSIONS AND CONDITIONS ON SITE PRIOR TO CONSTRUCTION.
8.

USE THESE DRAWINGS ONLY FOR THE PURPOSE IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED 'ISSUED FOR CONSTRUCTION'.
9.

DO NOT USE INFORMATION ON THESE DRAWINGS FOR ANY OTHER PROJECT OR WORKS.
10.

DO NOT SCALE THESE DRAWINGS.
11.

UNLESS OTHERWISE NOTED ON DRAWINGS, FOLLOW TYPICAL DETAILS SHOWN ON S100 DRAWING SERIES. TYPICAL DETAILS SHOW STRUCTURAL INTENT RATHER THAN ACTUAL CONDITIONS FOR THIS PROJECT. IF A TYPICAL DETAIL INCLUDES A CROSS REFERENCE TO ANOTHER TYPICAL DETAIL WHICH IS NOT INCLUDED IN THE DRAWING SET, THE CROSS REFERENCED DETAIL IS NOT APPLICABLE ON THIS PROJECT.
12.

ALL SECTIONS, DETAILS AND STATEMENTS NOTED AS "TYPICAL" APPLY TO LIKE / SIMILAR CONDITIONS IN THE STRUCTURE.
13.

ASSUMED CLADDING SUPPORT CONDITIONS ARE IDENTIFIED ON DRAWINGS AS FOLLOWS:

CWS — CLADDING SELF-WEIGHT SUPPORTED AT THIS LEVEL

CLS — CLADDING ONLY LATERALLY SUPPORTED AT THIS LEVEL (SELF WEIGHT SUPPORTED AT LEVEL ABOVE/BELOW)
14.

REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR REQUIRED FIRE RATING, SPRAYED FIREPROOFING, INTUMESCENT PAINTING AND ALL OTHER MEASURES REQUIRED TO ACHIEVE IT.
15.

REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR WATERPROOFING, SEALERS, ETC.
16.

REFER TO GEOTECHNICAL REPORT AND ARCHITECTURAL / CIVIL DRAWINGS AND SPECIFICATIONS FOR ALL SOIL WORKS.
17.

STRUCTURAL DESIGN ASSUMES NON-LOAD RESTRICTED ULC FIRE RATED ASSEMBLIES, AND APPROPRIATE MATERIALS MUST BE USED.
18.

DRAWINGS SHOW COMPLETED STRUCTURE ONLY. THEY DO NOT SHOW TEMPORARY WORKS FOR WHICH THE CONTRACTOR IS RESPONSIBLE AND WHICH MAY BE REQUIRED FOR EXECUTION OF THE PROJECT, INCLUDING TEMPORARY SHORING, BRACING, GUYS AND TIE DOWNS. CONTRACTOR TO ESTABLISH CONSTRUCTION PROCEDURE AND SEQUENCE TO ENSURE SAFETY OF THE WHOLE STRUCTURE AND ALL ITS COMPONENTS DURING ERECTION.
19.

EXTENT OF ALL TEMPORARY SHORING FOR EXCAVATION WHICH MAY BE REQUIRED IS NOT NECESSARILY SHOWN ON STRUCTURAL DRAWINGS. CONTRACTOR TO DETERMINE. REFER TO SPECIFICATIONS FOR TEMPORARY SHORING REQUIREMENTS.
20.

DESIGN AND CONSTRUCTION REVIEW OF ALL TEMPORARY WORKS TO BE CARRIED OUT BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED.
21.

ANCHOR RODS AND OTHER EMBEDDED ITEMS ARE DESIGNED FOR LOADS ACTING ON THE COMPLETED STRUCTURE ONLY AND ARE NOT TO BE USED OR RELIED UPON FOR TEMPORARY SUPPORT OR BRACING DURING ERECTION UNLESS REVIEWED AND APPROVED BY THE CONTRACTOR'S ENGINEER RESPONSIBLE FOR THE ERECTION PROCEDURES.
22.

CONSTRUCTION LOADS ON COMPLETED STRUCTURE NOT TO EXCEED DESIGN LOADS INDICATED ON DRAWINGS. FULL DESIGN LOADS MAY ONLY BE APPLIED TO CONCRETE ELEMENTS AFTER THE CONCRETE HAS REACHED ITS DESIGN STRENGTH.
23.

UNLESS SHOWN ON STRUCTURAL DRAWINGS, DESIGN OF NON-STRUCTURAL AND SECONDARY STRUCTURAL ELEMENTS AND THEIR CONNECTIONS TO THE PRIMARY BUILDING STRUCTURE ARE NOT WITHIN THE SCOPE OF SERVICES PROVIDED BY WSP-S. SUCH ELEMENTS INCLUDE (BUT ARE NOT LIMITED TO) THE FOLLOWING:

1. MISCELLANEOUS STEEL ELEMENTS: STAIRS, RAILINGS, GUARDRAILS.

2. PARTITIONS: MASONRY, GLASS, WOOD AND STEEL STUDS, PREFABRICATED PANELS

3. BULKHEADS, SUSPENDED CEILINGS, INTERIOR AND EXTERIOR SIGNAGE.

4. ARCHITECTURAL PRECAST, PRECAST STAIRS.

5. EXTERIOR CLADDING: PRECAST PANELS, METAL WALL SYSTEMS, CURTAIN WALLS, AND WINDOWS.

6. MASONRY, STONE OR PRECAST VENEER CONNECTIONS TO BACKUP STRUCTURE.

7. MODULAR ASSEMBLIES FOR THERMALLY BROKEN BALCONIES.

8. SKYLIGHTS, SNOW FENCES, GUTTERS, ROOF ANCHORS, WINDOW WASHING SYSTEMS, CHIMNEYS AND STACKS.

9. SUPPORTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT: HANGERS, BRACES, POSTS, RACKS, SLEEPERS, SEISMIC RESTRAINTS, SUPPORT PLATFORMS AND PADS, SERVICE PLATFORMS.

10. SUPPORTS AND SEISMIC RESTRAINTS FOR OTHER EQUIPMENT, SUCH AS MEDICAL AND SPORTS EQUIPMENT.

11. STORAGE RACKS.

12. LANDSCAPING ELEMENTS: WALLS, CURBS, BENCHES, PLANTERS, WATER FEATURES.

13. LIGHT POLES, FLAG POLES, SIGNS AND THEIR FOUNDATIONS.

WSP-S WILL NOT REVIEW DESIGN, DETAILING AND INSTALLATION OF THESE ELEMENTS, FOR WHICH SUPPLIERS AND / OR SPECIALTY PROFESSIONAL ENGINEERS ARE RESPONSIBLE; THE ONLY REVIEW PROVIDED (WHERE APPLICABLE) WILL BE FOR IMPACT ON THE BASE BUILDING STRUCTURE.
24.

NON-STRUCTURAL ELEMENTS

1. INSTALLATION OF NON-STRUCTURAL ELEMENTS (SUCH AS PERIMETER AND PARTITION WALLS, CLADDING, ETC.) TO START AT LEAST ONE MONTH AFTER RE-SHORING FOR THE CONCRETE STRUCTURE TO WHICH THEY ARE CONNECTED (AT BOTTOM AND AT TOP) HAS BEEN REMOVED.

2. UNLESS NOTED OTHERWISE, DESIGN AND DETAIL NON-STRUCTURAL ELEMENTS AND THEIR CONNECTIONS TO BE ABLE TO ACCOMMODATE THE MAXIMUM MOVEMENTS OF THE SUPPORTING STRUCTURE INDICATED UNDER "STRUCTURAL MOVEMENTS" IN THE DESIGN DATA NOTES. CLADDING SUPPLIER TO DESIGN AND PROVIDE NON-STANDARD ELEMENTS AND CONNECTIONS IF REQUIRED TO ACCOMMODATE THESE MOVEMENTS.

25. MAINTAIN A QUALITY CONTROL PLAN FOR STRUCTURAL WORK AND MAKE IT AVAILABLE TO THE CONSULTANT UPON REQUEST. AT A MINIMUM, THE PLAN TO INCLUDE:

1. NAMES OF PERSONNEL RESPONSIBLE FOR EXECUTION OF THE PLAN.
2.

MEANS AND METHODS FOR CONFIRMING MATERIAL COMPLIANCE WITH SPECIFICATIONS AND ASSOCIATED DOCUMENTATION PROCEDURES.

3.

PROGRAM FOR CONFIRMING AND DOCUMENTING COMPLIANCE WITH REQUIRED SUB-TRADE QUALIFICATIONS AND QUALIFICATIONS OF THEIR INDIVIDUAL EMPLOYEES AND SUB-CONTRACTORS.

4.

PROCEDURES FOR REVIEWING FIELD COMPLIANCE WITH CONSTRUCTION DOCUMENTS, INCLUDING DOCUMENTATION OF LOCATIONS REVIEWED, PHOTOGRAPHS TAKEN AND TIMING OF REVIEW. THE CONTRACTOR'S REVIEW TO BE COMPLETED PRIOR TO REVIEW BY THE CONSULTANT.

5.

PROCEDURES FOR RECTIFYING DEFICIENCIES NOTED BY THE CONTRACTOR, SUB-CONTRACTORS, CONSULTANTS AND INDEPENDENT INSPECTION AGENCIES.

26.

FOR INSPECTION AND TESTING REQUIREMENTS, REFER TO SPECIFICATIONS.

27.

IN CASE OF DISCREPANCY BETWEEN GENERAL NOTES, DRAWINGS AND SPECIFICATIONS, COMPLY WITH THE MOST STRINGENT REQUIREMENTS.
- DESIGN DATA
1.

RENOVATION OF THE EXISTING BUILDING IS CONSIDERED "EXTENSIVE", AS STIPULATED BY PART 11 OF THE ONTARIO BUILDING CODE. STRUCTURE HAS BEEN EVALUATED AND UPGRADED TO MEET ALL THE OBC REQUIREMENTS. RENOVATION IS LIMITED TO THE AREA(S) SHOWN ON THESE DRAWINGS. STRUCTURAL EVALUATION AND UPGRADING OF THE REMAINDER OF THE BUILDING IS NOT INCLUDED IN THE SCOPE OF WORK. WSP-S ACCEPTS NO RESPONSIBILITY FOR THE STRUCTURAL ADEQUACY OF THE REMAINDER OF THE EXISTING BUILDING, WHICH REMAINS THE RESPONSIBILITY OF THE ORIGINAL STRUCTURAL ENGINEER.

2.

CONCRETE ELEMENTS ARE DESIGNED PER CSA A23.3-19 — DESIGN OF CONCRETE STRUCTURES.

3.

STEEL ELEMENTS ARE DESIGNED PER CSA S16-19 — DESIGN OF STEEL STRUCTURES.

4.

COLD FORMED STEEL STRUCTURAL ELEMENTS ARE DESIGNED PER CSA S136-16 — NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS.

5.

ALUMINUM STRUCTURAL ELEMENTS ARE DESIGNED PER CSA S157-5 — STRENGTH DESIGN IN ALUMINUM.

6.

MASONRY STRUCTURAL ELEMENTS ARE DESIGNED PER CSA S304-14 — DESIGN OF MASONRY STRUCTURES.

7.

SAWN LUMBER AND GLUE LAMINATED LUMBER STRUCTURAL ELEMENTS ARE DESIGNED PER CSA O86-19 — ENGINEERING DESIGN IN WOOD.

8.

THE VALUES FOR CLIMATIC DATA USED IN THE DETERMINATION OF DESIGN LOADS HAVE BEEN OBTAINED FROM THE 2020 NBC FOR THE SPECIFIC LOCATION OF KEMPTVILLE, ONTARIO. THE SITE SPECIFIC SEISMIC DATA WAS OBTAINED FROM THE 2020 NATIONAL BUILDING CODE OF CANADA SEISMIC HAZARD TOOL WEBSITE FOR LATITUDE = 45.009 AND LONGITUDE = -75.64.

9.

BASED ON THE USE AND OCCUPANCY, THE BUILDING IS DESIGNED TO THE REQUIREMENTS OF A NORMAL IMPORTANCE CATEGORY.

10.

SELF WEIGHT (SWT) IS DUE TO THE WEIGHT OF THE STRUCTURE ITSELF. IT VARIES WITH THE STRUCTURAL SYSTEM, AND INCLUDES CONCRETE TOPPINGS ON STEEL DECK.

11.

SUPERIMPOSED DEAD LOADS (SDL) ARE NON-STRUCTURAL DEAD LOADS DUE TO NON-STRUCTURAL TOPPINGS, FINISHES, PARTITIONS, ROOFING MATERIALS, SUSPENDED EQUIPMENT, PAVERS, SOIL, ETC.

12.

DEAD LOAD (DL) IS THE SELF WEIGHT OF THE STRUCTURE PLUS THE SUPERIMPOSED DEAD LOAD.

13.

LIVE LOAD (LL) REDUCTION HAS NOT BEEN USED.

14.

UNLESS OTHERWISE NOTED, DESIGN LOADS SHOWN ON DRAWINGS ARE SPECIFIED (UNFACTORED) LOADS, TO BE USED FOR ULS DESIGN, FOR SLS DESIGN, THESE LOADS CAN BE REDUCED BY MULTIPLYING WITH THE RATIO OF APPROPRIATE IMPORTANCE FACTORS Ix(SLS) / Ix(ULS) GIVEN BELOW.

15.

IF ONLY ONE VALUE IS GIVEN FOR A LOAD, CONSIDER IT LIVE LOAD.

16.

FOR CONNECTION LOADS, "+" SIGN INDICATES TENSION AND "-" SIGN INDICATES COMPRESSION, EXCEPT FOR COLUMN LOADS WHERE "+" SIGN INDICATES COMPRESSION AND "-" SIGN INDICATES TENSION.

17.

SNOW:

S_s = 2.3 kPa S_t = 0.4 kPa I_s (ULS) = 1.0 I_s (SLS) = 0.9

MINIMUM UNFACTORED SNOW LOAD = 2.24 kPa x I_s

18.

RAIN:

24 HOUR RAINFALL = 92 mm

19.

LATERAL LOADS IN THIS STRUCTURE ARE RESISTED BY SHEAR WALLS AND ARE DETERMINED BASED ON THE WIND AND SEISMIC DATA BELOW.

20.

WIND:

q₅₀ = 0.41 kPa I_w (ULS) = 1.0 I_w (SLS) = 0.75

BUILDING IS A "LOW BUILDING" (H ≤ 20m AND H < SMALLER PLAN DIMENSION))
TERRAIN TYPE: OPEN
INTERNAL PRESSURE CATEGORY: 2

C_e = 0.9 TO 1.04

C_f = 1.0

WIND LOAD AT GRADE LEVEL FOR DESIGN OF OVERALL BUILDING LATERAL LOAD RESISTING SYSTEM:
0.83 kPa * I_w (END ZONE)
0.55 kPa * I_w (REMAINDER)

WIND LOAD AT GRADE LEVEL FOR DESIGN OF SECONDARY STRUCTURAL ELEMENTS (GIRTS, WIND COLUMNS, ETC. BUT NOT INCLUDING CLADDING):
1.15 kPa * I_w (END ZONE)
1.11 kPa * I_w (REMAINDER)

FACTORED BASE SHEARS & OVERTURNING MOMENTS:

BLOCK A
V(NS) = 109 kN
M(NS) = 332 kNm

V(EW) = 73 kN
M(EW) = 224 kNm
- BLOCK B
V(NS) = 205 kN
M(NS) = 983 kNm

V(EW) = 162 kN
M(EW) = 777 kNm

BLOCK C
V(NS) = 153 kN
M(NS) = 733 kNm

V(EW) = 126 kN
M(EW) = 603 kNm

BLOCK D
V(NS) = 193 kN
M(NS) = 927 kNm

V(EW) = 165 kN
M(EW) = 792 kNm
21.

SEISMIC:

1. SEISMIC FORCE RESISTING SYSTEM (SFRS)

SYSTEM & CONNECTIONS: OBC CLAUSE 4.1.8.9 / 4.1.8.10
LATERAL LOAD RESISTING SYSTEM: CONVENTIONAL CONCRETE SHEAR WALLS
R_d = 1.5
R_e = 1.3
CSA STANDARD: A23.3
APPLICABLE CLAUSE(S): 21.6.3

IMPORTANCE FACTOR: OBC CLAUSE 4.1.8.5)
I_e = 1.0

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

SEISMIC SITE CLASSIFICATION = C
HORIZONTAL SHEAR WAVE VELOCITY: ____ m/s
SEISMIC SITE DESIGNATION X = X_c

3. 5% DAMPED SPECTRAL ACCELERATION VALUES:
PCA(X) = 0.329
PGV(X) = 0.253
S_d(0.2,X) = 0.619
S_d(0.5,X) = 0.371
S_d(1.0,X) = 0.199
S_d(2.0,X) = 0.0917
S_d(5.0,X) = 0.0243
S_d(10.0,X) = 0.00806

4. DESIGN SPECTRAL ACCELERATION VALUES
S(0.2) = 0.619
S(0.5) = 0.371
S(1.0) = 0.199
S(2.0) = 0.0917
S(5.0) = 0.0243
S(10.0) = 0.00806

5. SEISMIC CATEGORY:
I_sS(0.2) = 0.619
I_sS(1.0) = 0.199
SEISMIC CATEGORY SC3
- BLOCK A

6. FUNDAMENTAL PERIOD DATA

EMPIRICAL FORMULA OBC CLAUSE 4.1.8.11(3))T_a = 0.195 sec

DESIGN PERIOD
T_d(NS) = 0.195 sec
T_d(EW) = 0.195 sec

DESIGN SPECTRAL ACCELERATION AT FUNDAMENTAL PERIOD
S(T_a)NS = 0.619
M(NS) = 1.0
J(NS) = 0.945
S(T_a)EW = 0.619
M(EW) = 1.0
J(EW) = 0.945

7. IRREGULARITY REVIEW: OBC CLAUSE 4.1.8.6)
1. VERTICAL STIFFNESS: NO
2. WEIGHT: NO
3. VERTICAL GEOMETRIC: NO
4. IN-PLANE DISCONTINUITY: NO
5. OUT-OF-PLANE: NO
6. WEAK STOREY: NO
7. TORSIONAL: NO
B(NS) = 1.34
B(EW) = 1.12
8. NON-ORTHOGONAL: NO
9. GRAVITY-INDUCED: NO

CONCLUSION: BUILDING IS: REGULAR
DYNAMIC ANALYSIS: NOT REQUIRED
8.

TORSIONAL ECCENTRICITY: ± 0.10 D_{max} (CLAUSE 4.1.8.11 (11)(a)), B < 1.7 (EQUIV. STATIC FORCE PROCEDURE)

9.

EQUIVALENT STATIC FORCE PROCEDURE:

BASE SHEARS

NS DIRECTIONS
VMIN = S(4.0) M_r I_e W/(R_d R_e) = 0.046 W
VMAX = LARGER OF [(2/3) S(0.2) I_e W/(R_d R_e)] OR [S(0.5)I_eW/(R_d R_e)] = 0.212 W

EW DIRECTIONS
VMIN = S(4.0) M_r I_e W/(R_d R_e) = 0.046 W
VMAX = LARGER OF [(2/3) S(0.2) I_e W/(R_d R_e)] OR [S(0.5)I_eW/(R_d R_e)] = 0.212 W

DESIGN BASE SHEARS & OVERTURNING MOMENTS
V(NS)= 0.212 W = 0.212 x 6730 = 1425 kN
M(NS)= M x J = 7063 x 0.95 = 6676 kNm
V(EW)= 0.212 W = 0.212 x 6730 = 1425 kN
M(EW)= M x J = 7063 x 0.95 = 6676 kNm
- BLOCK B

10. FUNDAMENTAL PERIOD DATA

EMPIRICAL FORMULA OBC CLAUSE 4.1.8.11(3))T_a = 0.272 sec

DESIGN PERIOD
T_d(NS) = 0.272 sec
T_d(EW) = 0.272 sec

DESIGN SPECTRAL ACCELERATION AT FUNDAMENTAL PERIOD
S(T_a)NS = 0.559
M(NS) = 1.0
J(NS) = 0.945
S(T_a)EW = 0.559
M(EW) = 1.0
J(EW) = 0.945
11.

IRREGULARITY REVIEW: OBC CLAUSE 4.1.8.6)

1. VERTICAL STIFFNESS: NO
2. WEIGHT: NO
3. VERTICAL GEOMETRIC: NO
4. IN-PLANE DISCONTINUITY: NO
5. OUT-OF-PLANE: NO
6. WEAK STOREY: NO
7. TORSIONAL: NO
B(NS) = 1.65
B(EW) = 1.12
8. NON-ORTHOGONAL: NO
9. GRAVITY-INDUCED: NO

CONCLUSION: BUILDING IS: REGULAR
DYNAMIC ANALYSIS: NOT REQUIRED

12.

TORSIONAL ECCENTRICITY: ± 0.10 D_{max} (CLAUSE 4.1.8.11 (11)(a)), B < 1.7 (EQUIV. STATIC FORCE PROCEDURE)

13.

EQUIVALENT STATIC FORCE PROCEDURE:

BASE SHEARS

NS DIRECTIONS
VMIN = S(4.0) M_r I_e W/(R_d R_e) = 0.046 W
VMAX = LARGER OF [(2/3) S(0.2) I_e W/(R_d R_e)] OR [S(0.5)I_eW/(R_d R_e)] = 0.212 W

EW DIRECTIONS
VMIN = S(4.0) M_r I_e W/(R_d R_e) = 0.046 W
VMAX = LARGER OF [(2/3) S(0.2) I_e W/(R_d R_e)] OR [S(0.5)I_eW/(R_d R_e)] = 0.212 W

DESIGN BASE SHEARS & OVERTURNING MOMENTS
V(NS)= 0.212 W = 0.212 x 13262 = 2806 kN
M(NS)= M x J = 20433 x 0.95 = 19315 kNm
V(EW)= 0.212 W = 0.212 x 13262 = 2806 kN
M(EW)= M x J = 20433 x 0.95 = 19315 kNm
- BLOCK C

14. FUNDAMENTAL PERIOD DATA

EMPIRICAL FORMULA OBC CLAUSE 4.1.8.11(3))T_a = 0.272 sec

DESIGN PERIOD
T_d(NS) = 0.272 sec
T_d(EW) = 0.272 sec

DESIGN SPECTRAL ACCELERATION AT FUNDAMENTAL PERIOD
S(T_a)NS = 0.559
M(NS) = 1.0
J(NS) = 0.945
S(T_a)EW = 0.559
M(EW) = 1.0
J(EW) = 0.945
15.

IRREGULARITY REVIEW: OBC CLAUSE 4.1.8.6)

1. VERTICAL STIFFNESS: NO
2. WEIGHT: NO
3. VERTICAL GEOMETRIC: NO
4. IN-PLANE DISCONTINUITY: NO
5. OUT-OF-PLANE: NO
6. WEAK STOREY: NO
7. TORSIONAL: NO
B(NS) = 1.18
B(EW) = 1.09
8. NON-ORTHOGONAL: NO
9. GRAVITY-INDUCED: NO

CONCLUSION: BUILDING IS: REGULAR
DYNAMIC ANALYSIS: NOT REQUIRED

16.

TORSIONAL ECCENTRICITY: ± 0.10 D_{max} (CLAUSE 4.1.8.11 (11)(a)), B < 1.7 (EQUIV. STATIC FORCE PROCEDURE)

17.

EQUIVALENT STATIC FORCE PROCEDURE:

BASE SHEARS

NS DIRECTIONS
VMIN = S(4.0) M_r I_e W/(R_d R_e) = 0.046 W
VMAX = LARGER OF [(2/3) S(0.2) I_e W/(R_d R_e)] OR [S(0.5)I_eW/(R_d R_e)] = 0.212 W

EW DIRECTIONS
VMIN = S(4.0) M_r I_e W/(R_d R_e) = 0.046 W
VMAX = LARGER OF [(2/3) S(0.2) I_e W/(R_d R_e)] OR [S(0.5)I_eW/(R_d R_e)] = 0.212 W

DESIGN BASE SHEARS & OVERTURNING MOMENTS
V(NS)= 0.212 W = 0.212 x 9704 = 2055 kN
M(NS)= M x J = 14909 x 0.95 = 14093 kNm
V(EW)= 0.212 W = 0.212 x 9704 = 2055 kN
M(EW)= M x J = 14909 x 0.95 = 14093 kNm
- BLOCK D

18. FUNDAMENTAL PERIOD DATA

EMPIRICAL FORMULA OBC CLAUSE 4.1.8.11(3))T_a = 0.272 sec

DESIGN PERIOD
T_d(NS) = 0.272 sec
T_d(EW) = 0.272 sec

DESIGN SPECTRAL ACCELERATION AT FUNDAMENTAL PERIOD
S(T_a)NS = 0.559
M(NS) = 1.0
J(NS) = 0.945
S(T_a)EW = 0.559
M(EW) = 1.0
J(EW) = 0.945

19. IRREGULARITY REVIEW: OBC CLAUSE 4.1.8.6)
1. VERTICAL STIFFNESS: NO
2. WEIGHT: NO
3. VERTICAL GEOMETRIC: NO
4. IN-PLANE DISCONTINUITY: NO
5. OUT-OF-PLANE: NO
6. WEAK STOREY: NO
7. TORSIONAL: NO
B(NS) = 1.42
B(EW) = 1.10
8. NON-ORTHOGONAL: NO
9. GRAVITY-INDUCED: NO

CONCLUSION: BUILDING IS: REGULAR
DYNAMIC ANALYSIS: NOT REQUIRED
20.

TORSIONAL ECCENTRICITY: ± 0.10 D_{max} (CLAUSE 4.1.8.11 (11)(a)), B < 1.7 (EQUIV. STATIC FORCE PROCEDURE)
21.

EQUIVALENT STATIC FORCE PROCEDURE:

BASE SHEARS

NS DIRECTIONS
VMIN = S(4.0) M_r I_e W/(R_d R_e) = 0.046 W
VMAX = LARGER OF [(2/3) S(0.2) I_e W/(R_d R_e)] OR [S(0.5)I_eW/(R_d R_e)] = 0.212 W



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STAMP			
2	JAN. 13/25	PROGRESS SET TO INFORM THE FUNDING APPLICATION	
1	JAN. 07/25	ISSUED FOR REVIEW	
REV DATE		ISSUE	

NOTES
1. OWNERSHIP OF THE COPYRIGHT OF THE DESIGN AND THE WORKS EXECUTED FROM THE DESIGN REMAINS WITH CSV ARCHITECTS, AND MAY NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN CONSENT OF CSV ARCHITECTS.
2. THE DRAWINGS, PRESENTATIONS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN THE PROPERTY OF CSV ARCHITECTS. THEY ARE NOT TO BE USED BY THE CLIENT ON OTHER PROJECTS OR ON EXTENSIONS TO THIS PROJECT WITHOUT THE WRITTEN CONSENT OF CSV ARCHITECTS.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER PROJECT DRAWINGS AND SPECIFICATIONS.
4. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY DIMENSIONS ON SITE.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND ALL SUPPLEMENTS AND APPLICABLE MUNICIPAL REGULATIONS.

CLIENT
NORTH GRENVILLE
OTTAWA, ONTARIO, CANADA

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

GENERAL NOTES

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE:
DATE PRINTED: 2025-01-13 2:48:14 PM

REV DRAWING NO.

2 S101

EW DIRECTIONS
VMIN = S(4.0) M_e W/(R_e R_e) = 0.046 W
VMAX = LARGER OF (2/3) S(0.2) I_e W/(R_e R_e)] OR [S(0.5)I_eW/(R_e R_e)] = 0.212 W

DESIGN BASE SHEARS & OVERTURNING MOMENTS
V(NS)= 0.212 W = 0.212 x 13373 = 2830 kN
M(NS)= M x J = 20547 x 0.95 = 19425 kNm
V(EW)= 0.212 W = 0.212 x 13373 = 2830 kN
M(EW)= M x J = 20547 x 0.95 = 19425 kNm

22. STRUCTURAL MOVEMENTS

UNLESS NOTED OTHERWISE, MAXIMUM EXPECTED MOVEMENT OF THE BUILDING STRUCTURE (AFTER INSTALLATION OF FINISHES) WILL BE AS FOLLOWS ("L" IS THE CLEAR SPAN OF THE SUPPORTING STRUCTURAL ELEMENT, "H" IS THE STORY HEIGHT):

- VERTICAL DEFLECTION OF STEEL FRAMED FLOORS AND ROOFS: L/360 U/N
- VERTICAL DEFLECTION OF CONCRETE FRAMED FLOORS AND ROOFS: L/480 U/N
- VERTICAL DEFLECTIONS OF MEMBERS SUPPORTING CURTAINWALL: 12 mm U/N
- INTERSTOREY WIND DRIFT: H/500
- INTERSTOREY SEISMIC DRIFT H/40

DESIGN AND DETAIL NON STRUCTURAL ELEMENTS AND THEIR CONNECTIONS TO BE ABLE TO ACCOMMODATE THE ABOVE MOVEMENTS.

23. SOIL LATERAL PRESSURE: WALLS RETAINING EARTH ARE DESIGNED USING THE FOLLOWING PARAMETERS:

COEFFICIENT OF ACTIVE PRESSURE K_a=
COEFFICIENT OF PASSIVE PRESSURE K_p=
COEFFICIENT OF PRESSURE AT REST K_r=
UNIT WEIGHT OF SOIL Y= kN/m3
MAXIMUM SURCHARGE q= kPa
SEISMIC PRESSURE COEFFICIENTS F₁=
SEISMIC LOAD P_E= kN
HEIGHT OF SEISMIC LOAD ABOVE TOF H_E= m
HYDROSTATIC PRESSURE BUILDUP ***[HAS NOT] [HAS]*** BEEN CONSIDERED IN THE DESIGN.

SHOP DRAWINGS

- REFER TO SPECIFICATIONS FOR SHOP DRAWINGS WHICH NEED TO BE SUBMITTED FOR REVIEW.
- SUBMIT SIGNED AND SEALED TOWER CRANE SHOP DRAWINGS TO BE REVIEWED FOR IMPACT ON THE BASE BUILDING STRUCTURE.
- REVIEW OF SHOP DRAWINGS BY WSP-S IS ON A SAMPLING BASIS, FOR GENERAL CONFORMITY WITH STRUCTURAL CONTRACT DOCUMENTS. IT IS NOT A DETAILED CHECK AND MUST NOT BE CONSIDERED AS RELIEVING THE CONTRACTOR OF THE CONTRACTOR'S RESPONSIBILITY TO MAKE THE WORK ACCURATE AND IN CONFORMITY WITH ALL CONTRACT DOCUMENTS. TO REVIEW SHOP DRAWINGS AND TO COORDINATE WORK OF INTERFACING TRADES AND MANUFACTURE OF INTERFACING PRODUCTS.
- REVIEW OF SHOP DRAWINGS DOES NOT IMPLY ANY CHANGE IN ANY OTHER CONSULTANTS' OR PROFESSIONALS' RESPONSIBILITIES RELATED TO DESIGN OF SPECIFIC ITEMS AS OUTLINED BY THE SPECIFICATIONS.
- IF REQUIRED, ELECTRONIC FILES OF THE FULL SET OF STRUCTURAL DRAWINGS ARE AVAILABLE "AS-IS", FOR USE AS BACKGROUND IN SHOP DRAWING PREPARATION, PROVIDED THAT THE OWNER AND THE OWNER'S CONSULTANTS ARE NOT HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS ON THE DRAWINGS. THESE DRAWINGS ARE NOT TO BE SCALED.
- ALLOW A MINIMUM OF 10 WORKING DAYS FOR REVIEW OF EACH SUBMISSION OF SHOP DRAWINGS IN WSP-S OFFICE. ALLOW MORE TIME WHEN LARGE QUANTITIES OF SHOP DRAWINGS ARE SUBMITTED. SUBMIT IN GENERAL CONFORMITY WITH THE SEQUENCE OF CONSTRUCTION INTENDED.
- AFTER REVIEW, THE DRAWINGS WILL BE STAMPED AND RETURNED. DO NOT COMMENCE FABRICATION UNTIL RETURNED SHOP DRAWINGS HAVE BEEN EXAMINED. IF FABRICATION BEGINS PRIOR TO EXAMINATION OF RETURNED SHOP DRAWINGS, THE COST ASSOCIATED WITH ANY REQUIRED REPLACEMENT OR REWORK OF FABRICATED ELEMENTS IS THE RESPONSIBILITY OF THE CONTRACTOR.
- SHOP DRAWINGS MARKED "**REVIEWED**" CAN BE USED FOR FABRICATION. DO NOT MAKE ANY CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
- SHOP DRAWINGS MARKED "**REVIEWED AS NOTED**" CAN BE USED FOR FABRICATION AFTER THE REVISIONS NOTED ARE IMPLEMENTED. DO NOT MAKE ANY FURTHER CHANGES OR ADDITIONS TO THESE DRAWINGS WITHOUT NOTIFYING THE CONSULTANT.
- SHOP DRAWINGS MARKED "**REVISE AND RESUBMIT**" REQUIRE SUBSTANTIAL REVISIONS AND MUST BE RESUBMITTED FOR ADDITIONAL REVIEW PRIOR TO FABRICATION. ALL CHANGES AND ADDITIONS TO THE PREVIOUS SUBMISSION TO BE CLEARLY IDENTIFIED ON THE RESUBMITTED DRAWINGS. ONLY THE IDENTIFIED CHANGES WILL BE REVIEWED ON RE-SUBMISSION.
- SHOP DRAWINGS MARKED "**REVIEWED FOR IMPACT ON BASE STRUCTURE ONLY**" SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES BUT AFFECT BEHAVIOUR OF THE BASE STRUCTURE. WSP-S WILL NOT REVIEW DESIGN OF THESE WORKS AND ASSUMES THAT THE INDICATED WEIGHTS AND ALL OTHER LOADS IMPOSED ON THE BASE STRUCTURE ARE CORRECTLY IDENTIFIED BY THE DESIGNER / SUPPLIER OF THESE ELEMENTS.
- DRAWINGS MARKED "**NOT REVIEWED**" SHOW WORKS WHICH ARE NOT WITHIN THE SCOPE OF STRUCTURAL CONSULTING SERVICES AND DO NOT IMPACT THE BASE BUILDING STRUCTURE.
- EXCEPT FOR TOWER CRANE AND EXCAVATION SHORING (WHICH WILL BE REVIEWED FOR IMPACT ON THE BASE STRUCTURE ONLY), WSP-S WILL NOT REVIEW DESIGN AND IMPLEMENTATION OF ANY TEMPORARY WORKS, NOR ASSESS IMPACT OF THESE WORKS ON THE BASE STRUCTURE. THE CONTRACTOR AND / OR THE PROFESSIONAL ENGINEER ENGAGED BY THE CONTRACTOR MUST ENSURE THAT THE BASE STRUCTURE IS NOT ADVERSELY AFFECTED BY THE TEMPORARY WORKS AND CONSTRUCTION PROCESS AND THAT TEMPORARY LOADS DO NOT EXCEED THE DESIGN LOADS INDICATED ON STRUCTURAL DRAWINGS.
- DO NOT USE SHOP DRAWINGS AS A MEANS TO PROPOSE SUBSTITUTIONS OR ALTERNATIVES TO THE MATERIALS, PRODUCTS OR DETAILS INDICATED IN CONTRACT DOCUMENTS. SUCH SHOP DRAWINGS WILL BE MARKED "REVISE AND RESUBMIT".
- PROVIDE FINAL RECORD DRAWINGS AFTER ALL CORRECTIONS ARE MADE.

FIELD REVIEW

- WSP-S WILL PROVIDE PERIODIC FIELD REVIEW OF A REPRESENTATIVE SAMPLE OF THE STRUCTURAL WORKS DETAILED ON THESE DRAWINGS FOR GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THESE REVIEWS DO NOT REPLACE THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT AND MAINTAIN A QUALITY CONTROL PROGRAM, AND DO NOT MAKE WSP-S A GUARANTOR OF THE CONTRACTOR'S WORK.
- CONSTRUCTION REVIEW REPORTS WILL OUTLINE ANY DEFICIENCIES FOUND.
- ASSIST WSP-S DURING FIELD REVIEW AND PROVIDE SAFE ACCESS TO WORK AREAS AS REQUIRED.
- CHECK THE WORK PRIOR TO FIELD REVIEW TO CONFIRM IT IS COMPLETED AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- BRING TO THE ATTENTION OF WSP-S ANY DEFICIENCIES FOUND IN THE WORK TOGETHER WITH A PROPOSAL FOR REMEDY. WSP-S WILL DECIDE WHAT CORRECTIVE ACTION MAY BE TAKEN AND ISSUE THE NECESSARY INSTRUCTIONS.
- PROVIDE REASONABLE NOTICE (NOT LESS THAN 24 HOURS) TO ALLOW FOR THE FIELD REVIEW OF THE FOLLOWING:
 - CONCRETE WALLS, BEAMS AND COLUMNS BEFORE CLOSING FORMS
 - ALL OTHER CONCRETE BEFORE EACH CONCRETE POUR
 - MASONRY BEFORE EACH GROUT POUR
 - STRUCTURAL STEEL BEFORE COVERING UP OR PLACING STEEL DECK

- METAL FLOOR DECK BEFORE PLACING REINFORCING
 - METAL ROOF DECK BEFORE ROOFING
- SCHEDULE REVIEW WORK TO OCCUR DURING NORMAL BUSINESS HOURS.
 - ORGANIZE FOR FIELD REVIEW OF ALL PROPRIETARY PRODUCTS AND OTHER STRUCTURAL WORKS DESIGNED BY SPECIALTY ENGINEERS. THE REVIEW TO BE BY THE ENGINEERS RESPONSIBLE FOR THE DESIGN OR BY OTHER ENGINEERS DESIGNATED BY THE ENGINEERS RESPONSIBLE FOR THE DESIGN AND LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED. SUBMIT CONSTRUCTION REVIEW REPORTS FOR CONSULTANT'S RECORD.

EXISTING STRUCTURES

- EXISTING CONDITIONS ARE ASSUMED. SURVEY THE EXISTING STRUCTURE AFTER REMOVING FINISHES AND REPORT ANY VARIATIONS TO WSP-S BEFORE PROCEEDING WITH THE WORK.
- DESIGN OF STRUCTURAL WORKS RELATED TO THE EXISTING BUILDING HAS BEEN CARRIED OUT AS FAR AS PRACTICAL, GIVEN LIMITED AVAILABILITY OF THE EXISTING DRAWINGS AND LIMITED RECORDS OF THE STRUCTURAL MODIFICATIONS LIKELY TO HAVE BEEN MADE THROUGH THE LIFE OF THE BUILDING. MODIFICATIONS TO THE PROPOSED STRUCTURAL FRAMING AND / OR DETAILS MAY BE REQUIRED IF EXISTING CONDITIONS ARE FOUND TO BE DIFFERENT FROM THOSE ASSUMED AND SHOWN ON DRAWINGS.
- TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING STRUCTURES DURING DEMOLITION AND NEW CONSTRUCTION.
- DISCONNECT ALL SERVICES IN THE AREAS AFFECTED BY DEMOLITION AND NEW CONSTRUCTION. REROUTE SERVICES AS REQUIRED TO KEEP THE REMAINDER OF THE BUILDING OPERATIONAL.
- SAFELY STORE ALL STRUCTURAL ELEMENTS AND OTHER PRODUCTS WHICH ARE TO BE RE-USED.
- REMOVE FROM SITE ALL OTHER STRUCTURAL ELEMENTS AND PRODUCTS WHICH ARE NOT INDICATED TO BE HANDED OVER TO THE OWNER.
- SCHEDULE WORK TO MINIMIZE EFFECT ON THE EXISTING BUILDING OPERATION. USE EQUIPMENT AND PROCEDURES TO MINIMIZE NOISE, DUST AND VIBRATIONS. SUBMIT PROPOSED SCHEDULE FOR REVIEW BY THE CONSULTANT AND THE OWNER.
- ALL DEMOLITION, SHORING AND OTHER TEMPORARY WORKS TO BE DESIGNED AND REVIEWED BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, LICENSED IN THE PLACE WHERE THE PROJECT IS LOCATED. PREPARE DRAWINGS SIGNED AND SEALED BY THAT ENGINEER SHOWING DEMOLITION PROCEDURE AND SEQUENCE AND ALL THE NECESSARY SHORING. PROVIDE ALL FORMS AND REPORTS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- INSTALL AND AFTERWARDS REMOVE ALL TEMPORARY SHORING AND BRACING REQUIRED TO ENSURE THE INTEGRITY OF THE EXISTING STRUCTURE DURING CONSTRUCTION.
- REFER TO TYPICAL DETAIL TC-SL-71 FOR CONCRETE SAWCUTTING PROCEDURE.
- DO NOT ALTER MATERIAL PROPERTIES OF THE STRUCTURAL STEEL WHICH IS TO REMAIN BY CUTTING AND DEMOLITION PROCEDURE.
- ASSESS CAPACITY OF THE EXISTING STRUCTURE AND CONSTRUCTION LOADS APPLIED TO IT. PROVIDE ADEQUATE SHORING IF THE LOADS EXCEED THE EXISTING STRUCTURAL CAPACITY.
- MAKE GOOD ALL EXISTING WORK DISTURBED BY THE SHORING OPERATIONS, DEMOLITION, EXCAVATION AND OTHER CONSTRUCTION PROCEDURES.

EXCAVATION, BACKFILL AND COMPACTION

- VERIFY GEOTECHNICAL CONDITIONS ON SITE.
- REFER TO FOUNDATION NOTES FOR ASSUMED SOIL BEARING CAPACITY. ENGAGE AN INDEPENDENT GEOTECHNICAL ENGINEER TO PERFORM SITE INVESTIGATION (IF REQUIRED) AND CONFIRM.
- PRIOR TO COMMENCING EXCAVATION, LOCATE AND IDENTIFY ALL EXISTING UNDERGROUND STRUCTURES AND SERVICES.
- MAINTAIN STRUCTURES AND SERVICES WHICH ARE TO REMAIN OPERATIONAL OR WHICH WILL BE RE-USED. DESIGN AND PROVIDE PROTECTION AND SUPPORT. WHERE REQUIRED, OBTAIN APPROVAL FROM THE AUTHORITIES HAVING JURISDICTION AND DIVERT OR RELOCATE EXISTING SERVICES. REMOVE ALL OTHER STRUCTURES AND SERVICES.
- ESTABLISH LINES OF EXCAVATION AS REQUIRED FOR CONSTRUCTION SAFETY, BUT DO NOT EXCEED 1:1 SLOPE. DO NOT UNDERMINE ADJACENT FOUNDATIONS AND START SLOPE MINIMUM 300 (12") FROM FACE OF FOUNDATION; REFER TO TYPICAL DETAIL TC-FDN-41.
- DESIGN AND PROVIDE SHORING AND BRACING FOR EXCAVATION WHERE NECESSARY.
- EXCAVATE TO EXPOSE NATIVE UNDISTURBED SOIL AND TO ALLOW FOR MINIMUM COMPACTED BACKFILL AND CONSTRUCTION CLEARANCES AS REQUIRED. REMOVE ALL TOPSOIL, LOOSE FILL, DEBRIS, SOFT SPOTS AND ORGANIC MATERIALS.
- DIG TRENCHES FOR MECHANICAL AND ELECTRICAL SERVICES TO PROVIDE UNIFORM CONTINUOUS BEARING AND SUPPORT BEDDING MATERIAL ON UNDISTURBED SOIL. REFER TO MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS FOR TRENCH CONSTRUCTION DETAILS. AT A MINIMUM, FILL TRENCHES WITH SAND TO 300 (12") ABOVE PIPES OR CONDUITS.
- LEGALLY DISPOSE OF ALL EXCAVATED MATERIALS, OR STORE ON SITE FOR BACKFILLING.
- PROTECT BOTTOM OF EXCAVATION FROM EXCESSIVE MOISTURE BY GRANULAR FILL OR LEAN CONCRETE (MUD SLAB). SLOPE FOR DRAINAGE. PROVIDE DRAINAGE TRENCHES AND PITS AND PUMP OUT WATER AS REQUIRED.
- BACKFILLING MATERIALS TO BE AS FOLLOWS:
 - TYPE 1 (CLASS A) BACKFILLS: CRUSHED STONE WITH PARTICLE SIZE RANGING FROM 0 TO 20 (0" TO 3/4").
 - TYPE 2 (CLASS B) BACKFILLS: CRUSHED STONE OR NATURAL SANDS WITH PARTICLE SIZE RANGING FROM 0 TO 5 (0" TO 3/16").
 - TYPE 3 BACKFILLS: MATERIALS CHOSEN FROM RECYCLED EXCAVATED MATERIALS OR IMPORTED SOILS WITH NO PARTICLES LARGER THAN 75 (3").
- ALL BACKFILLING MATERIALS TO BE SOUND AND CLEAN, FREE FROM DEBRIS, ORGANIC AND FROZEN MATTER, WITH NO REACTIVE MINERALS NOR FRABLE MATERIALS WITH SWELLING POTENTIAL.
- PLACE BACKFILLING MATERIALS AS FOLLOWS:
- INFRASTRUCTURE (GRANULAR BASE): TYPE 1 (CLASS A) BACKFILL; MINIMUM THICKNESS ***[200 (8") [300 (12")]] UNDER INTERIOR SLAB ON GRADE - 200 (8"), UNDER EXTERIOR SLAB ON GRADE - 300 (12")***.
- INTERIOR SLAB ON GRADE: TYPE 2 (CLASS B) BACKFILL TO U/S OF INFRASTRUCTURE (GRANULAR BASE).
- SIDEWALKS: NON FROST SUSCEPTIBLE TYPE 1 (CLASS A) OR TYPE 2 (CLASS B) BACKFILL TO U/S OF INFRASTRUCTURE (GRANULAR BASE); SEE ALSO CIVIL AND LANDSCAPING DRAWINGS.
- EXTERIOR LANDSCAPED AREAS: TYPE 3 BACKFILL TO U/S OF TOPSOIL; SEE ALSO ARCHITECTURAL AND LANDSCAPING DRAWINGS.
- BACKFILL TO GRADES INDICATED IN LIFTS NOT EXCEEDING 300 (12"), EXCEPT THAT LIFTS FOR INFRASTRUCTURE (GRANULAR BASE) SHOULD NOT EXCEED ***[150 (6") [200 (8")***. USE MECHANICAL COMPACTION EQUIPMENT. DO NOT PLACE BACKFILL OVER FROZEN SOIL.
- USE ONLY LIGHT, HAND-OPERATED EQUIPMENT FOR COMPACTION ADJACENT TO BASEMENT WALLS AND RETAINING WALLS. DO NOT BACKFILL UNTIL ELEMENTS PROVIDING LATERAL SUPPORT, INCLUDING SLABS ON GRADE AND ALL SUSPENDED LEVELS, ARE COMPLETED AND CONCRETE HAS REACHED 75% OF ITS DESIGN STRENGTH. FOR ELEMENTS THAT ARE TO BE BACKFILLED ON BOTH SIDES, PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES SUCH THAT HEIGHTS DO NOT VARY BY MORE THAN 600 (2'-0") FROM ONE SIDE TO THE OTHER.

- MAINTAIN MOISTURE CONTENT IN BACKFILLING MATERIAL AS REQUIRED TO ACHIEVE THE SPECIFIED COMPACTION. PROTECT FROM EXCESSIVE MOISTURE DURING AND AFTER THE BACKFILLING OPERATION.
- COMPACT BACKFILL TO ACHIEVE THE FOLLOWING STANDARD PROCTOR MAXIMUM DRY DENSITIES:
 - BELOW SLAB ON GRADE: 98%
 - BELOW PAVEMENT AND SIDEWALKS: 95%
 - BELOW LANDSCAPED AREAS: 90%
- INDEPENDENT INSPECTION AND TESTING AGENCY TO MONITOR COMPACTION AND CONDUCT DENSITY TESTING DURING INSTALLATION OF ALL GRANULAR MATERIALS, AND TO VERIFY THE ASSUMED SOIL BEARING CAPACITY. IF NO TESTING AGENCY IS ENGAGED BY THE OWNER, THE CONTRACTOR TO RETAIN.

FOUNDATIONS

- STRUCTURAL DESIGN IS BASED ON THE GEOTECHNICAL REPORT PREPARED BY _____, REPORT NUMBER _____, DATED _____.
- FOUNDATIONS WILL BE SUPPORTED BY ***[SILT TILL] [TILL] [SANDY CLAY] [CLAY] [SAND] [LIMESTONE BEDROCK] [SHALE BEDROCK] [_____]*** EXPECTED TO BE FOUND BETWEEN ELEVATIONS _____ [ft]*** AND _____ [ft]***. ***[GROUND WATER] [AND] [PERCHED WATER]*** [IS EXPECTED] [IS NOT EXPECTED] [MAY BE ENCOUNTERED]*** ABOVE THE FOUNDING ELEVATIONS; REFER TO THE GEOTECHNICAL REPORT FOR DETAILED INFORMATION ON GEOTECHNICAL CONDITIONS, FOUNDATION RECOMMENDATIONS, AND FOR ALL EARTHWORK INCLUDING EXCAVATION, BACKFILL AND SUBGRADE PREPARATION. ****Modify the above to match the wording used in the Geotechnical report.* ***
- ASSUMED FOOTING BEARING RESISTANCE: _____ kPa AT ULS (ULTIMATE LIMIT STATES DESIGN) _____ kPa AT SLS (SERVICEABILITY LIMIT STATES DESIGN)
- MODULUS OF SUBGRADE REACTIONS ASSUMED FOR DESIGN OF RAFT FOUNDATIONS IS _____ kN/m³.
- CONSTRUCT ALL FOOTINGS ON STRATA CAPABLE TO PROVIDE THE BEARING RESISTANCE NOTED, BUT NOT ABOVE THE ELEVATIONS INDICATED ON DRAWINGS.
- STRUCTURAL DRAWINGS SHOW FOOTINGS AT ELEVATIONS WHERE THE REQUIRED BEARING RESISTANCE IS ANTICIPATED. GEOTECHNICAL CONSULTANT TO REVIEW AND APPROVE IN WRITING ALL BEARING SURFACES PRIOR TO CONSTRUCTING FOOTINGS.
- IF THE ASSUMED BEARING RESISTANCE IS NOT OBTAINED AT THE UNDERSIDE OF FOOTING ELEVATION INDICATED ON DRAWINGS, EXTEND EXCAVATION UNTIL COMPETENT SOIL IS REACHED, AND PROVIDE LEAN CONCRETE FILL (OR CONCRETE SAME AS SPECIFIED FOR THE FOOTING) TO UNDERSIDE OF FOOTING. DO NOT DROP DOWELS; MAINTAIN THE SPECIFIED PROJECTION REQUIRED FOR LAPs.
- PROVIDE MIN. 50 (2") DEEP MUD SLAB AS REQUIRED TO PROTECT BOTTOM OF EXCAVATION AND PLACE BEAMS, AND IN ALL CASES WHERE RECOMMENDED IN GEOTECHNICAL REPORT OR SHOWN ON DRAWINGS.
- UNLESS OTHERWISE NOTED, THE LONGER DIMENSION OF RECTANGULAR SPREAD FOOTINGS TO BE PARALLEL TO THE LONGER COLUMN DIMENSION (FOR CONCRETE COLUMNS), OR TO COLUMN WEB (FOR STEEL COLUMNS).
- REFER TO TYPICAL DETAIL TC-FDN-33 FOR STEPS IN FOOTINGS.

- ****Use the following for driven steel piles, and use Steel Pile spec. 31 62 16****
- MICROPILES TO BE AS IDENTIFIED IN THE SCHEDULE ON S300 SERIES DRAWINGS
 - ASSUMED ULS PILE CAPACITY IN COMPRESSION IS _____ kN.
 - ASSUMED ULS PILE CAPACITY IN TENSION IS _____ kN.
 - PILES ARE SUBJECT TO DOWN DRAG. ASSUMED DOWN DRAG FORCE OF _____ kN HAS BEEN ADDED TO APPLIED LOADS.
 - IF REQUIRED, SPLICE PILES BY FULL PENETRATION BUTT WELDS IN PLANES PERPENDICULAR TO CENTERLINE OF PILES.
 - PILE TOLERANCES:
MAXIMUM DEVIATION AT CUT OFF ELEVATION FROM POSITION ON PLAN: 75 (3")
CENTER TO CENTER DISTANCE OF PILES IN GROUP: 75 (3")
MAXIMUM DEVIATION FROM CUT OFF ELEVATION: +12 (+1/2"), -50 (-2")
MAXIMUM DEVIATION FROM PLUMB: 2%
CURVATURE: MIN. 100m; REFER TO SPECIFICATIONS IF CURVATURE IS BETWEEN 100m TO 200m
PROJECTION OVER LEGAL BOUNDARY: ZERO
 - GEOTECHNICAL CONSULTANT TO REVIEW PILE LENGTH AND REFUSAL CRITERIA REQUIRED TO ACHIEVE THE SPECIFIED CAPACITY, TO OBSERVE PILE TESTING, AND TO MONITOR PILE DRIVING ON A FULL TIME BASIS.
 - FOR FROST PROTECTION, MINIMUM DISTANCE FROM FINISHED GRADE TO UNDERSIDE OF FOOTINGS, GRADE BEAMS AND BASEMENT WALLSPILE CAPS*** TO BE NOT LESS THAN:
- AT BUILDING PERIMETER ADJACENT TO HEATED AREAS: 1.5m
- IN UNHEATED AREAS: _____
 - UNLESS OTHERWISE NOTED, LONGER DIMENSION OF RECTANGULAR PIER TO BE PARALLEL TO THE LONGER COLUMN DIMENSION (FOR CONCRETE COLUMNS), OR TO THE COLUMN WEB (FOR STEEL COLUMNS)
 - UNLESS OTHERWISE NOTED, CENTRE FOOTINGS, PIERS, PILES AND PILE CAPS UNDER CENTROID OF COLUMNS. WHERE THERE ARE NO COLUMNS ABOVE, CENTER UNDER WALLS OR GRADE BEAMS. FOR LOCATIONS OF PILES AT WALL / GRADE BEAM CORNERS, SEE TC-FDN-18.
 - LOCATE ALL EXISTING UNDERGROUND SERVICES PRIOR TO EXCAVATION AND/OR PILE INSTALLATION.
 - THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS FOR FOOTINGS OR TRENCHES NOT TO EXCEED A RISE OF _____ IN A RUN OF _____. ****Usually 7:10, see Geotechnical Report****. REFER TO TYPICAL DETAIL TC-FDN-41. DO NOT EXPOSE PILE OR UNDERMINE PILE CAP WHEN EXCAVATING FOR TRENCHES UNLESS APPROVED IN WRITING BY WSP-S.
 - KEEP EXCAVATION DRAINED AND FREE OF WATER AT ALL TIMES.
 - PROTECT FOOTINGS, PIERS, TOPS OF PILES, PILE CAPS, GRADE BEAMS, FOUNDATION WALLS, SLABS ON GRADE AND ADJACENT SOIL AGAINST FREEZING AND FROST ACTION AT ALL TIMES DURING CONSTRUCTION. DO NOT POUR CONCRETE AGAINST FROZEN EARTH.
 - DO NOT USE EARTH FORMS UNLESS APPROVED IN WRITING BY WSP-S AND GEOTECHNICAL CONSULTANT. FOR ELEMENTS APPROVED TO BE CAST AGAINST SOIL, INCREASE FOOTING SIZE SHOWN ON DRAWINGS AS REQUIRED TO OBTAIN 75 (3") CONCRETE COVER AGAINST SOIL. PLACE ANCHOR RODS AND DOWELS BEFORE CONCRETE IS CAST. USE TEMPLATES TO KEEP IN POSITION.
 - UNLESS NOTED OTHERWISE, PROVIDE DRAINAGE WITH WEEPING TILE TIED INTO MECHANICAL DRAINAGE SYSTEM AT ALL BASEMENT WALLS. REFER TO GEOTECHNICAL REPORT FOR FREE DRAINING BACKFILL REQUIREMENTS AND GROUND WATER FLOW.
 - IF WEEPING TILE AT BASEMENT WALL IS LOCATED AT THE INSIDE FACE OF THE WALL (NOT AT THE FACE SUPPORTING EARTH), PROVIDE MIN. 50 (2") DIA. WEEPERS AT MAX 2000 (6'-8") O/C THROUGH THE WALL. LOCATE JUST ABOVE TOP OF FOOTING.
 - IF A RETAINING WALL DOES NOT HAVE A WEEPING TILE, PROVIDE MIN. 50 (2") DIA. WEEPERS AT MAX 2000 (6'-8") O/C THROUGH THE WALL. LOCATE 200 (8") ABOVE THE LOWER GRADE LEVEL.

- DO NOT BACKFILL AGAINST WALLS RETAINING EARTH UNTIL ELEMENTS PROVIDING LATERAL SUPPORT, INCLUDING SLAB ON GRADE AND ALL SUSPENDED LEVELS, ARE COMPLETED AND CONCRETE HAS REACHED 75% OF ITS DESIGN STRENGTH.
- WHERE SLAB ON GRADE IS USED TO TIE THE TOP OF A WALL RETAINING EARTH, PROVIDE TEMPORARY SHORING OF THE WALL FROM START OF BACKFILLING UNTIL THE ENTIRE SLAB ON GRADE REACHES 75% OF ITS DESIGN STRENGTH.
- FOR ELEMENTS THAT ARE TO BE BACKFILLED ON BOTH SIDES, PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES SUCH THAT HEIGHTS DO NOT VARY BY MORE THAN 600 (2'-0") FROM ONE SIDE TO THE OTHER.


CAST-IN-PLACE CONCRETE

- CONCRETE IS SPECIFIED PER ALTERNATIVE 1 - PERFORMANCE SPECIFICATION, AS OUTLINED IN CSA A23.1. THE CONTRACTOR AND THE CONCRETE SUPPLIER TO MEET ALL CERTIFICATION, DOCUMENTATION, AND QUALITY CONTROL REQUIREMENTS.
- CONTRACTOR AND CONCRETE SUPPLIER TO ENSURE THAT PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING AND THE SPECIFIED PERFORMANCE REQUIREMENTS.
- CONCRETE SUPPLIER TO BE CERTIFIED BY THE READY MIXED CONCRETE ASSOCIATION OF ONTARIO.
- CEMENT TO BE PORTLAND CEMENT TYPE GU OR GUL UNLESS NOTED OTHERWISE OR REQUIRED BY EXPOSURE CLASS.
- CONCRETE TO BE NORMAL DENSITY (MIN. 2300 kg/m³) UNLESS NOTED OTHERWISE.
- NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE TO BE 20 (3/4") UNLESS NOTED OTHERWISE.
- UNLESS NOTED OTHERWISE, CONCRETE TO BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:


ELEMENT	COMPRESSIVE STRENGTH (MPa) AT 28 DAYS U/N (SEE NOTE #3 BELOW)	EXPOSURE CLASS	SPECIAL REQUIREMENTS & REMARKS
PILE CAPS	35 MPa	N / F2	
FOOTINGS	35 MPa	N / F2	
RAFT FOUNDATIONS	35 MPa	N / F2	NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE 40 (1-1/2"). CONCRETE COVER NOT TO BE LESS THAN 40 (1-1/2") FOR CLASS N, 60 (2-3/8") FOR OTHER CLASSES
PIERS & PILASTERS	35 MPa	N / F2	
GRADE BEAMS	35 MPa	N / F2	
FOUNDATION WALLS, PITS	35 MPa	N / F2	
RETAINING WALLS	35 MPa	C1	SEE SHEAR WALL NOTES AND ELEVATIONS
SHEAR WALLS	45 MPa U/N	N / F2	
OTHER INTERIOR WALLS	30 MPa	N	
COLUMNS	40 MPa U/N	N / F2	SEE COL. SCHEDULE AND COLUMN SCHEDULE NOTES
SLAB-ON-GRADE (HEATED, INTERIOR AREAS)	30 MPa	N-CF	FOR SLABS 125 (5") AND THICKER, NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE 40 (1-1/2"). CONCRETE COVER NOT TO BE LESS THAN 40 (1-1/2").
SLAB-ON-GRADE (UNHEATED VEHICLE ACCESSIBLE AREAS), SIDEWALKS, FROST SLABS	35 MPa	C2	AT RESILIENT FINISHES, USE W/CM <0.45. FOR SLABS 125 (5") AND THICKER, NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE 40 (1-1/2"). CONCRETE COVER NOT TO BE LESS THAN 60 (2-3/8")
INTERIOR FORMED SLABS & BEAMS	30 MPa	N-CF	
SLABS ON STEEL DECK	30 MPa	N-CF	
NON-STRUCTURAL TOPPINGS, HOUSEKEEPING PADS, FLOATING SLABS	30 MPa	N	NOMINAL MAXIMUM SIZE OF COARSE AGGREGATE 40 (3/8") FOR TOPPINGS BETWEEN 25 (1") AND 35 (1-3/8") THICK, 14 (9/16") FOR TOPPINGS BETWEEN 35 (1-3/8") AND 60 (2-3/8") THICK
LEAN CONCRETE, MUDSLABS	10	N	
UNDERPINNING	35 MPa	N / F2	
UNSHRINKABLE FILL	0.4 MAX.		

NOTES:

- WHERE EXPOSURE CLASS IS NOTED "N / F2", USE "F-2" EXPOSURE CLASS FOR PERIMETER AND EXTERIOR NON-INSULATED ELEMENTS ABOVE THE FROST LINE, AND FOR ELEMENTS IN INTERIOR UNHEATED SPACES, WHICH ARE SUSCEPTIBLE TO FREEZING. USE "N" EXPOSURE CLASS FOR ELEMENTS PROTECTED FROM FREEZING.
- LIMIT NOMINAL MAXIMUM AGGREGATE SIZE TO 10 (3/8") FOR COLUMNS WITH SMALLEST DIMENSION LESS THAN 300 (12") AND FOR WALLS LESS THAN 200 (8") THICK
- WHERE C-XL, C1 OR ANY CLASS "S" EXPOSURE CONCRETE IS USED, SPECIFIED CONCRETE STRENGTH TO BE ATTAINED AT 56, RATHER THAN AT 28 DAY.
- MINIMUM DOSAGE OF CORROSION INHIBITOR IS 10L/m³ OF 30% SOLUTION OF CALCIUM NITRITE, AS PER CSA-5413.
- "VEHICLE ACCESSIBLE AREAS" EXTEND 1200 (4'-0") AROUND THE AREAS ACTUALLY ACCESSIBLE TO VEHICLES.
- FOR EXPOSURE CLASSES "C-XL", "C-1" AND, "C-2", PROVIDE ENTRAINED AIR UNLESS NOTED OTHERWISE IN THE "SPECIAL REQUIREMENTS AND REMARKS" COLUMN.
- REFER TO CSA A23.1 FOR THE MAXIMUM WATER/CEMENT RATIO, MINIMUM COMPRESSIVE STRENGTH, AIR CONTENT, CURING REQUIREMENTS, CHLORIDE ION PENETRABILITY AND ALTERNATE CEMENT TYPES TO MEET THE REQUIREMENTS FOR THE NOTED EXPOSURE CLASS.
- WHERE REQUIRED BY SPECIFICATIONS, PROVIDE MINIMUM AMOUNT OF SUPPLEMENTAL CEMENTING MATERIALS SPECIFIED FOR THE OVERALL PROJECT.
- DO NOT ADD WATER TO CONCRETE ON SITE.
- CONVEY CONCRETE FROM TRUCK TO FINAL LOCATION BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF MATERIAL. MAXIMUM FREE FALL NOT TO EXCEED 1.5m (5'-0"). CONSOLIDATE CONCRETE USING MECHANICAL VIBRATORS.
- PLACE CONCRETE AS CLOSE AS POSSIBLE TO FINAL LOCATION TO AVOID SEGREGATION. VIBRATE ALL CONCRETE.
- PROTECT CONCRETE FROM FREEZING. DO NOT PLACE CONCRETE AGAINST FROZEN GROUND. USE COLD WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.



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STAMP

2 JAN. 13/25

PROGRESS SET TO INFORM THE FUNDING APPLICATION

1 JAN. 07/25

ISSUED FOR REVIEW

REV DATE

ISSUE

NOTES

1. OWNERSHIP OF THE COPYRIGHT OF THE DESIGN AND THE WORKS EXECUTED FROM THE DESIGN REMAINS WITH CSV ARCHITECTS, AND MAY NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN CONSENT OF CSV ARCHITECTS.

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4. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY DIMENSIONS ON SITE.

5. ALL WORK SHALL BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND ALL SUPPLEMENTS AND APPLICABLE MUNICIPAL REGULATIONS.

CLIENT

NORTH GRENVILLE

OTTAWA ONTARIO, CANADA



15 Campus Drive
Kemptville, Ontario

TITLE

PROJECT

Bell Hall

PROJECT NO:

DRAWN: W.DABROWSKI

APPROVED: I.FULLER

SCALE:

DATE PRINTED: 2025-01-13 2:48:16 PM

REV

DRAWING NO.

2

S102

14.

PROTECT CONCRETE FROM EXCESSIVE HEAT AND DRYING. USE HOT WEATHER CONCRETING METHODS IN ACCORDANCE WITH CSA-A23.1.
15.

BASES OF COLUMNS AND WALLS IN VEHICLE ACCESSIBLE AREAS (EXCEPT FOR THE RETAINING WALLS OUTSIDE BUILDINGS) TO BE PROTECTED BY MEMBRANE OR SEALER, AND SLABS TO SLOPE AWAY FROM COLUMNS AND WALLS AS SHOWN ON TC-COL-41.
16.

COLUMNS

1.

DO NOT PLACE RECESSED BOXES IN CONCRETE COLUMNS WITHOUT PRIOR APPROVAL FROM STRUCTURAL CONSULTANT.

2.

MAXIMUM AREA OF CONCRETE DISPLACED BY CONDUITS EMBEDDED IN COLUMNS (INCLUDING THE CONDUIT AND THE PROJECTED AREA OF THE CONDUIT EXIT PATH) NOT TO EXCEED 4% OF THE COLUMN CROSS SECTIONAL AREA, REFER TO TYPICAL DETAIL TC-MISC-22 FOR FURTHER EXPLANATION AND GUIDELINES.

3.

WHERE APPLICABLE, COLUMN OFFSETS FROM GRIDLINES ARE NOTED ON DRAWINGS. UPPER COLUMNS ARE CENTRED ON COLUMNS BELOW UNLESS NOTED OTHERWISE.

17.

SLABS AND BEAMS

1.

SURVEY TOP OF FORMWORK / SLAB ELEVATIONS AT SUPPORTS, AT MIDSPAN BETWEEN SUPPORTS, AT CENTERS OF BAYS, AND AT CANTILEVERED ENDS AT THE FOLLOWING TIMES:

-

BEFORE CONCRETE PLACEMENT

-

AFTER CONCRETE PLACEMENT BUT PRIOR TO REMOVAL OF SUPPORTING FALSEWORK

-

AFTER REMOVAL OF SUPPORTING FALSEWORK.

SUBMIT SURVEY DATA FOR ENGINEER'S RECORD.

2.

DO NOT USE LASER LEVEL WHEN POURING CAMBERED SLABS AND SLABS SUPPORTED BY STEEL BEAMS. USE SCREED PINS TO MAINTAIN THE SPECIFIED SLAB THICKNESS.

3.

DO NOT USE STEEL TROWEL TO FINISH AIR-ENTRAINED CONCRETE.

4.

PROVIDE MINIMUM 150 (6") BEARING ON MASONRY WALLS.

5.

SUBMIT COMPOSITE LAYOUT DRAWINGS SHOWING SLEEVES AND OPENINGS REQUIRED BY ALL TRADES FOR WSP-S REVIEW. REFER TO TYPICAL DETAILS TC-SL-63 AND TC-BM-31 FOR PLACEMENT GUIDELINES. DO NOT INSTALL ANY SLEEVES OR OPENINGS WHICH ARE NOT SHOWN ON STRUCTURAL DRAWINGS WITHOUT WSP-S REVIEW AND ACCEPTANCE.

6.

SUBMIT COMPOSITE LAYOUT DRAWINGS SHOWING ALL EMBEDDED PIPES AND CONDUITS. MAXIMUM OUTSIDE DIAMETER OF ANY CONDUIT OR PIPE EMBEDDED IN SLAB NOT TO EXCEED ONE THIRD OF THE SLAB THICKNESS. REFER TO TYPICAL DETAIL TC-MISC-21 AND TS-DECK-41FOR PLACEMENT GUIDELINES.

7.

FOR SLABS-ON-GRADE OR UNBONDED CONCRETE TOPPINGS, LOCATE ALL CONDUITS, PIPES, OR HEATING CABLES EMBEDDED IN CONCRETE CLEAR OF THE TOP ONE THIRD OF THE SLAB THICKNESS TO AVOID DAMAGE DURING SAWCUTTING.

8.

FOR SLABS TO RECEIVE RESILIENT FLOORING AND OTHER SENSITIVE FLOOR FINISHES, REFER TO SPECIFICATIONS FOR SPECIAL CURING REQUIREMENTS. MONITOR SLAB MOISTURE CONTENT AND DO NOT APPLY FINISHES BEFORE THE MOISTURE CONTENT IS FOUND TO BE WITHIN THE ACCEPTABLE RANGE.

18.

CONSTRUCTION & CONTROL JOINTS

1.

PROVIDE JOINTS WHERE SPECIFIED OR SHOWN ON DRAWINGS. LOCATE SO AS NOT TO IMPAIR THE REQUIRED STRENGTH OF THE STRUCTURE. SUBMIT JOINT LAYOUT FOR WSP-S REVIEW AND APPROVAL A MINIMUM OF 2 WEEKS PRIOR TO POURING CONCRETE. REFER TO TYPICAL DETAILS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2.

UNLESS OTHERWISE NOTED, PROVIDE STANDARD CONTINUOUS 38 x 89 (2x4) FORMED KEYS AT ALL CONSTRUCTION JOINTS. CENTER AT JOINTS AND CHAMFER SIDES.

3.

IF A SPECIFIC CONSTRUCTION JOINT DETAIL IS SHOWN ON DRAWINGS, IT CAN NOT BE SUBSTITUTED BY ANY ALTERNATIVE CONSTRUCTION JOINT DETAIL.

4.

HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE WALLS (OTHER THAN AT UNDERSIDE OF SLABS) ARE NOT PERMITTED, EXCEPT WHERE SHOWN ON THESE DRAWINGS.

5.

CAST CONCRETE BEAMS INTEGRALLY WITH SLABS (WITH NO HORIZONTAL CONSTRUCTION JOINTS) UNLESS OTHERWISE SHOWN ON DRAWINGS.

6.

NON-STRUCTURAL SLABS ON GRADE AND UNBONDED TOPPINGS: UNLESS NOTED OTHERWISE, PROVIDE CONSTRUCTION JOINTS AT 30m (100ft) MAXIMUM IN BOTH DIRECTIONS, WITH CONTROL JOINTS IN BETWEEN AT 25 TIMES THE SLAB THICKNESS, BUT NOT MORE THAN 4.5 m (15ft). LONGER DIMENSION OF ANY SOG SEGMENT CREATED BY CONSTRUCTION AND CONTROL JOINTS NOT TO EXCEED 1.25 TIMES THE SHORTER DIMENSION OF THE SEGMENT. CONSIDER SLAB DEPRESSIONS AND PITS WHEN PROPOSING LAYOUT, AND SHOW ON LAYOUT DRAWINGS. COMPLETE SAWCUTTING WITHIN 6 TO 18 HOURS OF PLACING CONCRETE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

7.

DO NOT PLACE CONTROL JOINTS IN STRUCTURAL SLAB ON GRADE; PROVIDE CONSTRUCTION JOINTS AS DESCRIBED FOR FORMED SLABS.

8.

FORMED SLABS AND SLABS ON NON-COMPOSITE STEEL DECK FORM: PROVIDE CONSTRUCTION JOINTS AT 30m (100ft) MAXIMUM IN BOTH DIRECTIONS. SEE TYPICAL DETAIL TC-SL-42 FOR ACCEPTABLE LOCATIONS OF CONSTRUCTION JOINTS IN FORMED SLABS.

9.

BONDED TOPPING: JOINTS TO MATCH LOCATIONS OF THOSE IN BASE SLAB. SLABS ON COMPOSITE DECK: PROVIDE CONSTRUCTION JOINTS TO SUIT CONSTRUCTION PROCEDURE. SEE TYPICAL DETAIL TS-DECK-02 FOR ACCEPTABLE LOCATIONS.

11.

FOUNDATION WALLS AND GRADE BEAMS: PROVIDE VERTICAL CONSTRUCTION JOINTS AT 30m (100ft) MAXIMUM. LOCATE JOINTS IN GRADE BEAMS AND FOUNDATION WALLS ACTING AS BEAMS (SPANNING BETWEEN FOOTINGS OR PILES) WITHIN THE MIDDLE THIRD OF THEIR SPAN.

12.

INTERIOR WALLS (EXCEPT SHEAR WALLS), AND BASEMENT WALLS IN HEATED AREAS: PROVIDE VERTICAL CONSTRUCTION JOINTS AT 30m (100ft) MAXIMUM, WITH CONTROL JOINTS IN BETWEEN AT 7.5m (25ft) MAXIMUM. LOCATE FIRST JOINT MAXIMUM 4.5m (15ft) FROM ANY CORNER. LOCATE CONSTRUCTION JOINTS WITH WATERSTOPS MIN. 300 (12") FROM ANY WALL CORNER OR INTERSECTION. SEE TYPICAL DETAIL TC-WALL-22 FOR ACCEPTABLE CONTROL JOINT LOCATIONS.

13.

SHEAR WALLS: NO CONSTRUCTION JOINTS (OTHER THAN AT UNDERSIDE OF SLABS) NOR CONTROL JOINTS UNLESS SHOWN ON DRAWINGS.

14.

EXTERIOR RETAINING WALLS: PROVIDE VERTICAL CONTROL JOINTS AT 5m (16ft) MAXIMUM, WITH KEYED OR DOWELLED EXPANSION JOINTS AT 15m (50ft) MAXIMUM.

15.

OTHER WALLS IN UNHEATED AREAS: PROVIDE VERTICAL CONSTRUCTION JOINTS AT 30m (100ft) MAXIMUM, AND CONTROL JOINTS AT 5m (16ft) MAXIMUM. LOCATE CONTROL JOINTS NOT MORE THAN 2.5m (8ft) FROM EACH SIDE OF CONSTRUCTION JOINTS AND ANY WALL CORNER.

CONCRETE REINFORCEMENT

1.

REINFORCEMENT TO CONFORM TO THE FOLLOWING STANDARDS:

DEFORMED BARS — CSA G30.18, GRADE 400R OR 400W, UNLESS GRADE 500R / 500W IS INDICATED ON DRAWINGS.

WELDED WIRE FABRIC — ASTM A1064/A1064M, YIELD STRENGTH 450 MPA, SUPPLIED IN FLAT SHEETS ONLY.

2.

ALL REINFORCING BAR SIZES ARE METRIC; "M" IS NOT NECESSARILY MARKED AFTER A BAR SIZE. FOR EXAMPLE, 10-15B NOTED ON PLAN INDICATES 10 BARS OF 15M DIAMETER, PLACED AT BOTTOM.

3.

BARS MARKED CONTINUOUS TO BE TERMINATED IN STANDARD HOOKS AT ENDS AND SPLICED WITH ADJACENT BARS USING CLASS B LAPS. FOR LAP LENGTHS AND DEVELOPMENT LENGTHS, REFER TO TYPICAL DETAILS TC-REINF-01.

4.

ALL REBAR HOOKS TO BE STANDARD LENGTH 90° OR 180° HOOKS. REBAR LENGTHS LISTED ON DRAWINGS DO NOT INCLUDE THE HOOK LENGTH.

5.

UNLESS A SPECIFIC STIRRUP SHAPE IS INDICATED ON PLANS OR SCHEDULES, ALL STIRRUPS TO BE CLOSED HOOPS. NUMBER OF STIRRUPS DENOTES THE NUMBER OF FULL STIRRUPS, EACH HAVING TWO LEGS.

6.

WHERE TWO BARS OF DIFFERENT SIZE ARE LAPPED IN TENSION, SPLICE LENGTH TO BE EQUAL TO THE SMALLER BAR'S TENSION LAP SPLICE, OR TO THE LARGER BAR'S TENSION DEVELOPMENT LENGTH, WHICHEVER IS LONGER.

7.

WHERE TWO BARS OF DIFFERENT SIZE ARE LAPPED IN COMPRESSION, SPLICE LENGTH TO BE EQUAL TO THE SMALLER BAR'S COMPRESSION LAP SPLICE, OR TO THE LARGER BAR'S COMPRESSION DEVELOPMENT LENGTH, WHICHEVER IS LONGER.

8.

FOR BUNDLED BARS, FULLY STAGGER SPLICES OF EACH INDIVIDUAL BAR IN THE BUNDLE.

9.

LAP WELDED WIRE FABRIC SHEETS BY ONE SPACING OF CROSS WIRES + 50 (2"), MEASURED BETWEEN THE OUTERMOST CROSS WIRES IN EACH SHEET.

10.

PROVIDE ADDITIONAL SUPPORT BARS AS REQUIRED TO ADEQUATELY SUPPORT AND SECURE ALL REINFORCEMENT AND PREVENT MOVEMENT WHEN PLACING CONCRETE.

11.

PROVIDE SUFFICIENT CHAIRS TO REINFORCING TO MAINTAIN SPECIFIED CONCRETE COVER.

12.

PLACE WELDED WIRE FABRIC IN SLABS ON GRADE AT 1/3 SLAB THICKNESS BELOW TOP OF SLAB. PROVIDE ADEQUATE CHAIRS TO KEEP IN SPECIFIED POSITION. LIFTING WWF AFTER CONCRETE IS POURED TO BRING IT IN POSITION IS NOT ACCEPTABLE.

13.

ALL REINFORCING TO BE CLEAN, FREE OF LOOSE SCALE, OIL, DIRT, RUST, AND ANY OTHER FOREIGN COATING THAT AFFECT BONDING CAPACITY.

14.

MINIMUM CLEAR SPACING BETWEEN ADJACENT BARS TO BE AT LEAST 1.4 TIMES THE BAR DIAMETER OR 1.4 TIMES THE NOMINAL MAXIMUM SIZE OF THE COARSE AGGREGATE, WHICHEVER IS MORE.

15.

WHERE PARALLEL REINFORCEMENT IS PLACED IN TWO OR MORE LAYERS, POSITION BARS IN UPPER LAYER DIRECTLY ABOVE THE BARS IN LOWER LAYER, MAINTAINING THE MINIMUM CLEAR SPACING BETWEEN LAYERS AS SPECIFIED ABOVE.

16.

UNLESS NOTED OTHERWISE ON DRAWINGS, MINIMUM CONCRETE COVER TO PRINCIPAL REINFORCEMENT (EXCLUDING WWF) TO BE AS FOLLOWS (ALSO REFER TO TYPICAL DETAIL TC-REINF-21):

EXPOSURE CLASS:	N, N-CF	F1, F2, S1, S2, S3	C-XL, C1, C2, C3
SURFACES CAST AGAINST GROUND		75 (3")	
FOOTINGS, RAFT FOUNDATIONS, PILE CAPS WITHOUT TIES	≤ 35M: 40 (1-5/8")	≤ 25M: 40 (1-5/8") 30M: 45 (1-3/4") 35M: 55 (2-1/8")	≤ 30M: 60 (2-3/8") 35M: 75 (3")
PILES, PILE CAPS WITH TIES, PIERS, GRADE BEAMS	≤ 35M: 55 (2-1/8")		≤ 35M: 75 (3")
SLAB ON GRADE — TOP COVER	≤ 25M: 25 (1")	≤ 25M: 40 (1-5/8")	≤ 30M: 60 (2-3/8")
SLAB ON GRADE NOT CAST AGAINST GROUND — BOTTOM COVER	≤ 25M: 40 (1-5/8")		≤ 30M: 60 (2-3/8")
(CAST ON MUD SLAB, VAPOUR BARRIER, RIGID INSULATION) BEAMS, GIRDERS, SLAB BANDS WITH STIRRUPS	≤ 35M: 45 (1-3/4")	≤ 35M: 55 (2-1/8")	≤ 35M: 75 (3")
STRUCTURAL SLABS, SLAB BANDS WITHOUT STIRRUPS, SLAB ON STEEL DECK	≤ 25M: 25 (1") 30M: 30 (1-1/4") 35M: 35 (1-3/8") PT REINF: 40 (1-5/8")	≤ 25M: 40 (1-5/8") 30M: 45 (1-3/4") 35M: 55 (2-1/8")	≤ 30M: 60 (2-3/8") 35M: 70 (2-3/4") PT REINF: 60 (2-3/8")
COLUMNS	≤ 45M: 50 (2") 55M: 55 (2-1/8")	≤ 35M: 55 (2-1/8") 45M: 70 (2-3/4") 55M: 85 (3-3/8")	≤ 35M: 75 (3") 45M: 90 (3-1/2") 55M: 110 (4-3/8")
BASEMENT WALLS, RETAINING WALLS	VISIBLE FACE: ≤ 25M: 25 (1") 30M: 30 (1-1/4") 35M: 35 (1-3/8") FACE AGAINST EARTH ≤ 25M: 40 (1-5/8") 30M: 45 (1-3/4") 35M: 55 (2-1/8")	≤ 25M: 40 (1-5/8") 30M: 45 (1-3/4") 35M: 55 (2-1/8")	≤ 30M: 60 (2-3/8") 35M: 70 (2-3/4") ***FOR PROTECTED PARKING STRUCTURES, SEE TABLE BELOW***
WALLS WHICH CAN BE EXPOSED TO FIRE ON BOTH SIDES SIMULTANEOUSLY	≤ 35M: 50 (2")	≤ 30M: 50 (2") 35M: 55 (2-1/8")	≤ 30M: 60 (2-3/8") 35M: 70 (2-3/4")
OTHER INTERIOR WALLS	≤ 25M: 25 (1") 30M: 30 (1-1/4") 35M: 35 (1-3/8")	≤ 25M: 40 (1-5/8") 30M: 45 (1-3/4") 35M: 55 (2-1/8")	≤ 30M: 60 (2-3/8") 35M: 70 (2-3/4")

NOTES:

1.

COVERS SHOWN ABOVE MEET 2h FIRE RATING REQUIREMENTS; SEE DRAWINGS FOR AREAS WHICH REQUIRE 3 OR 4 HOUR FIRE RATING AND PROVIDE INCREASED COVER AS INDICATED.

2.

COVERS SHOWN ABOVE ASSUME 20 (3/4") MAXIMUM NOMINAL SIZE OF CONCRETE AGGREGATE (MAX. Øa). REFER TO CONCRETE MIX DESIGN TABLE IN CAST-IN-PLACE CONCRETE NOTES FOR CONCRETE WITH LARGER AGGREGATE SIZE, AND INCREASE COVER TO REINFORCING CLOSEST TO THE SURFACE TO BE 1.0x MAX. Øa FOR "N" CONCRETE, 1.5x MAX. Øa FOR "F_" AND "S_" CONCRETE, AND 2.0x MAX. Øa FOR "C_" CONCRETE.

3.

FOR BUNDLED BARS, PROVIDE COVER REQUIRED FOR A SINGLE BAR WITH EQUIVALENT CROSS-SECTIONAL AREA. FOR EXAMPLE, 2-25M BUNDLED BARS WITH TOTAL CROSS-SECTIONAL AREA = 1000mm² ARE EQUIVALENT TO 1-35M BAR, THEREFORE USE COVER TO BUNDLED BARS SAME AS COVER TO 1-35M BAR.

4.

FOR BARS WITH 90° HOOKS, MINIMUM COVER NOT TO BE LESS THAN SHOWN ON TC-REINF-01/02.

5.

INCREASE THE COVER SPECIFIED FOR PT REINFORCING TO ACCOMMODATE THE MINIMUM COVER TO THE MILD STEEL CROSSING OVER IT.

17.

WALLS

1.

UNLESS OTHERWISE NOTED ON DRAWINGS, SCHEDULES OR NOTES, MINIMUM REINFORCEMENT FOR CONCRETE WALLS TO BE AS FOLLOWS:

150 (6") MAXIMUM WALL: 10M @ 330 (13") H + 10M @ 450 (18") V IN CENTRE

200 (8") MAXIMUM WALL: 10M @ 250 (10") H + 10M @ 330 (13") V IN CENTRE

250 (10") MAXIMUM WALL: 10M @ 400 (16") HEF + 10M @ 500 (20") VEF

300 (12") MAXIMUM WALL: 10M @ 330 (13") HEF + 10M @ 440 (17") VEF

VERTICAL REINFORCING TO BE PROVIDED LAYER. ALL SPLICES TO BE CLASS "B".

2.

REFER TO TYPICAL DETAIL TC-WALL-01 FOR REINFORCING REQUIRED AT WALL CORNERS AND INTERSECTIONS.

3.

REFER TO TYPICAL DETAIL TC-WALL-11 FOR MINIMUM DOWELING REQUIREMENTS BETWEEN WALLS AND SLABS.

4.

FOR OPENINGS LARGER THAN 400 x 400 (16"x16"), PROVIDE ADDITIONAL REINFORCING AS SHOWN ON TYPICAL DETAIL TC-WALL-32.

5.

FOR SHEAR WALL REQUIREMENTS, REFER TO SHEAR WALL NOTES ON DRAWINGS S____.

6.

FOR MASONRY WALL REINFORCEMENT REFER TO MASONRY NOTES.

18.

SLABS

9.

UNLESS OTHERWISE SPECIFIED ON PLANS, PROVIDE BOTTOM TEMPERATURE REINFORCEMENT IN BOTH DIRECTIONS FOR FRAMED SLABS IN ACCORDANCE WITH TYPICAL DETAIL TC-SL-02.

10.

UNLESS NOTED OTHERWISE, DO NOT ELIMINATE OR CUT REINFORCEMENT TO ACCOMMODATE MECHANICAL AND ELECTRICAL SLEEVES, OPENINGS OR HARDWARE. SPREAD REINFORCING AROUND SLEEVES.

11.

FOR OPENINGS LARGER THAN 400 x 400 (16"x16"), PROVIDE ADDITIONAL REINFORCING AS SHOWN ON TYPICAL DETAIL TC-SL-62.

12.

WHERE IN FLOOR HEATING IS CAST INTO SLABS, PROVIDE ADDITIONAL LAYER OF WWF 102 X 102 MW18.7 X MW18.7 WHERE REQUIRED FOR IN FLOOR HEATING SECUREMENT.

POST-INSTALLED ANCHORS AND DOWELS

1.

UNLESS OTHERWISE NOTED, PROVIDE STRUCTURAL ANCHORS AS FOLLOWS:

1.

WHERE DRILLED CONCRETE ANCHORS (DCA) OR DRILLED MASONRY ANCHORS (DMA) ARE NOTED ON DRAWINGS, PROVIDE HILTI KWIK BOLT — TZ2 EXPANSION ANCHORS. TIGHTEN USING THE TORQUE SPECIFIED BY THE MANUFACTURER. LOCATE DMA MIN. 35 (1-3/8") FROM ANY VERTICAL MORTAR JOINT. DO NOT INSTALL DMA INTO HOLLOW MASONRY. ADVISE WSP-S IF HOLLOW MASONRY IS FOUND ON SITE WHERE DMA HAVE BEEN SPECIFIED.

2.

WHERE ADHESIVE CONCRETE ANCHORS (ACA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT-HY 200-A V3 ADHESIVE ANCHORING SYSTEM WITH HILTI HIT-Z ANCHOR RODS.

3.

WHERE ADHESIVE MASONRY ANCHORS (AMA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT-HY 270 ADHESIVE ANCHORING SYSTEM WITH HAS-V THREADED.

4.

WHERE REBAR DOWEL ANCHORS (RDA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT-RE 500 V3 (FOR ANCHORAGE TO CONCRETE) OR HILTI HIT-HY 270 (FOR ANCHORAGE TO SOLID OR GROUTED MASONRY) ADHESIVE ANCHORING SYSTEM INSTALLED USING HILTI SAFESET HOLLOW DRILL BIT TECHNOLOGY.

5.

WHERE HOLLOW MASONRY ANCHORS (HMA) ARE NOTED ON DRAWINGS, PROVIDE HILTI HIT—HY 270 ADHESIVE ANCHORING SYSTEM WITH HIT-SC MESH SLEEVE AND HAS-V-36 THREADED RODS OR APPROVED EQUIVALENT.

2.

IN ORDER TO BE ACCEPTED, ANY ALTERNATIVES TO THE HILTI PRODUCTS SPECIFIED ABOVE MUST BE ACCOMPANIED BY TESTING DATA AND ICC-ES REPORTS DEMONSTRATING THAT THEIR PERFORMANCE (INCLUDING SUITABILITY FOR SEISMIC APPLICATIONS, CAPACITY IN CRACKED CONCRETE AND CAPACITY REDUCTIONS DUE TO SPACING AND EDGE DISTANCE) IS EQUIVALENT TO THE PERFORMANCE OF HILTI PRODUCTS. IN ADDITION, THAT PERFORMANCE MUST BE ACHIEVED USING INSTALLATION TOOLS AND PROCEDURES WHICH DO NOT REQUIRE DRILLED HOLES TO BE CLEANED PRIOR TO ANCHOR INSTALLATION, UNLESS CLEANING OF HOLES IS DOCUMENTED AND SUBMITTED TO WSP-S FOR REVIEW.

3.

ANCHORS LOCATED OUTSIDE THE BUILDING ENVELOPE'S VAPOUR BARRIER TO BE HOT DIP GALVANIZED OR STAINLESS STEEL.

4.

CONCRETE TO BE MINIMUM 28 DAYS OLD AT THE TIME OF ANCHOR INSTALLATION.

5.

USE DRILLING AND INSTALLATION TOOLS AND PROCEDURES PER MANUFACTURER'S RECOMMENDATIONS. DO NOT CORE DRILL UNLESS SPECIFICALLY NOTED ON DRAWINGS. HOLE DIAMETERS NOT TO EXCEED THOSE REQUIRED BY MANUFACTURER.

6.

WHERE CORE DRILLING IS SPECIFIED, CLEAN AND ROUGHEN HOLES PER MANUFACTURER'S RECOMMENDATION.

7.

ARRANGE FOR THE ANCHOR MANUFACTURER TO CONDUCT TRAINING FOR INSTALLATION OF ALL THE PRODUCTS SPECIFIED, AND FOR ALL CONDITIONS ENCOUNTERED (E.G. HORIZONTAL, INCLINED, OVERHEAD) PER CSA A23.3 ANNEX D. ALL INSTALLERS MUST COMPLETE THE SUPPLIER CERTIFIED INSTALLER TRAINING PROGRAM. SUBMIT COPIES OF COMPLETION CERTIFICATES FOR WSP-S RECORD.

8.

ARRANGE FOR A MANUFACTURER'S TECHNICAL REPRESENTATIVE TO BE PRESENT DURING INSTALLATION OF FIRST FIVE ANCHORS OF EACH SIZE AND TYPE. SUBMIT SITE REPORTS INDICATING ANCHOR TYPES AND SIZES INSTALLED, LOCATIONS AND INSTALLERS' NAMES.

9.

ARRANGE FOR CONTINUOUS INSPECTION DURING INSTALLATION OF ADHESIVE ANCHORS SUBJECT TO SUSTAINED TENSION LOAD INSTALLED IN A HORIZONTAL OR UPWARDLY INCLINED ORIENTATION, PER CSA A23.3 ANNEX D.

10.

ANCHOR AND DOWEL CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND THEIR PROXIMITY TO CONCRETE AND MASONRY EDGES; THEREFORE, ALL ANCHORS MUST BE INSTALLED WITH CLEARANCES AND EDGE DISTANCES INDICATED ON DRAWINGS.

11.

UNLESS CORE DRILLING IS SPECIFIED ON DRAWINGS, DO NOT CUT REINFORCEMENT TO ACCOMMODATE DRILLED ANCHORS AND DOWELS. SCAN THE STRUCTURE TO LOCATE REINFORCEMENT PRIOR TO FABRICATING STRUCTURAL STEEL FASTENED BY DRILLED ANCHORS.

12.

WHEN OBSTRUCTIONS PREVENT DRILLING HOLES IN SPECIFIED LOCATIONS TO THE REQUIRED DEPTH, RELOCATE AT NO EXTRA COST TO THE CONTRACT. OBTAIN WSP-S APPROVAL OF NEW LOCATIONS BEFORE DRILLING. MODIFICATIONS TO CONNECTED MEMBERS AND ADDITIONAL ANCHORS / DOWELS MAY BE REQUIRED. FILL ABANDONED HOLES WHICH ARE CLOSER THAN 3 TIMES THE HOLE DIAMETER FROM THE RELOCATED ANCHORS WITH HILTI HIT-RE 100 ADHESIVE OR WITH 30 MPa NON-SHRINK GROUT. DO NOT TIGHTEN ANCHORS UNTIL THE FILLER HAS FULLY CURED.

13.

UNLESS OTHERWISE NOTED ON DRAWINGS, EMBEDMENT LENGTHS FOR POST-INSTALLED HILTI ANCHORS TO BE:

ANCHOR SIZE	EXPANSION ANCHORS		ADHESIVE ANCHORS		
	INTO CONCRET E (DCA)	INTO MASONR Y (DMA)	INTO CONCRETE (ACA)	INTO SOLID OR GROUTED MASONRY (AMA)	INTO HOLLOW MASONRY (HMA)
		KB-TZ2	HIT-Z ROD + HIT HY-200-A V3 ADHESIVE	HAS-V-36 ROD + HIT HY-270 ADHESIVE	HAS-V-36 ROD + HIT-SC SCREEN + HIT HY-270 ADHESIVE + HOLLOW CONCRETE BLOCK + HOLLOW BRICK
10 (3/8")	64 (2-1/2")		86 (3-3/8")		50 (2") 80 (3-1/8")
12 (1/2")	83 (3-1/4")		114 (4-1/2")		50 (2") 80 (3-1/8")
16 (5/8")	102 (4")		143 (5-5/8")		- -
19 (3/4")	121 (4-3/4")		171 (6-3/4")		- -
25 (1")	146 (5-3/4")		-		- -

NOTES:

1.

ALL EMBEDMENT LENGTHS SHOWN ARE EFFECTIVE EMBEDMENT LENGTHS; FOR REQUIRED HOLE DEPTHS FOLLOW HILTI RECOMMENDATIONS.

2.

SEE DRAWINGS FOR EMBEDMENT LENGTHS OF REBAR DOWEL ANCHORS (RDA).

14.

IF ANCHORS OTHER THAN THE HILTI PRODUCTS SPECIFIED ABOVE ARE APPROVED TO BE USED, ANCHOR SUPPLIER TO ESTABLISH THE EMBEDMENT LENGTHS REQUIRED TO ACHIEVE PERFORMANCE EQUIVALENT TO THE HILTI PRODUCTS EMBEDDED AS INDICATED IN THE TABLE ABOVE.

15.

DO NOT BEND POST INSTALLED DOWELS AND RODS AFTER INSTALLATION.

16.

DO NOT WELD TO PLATES FASTENED WITH ADHESIVE ANCHORS AFTER THE ADHESIVE IS PLACED.

MASONRY

1.

CONFORM TO CSA A370, CSA A371 AND CSA S304.

2.

UNLESS OTHERWISE NOTED ON PLANS, MATERIALS TO BE:

-

HOLLOW BLOCK: CSA A165.1 — H/15/A/M

-

SOLID BLOCK: CSA A165.1 — SF/15/A/M

-

MORTAR: CSA A179 — TYPE S, PROPORTIONED BY VOLUME.

-

MASONRY GROUT: CSA A179M, PROPORTIONED BY VOLUME - COARSE GROUT, 1:3:2 - CEMENT: SAND, MAX 9.5 (3/8") AGGREGATE, OR FINE GROUT, 1:3 — CEMENT:SAND, OR APPROVED PRE-BAGGED MATERIAL

-

MASONRY TIES: HOT DIP GALVANIZED

3.

MASONRY CONTRACTOR TO BE A MEMBER OF THE CANADIAN MASONRY CONTRACTORS ASSOCIATION.

4.

NON LOAD-BEARING MASONRY WALLS ARE NOT NECESSARILY SHOWN ON STRUCTURAL DRAWINGS, SEE ARCHITECTURAL DRAWINGS.

5.

UNLESS NOTED OTHERWISE, LAY UNITS IN RUNNING BOND. ALL FACE SHELLS TO BE FULLY BEDDED.

6.

DO NOT USE MORTAR WHERE GROUT IS SPECIFIED.

7.

PROVIDE HOT, COLD AND WET WEATHER PROTECTION AS REQUIRED BY CSA A371.

8.

UNLESS OTHERWISE NOTED, PROVIDE DEFORMED, LADDER TYPE HORIZONTAL JOINT REINFORCING (TO SUIT THE WALL THICKNESS) PER ARCHITECTURAL SPECIFICATIONS. STAGGER LAPS MIN. 750 (2'-6") FROM COURSE TO COURSE. CLIP OFF CROSS RODS AT LAPS TO KEEP WIRES IN ONE PLANE. IF NO UNREINFORCED WALLS, IT IS ACCEPTABLE TO USE TRUSS TYPE INSTEAD OF LADDER TYPE JOINT REINFORCING.

9.

FOR WALLS SHOWN TO BE LAID IN STACK PATTERN, PROVIDE HORIZONTAL JOINT REINFORCING IN EVERY BED JOINT.

10.

PROVIDE HORIZONTAL JOINT REINFORCING IN THE FIRST TWO BED JOINTS ABOVE AND BELOW EACH WALL OPENING AND EXTEND 600 (2'-0") BEYOND EACH SIDE OF OPENING.

11.

UNLESS OTHERWISE NOTED, USE CORNER TYPE LADDER REINFORCING AT MASONRY WALL CORNERS AND INTERSECTIONS.

12.

UNLESS OTHERWISE NOTED, INTERLOCK MASONRY COURSES AT WALL CORNERS.

13.

TOOL JOINTS IN ALL WALLS SHOWN ON STRUCTURAL DRAWINGS (WHETHER EXPOSED OR NOT IN THE FINISHED BUILDING) TO PROVIDE HARD, DENSE JOINTS.

14.

PROVIDE LATERAL SUPPORT AT TOPS OF ALL WALLS, REFER TO TYPICAL DETAILS TM-LATS-11 AND ARCHITECTURAL SPECIFICATIONS. LOCATE MAX 300 (12") FROM WALL ENDS AND MOVEMENT JOINTS.

15.

UNLESS OTHERWISE NOTED, PROVIDE MINIMUM 25 (1") DEFLECTION GAP AT TOP OF ALL NON LOAD BEARING MASONRY WALLS.

16.

PROVIDE TEMPORARY BRACING FOR LOAD BEARING MASONRY WALLS UNTIL THE SUPPORTED STRUCTURE, WHICH PROVIDES PERMANENT BRACING, IS COMPLETED.

17.

MOVEMENT JOINTS

1.

PROVIDE VERTICAL MOVEMENT JOINTS (MJ) IN LOAD BEARING WALLS AT LOCATIONS INDICATED ON PLANS. CARRY HORIZONTAL REINFORCING IN BOND BEAMS LOCATED IMMEDIATELY BELOW FLOOR OR ROOF LEVELS CONTINUOUSLY THROUGH MOVEMENT JOINTS (WHERE APPLICABLE). DO NOT CARRY ANY OTHER WALL REINFORCING (INCLUDING HORIZONTAL JOINT REINFORCING) THROUGH MJ.

2.

PROVIDE VERTICAL MOVEMENT JOINTS (MJ) IN NON LOAD BEARING MASONRY WALLS AS FOLLOWS:

-

WHERE INDICATED ON ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.

-

BETWEEN MASONRY WALLS AND ABUTTING COLUMNS OR CONCRETE WALLS.

-

AT MAX. 6000 (20') O/C

3.

PROVIDE VERTICAL MOVEMENT JOINTS BETWEEN ALL LOAD BEARING AND NON LOAD BEARING WALLS.

4.

UNLESS OTHERWISE NOTED ON PLANS, MOVEMENT JOINTS TO BE 12MM WIDE.

5.

FILL ALL MOVEMENT JOINTS WITH COMPRESSIBLE MATERIAL; SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FIRE STOPPING REQUIREMENTS.

18.

PROVIDE STANDARD LINTELS OVER ALL OPENINGS IN NON-LOAD BEARING MASONRY WALLS, REFER TO ARCHITECTURAL DRAWINGS AND TYPICAL DETAILS TM-WALL-10 TO TM-WALL- 14. THE OPENINGS ARE NOT NECESSARILY SHOWN ON STRUCTURAL DRAWINGS, REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. USE ONLY FINE GROUT TO FILL MASONRY LINTELS.

19.

REINFORCED MASONRY:

1.

SEE PLANS AND DETAILS FOR STRUCTURAL MASONRY REINFORCING.

2.

FOR NON-LOAD BEARING MASONRY, SEE TYPICAL DETAILTM-WALL-01 FOR MINIMUM SEISMIC MASONRY REINFORCING.

-

WHERE 75% SOLID MASONRY WALLS ARE SHOWN ON ARCHITECTURAL DRAWINGS, USE FULLY GROUTED HOLLOW MASONRY AS REQUIRED TO ACCOMMODATE REBAR.

-

WHERE ACOUSTIC BLOCK WALLS ARE SHOWN ON ARCHITECTURAL DRAWINGS, USE SOUND BLOCKS WHICH CAN ACCOMMODATE REBAR; INCREASE THE SPECIFIED WALL THICKNESS IF REQUIRED.

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CLIENT

NORTH GRENVILLE

OTTAWA

ONTARIO, CANADA

North Grenville

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

GENERAL NOTES

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE:
DATE PRINTED: 2025-01-13 2:48:18 PM

REV DRAWING NO.

2 S103

3.

DO NOT PLACE CONDUITS IN, NOR ALLOW OVER-HANGING MORTAR OR DEBRIS INSIDE, MASONRY CELLS TO BE REINFORCED.

4.

SPLICES FOR MASONRY WALL REINFORCING TO BE:

WIRE REINFORCING

300 (12")

10M BARS

450 (18")

15M BARS

650 (26")

20M BARS

900 (36")

25M BARS

1300 (51")

5.

LOCATE VERTICAL BARS ACCURATELY WITHIN CELLS AS INDICATED ON DRAWINGS. HOLD IN POSITION TOP AND BOTTOM. USE REBAR POSITIONERS AS REQUIRED.

6.

LOCATE TOP HORIZONTAL BARS IN MASONRY BEAMS AND LINTELS 50 (2") CLEAR FROM TOP OF BEAM. LOCATE BOTTOM BARS TO PROVIDE MIN 6 (1/4") CLEARANCE BETWEEN BLOCK AND REINFORCING (INCLUDING STIRRUPS, IF APPLICABLE). IF BLOCKS WITH KNOCKOUT WEB ARE USED FOR BOND BEAMS, PLACE BOTTOM REINFORCING ON THE WEB.

7.

EXTEND ALL VERTICAL REINFORCING TO WITHIN 50 (2") FROM TOP OF WALL.

8.

CARRY ALL VERTICAL REINFORCING CONTINUOUSLY THROUGH BOND BEAMS AND MASONRY LINTELS.

9.

PROVIDE VERTICAL DOWELS AT BASE OF WALLS TO MATCH VERTICAL REINFORCING. UNLESS OTHERWISE NOTED ON DRAWINGS, EMBED INTO SLAB WITH STANDARD HOOKS OR PROVIDE CLASS B LAP INTO FOUNDATION WALLS BELOW (AS APPLICABLE).

10.

REINFORCE SIDES OF ALL WALL OPENINGS EXCEEDING 1000 (3'-6") IN WIDTH WITH ADDITIONAL 1-15 VERTICAL. CARRY FULL HEIGHT OF WALL. WHERE STEEL OR PRECAST CONCRETE LINTELS ARE USED, OFFSET VERTICALS TO CLEAR LINTEL BEARINGS.

11.

UNLESS OTHERWISE NOTED, ADD 1-15 VERTICAL AT WALL ENDS, AND AT EACH SIDE OF MOVEMENT JOINTS.

12.

THE ADDITIONAL REINFORCING SPECIFIED IN THE CLAUSES ABOVE IS NOT NOTED ON PLANS.

13.

SEE TYPICAL DETAILS FOR ADDITIONAL REINFORCING UNDER STEEL BEAM AND STEEL JOIST BEARINGS.

14.

UNLESS OTHERWISE NOTED, PROVIDE MIN. 190 (7-1/2") DEEP BOND BEAMS AT MAX. VERTICAL SPACING OF 2400 (8'-0"). CONSTRUCT BOND BEAMS WITH LOW WEB MASONRY UNITS. REINFORCE WITH MIN. 1-15 TOP AND BOTTOM CONTINUOUS AND GROUT SOLID BEND AND LAP REINFORCING AT MASONRY CORNERS AND INTERSECTIONS.

15.

UNLESS OTHERWISE NOTED, REINFORCE ALL 190 MASONRY WITH 15@1000 VERTICAL + 2-3.6 DIAMETER WIRES LADDER-TYPE HORIZONTAL REINFORCING AT 400 CENTRES.

20.

GROUTED MASONRY:

1.

UNLESS MASONRY WALLS ARE NOTED AS "FULLY GROUTED" OR "GROUTED SOLID", GROUT ONLY CELLS CONTAINING VERTICAL OR HORIZONTAL REINFORCEMENT AND ANCHOR RODS OR STRAPS, AND OTHER AREAS SPECIFICALLY INDICATED ON DRAWINGS.

2.

USE ONLY FINE GROUT TO FILL BOND BEAMS.

3.

USE LOW LIFT GROUTING PROCEDURE UNLESS OTHERWISE APPROVED IN WRITING BY WSP-S. PLACE GROUT IN LIFTS NOT EXCEEDING 1500 (5'-0") HEIGHT. TERMINATE EACH LIFT 40 (1 1/2") BELOW TOP OF MASONRY UNIT.

4.

USE POLYPROPYLENE GROUT SCREENS BELOW BOND COURSES AND GROUTED BLOCKS TO ISOLATE GROUT FLOW IN DESIGNATED AREAS. DO NOT USE BUILDING PAPER.

5.

SEE TYPICAL DETAILS FOR GROUTING UNDER STEEL BEAM AND STEEL JOIST BEARINGS.

6.

PREFILL VOIDS IN MASONRY UNITS RECEIVING POST INSTALLED ANCHORS WITH GROUT EXTENDING MIN. 200 AROUND EACH ANCHOR.

7.

PREFILL VOIDS IN MASONRY UNITS WITH GROUT FOR A MINIMUM DEPTH OF 190 (8") BELOW STEEL DECK SUPPORTS, AND 390 (16") FORMED SLAB SUPPORTS.

8.

WHERE MASONRY WALL THICKNESS CHANGES, GROUT SOLID TOP COURSE OF THE THICKER WALL.

9.

GROUT SOLID ALL PARAPETS.

10.

FULLY GROUT ALL WALL POCKETS AFTER INSTALLATION OF STEEL BEAMS OR JOISTS.

21.

INSPECTION AND TESTING:

1.

AN INDEPENDENT INSPECTION AND TESTING AGENCY WILL BE APPOINTED TO INSPECT MASONRY WORKS AND TO TEST MASONRY MATERIALS TO DETERMINE COMPRESSIVE STRENGTH OF GROUT AND MASONRY UNITS IN ACCORDANCE WITH CSA A179, REFER TO ARCHITECTURAL SPECIFICATIONS.

2.

THE AGENCY WILL REVIEW MORTAR BATCHING PROCEDURE TO VERIFY ACCURATE VOLUME PROPORTION.

3.

THE AGENCY WILL REVIEW REINFORCING AND GROUTING PROCEDURE, INCLUDING LIFT HEIGHTS, POSITIONING AND LAPPING OF REINFORCEMENT.

4.

AT LEAST THREE CYLINDERS WILL BE TESTED FOR EACH 20 CUBIC METERS OF PLACED MASONRY GROUT — ONE AT 7 DAYS AND TWO AT 28 DAYS. AT LEAST ONE SET OF CYLINDERS WILL BE MADE EACH DAY THE GROUT IS PLACED.

5.

FOR WALLS WITH SPECIFIED COMPRESSIVE STRENGTH OF MASONRY UNITS LARGER THAN 15 MPa, AT LEAST THREE MASONRY UNITS WILL BE TESTED FOR EACH 500 SQUARE METERS OF WALL.
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PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

GENERAL NOTES

PROJECT NO:

DRAWN: W.DABROWSKI

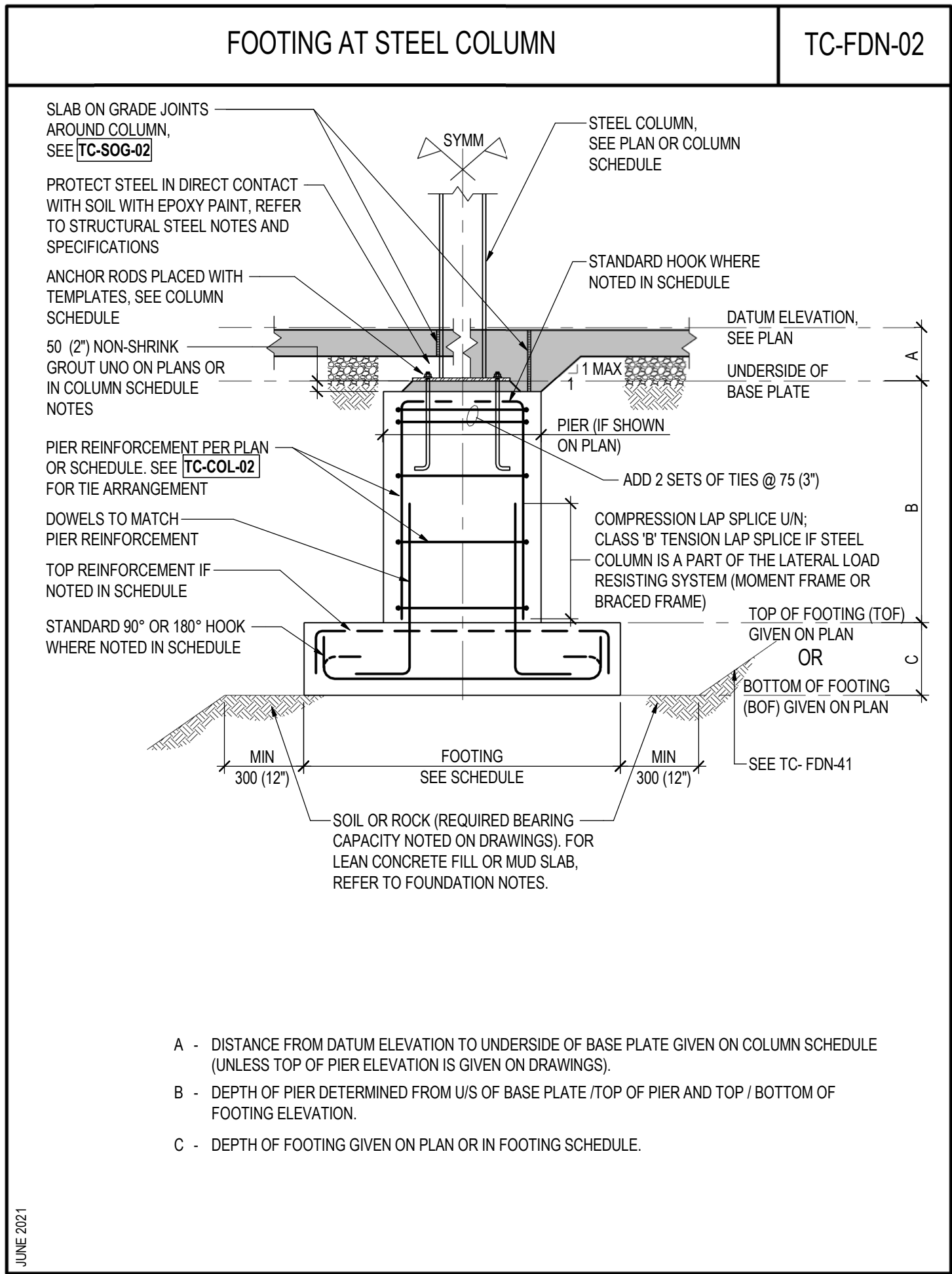
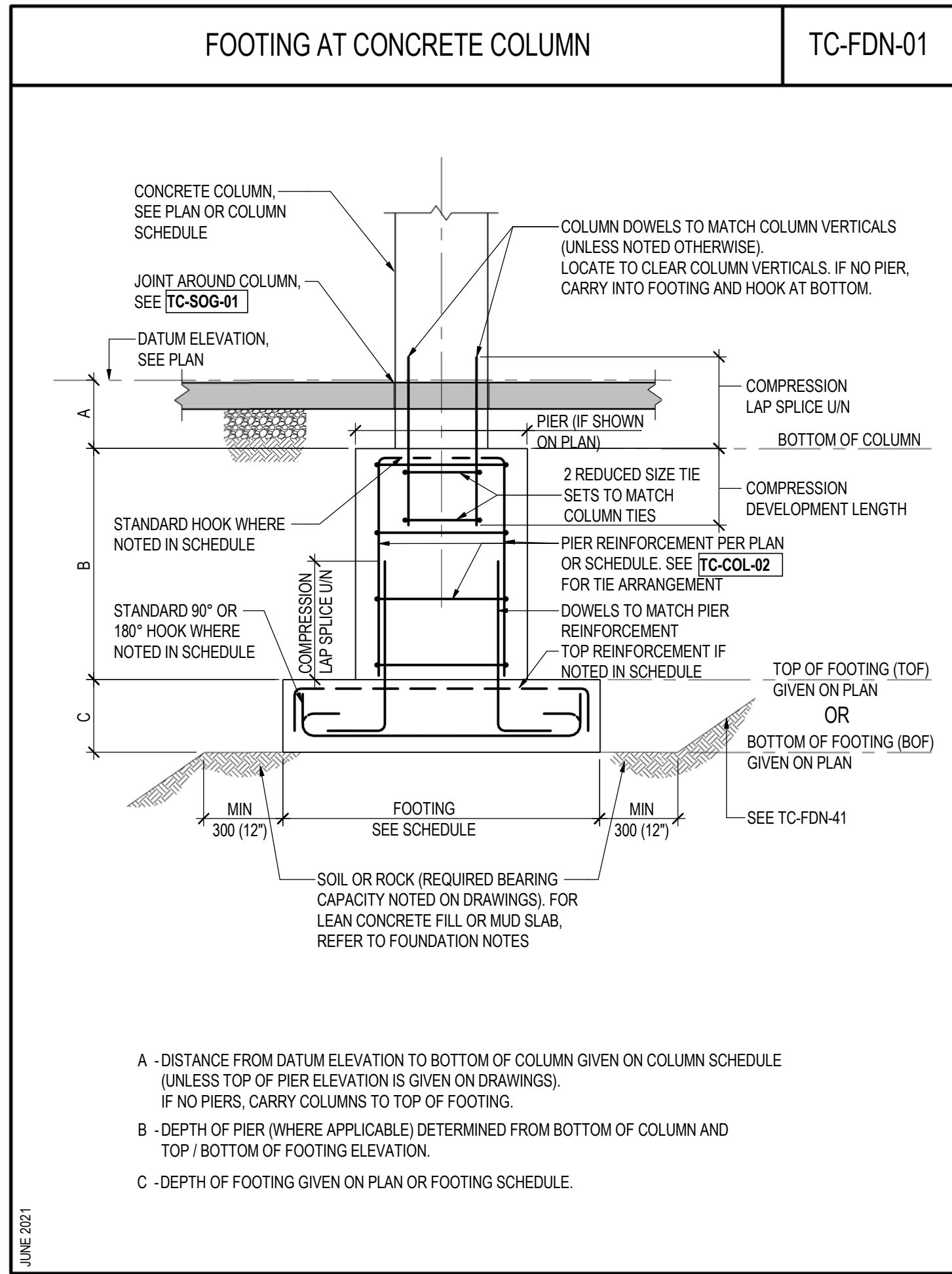
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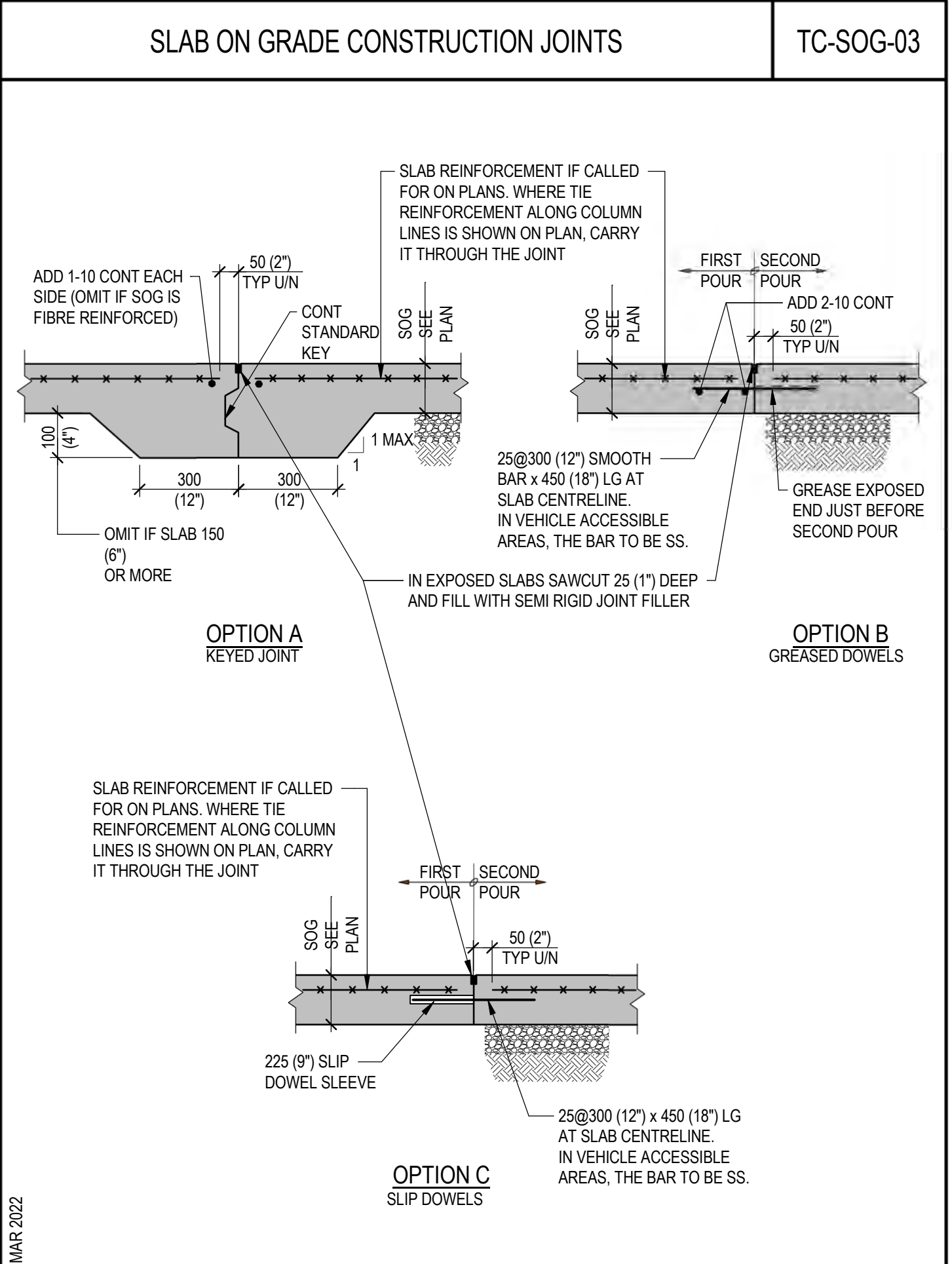
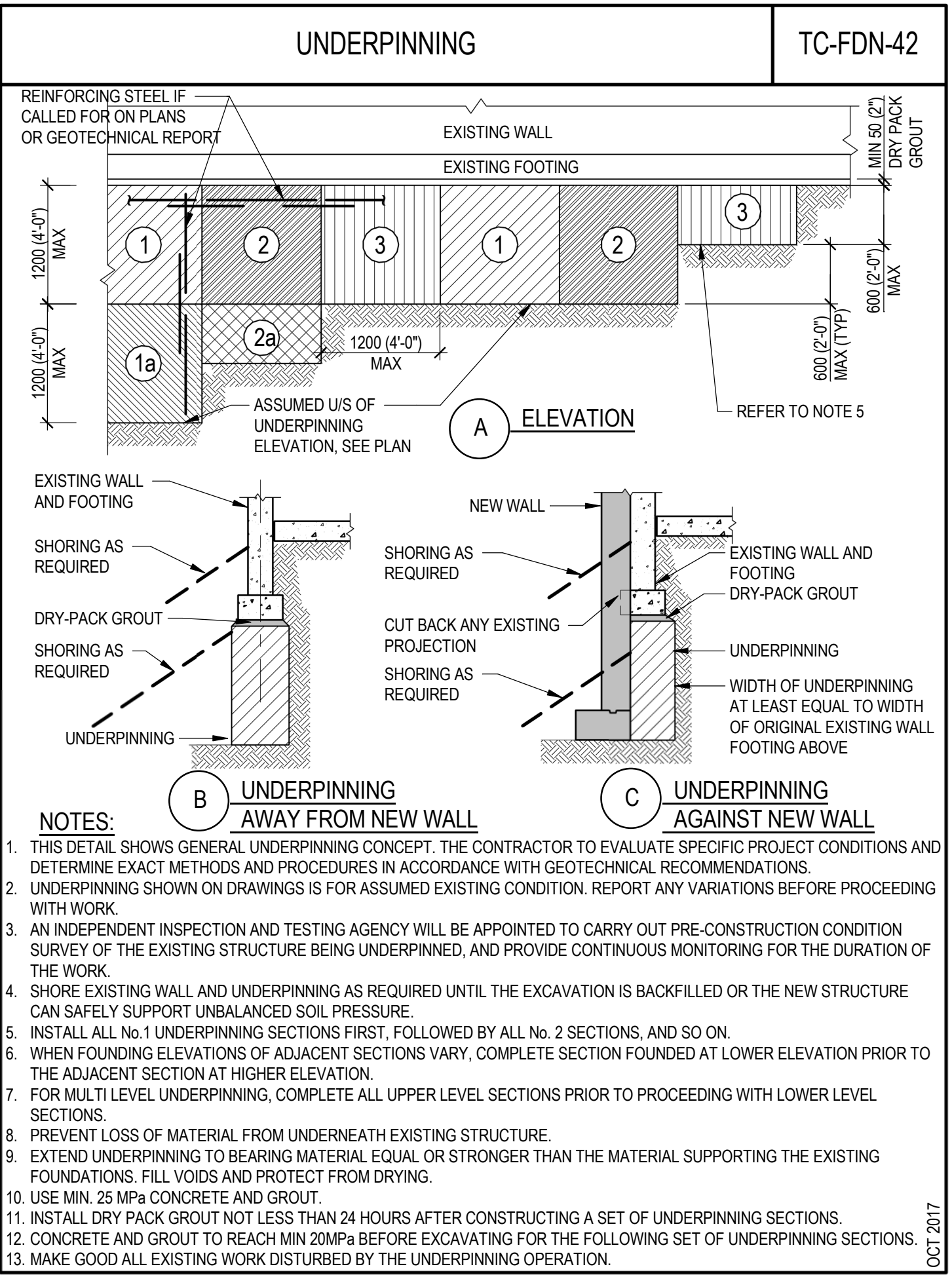
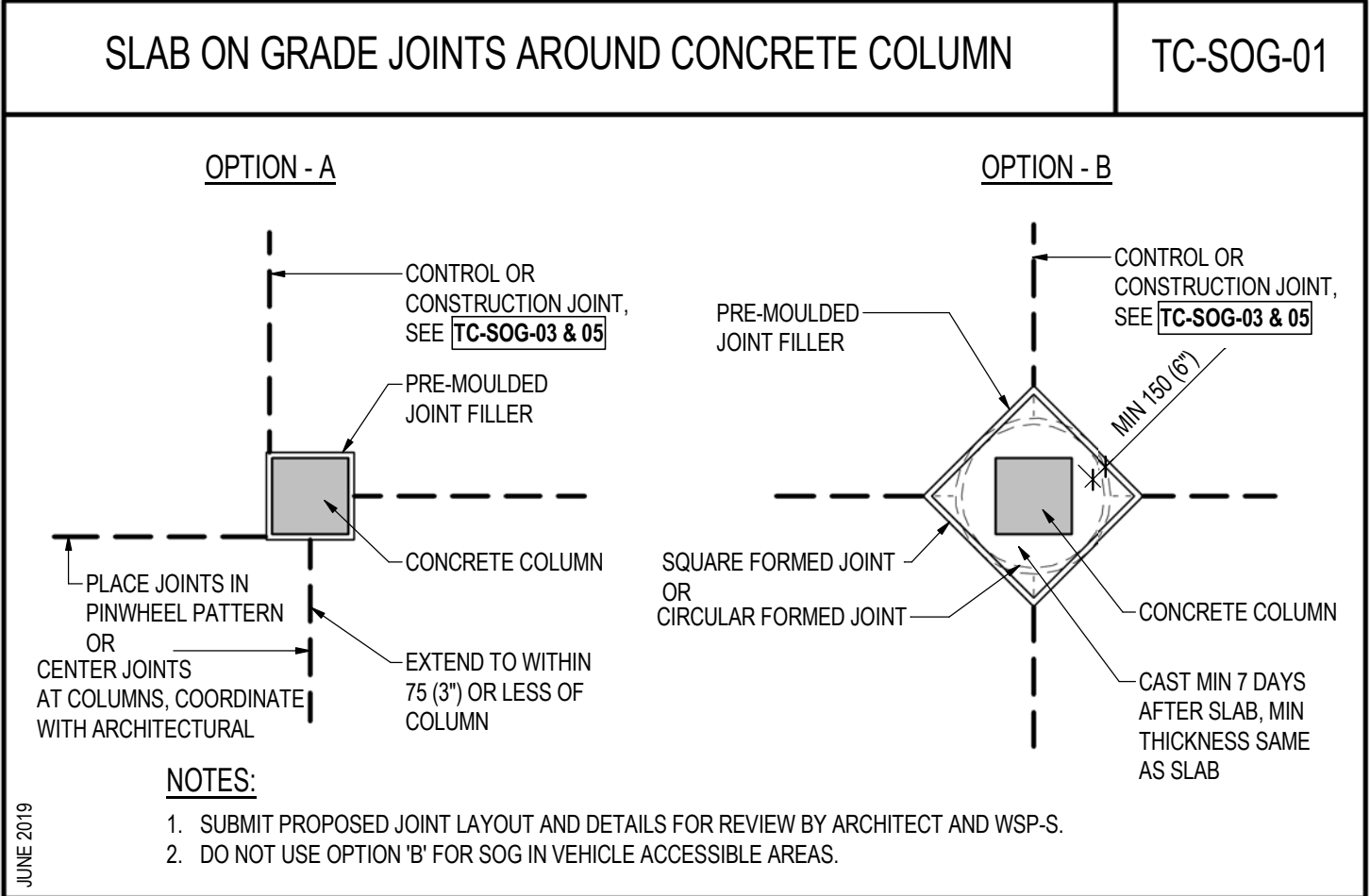
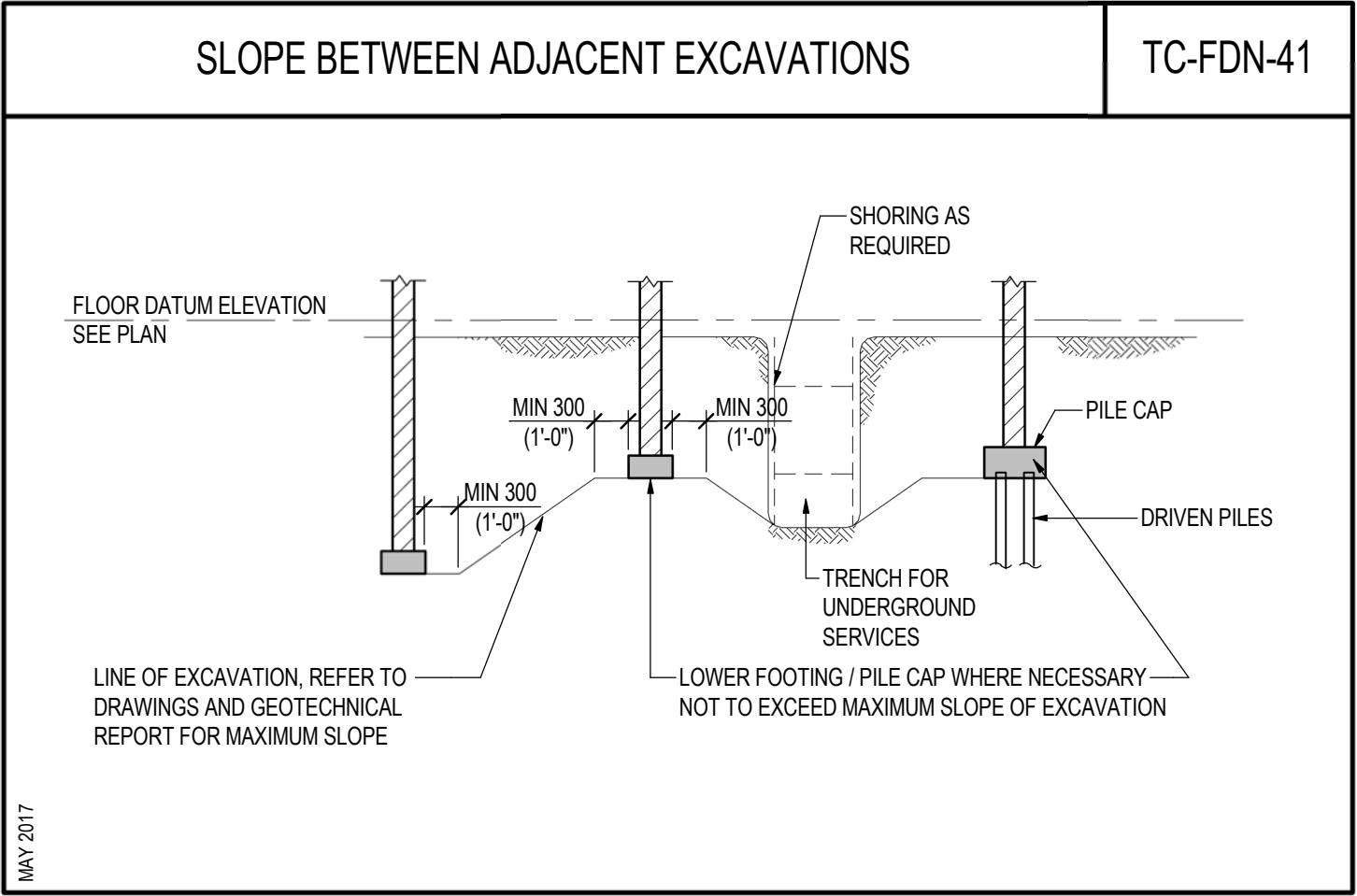
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REV	DRAWING NO.
2	S104

DRAWING ABBREVIATIONS				TG-ABBR-01	
ABUT	ABUTMENT	DP	DEEP	ld	TENSION DEVELOPMENT LENGTH OF REBAR
ACA	ADHESIVE CONCRETE ANCHORS, SEE GENERAL NOTES	DWG	DRAWING	ldc	COMPRESSION DEVELOPMENT LENGTH OF REBAR
ADDL	ADDITIONAL	DWL	DOWEL	ldh	TENSION EMBEDMENT LENGTH WITH STANDARD HOOK
AEC	ARCHITECTURALLY EXPOSED CONCRETE	EA	EACH	LG	LEFT END
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	ECR	EPOXY COATED REINFORCEMENT	LL	LONG
AIFB	ASPHALT IMPREGATED FIBERBOARD	EBF	ECENTRICALLY BRACED FRAME	LLH	LOWER LEVEL
ALT	ALTERNATE	EE	EACH FACE	LLV	LONG LEG HORIZONTAL
AMA	ADHESIVE MASONRY ANCHORS, SEE GENERAL NOTES	EJ, EXP JT	EXPANSION JOINT	LONG	LONG LEG VERTICAL
ARCH	ARCHITECTURAL	ELECT	ELECTRICAL	LSH	LONGITUDINAL
A-ROD	ANCHOR ROD	EL	ELEVATION	LP	LONG SIDE HORIZONTAL
ASPH	ASPHALT	ELEV	ELEVATOR	LWT	LOW POINT
AVG	AVERAGE	EMBED	EMBEDMENT	MAX	LIGHT WEIGHT
B, BOT	BOTTOM	ENG	ENGINEER	MC	MAXIMUM
BCE	BOTTOM CHORD EXTENSION	EOD	EDGE OF DECK	MECH	MOMENT CONNECTION ()
BCP	BORED CONCRETE PILE	EOS	EDGE OF SLAB	MEZZ	MECHANICAL
BEW	BOTTOM EACH WAY	ES	EACH SIDE	MF	MEZZANINE
BH	BOREHOLE	EQUAL	EQUAL	MIN	MOMENT FRAME
BLL	BOTTOM LOWER LAYER	EW	EACH WAY	MISC	MINIMUM
BOF	BOTTOM OF FOOTING	EX, EXIST	EXISTING	MJ	MISCELLANEOUS
BOP	BOTTOM OF PILE	EXT	EXTERIOR	ML	MOVEMENT JOINT
BP	BASE PLATE	FC	FUTURE COLUMN	NF	MIDDLE LAYER
BRG	BEARING	FD	FLOOR DRAIN	NC	NEAR FACE
BRP	BEARING PLATE	FF	FAR FACE	NOM	NOT IN CONTRACT
BSMT	BASEMENT	FIN	FINISHED	NTS	NOMINAL
BUL	BOTTOM UPPER LAYER	FL	FLOOR	OC	NOT TO SCALE
BUP	BOTTOM OF UNDERPINNING	FMC	FULL MOMENT CONNECTION (FOR FULL MOMENT CAPACITY)	OD	ON CENTER
CAMBR	CAMBER	FND	FOUNDATION	OD	OUTSIDE DIAMETER
CA	COLUMN ABOVE ONLY (NO COLUMN BELOW)	FTG	FOOTING	OPP	OUTSIDE FACE
CANT	CANTILEVER	GA	GAUGE	OWSJ	OPPOSITE
CAT	CATEGORY (FOR AESS)	GALV	GALVANIZED	PAF	OPEN WEB STEEL JOIST
CB	COLUMN BELOW ONLY (NO COLUMN ABOVE)	GB	GRADE BEAM	PC	POWDER ACTUATED FASTENERS
CDL	COMPRESSION DEVELOPMENT LENGTH	GEN	GENERAL	PL	PILE CAP
CEL	CUT OFF ELEVATION FOR PILES	GL	GRADLINE	PROJ	PROJECT, PROJECTION
CIP	CAST-IN PLACE	GRD	GROUND	PS	PIPE SUPPORT
CJ	CONTROL JOINT	h	TOTAL THICKNESS, SLAB THICKNESS AWAY FROM DROP PANEL	PTL	POST TENSIONED
CLR	CLEAR	hd	SLAB OVERALL THICKNESS AT DROP PANEL	R	PRESSURE TREATED LUMBER
CL	CENTRELINE	H, HORIZ	HORIZONTAL	RA	RADIUS
CMU	CONCRETE MASONRY UNITS	(H)	HIGH BEAM	RD	ROOF ANCHOR
CNT	STEEL DECK CORE NOMINAL THICKNESS	HC	HOLLOWCORE	RDA	ROOF DRAIN
COMP	COMPOSITE	HDG	HOT DIPPED GALVANIZED	RE	REBAR DOWEL ANCHORS, SEE GENERAL NOTES
COL	COLUMN	HEF	HORIZONTAL EACH FACE	REIN	REINFORCEMENT
CONC	CONCRETE	HIF	HORIZONTAL INSIDE FACE	REM	REMAINDER
CONT	CONTINUOUS	HH	HOOK EACH END	REQ'D	REQUIRED
CONTD	CONTINUED	HIC	HORIZONTAL IN CENTRE	RF	REVISION
CONST., J.	CONSTRUCTION JOINT	HMA	HOLLOW MASONRY ANCHORS, SEE GENERAL NOTES	RL	RIGID FRAME
CP	CONNECTION PLATE	HOF	HORIZONTAL OUTSIDE FACE	RSS	REFERENCE LINE
CPL	CAP PLATE	HP	HIGH POINT	RTU	RETAINED SOIL SYSTEM
CS	COMPRESSION LAP SPlice	HSC	HORIZONTAL SLOTTED CONNECTION	RET, WALL	RETAINING WALL
COV	CLEAR COVER	IBI	INTEGRITY BARS INTERIOR	RW	REINFORCE WITH
COW	COMPLETE WITH, CONNECT WITH	IBA	INTEGRITY BARS ADDED	r.w.	REINFORCE WITH
CWS	(SEE GENERAL NOTES)	IBB	INTEGRITY BOTTOM BARS (THROUGHOUT)	SDF	REQUIRED WITH
CLS	(SEE GENERAL NOTES)	ID	INSIDE DIAMETER	SEC	STEP DOWN FOOTING (IN DIRECTION OF ARROW)
DCA	DRILLED CONCRETE ANCHOR, SEE GENERAL NOTES	INT	INTERIOR	SIM	SECTION
DEMO	DEMOLITION	IF	INSIDE FACE	SJ	SIMILAR
DET	DETAIL	JG	JOIST GIRDER	SL	STEEL JOIST
D.FIR-L	DOUGLAS FIR-LARCH	KB	KNIFE BRACING	SLBB	SLAB SHEAR ANGLE
DIA, Ø	DIAMETER	(L)	LOW BEAM	SLS	SERVICEABILITY LIMIT STATE
DIV	DIVIDER BEAM	2-L	BACK TO BACK ANGLES	SOG	SLAB-ON-GRADE
DN	DOWN				
DNW	DOUBLE NUT AND WASHER				



LOADING ABBREVIATIONS		TG-ABBR-02	
Af	FACTORED AXIAL LOAD IN kN (+ INDICATES TENSION, - INDICATES COMPRESSION)		
Cf	FACTORED COMPRESSION IN kN		
fc	COMPRESSIVE STRENGTH OF CONCRETE, IN MPa		
fy	YIELD STRENGTH IN MPa		
Mf	FACTORED MOMENT IN kN.m		
Mfx	FACTORED MOMENT ABOUT X-X (STRONG) AXES IN kN.m		
Mfy	FACTORED MOMENT ABOUT Y-Y (WEAK) AXES IN kN.m		
MPL	MASONRY PARTITION DEAD LOAD IN kN/m		
MTf	FACTORED TORSION IN kN.m		
Rf	FACTORED VERTICAL REACTION IN kN		
RHf	FACTORED HORIZONTAL REACTION IN kN		
P	SPECIFIED (UNFACTORED) POINT LOAD IN kN		
Pf	FACTORED POINT LOAD IN kN		
Vf	FACTORED SHEAR IN kN		
Tf	FACTORED TENSION IN kN		
WT	WEIGHT OF MECHANICAL EQUIPMENT		



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NORTH GRENVILLE

OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

TYPICAL DETAILS

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1: 100
DATE PRINTED: 2025-01-13 2:48:21 PM

REV DRAWING NO.

2 S105

TIES FOR CONCRETE COLUMNS, WALLS, BORED CONCRETE PILES, CAPS AND PIERS REINFORCED AS COLUMNS

TC-COL-02

Diagrams showing various reinforcement tie configurations for concrete columns, walls, and piles. Includes notes on tie size, spacing, and application.

NOTES:

- DRAWINGS SHOW SIZE AND SPACING OF TIE SETS. "TIE" ON DRAWINGS MEANS TIE SET.
- PROVIDE TIES FOR EVERY OTHER VERTICAL BAR.
- IF CLEAR SPACING BETWEEN ADJACENT VERTICALS "D" IS MORE THAN 150 (6"), ADD TIES SHOWN DASHED.
- PLACE ADJACENT CROSS TIES WITH 135° HOOKS ALTERNATING 100 (4") MIN FOR COLUMNS CAST INTEGRALLY WITH SHEAR HORIZONTALLY AND VERTICALLY FROM SIDE TO SIDE OF COLUMN / WALL / PIER / CAP.
- ALTERNATE TIE ARRANGEMENTS MAY BE ACCEPTABLE SUBJECT TO THE CONSULTANT'S REVIEW.
- SEE COLUMN SCHEDULE FOR SPECIAL TIE ARRANGEMENTS.

TYPICAL TIE SHAPES

HOOP, CIRCULAR TIE, CROSS TIE

h=6 x TIE Ø, 60 (2 3/8") MIN UN (IF Rd ≥ 2.0 (SEE DESIGN DATA NOTES), INCREASE "h" TO 150 (6")

HOUSEKEEPING PADS / BUILT UP SLABS

TC-MISC-01

Diagram showing reinforcement details for housekeeping pads and built up slabs. Includes notes on pad sizes, locations, and reinforcement requirements.

NOTES:

- FOR PAD SIZES AND LOCATIONS, SEE MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS.
- FOR PADS MORE THAN 200(8") THICK OBTAIN CONSULTANT'S APPROVAL PRIOR TO POURING.
- FOR BUILT UP SLABS LESS THAN 25 (1") THICK, SEE TC-MISC-04
- AT SLABS MINIMUM 125 (5") THICK, 10M RDA EMBEDDED MIN 100 (4") DEEP (WITH HOOK AT TOP) CAN BE USED INSTEAD OF THE SPECIFIED DOWELS.
- REINFORCING SHOWN IS THE MINIMUM REQUIREMENT; COORDINATE WITH SEISMIC RESTRAINT DESIGN AND INCREASE IF REQUIRED.
- UNLESS THE PAD ITSELF IS SUFFICIENT TO RESIST ALL THE LOAD IMPOSED TO IT BY SEISMIC RESTRAINT ELEMENTS WITHOUT RELYING ON BASE SLAB, EXTEND ALL THE SEISMIC RESTRAINT ANCHORAGE INTO THE BASE SLAB AND NEGLECT THE PORTION OF THE ANCHORS WITHIN THE PAD.

CONCRETE WALL CORNERS AND INTERSECTIONS

TC-WALL-01

Diagrams showing reinforcement details for concrete wall corners and intersections. Includes notes on corner bars, lap splices, and reinforcement schedules.

NOTES:

- IF WALLS ARE NOT PERPENDICULAR TO EACH OTHER, ALL BAR BENDS TO MATCH THE WALL INTERSECTION ANGLE.
- FOR SHEAR WALL CORNER AND INTERSECTION DETAILS, SEE TC-WALL-41 TO TC-WALL-43

COMPRESSION DEVELOPMENT LENGTHS AND LAP SPLICES FOR BARS GRADE 400 MPa

TC-REINF-02

COMPRESSION DEVELOPMENT LENGTH ℓ_{dc} FOR GRADE 400 INDIVIDUAL BARS		
BAR SIZE	$f_c = 25$	$f_c = 30$ AND HIGHER
10	220 (9")	200 (8")
15	310 (12")	280 (11")
20	370 (15")	350 (14")
25	480 (19")	440 (17")
30	570 (23")	530 (21")
35	690 (27")	630 (25")
4	864 (34")	790 (31")
5	1070 (42")	970 (38")

COMPRESSION LAP SPICE FOR GRADE 400 INDIVIDUAL BARS	
BAR SIZE	STANDARD LAP
10	300 (12")
15	440 (17")
20	590 (23")
25	730 (29")
30	880 (35")
35	1030 (41")

-FOR BUNDLED BARS, MULTIPLY VALUES IN TABLE BY 1.1 FOR A TWO BAR BUNDLE, 1.2 FOR A THREE BAR BUNDLE AND 1.33 FOR A FOUR BAR BUNDLE

SHEAR WALL ZONE DETAILS WHEN $R_d = 1.5$

TC-WALL-41

Diagrams showing reinforcement details for shear wall zone details when $R_d = 1.5$. Includes notes on reinforcement schedules, zone reinforcement, and corner details.

AT CORNER

AT INTERSECTION

CONCRETE COVER

TC-REINF-21

Diagrams showing reinforcement details for concrete cover. Includes notes on principal column reinforcing, slab top cover, and beam top cover.

CONCRETE COLUMN, PIER AND CAP REINFORCED AS COLUMN

CONCRETE SLAB AND BEAM (INCLUDING GRADE BEAM)

NOTES:

- SEE CONCRETE REINFORCEMENT NOTES FOR MINIMUM COVER REQUIREMENTS.
- FOR WALLS AND SLABS, "PRINCIPAL" REINFORCING IS THE ONE CLOSEST TO THE CONCRETE SURFACE (AT EACH SIDE OF WALL / SLAB)

SAW CUTTING OF EXISTING SLAB OR WALL

TC-SL-71

Diagram showing saw cutting procedure for existing slab or wall. Includes notes on sawcut openings, intermediate sawcuts, and core holes.

SAW CUTTING PROCEDURE:

- OBTAIN ENGINEER'S APPROVAL BEFORE CUTTING ANY OPENINGS. IF REQUESTED, LOCATE REINFORCEMENT USING A NON-DESTRUCTIVE METHOD.
- IF NEW REINFORCEMENT IS REQUIRED AT AN OPENING, INSTALL IT BEFORE CUTTING OR SHORE THE STRUCTURE UNTIL THE NEW REINFORCEMENT IS INSTALLED. DESIGN AND PROVIDE TEMPORARY SHORING AS REQUIRED.
- CORE HOLES AT EACH CORNER AND AT ENDS OF EACH INTERMEDIATE SAWCUT.
- SAWCUT AND DO NOT OVERCUT.
- EXTEND SAWCUTS THROUGH FULL CONCRETE THICKNESS.
- CHIP CORNERS SQUARE.

TENSION DEVELOPMENT LENGTHS AND LAP SPLICES FOR BARS GRADE 400 MPa

TC-REINF-01

TENSION DEVELOPMENT LENGTHS ℓ_d FOR GRADE 400 INDIVIDUAL BLACK BAR IN NORMAL DENSITY CONCRETE												
BAR SIZE	$f_c = 25$		$f_c = 30$		$f_c = 35$		$f_c = 40$		$f_c = 50$		$f_c = 60$	
	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP
10	300 (12")	380 (15")	300 (12")	350 (14")	300 (12")	320 (13")	300 (12")	300 (12")	300 (12")	300 (12")	300 (12")	300 (12")
15	440 (17")	570 (23")	400 (16")	520 (21")	370 (14")	480 (19")	350 (14")	450 (18")	310 (12")	400 (16")	300 (12")	370 (14")
20	580 (23")	750 (30")	530 (21")	690 (27")	490 (19")	640 (25")	460 (18")	600 (24")	410 (16")	530 (21")	380 (15")	490 (19")
25	900 (36")	1170 (46")	830 (32")	1070 (42")	770 (30")	990 (39")	720 (28")	930 (37")	640 (25")	830 (33")	590 (23")	760 (30")
30	1080 (43")	1410 (55")	990 (39")	1290 (51")	920 (36")	1190 (47")	860 (34")	1110 (44")	770 (30")	1000 (39")	700 (28")	910 (36")
35	1260 (50")	1640 (65")	1160 (46")	1500 (60")	1070 (42")	1390 (55")	1000 (40")	1300 (52")	900 (35")	1160 (46")	820 (32")	1060 (42")
45	1620 (64")	2110 (83")	1480 (59")	1930 (76")	1370 (54")	1780 (71")	1290 (51")	1670 (66")	1150 (45")	1490 (59")	1050 (42")	1360 (54")
55	1980 (78")	2580 (102")	1810 (72")	2350 (93")	1680 (66")	2180 (86")	1570 (62")	2040 (81")	1410 (56")	1820 (72")	1280 (51")	1670 (66")

CLASS B TENSION LAP SPICE LENGTHS FOR GRADE 400 INDIVIDUAL BLACK BAR IN NORMAL DENSITY CONCRETE												
BAR SIZE	$f_c = 25$		$f_c = 30$		$f_c = 35$		$f_c = 40$		$f_c = 50$		$f_c = 60$	
	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP	BOTTOM	TOP
10	390 (16")	490 (19")	390 (16")	450 (18")	390 (16")	420 (17")	390 (16")	390 (16")	390 (16")	390 (16")	390 (16")	390 (16")
15	570 (23")	740 (29")	520 (21")	670 (27")	480 (19")	620 (25")	450 (18")	580 (23")	400 (16")	520 (20")	390 (16")	480 (19")
20	750 (29")	980 (39")	690 (27")	890 (35")	640 (25")	830 (33")	600 (24")	770 (30")	530 (21")	690 (27")	490 (19")	630 (25")
25	1170 (46")	1530 (61")	1070 (42")	1390 (55")	990 (39")	1290 (51")	930 (37")	1210 (48")	830 (33")	1080 (43")	760 (30")	990 (39")
30	1410 (56")	1830 (72")	1290 (51")	1670 (66")	1190 (47")	1550 (61")	1110 (44")	1450 (57")	1000 (39")	1300 (51")	910 (36")	1180 (46")
35	1640 (65")	2130 (84")	1500 (60")	1950 (77")	1390 (55")	1800 (72")	1300 (52")	1690 (67")	1160 (46")	1510 (59")	1060 (42")	1380 (54")

- FOR EPOXY BARS MULTIPLY VALUES IN TABLE BY 1.5 EXCEPT THAT A MULTIPLIER OF 1.2 CAN BE USED WHEN CLEAR COVER IS MORE THAN 3x BAR DIAMETER AND CLEAR SPACING BETWEEN BARS IS MORE THAN 6x BAR DIAMETER.

- FOR SEMI LOW DENSITY CONCRETE ($1850 < Y_c \leq 2150 \text{ kg/m}^3$) MULTIPLY VALUES IN TABLE BY 1.2. FOR LOW DENSITY CONCRETE ($Y_c \leq 1850 \text{ kg/m}^3$) MULTIPLY VALUES IN TABLE BY 1.3.

- FOR BUNDLED BARS, MULTIPLY VALUES IN TABLE BY 1.1 FOR A TWO BAR BUNDLE, 1.2 FOR A THREE BAR BUNDLE AND 1.33 FOR A FOUR BAR BUNDLE.

- "TOP" MEANS THAT THERE IS MORE THAN 300 (12") OF CONCRETE BELOW, AND LESS THAN 300 (12") OF CONCRETE ABOVE THE HORIZONTAL BAR WITHIN THE INDIVIDUAL CONCRETE POUR. ALL HORIZONTAL BARS IN WALLS TO BE CONSIDERED "TOP".

- ALL VERTICAL BARS ARE CONSIDERED "BOTTOM"

Diagram showing minimum tension embedment lengths with standard end hooks for grade 400 bar in normal weight concrete. Includes notes on hook types and values.

MINIMUM TENSION EMBEDMENT LENGTHS WITH STANDARD END HOOKS ℓ_{dh} , FOR GRADE 400 BAR IN NORMAL WEIGHT CONCRETE

BAR SIZE	$f_c = 25$	$f_c = 30$	$f_c = 35$	$f_c = 40$	$f_c = 50$	$f_c = 60$
10	150 (6")	150 (6")	150 (6")	150 (6")	150 (6")	150 (6")
15	210 (8")	200 (8")	180 (7")	170 (7")	150 (6")	150 (6")
20	280 (11")	260 (10")	240 (10")	230 (9")	190 (8")	190 (8")
25	350 (14")	320 (13")	300 (12")	280 (11")	240 (9")	230 (9")
30	420 (17")	390 (16")	360 (14")	340 (14")	290 (11")	280 (11")
35	490 (20")	450 (18")	420 (17")	390 (16")	340 (13")	320 (13")

- FOR EPOXY BARS MULTIPLY VALUES IN TABLE BY 1.2

- FOR LOW DENSITY CONCRETE ($c \leq 1850 \text{ kg/m}^3$) MULTIPLY VALUES IN TABLE BY 1.3

- FOR HOOKS WITH COVER LESS THAN SHOWN IN DETAILS 'A', 'B' AND 'C' MULTIPLY VALUES IN TABLE BY 1.5

DETAILS:

- A: FOR 90° HOOKS ONLY
- B: FOR 90° AND 180° HOOKS
- C: FOR 90° HOOKS ONLY

FOR VALUES NOT PROVIDED IN TABLES INTERPOLATE BETWEEN THE NEAREST VALUES PROVIDED.

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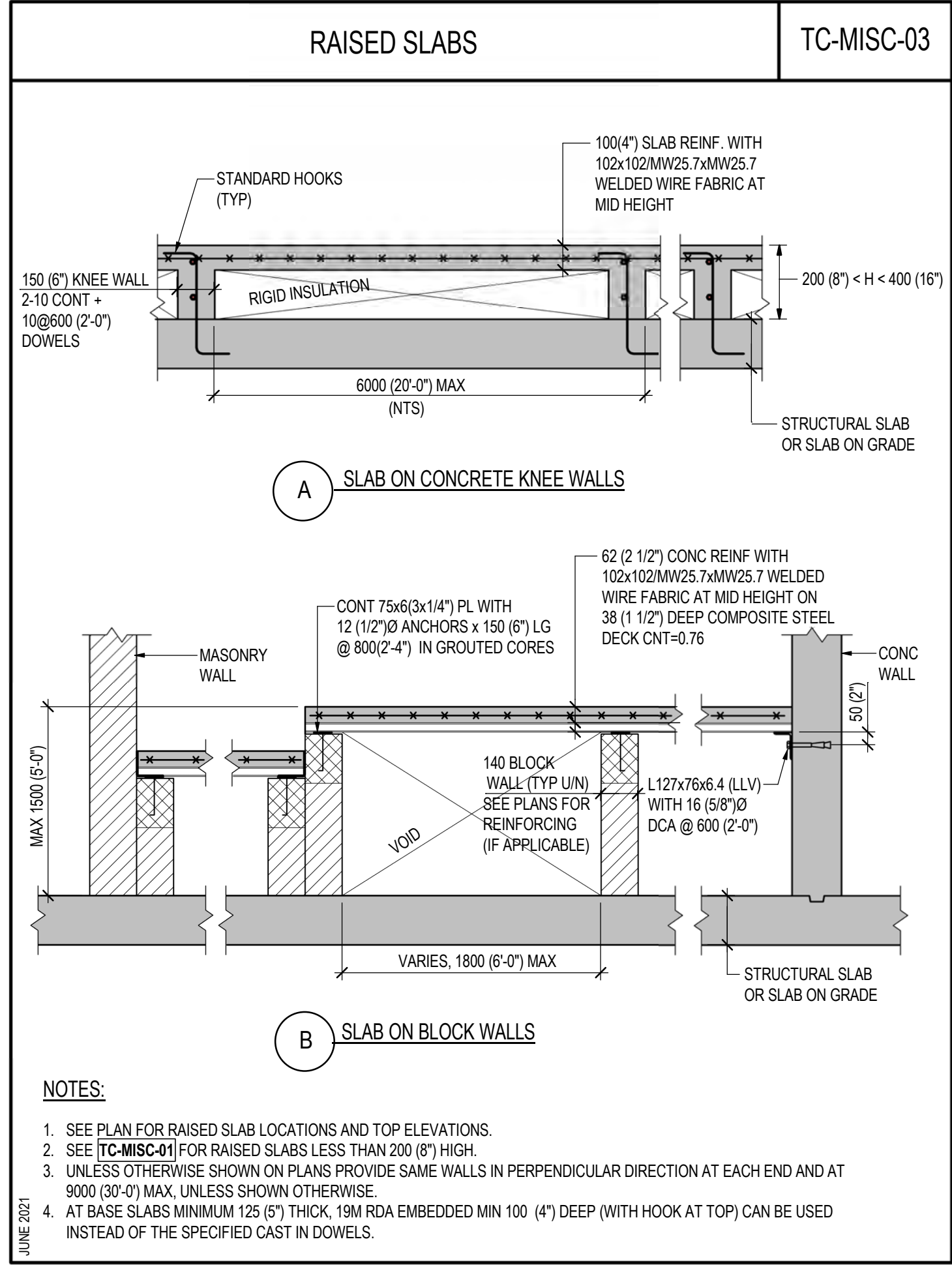
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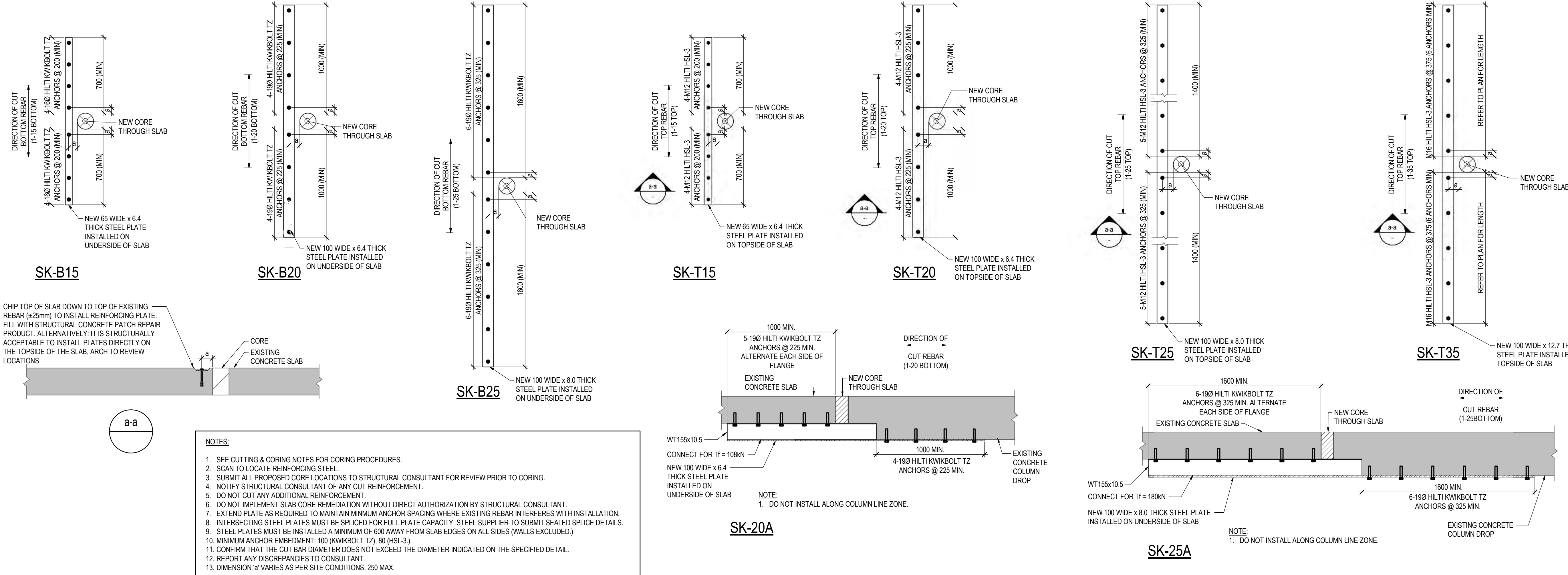
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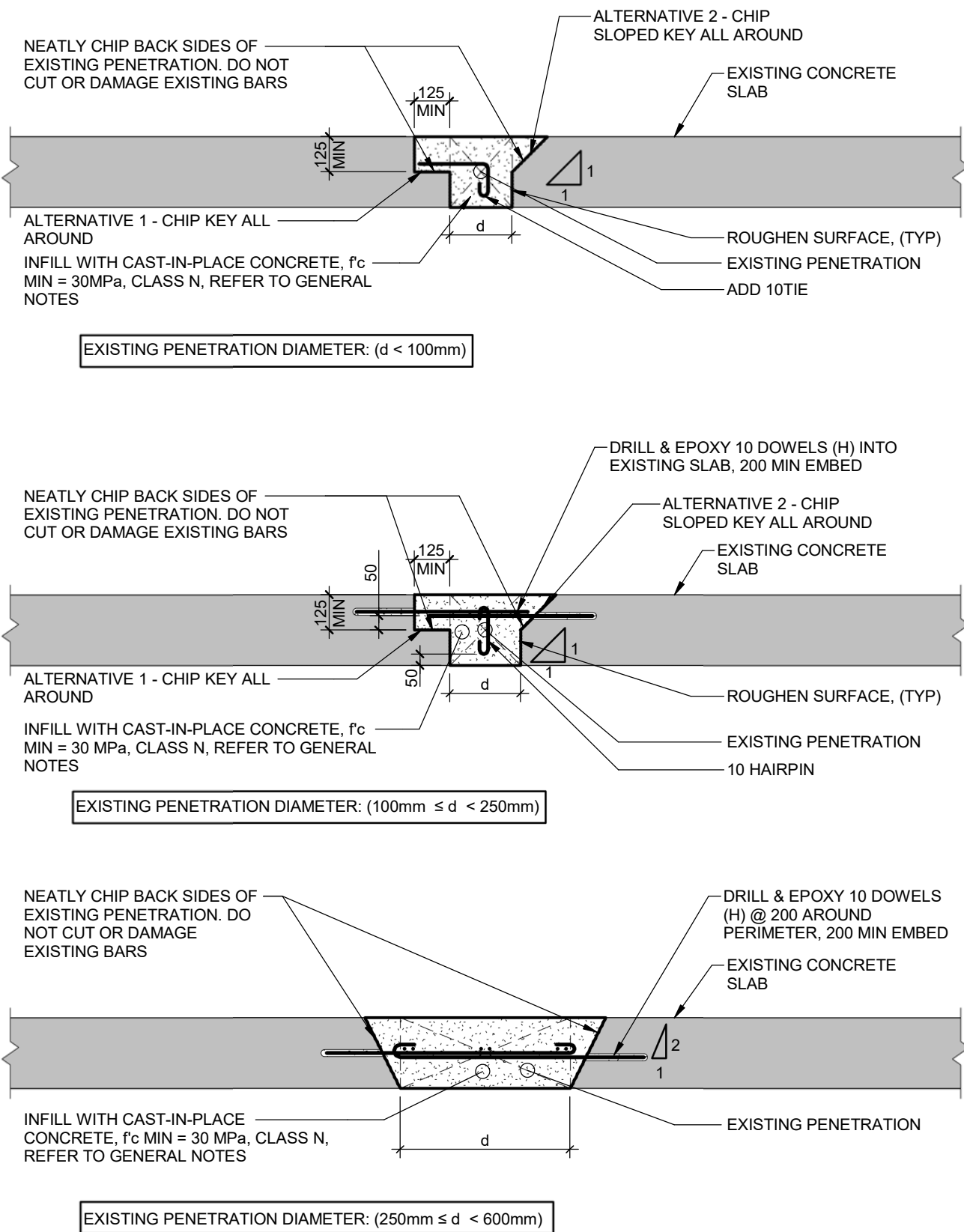
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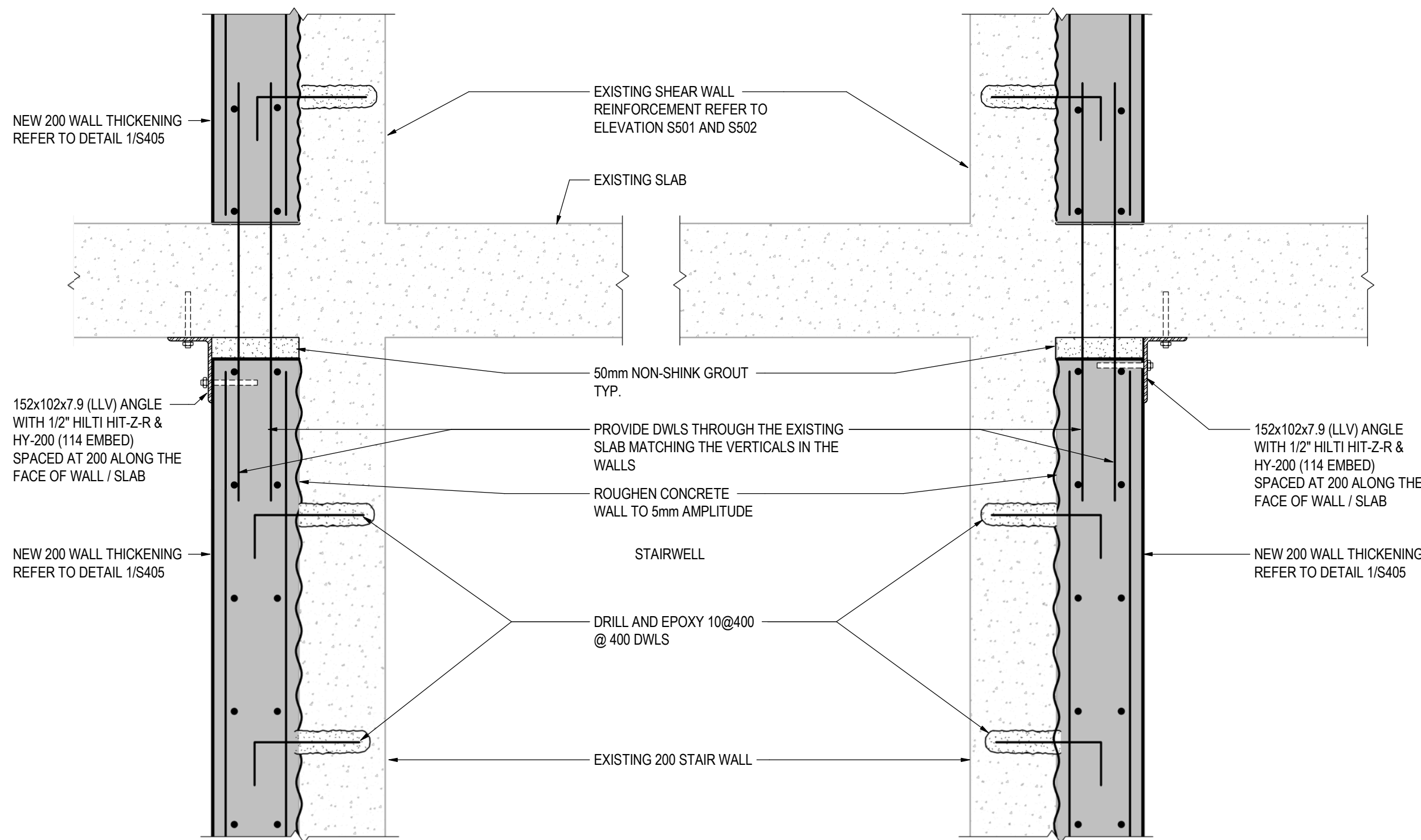
INFILL OF EXISTING PENETRATIONS THROUGH CONCRETE SLAB

PD02



FLOOR SHEAR TRANSFER BRACKET FOR STAIRWELLS

PD03



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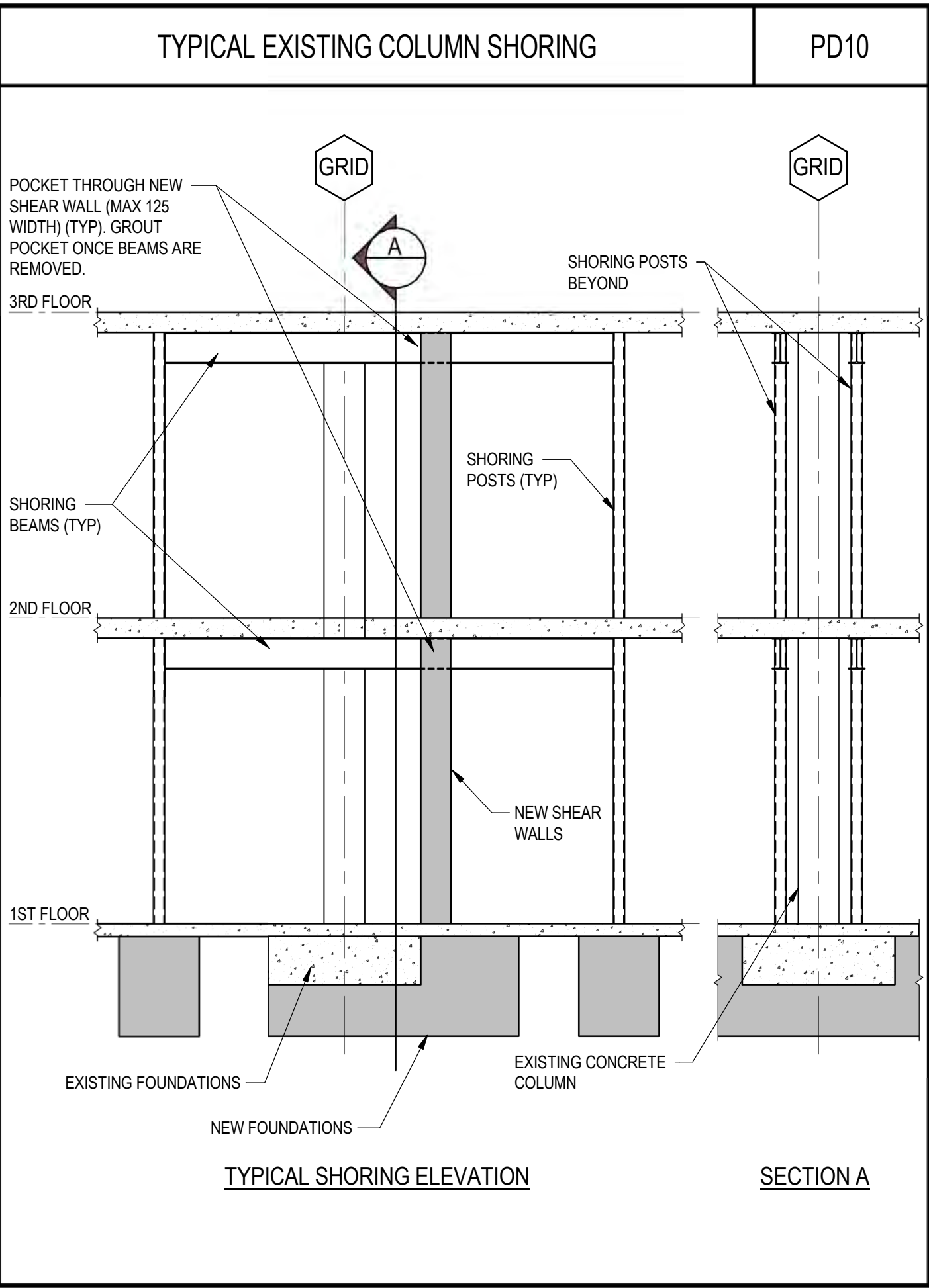
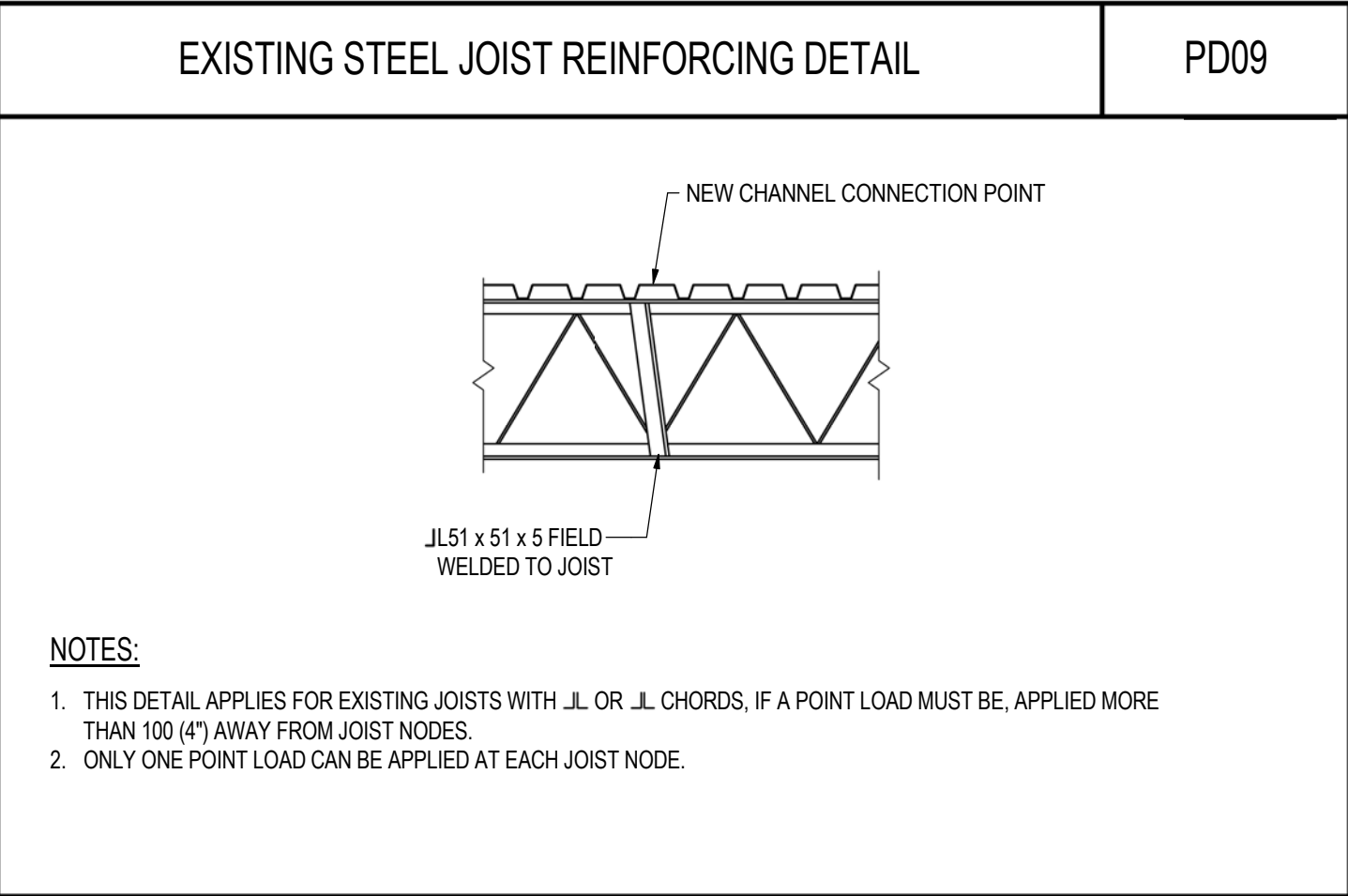
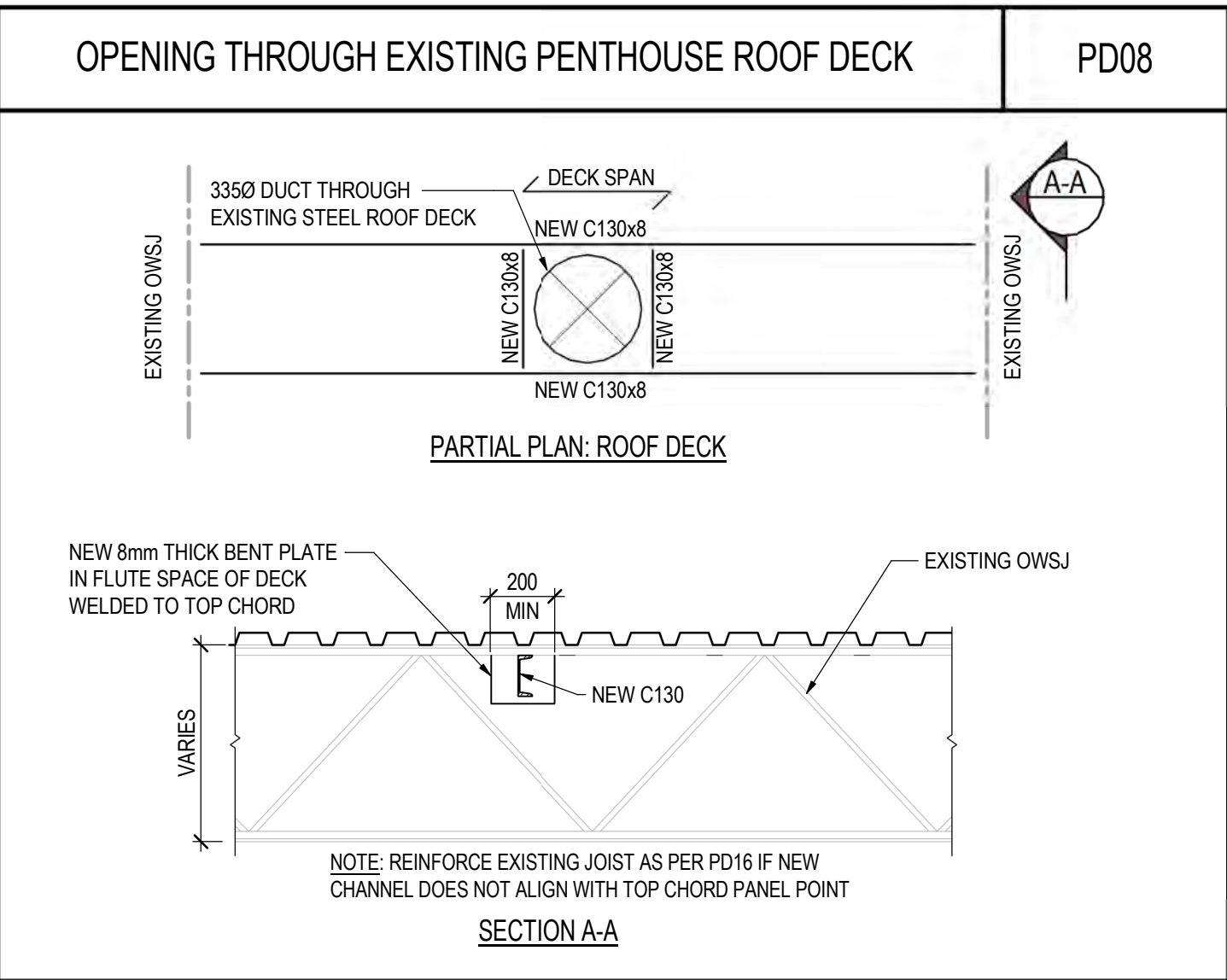
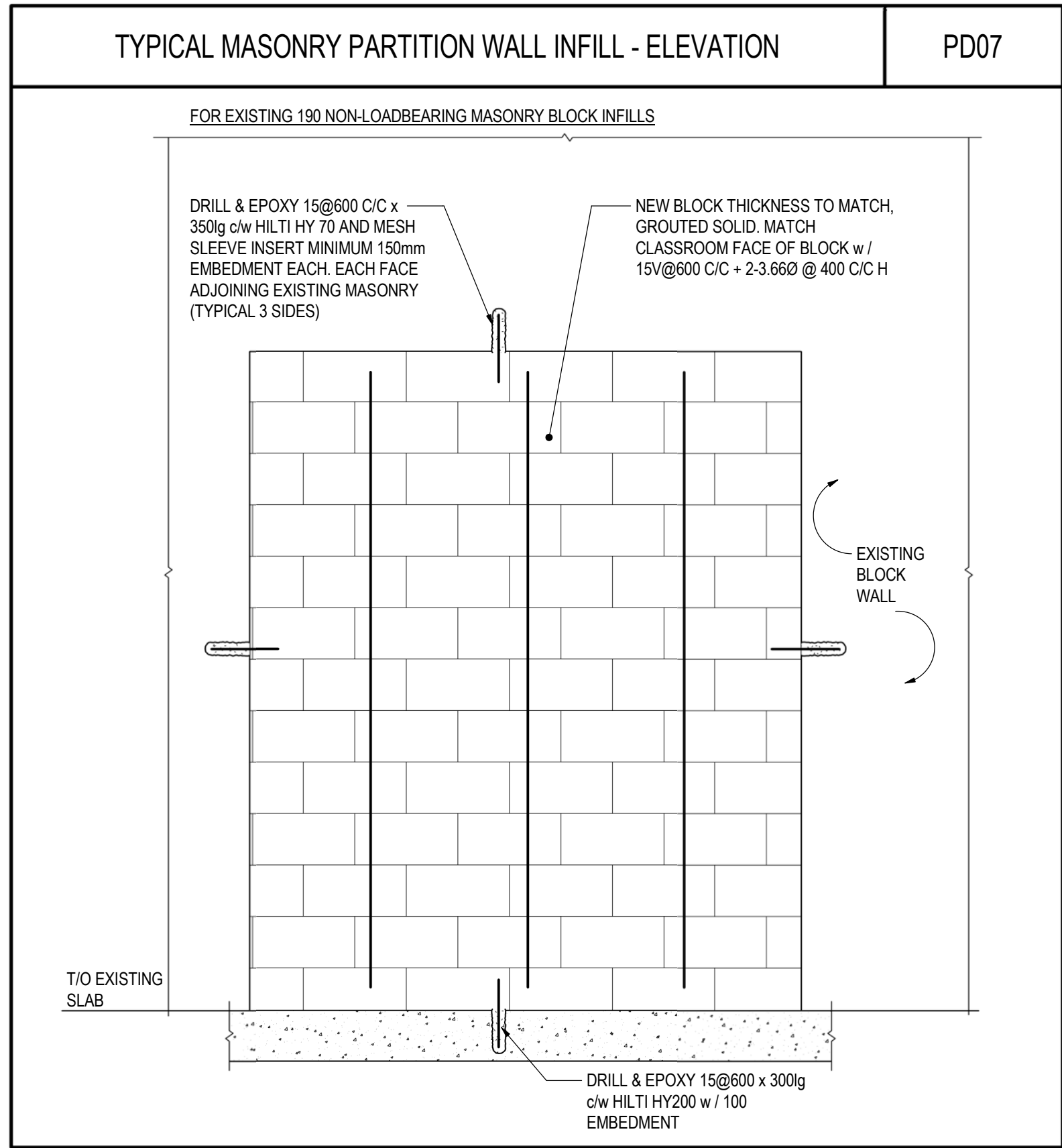
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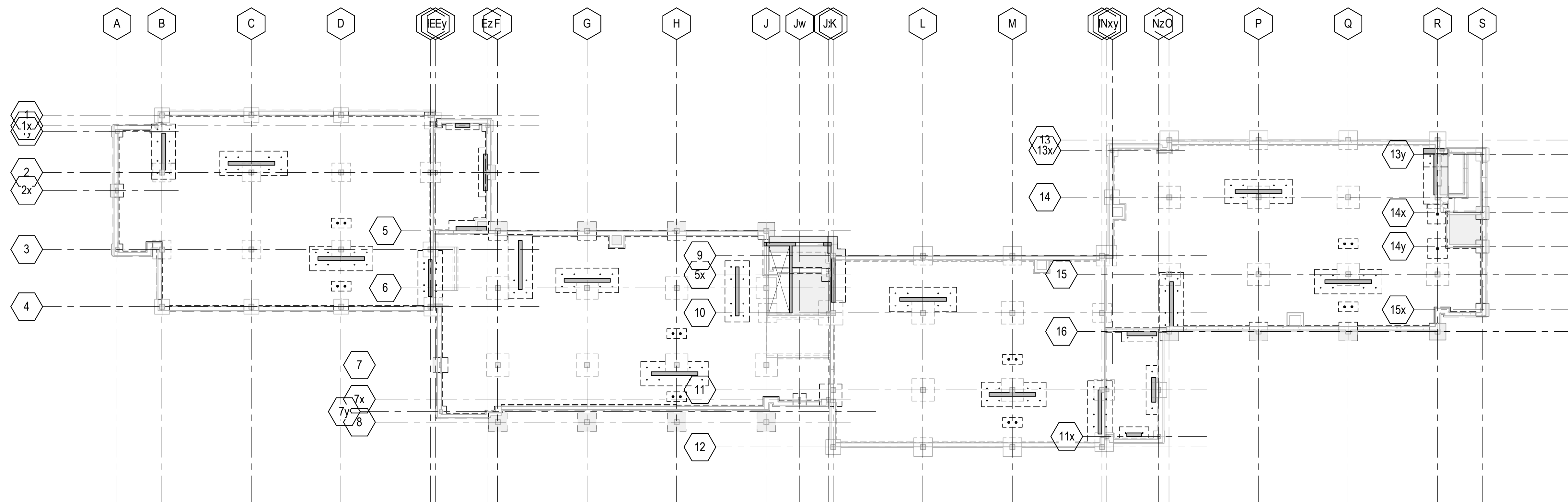
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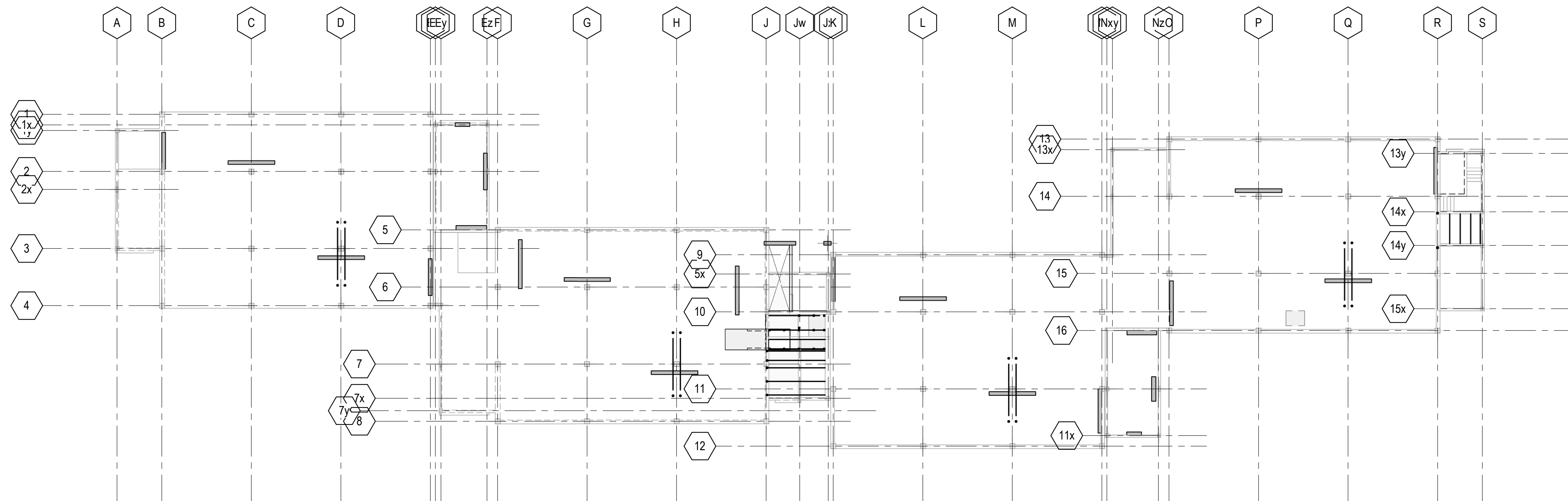
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2 S110





1 OVERALL GROUND FLOOR AND FOUNDATION PLAN
S200 1:200



2 OVERALL 2ND FLOOR FRAMING PLAN
S200 1:200

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Overall Key Plans

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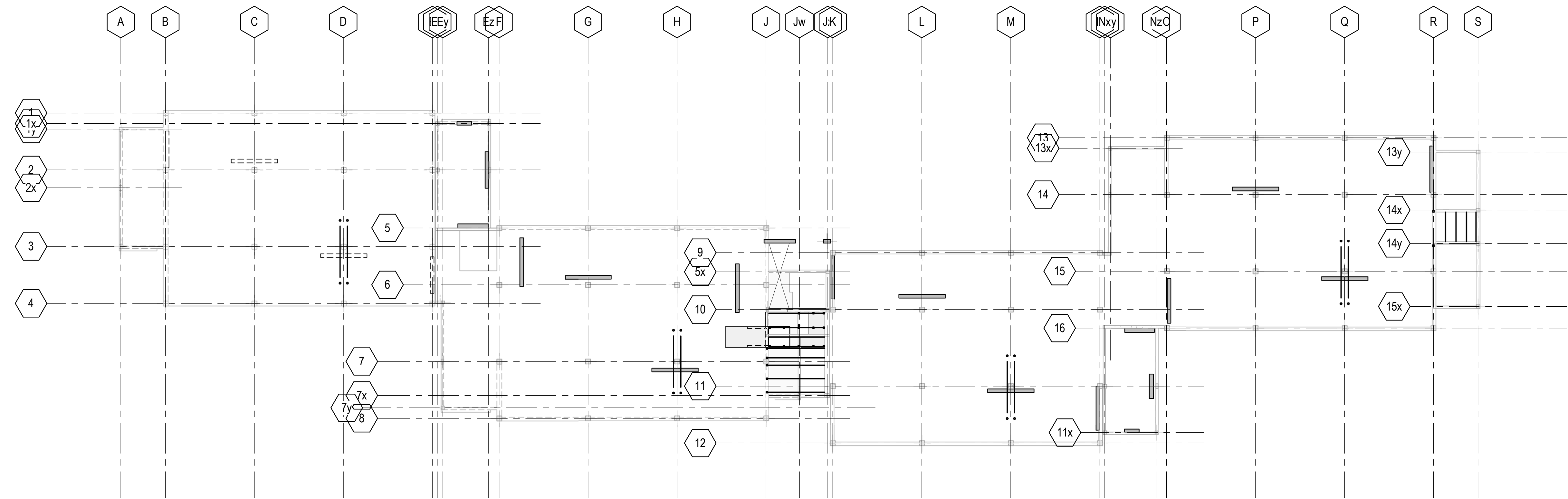
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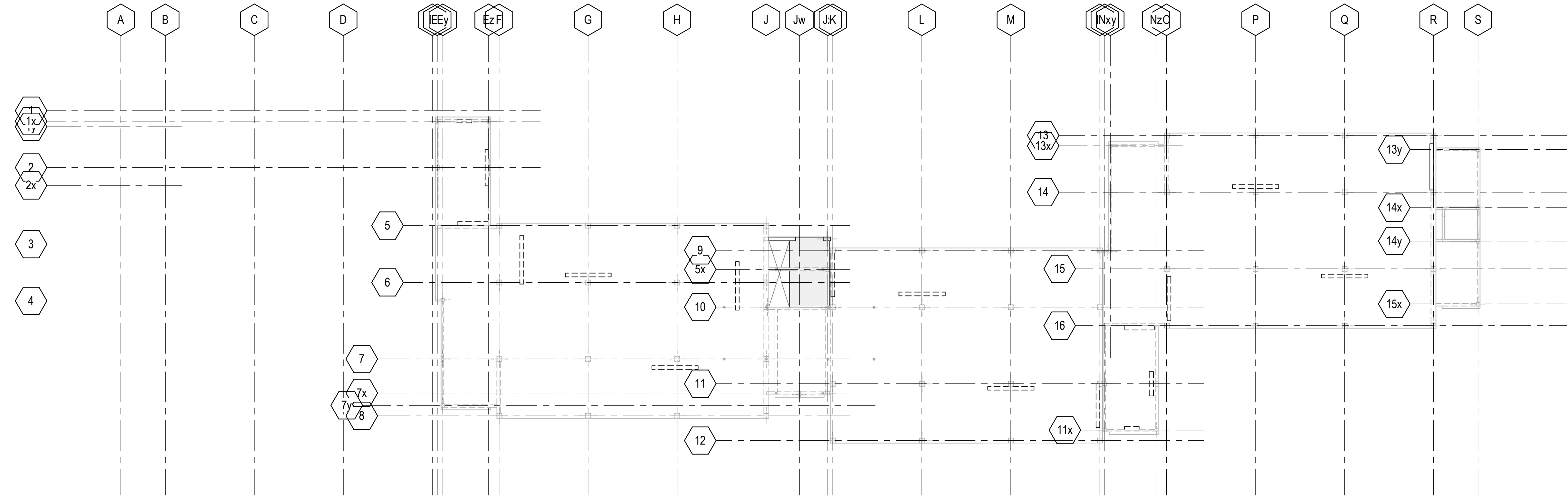
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S200



1 OVERALL 3RD FLOOR FRAMING PLAN
S201 1:200



2 OVERALL ROOF FRAMING PLAN
S201 1:200

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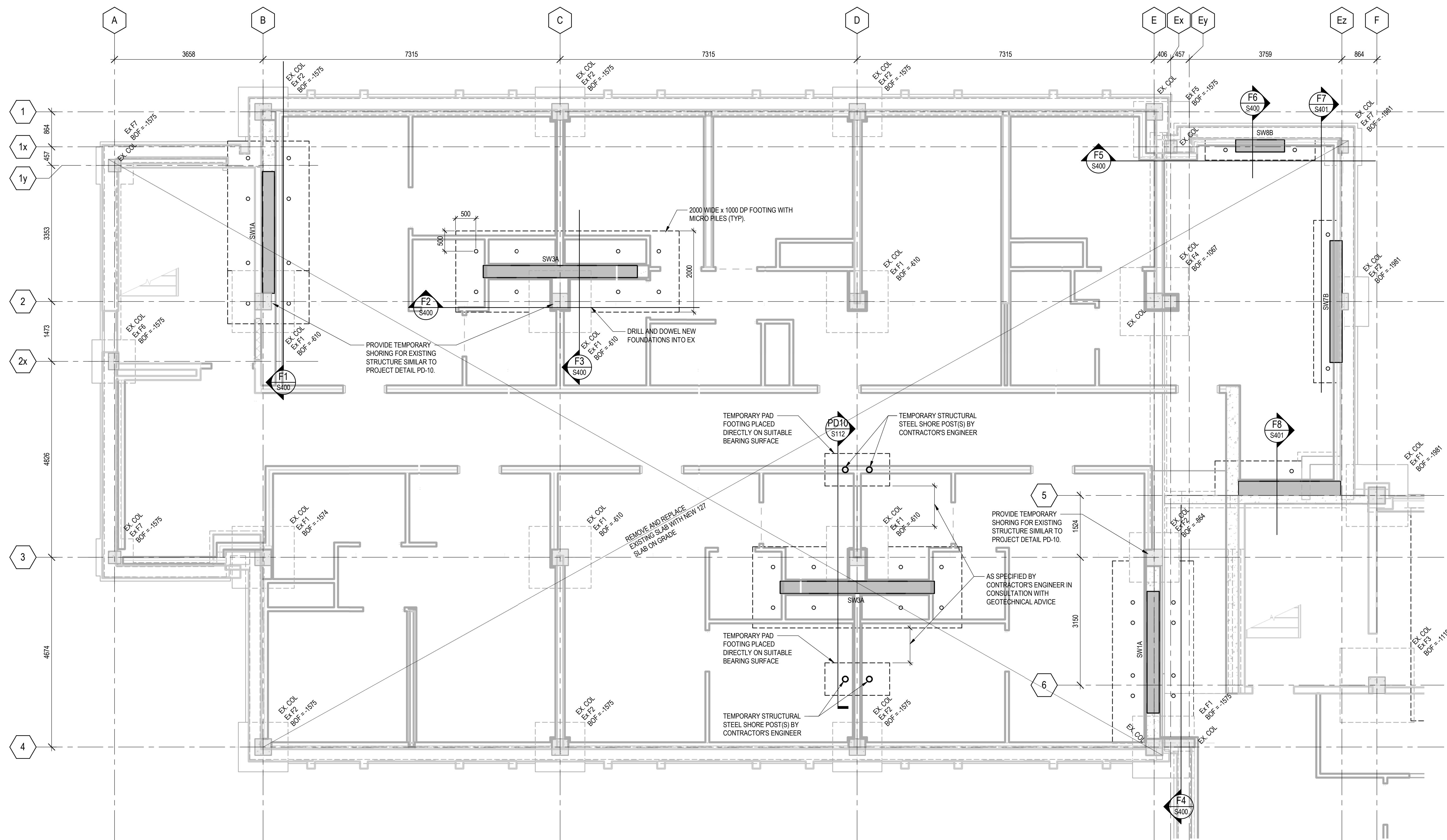
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BLOCK A - GROUND FLOOR FRAMING AND FOUNDATION PLAN

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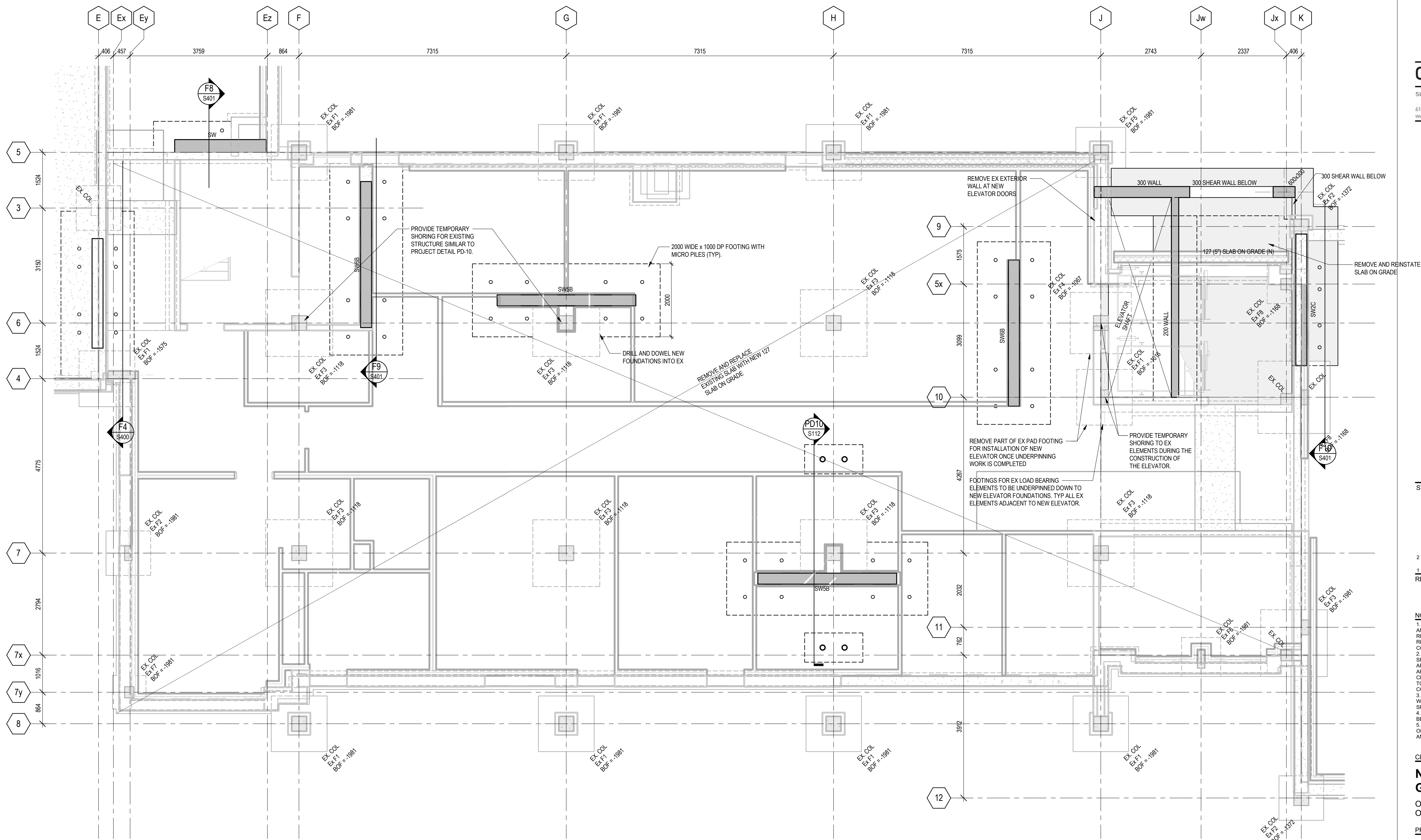
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S210

1 BLOCK A - GROUND FLOOR FRAMING AND FOUNDATION PLAN (322'-4")

S210 1: 50



1 BLOCK B - GROUND FLOOR FRAMING AND FOUNDATION PLAN (321'-0")
S211 1:50

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BLOCK B - GROUND FLOOR FRAMING AND FOUNDATION PLAN

PROJECT NO:

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APPROVED: I.FULLER

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2

S211



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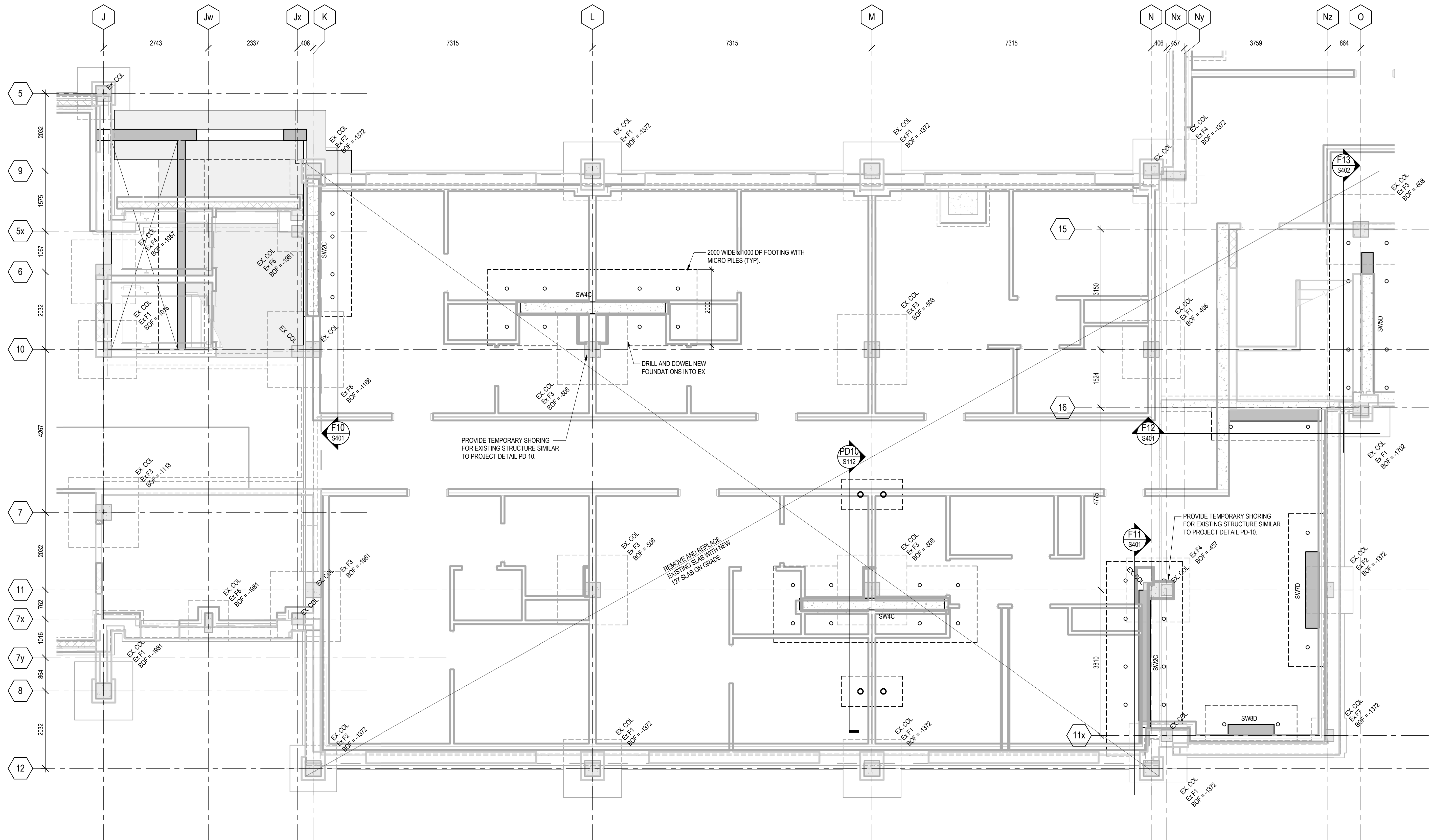
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BLOCK C - GROUND FLOOR FRAMING AND FOUNDATION PLAN

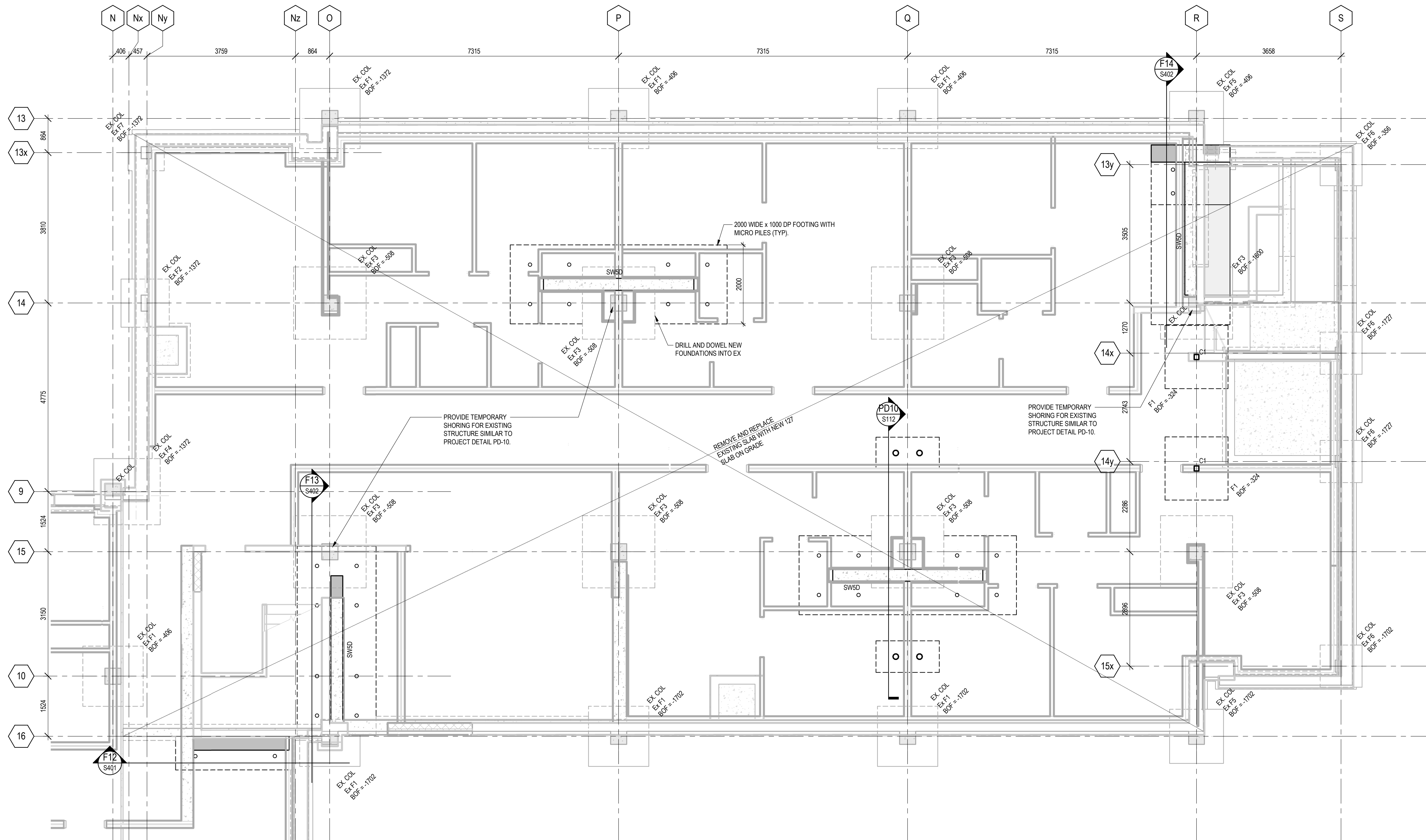
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2 S212



1 BLOCK C - GROUND FLOOR FRAMING AND FOUNDATION PLAN (323'0")
S212 1 : 50



1 BLOCK D - GROUND FLOOR FRAMING AND FOUNDATION PLAN (323'0")
S213 1:50

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CLIENT

NORTH GRENVILLE



OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

BLOCK D - GROUND FLOOR FRAMING AND FOUNDATION PLAN

PROJECT NO:

DRAWN: W.DABROWSKI

APPROVED: I.FULLER

SCALE: 1:50

DATE PRINTED: 2025-01-13 2:48:49 PM

REV DRAWING NO.

2

S213



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STAMP

2	JAN. 13/25	PROGRESS SET TO INFORM THE FUNDING APPLICATION
1	JAN. 07/25	ISSUED FOR REVIEW
REV DATE		ISSUE

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**NORTH
GRENVILLE**

OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

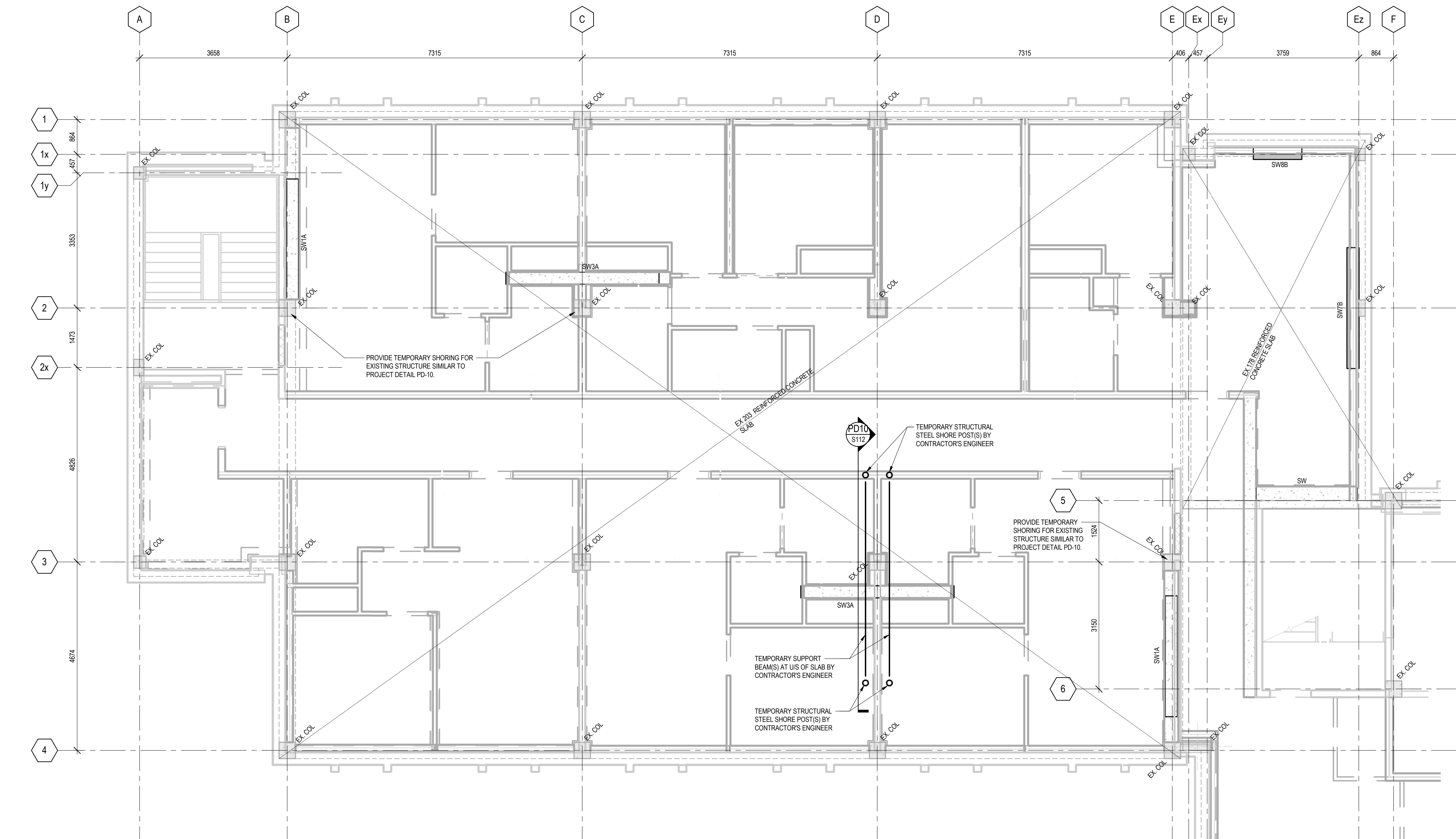
TITLE _____

BLOCK A - 2ND FLOOR FRAMING PLAN

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1 : 50
DATE PRINTED: 2025-01-13 2:48:51 PM

REV DRAWING NO.

2 S214



1 BLOCK A - 2ND FLOOR FRAMING PLAN (332'-4 3/8")
S214 1:50



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2	JAN. 13/25	PROGRESS SET TO INFORM THE FUNDING APPLICATION
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REV DATE		ISSUE

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5. ALL WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE NATIONAL STANDARDS, CODES AND APPLICABLE MUNICIPAL REGULATIONS.

CLIENT _____

NORTH GRENVILLE

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PROJECT

Bell Hall

15 Campus Drive
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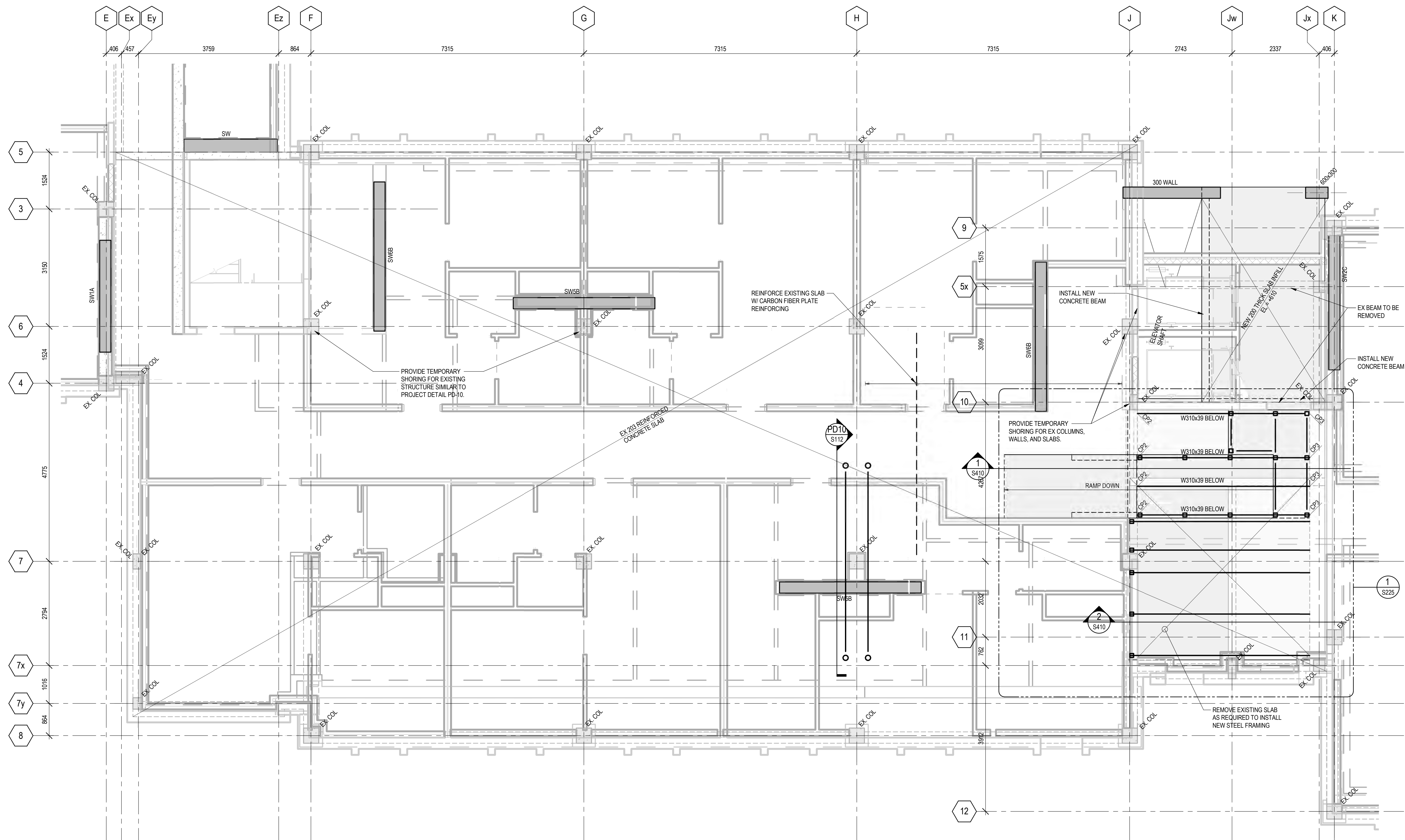
TITLE _____

BLOCK B - 2ND FLOOR FRAMING PLAN

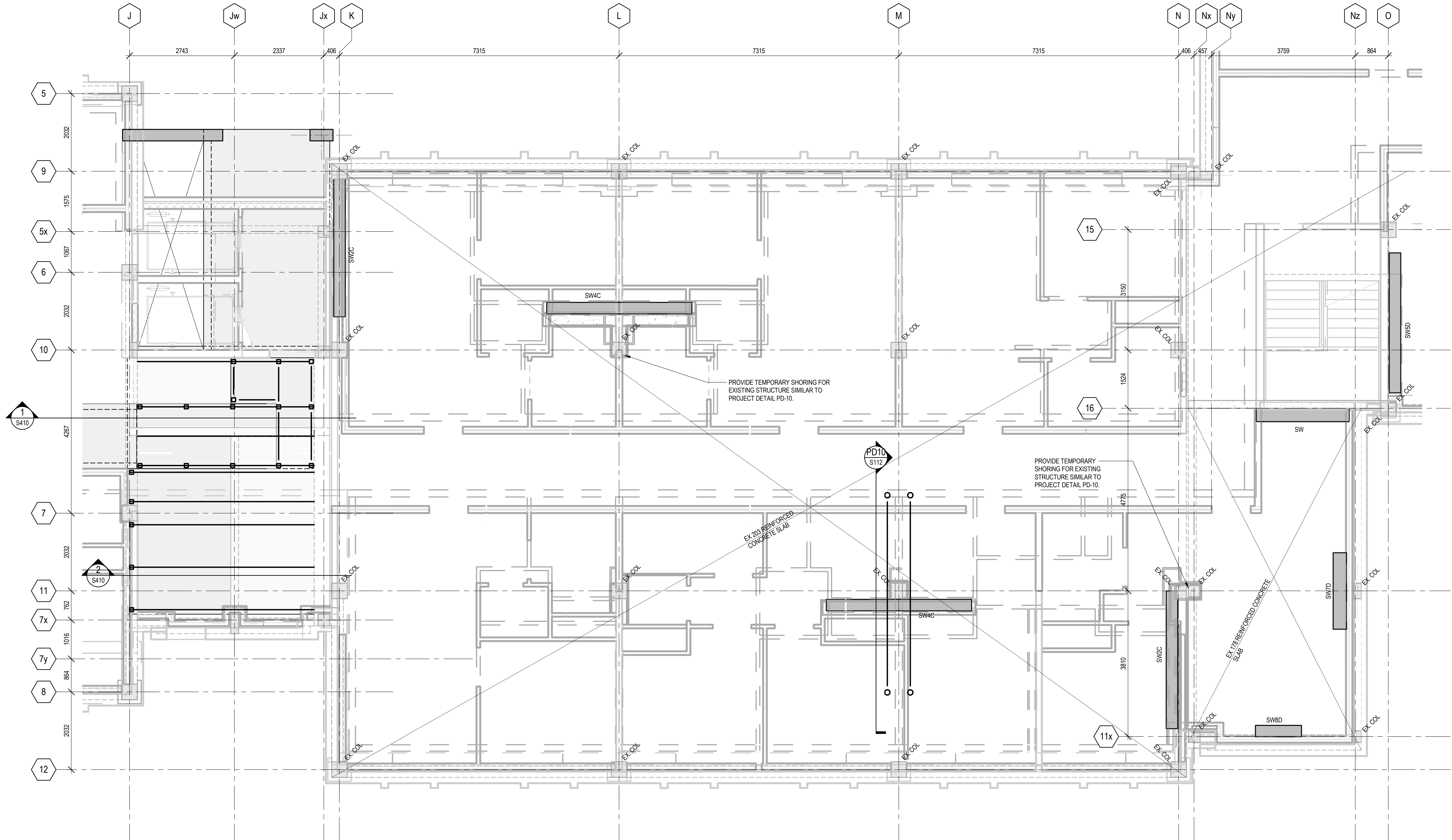
PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1 : 50
DATE PRINTED: 2025-01-13 2:48:54 PM

REV DRAWING NO.

2 S215



1 BLOCK B - 2ND FLOOR FRAMING PLAN (332'-4 3/8")
S215 1 : 50



1 BLOCK C - 2ND FLOOR FRAMING PLAN (334'-4 3/8")
S216 1:50

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2 JAN. 13/25 PROGRESS SET TO INFORM THE FUNDING APPLICATION
1 JAN. 07/25 ISSUED FOR REVIEW
REV DATE ISSUE

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CLIENT

**NORTH
GRENVILLE**



OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

**BLOCK C - 2ND
FLOOR FRAMING
PLAN**

PROJECT NO.:

DRAWN: W.DABROWSKI

APPROVED: I.FULLER

SCALE: 1:50

DATE PRINTED: 2025-01-13 2:48:57 PM

REV

DRAWING NO.

2

S216



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REV DATE		ISSUE

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**NORTH
GRENVILLE**

OTTAWA
ONTARIO, CANADA



Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

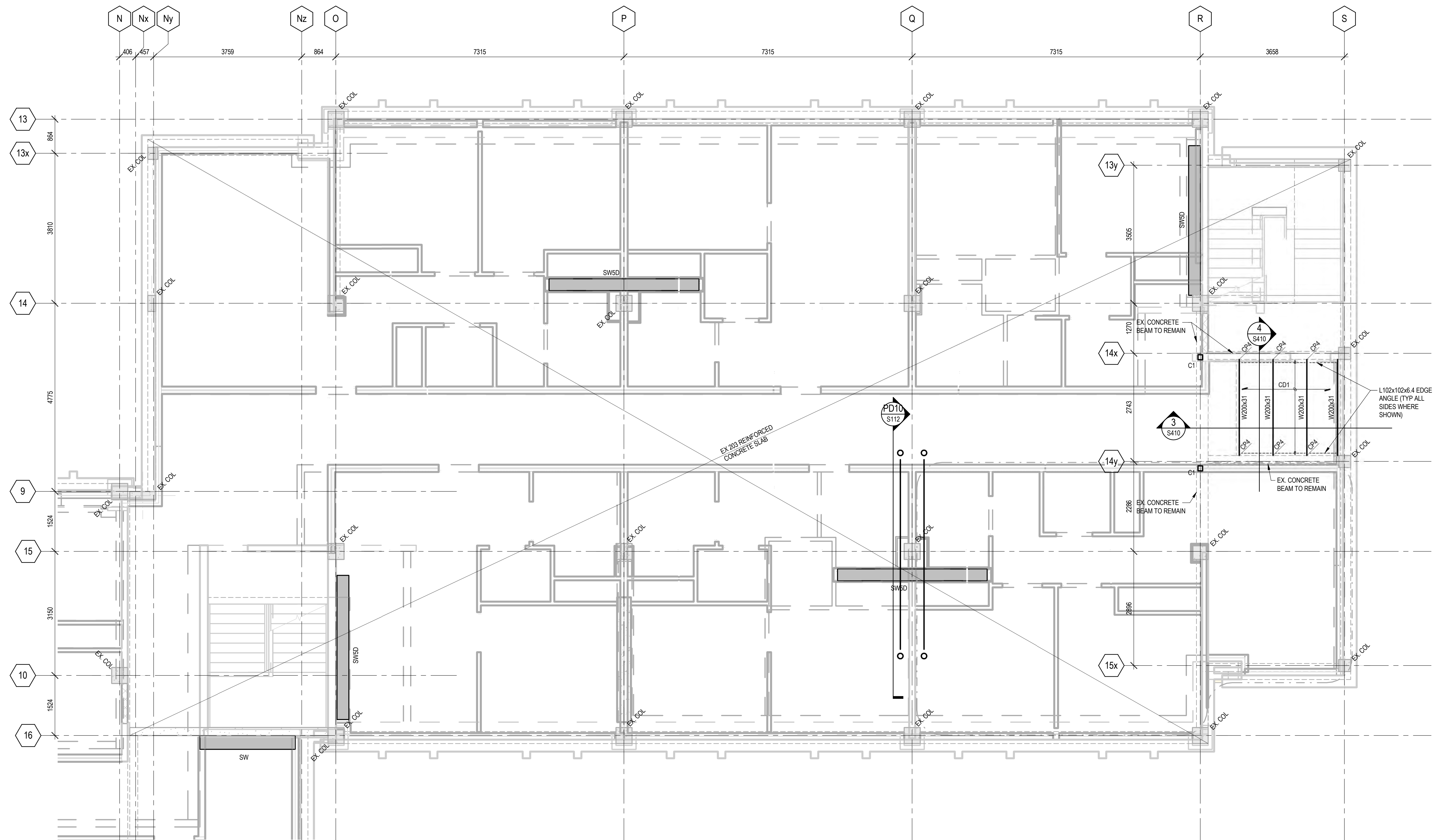
BLOCK D - 2ND FLOOR FRAMING PLAN

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1 : 50
DATE PRINTED: 2025-01-13 2:49:00 PM

REV DRAWING NO.

2

S217



1 BLOCK D - 2ND FLOOR FRAMING PLAN (334'-4 3/8")
S217 1:50

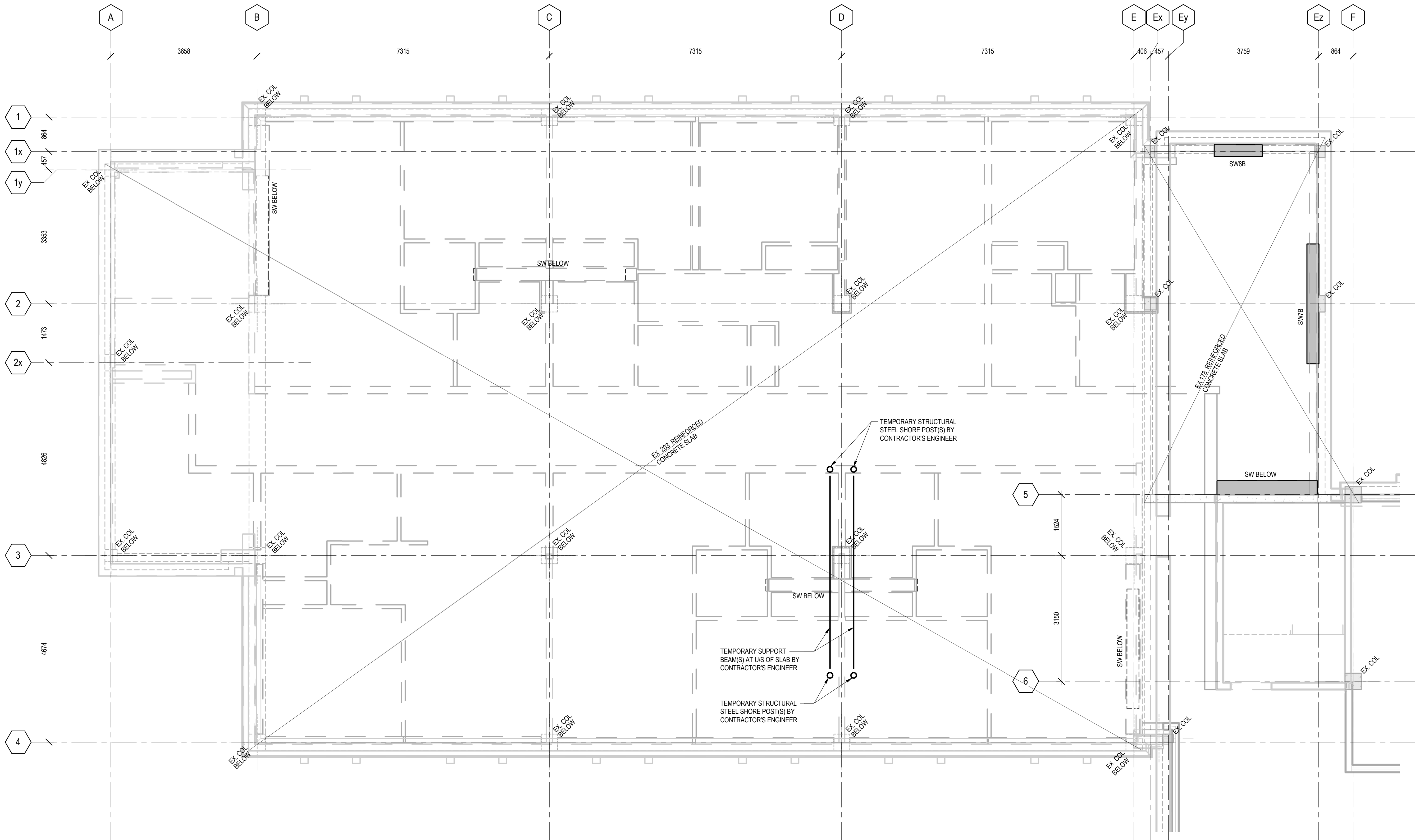


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1 BLOCK A - ROOF FRAMING PLAN (342'-4 3/4")
S218 1:50

STAMP

2 JAN. 13/25 PROGRESS SET TO INFORM THE FUNDING APPLICATION
1 JAN. 07/25 ISSUED FOR REVIEW
REV DATE ISSUE

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CLIENT

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PROJECT

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15 Campus Drive
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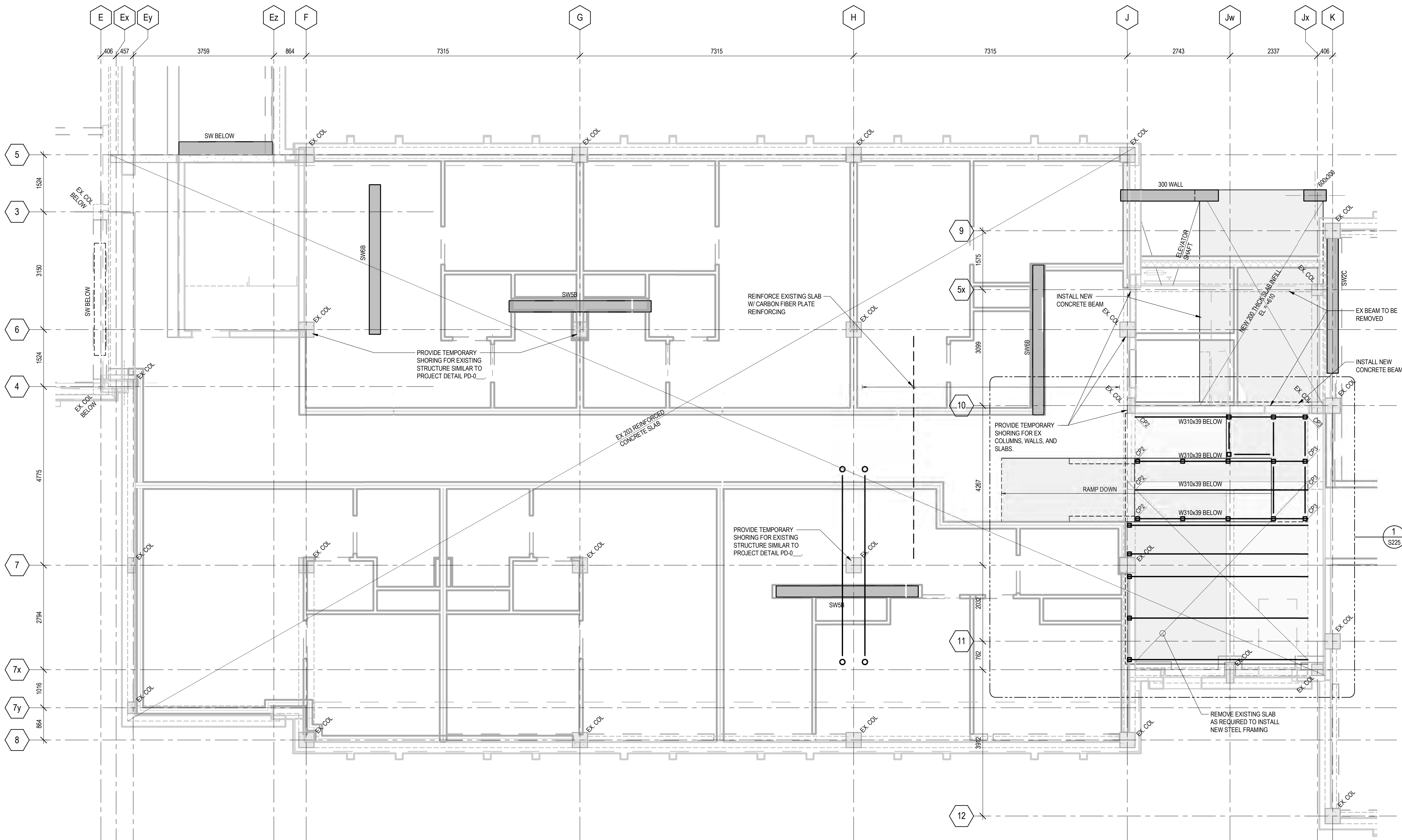
TITLE

BLOCK A - ROOF FRAMING PLAN

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1:50
DATE PRINTED: 2025-01-13 2:49:03 PM

REV DRAWING NO.

2 S218



STAMP

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REV DATE	ISSUE	

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NORTH GRENVILLE OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall15 Campus Drive
Kemptville, Ontario

TITLE

BLOCK B - 3RD FLOOR FRAMING PLAN

PROJECT NO:

DRAWN: W.DABROWSKI

APPROVED: I.FULLER

SCALE: 1: 50

DATE PRINTED: 2025-01-13 2:49:06 PM

REV

DRAWING NO.

2**S219****1** BLOCK B - 3RD FLOOR FRAMING PLAN (342'-4 3/4")

S219 1: 50



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OTTAWA
ONTARIO, CANADA

PROJECT

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Kemptville, Ontario

TITLE

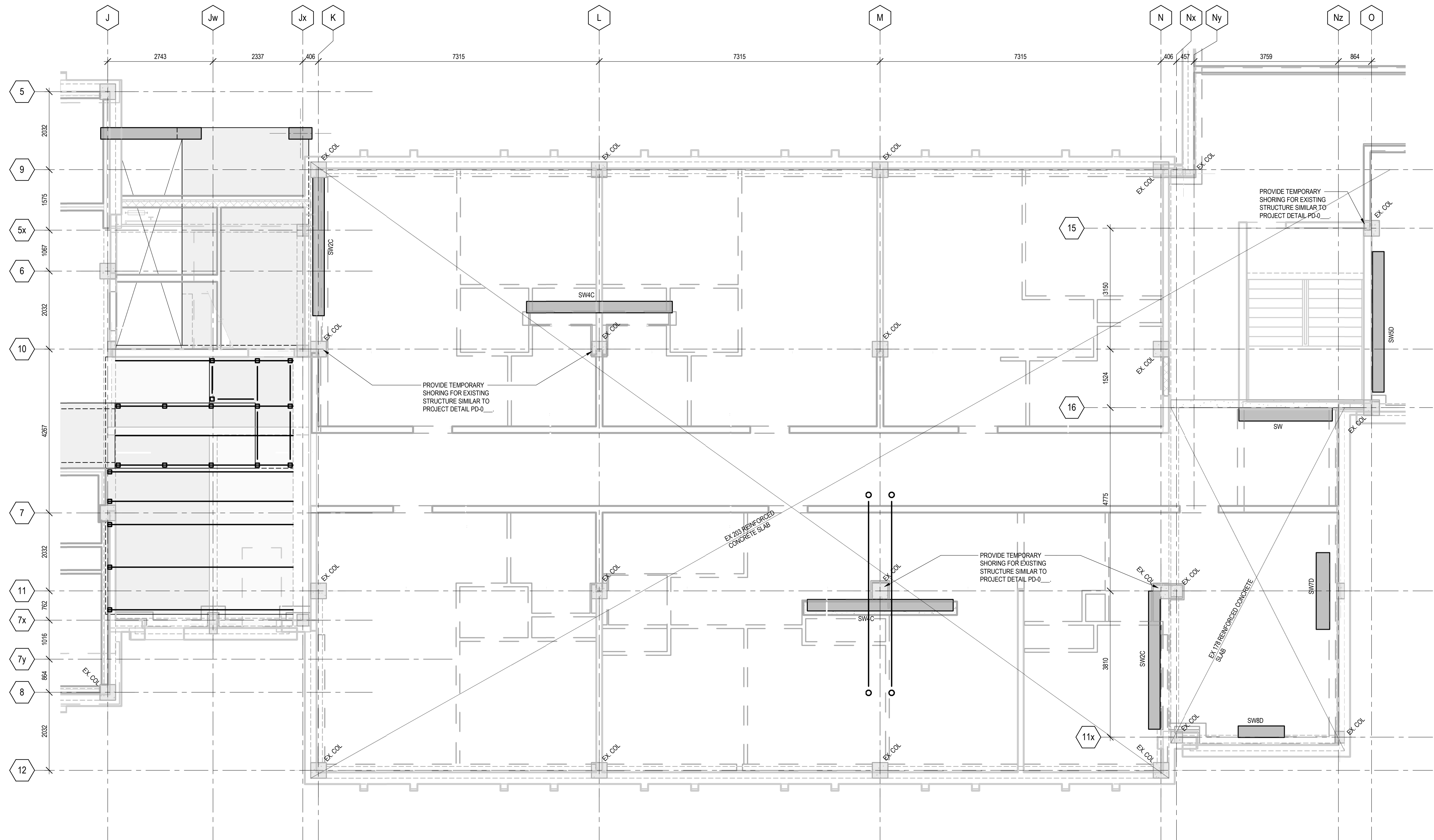
BLOCK C - 3RD FLOOR FRAMING PLAN

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1 : 50
DATE PRINTED: 2025-01-13 2:49:10 PM

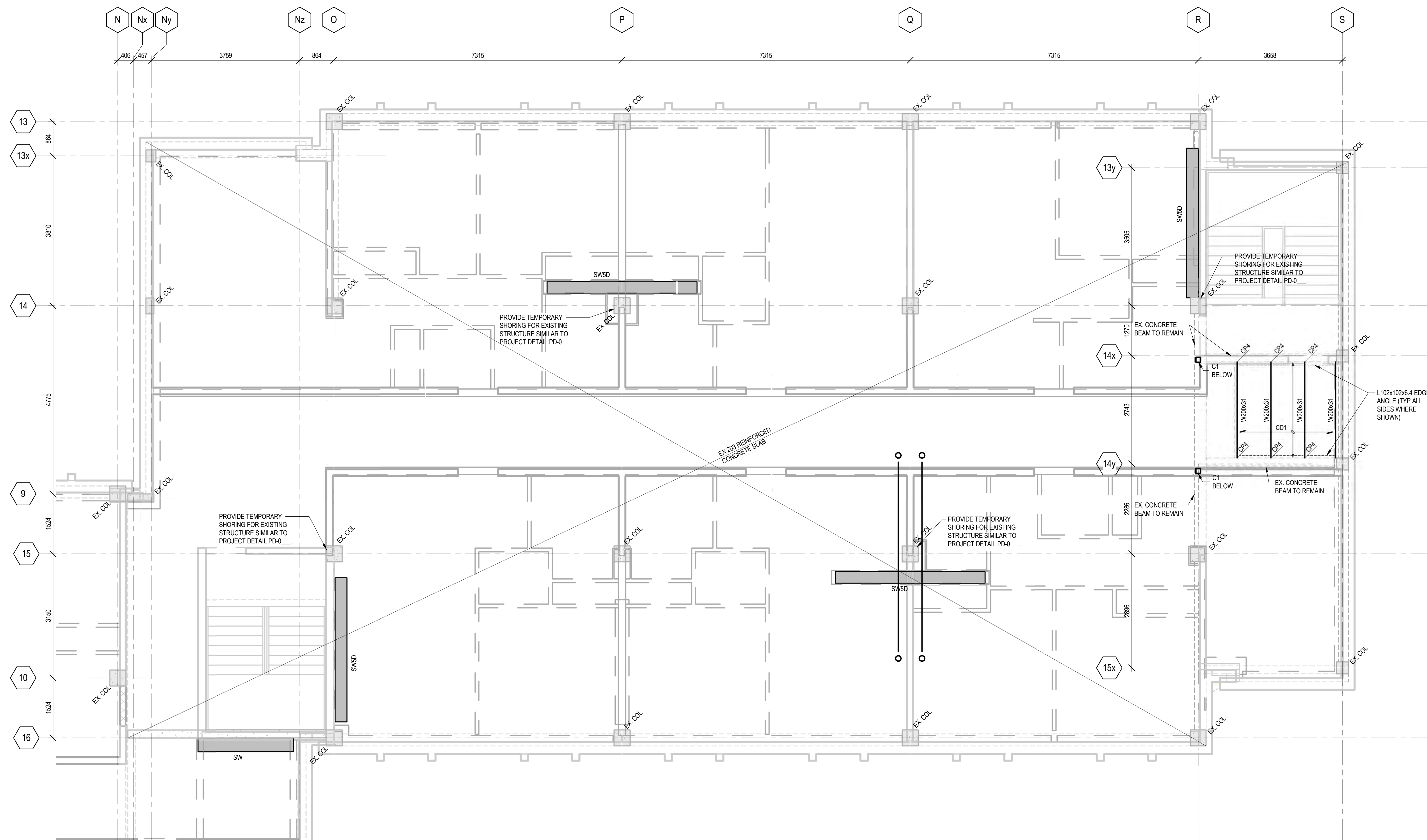
REV DRAWING NO.

2

S220



1 BLOCK C - 3RD FLOOR FRAMING PLAN (344'-4 3/4")
S220 1 : 50



1 BLOCK D - 3RD FLOOR FRAMING PLAN (344'-4 3/4")
S221 1:50

STAMP

2	JAN. 13/25	PROGRESS SET TO INFORM THE FUNDING APPLICATION
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REV DATE	ISSUE	

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CLIENT

NORTH GRENVILLE 

OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

TITLE

**BLOCK D - 3RD
FLOOR FRAMING
PLAN**

PROJECT NO:

DRAWN: W.DABROWSKI

APPROVED: I.FULLER

SCALE: 1:50

DATE PRINTED: 2025-01-13 2:49:13 PM

REV

DRAWING NO.

2

S221



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REV DATE	ISSUE	

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CLIENT

NORTH GRENVILLE

OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

15 Campus Drive
Kemptville, Ontario

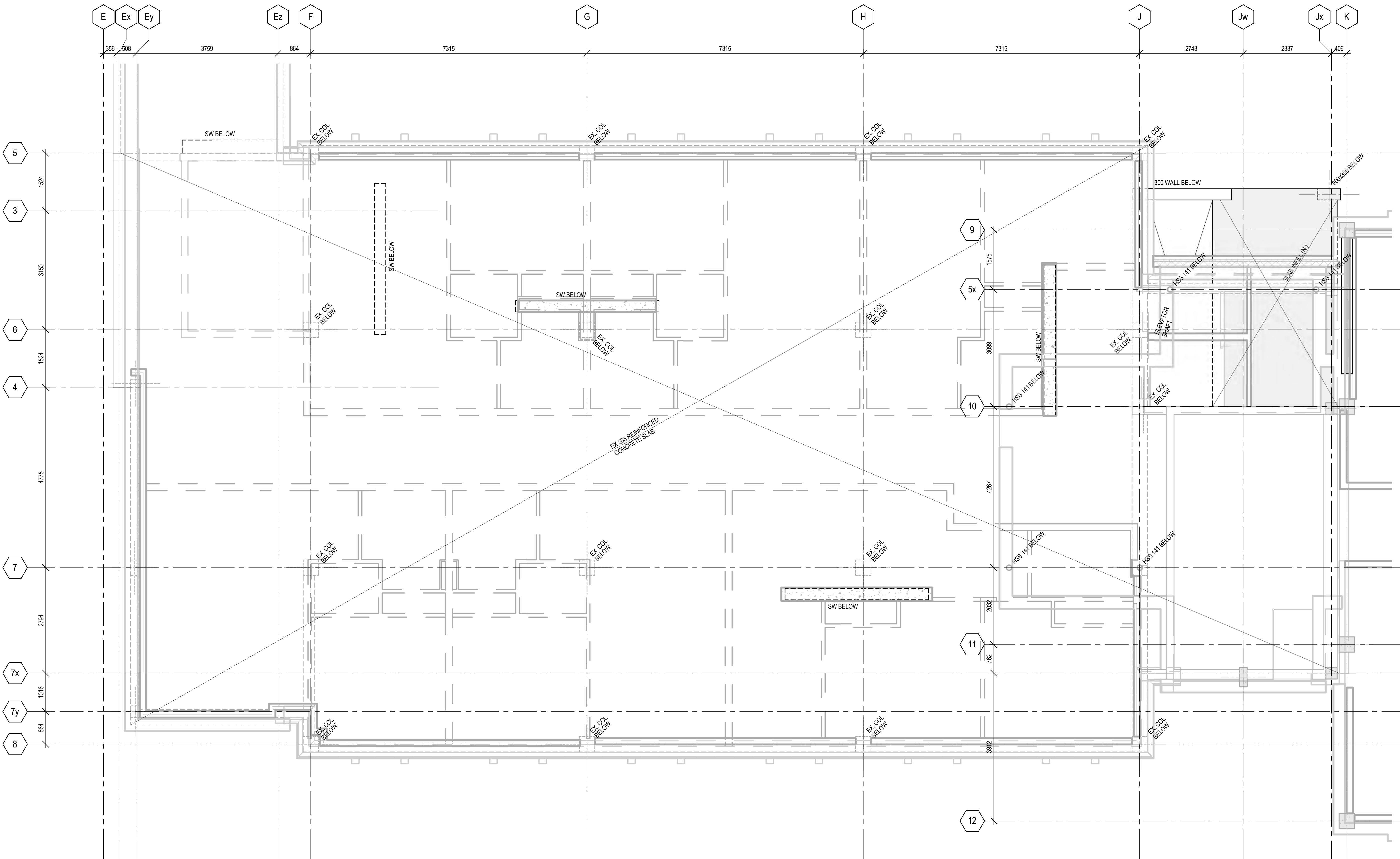
TITLE

BLOCK B - ROOF FRAMING PLAN

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1: 50
DATE PRINTED: 2025-01-13 2:49:16 PM

REV DRAWING NO.

2 S222



1 BLOCK B - ROOF FRAMING PLAN (352'-5 1/8")
S222 1: 50



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REV DATE	ISSUE	

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CLIENT

NORTH GRENVILLE

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ONTARIO, CANADA

PROJECT

Bell Hall

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Kemptville, Ontario

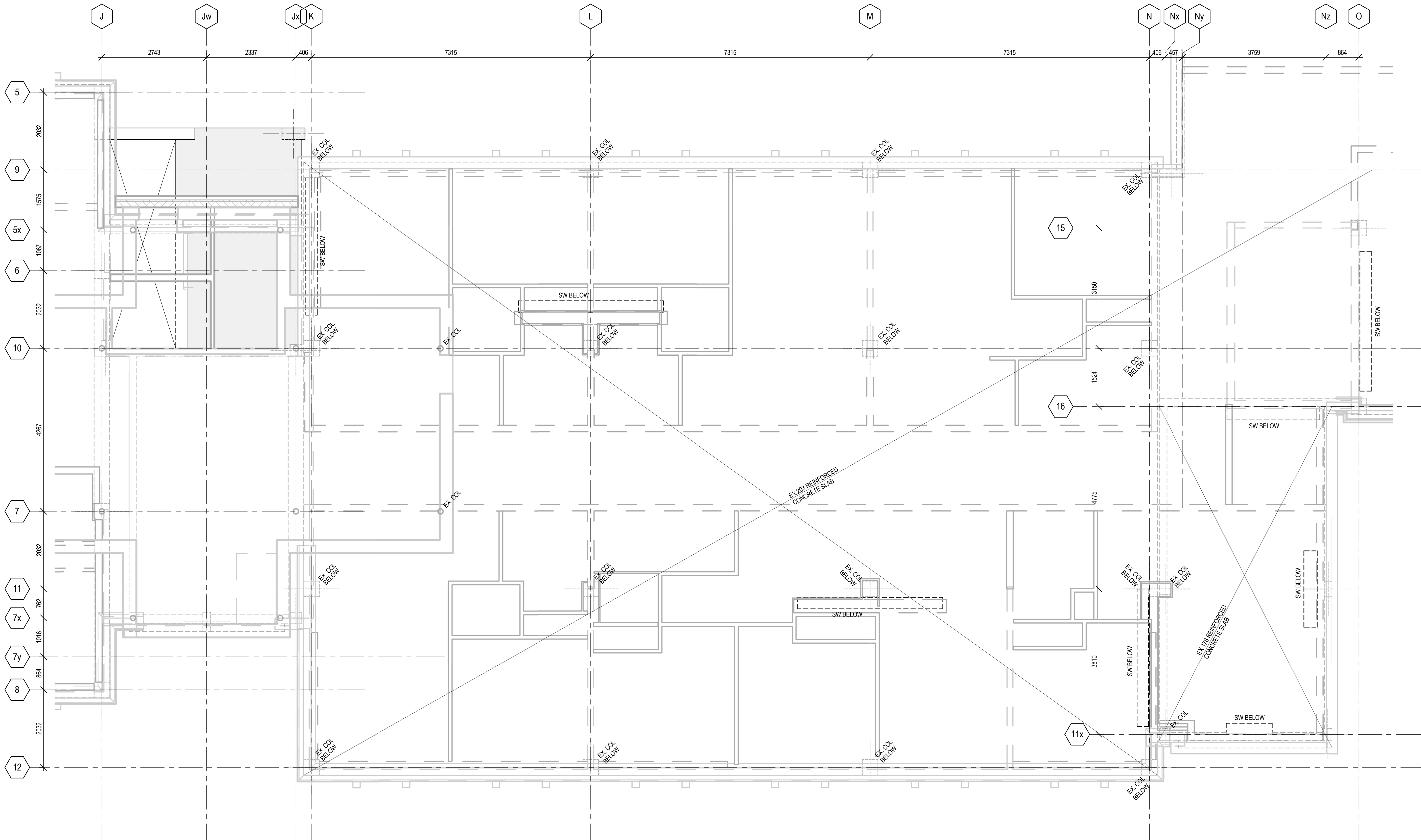
TITLE

BLOCK C - ROOF FRAMING PLAN

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1: 50
DATE PRINTED: 2025-01-13 2:49:20 PM

REV DRAWING NO.

2 S223



1 BLOCK C - ROOF FRAMING PLAN (354'-5 1/8")
S223 1: 50

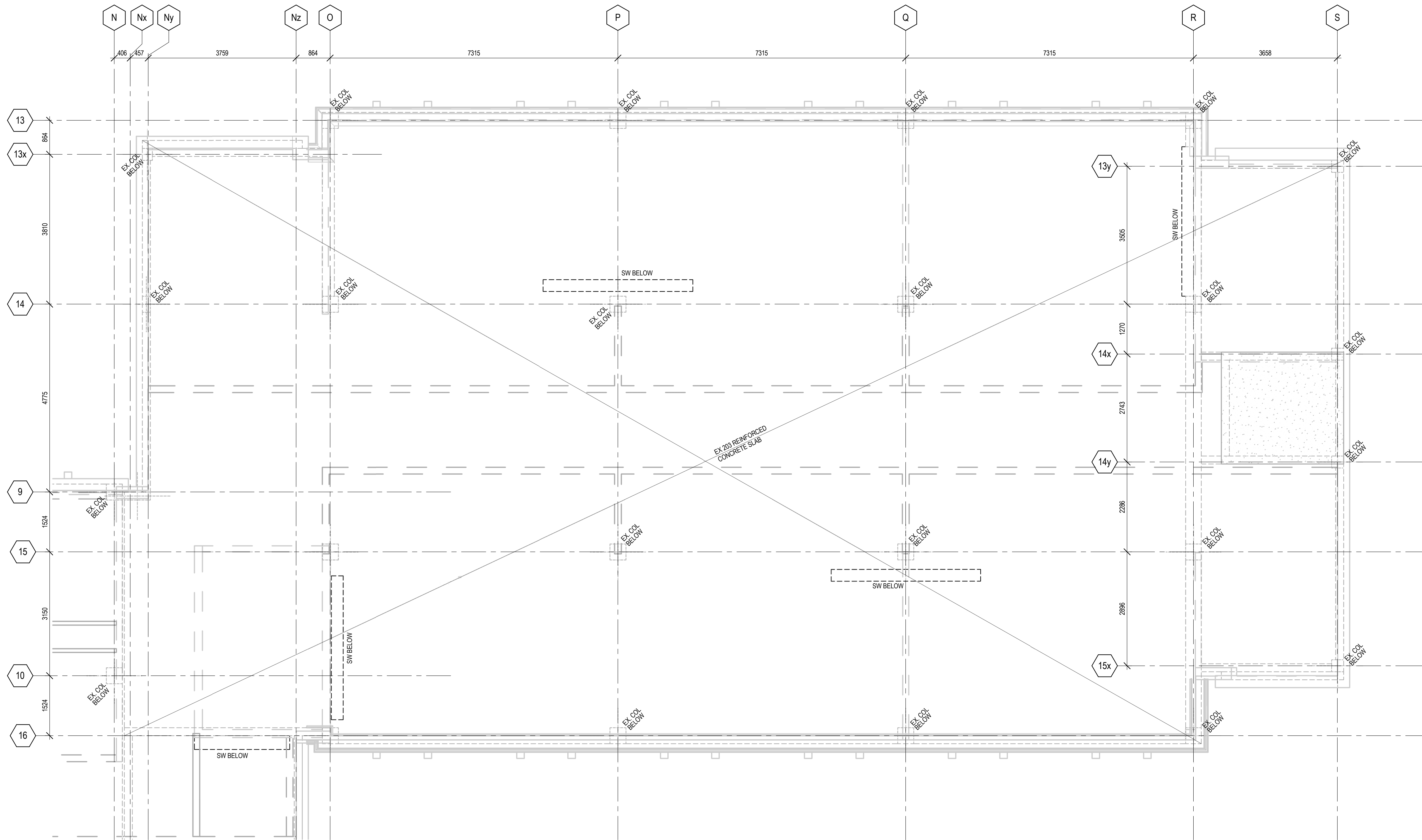


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1 BLOCK D - ROOF FRAMING PLAN (354'-5 1/8")
S224 1 : 50

STAMP

2	JAN. 13/25	PROGRESS SET TO INFORM THE FUNDING APPLICATION
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REV DATE	ISSUE	

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CLIENT

NORTH GRENVILLE 
OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

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Kemptville, Ontario

TITLE

BLOCK D - ROOF FRAMING PLAN

DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1 : 50
DATE PRINTED: 2025-01-13 2:49:23 PM

REV DRAWING NO.

2 S224

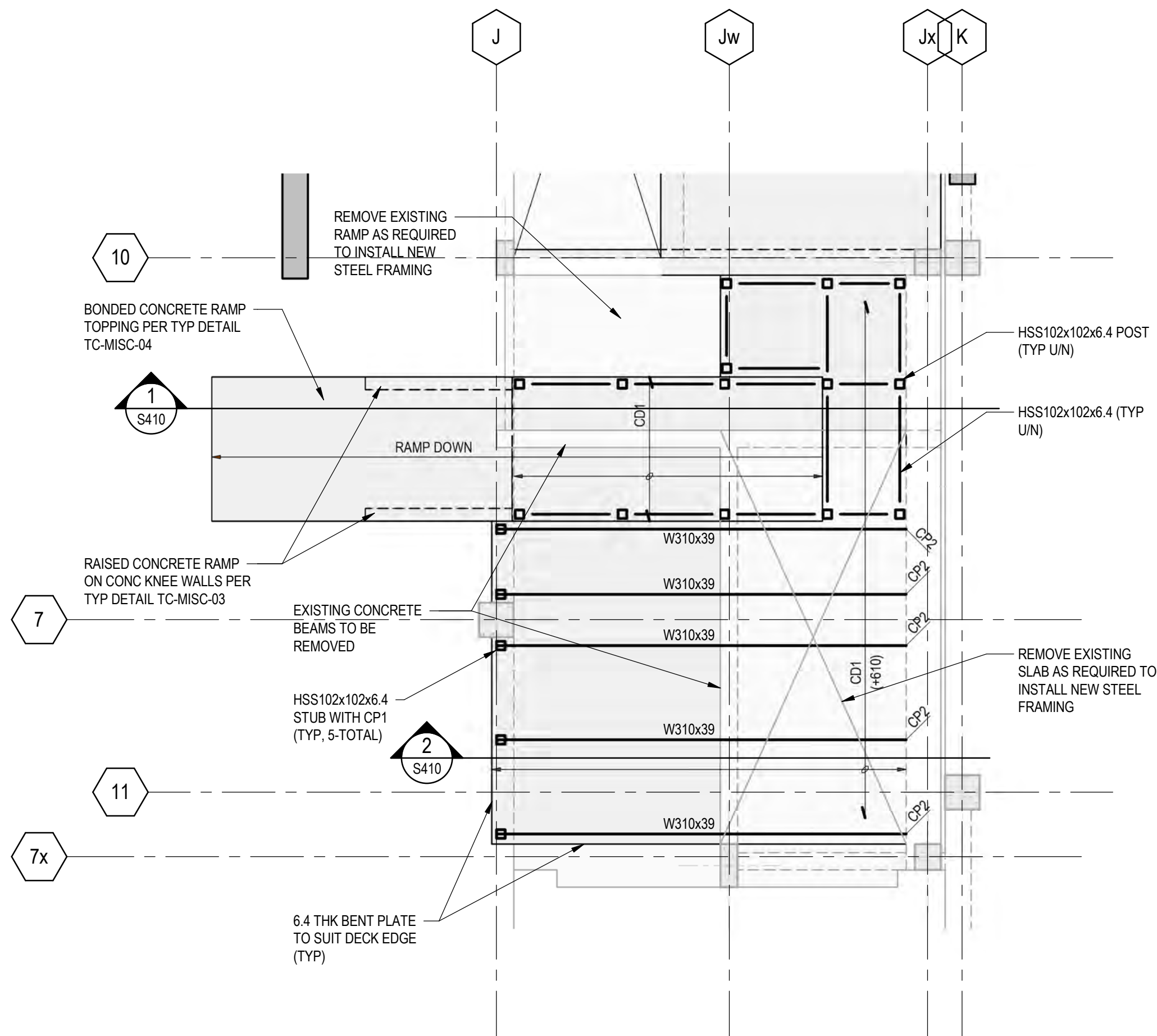


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1 S225 2ND FLOOR DECK FRAMING PART PLAN
1:50

STAMP

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REV DATE	ISSUE	

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CLIENT

NORTH GRENVILLE 
OTTAWA
ONTARIO, CANADA

PROJECT

Bell Hall

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Kemptville, Ontario

TITLE

BLOCK B - 2ND FLOOR PART FRAMING PLAN

PROJECT NO:
DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1:50
DATE PRINTED: 2025-01-13 2:49:24 PM

REV	DRAWING NO.
2	S225

MICROPILE SCHEDULE							
MICROPILE TYPE	DYWIDAG ANCHOR TYPE THREADBAR	MINIMUM EMBEDMENT IN ROCK (m)	MINIMUM BOND LENGTH IN ROCKS (m)	BORE HOLE DIAMETER (mm)	ANCHOR CAPACITY (kN)		GRADE
					YIELD	ULTIMATE	
MP1	90 mm DIA DESIGN LOAD: 2300kN			225	3209	4279	GRADE ASTM A615 / CSA G30.18 517 MPa COLD-ROLLED THREADBAR
MP2	63 mm DIA DESIGN LOAD: 1300 kN			225	2184	2621	GRADE ASTM A615 / CSA G30.18 690 MPa HOT-ROLLED

- NOTES:
1. GROUT/ ROCK INTERFACE TO BE 600 kPa ULS MIN.
 2. SUBMIT SHOP DRAWINGS INCLUDING LAYOUT AND TESTING METHODS (REFER TO SPECIFICATIONS).
 3. PROVIDE DOUBLE CORROSION PROTECTION AND ALL ACCESSORIES.
 4. PROVIDE STEEL CASING AS REQUIRED TO ALLOW FOR TESTING AND INSTALLATION.

SHELF ANGLE SCHEDULE			
MARK	SIZE	ANCHORS	REMARKS
SL1	XXXXX	XXØ DCA @ XXX	

STEEL COLUMN SCHEDULE				
MARK	SIZE	BASE PLATE	ANCHORAGE	REMARKS
C1	HSS 127x127x6.4	350x350x12	4-12Ø DCA	PROVIDE SPECIFIED BASEPLATE AND ANCHORAGE T&B

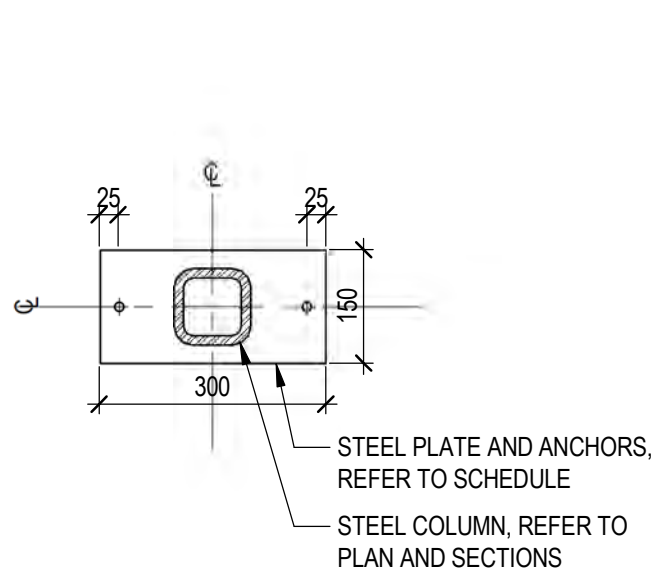
- NOTES:
1. WHERE FASTENING TO EXISTING CONCRETE, PLATE DIMENSIONS PROVIDED ARE MINIMUM. CONTRACTOR TO SCAN THE EXISTING ELEMENT FOR PLACEMENT OF PLATE AND ANCHORAGE, INCREASE PLATE DIMENSION AS REQUIRED.
 2. DO NOT CUT EXISTING REINFORCING AT NEW ANCHOR LOCATIONS.
 3. PRIOR TO FABRICATION AND INSTALLATION, PROVIDE SHOP DRAWINGS WITH PLATE DIMENSIONS WHICH SUIT EACH INSTALLATION FOLLOWING THE SCANNING OF THE CONCRETE ELEMENTS.
 4. TO BE READ IN CONJUNCTION WITH POST INSTALLED ANCHORS AND DOWELS GENERAL REQUIREMENTS ON S100 SERIES DRAWINGS.

FLOOR DECK SCHEDULE		
MARK	DESCRIPTION	REMARKS
CD1	112 CONC SLAB OVER 38 COMP STEEL DECK	

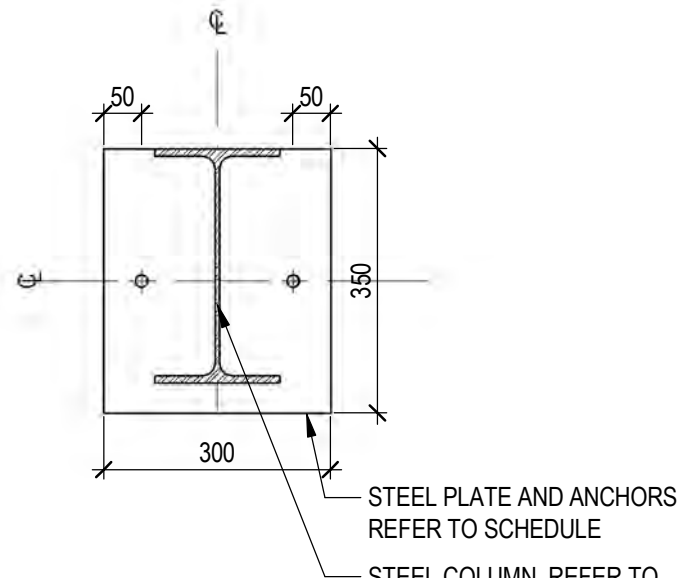
SPREAD FOOTING SCHEDULE					
MARK	WIDTH	LENGTH	DEPTH	REINFORCEMENT	REMARKS
F1	1600	1600	400		

CONNECTION PLATE SCHEDULE			
MARK	SIZE	ANCHORS	REMARKS
CP1	300x150x12	2-12Ø DCA	REFER CP1 DETAIL 1/S301
CP2	350x300x12	2-16Ø DCA	REFER CP2 DETAIL 2/S301
CP3	950x200x16	2-16Ø DCA	REFER CP3 DETAIL 3/S301
CP4	400x300x12	2-12Ø DCA	REFER CP4 DETAIL 4/S301

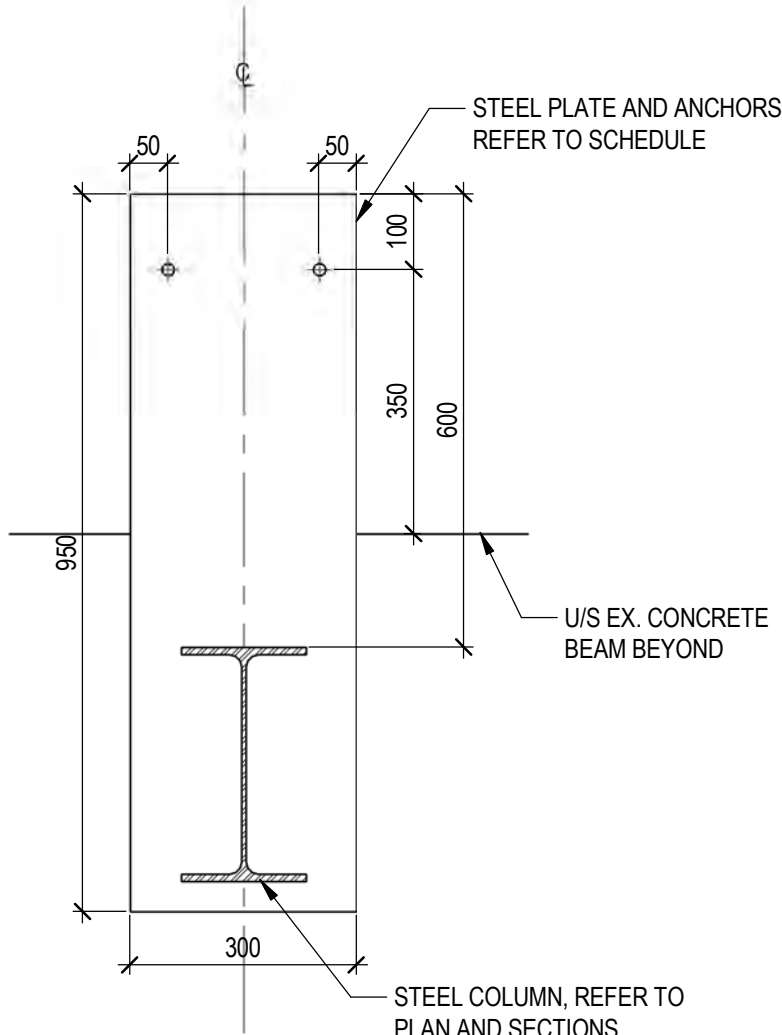
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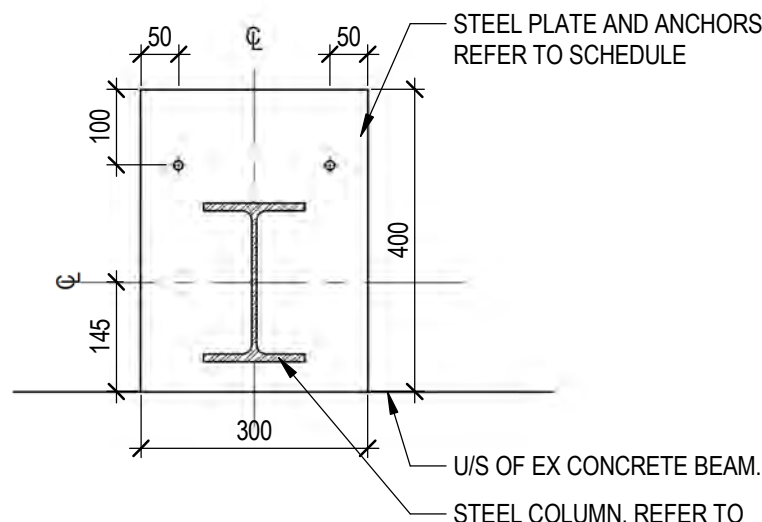
1 CP1
S301 1:10



2 CP2
S301 1:10



3 CP3
S301 1:10



4 CP4
S301 1:10

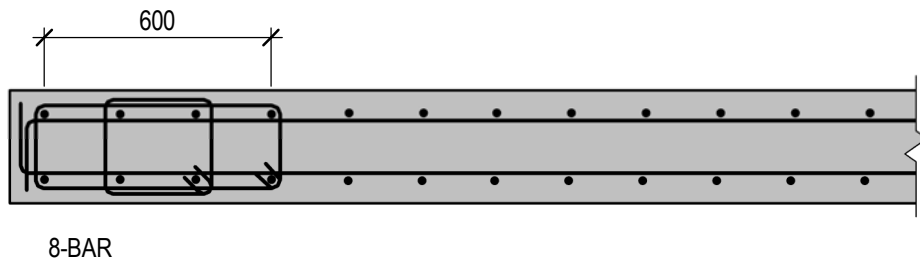
SHEAR WALL REINFORCEMENT SCHEDULE								
SHEAR WALL	LEVEL	WALL THICKNESS (mm)	ZONE VERTICAL REINFORCING	ZONE TIES (VERTICAL SPACING)	ZONE LENGTH (mm)	ZONE DETAIL	DISTRIBUTED VERTICAL REINFORCING (EACH FACE)	DISTRIBUTED HORIZONTAL REINFORCING (EACH FACE)
SW1A	GROUND - 3RD FLR (BLK A ROOF)	3000	12-25M	10M@200	900	B	15M@300	15M@300
SW2C	GROUND - ROOF	3600	18-30M	10M@200	1000	C	15M@300	15M@300
SW3A	GROUND - 3RD FLR (BLK A ROOF)	3800	8-25M	10M@200	600	A	15M@300	15M@300
SW4C	GROUND - ROOF	3800	12-30M	10M@200	900	B	15M@300	15M@300
SW5B	GROUND - ROOF	3800	20-30M	10M@200	1400	D	15M@300	15M@300
SW5D	GROUND - ROOF	3800	20-30M	10M@200	1400	D	15M@300	15M@300
SW6B	GROUND - ROOF	4000	22-30M	10M@200	1500	E	15M@300	15M@300
SW7B	GROUND - ROOF	3000	8-25M	10M@200	600	A	15M@300	15M@300
SW7D	GROUND - ROOF	3000	8-25M	10M@200	600	A	15M@300	15M@300
SW8B	GROUND - ROOF	1200	REFER TO ZONE DETAIL	10M@200	REFER TO ZONE DETAIL	F	REFER TO ZONE DETAIL	REFER TO ZONE DETAIL
SW8D	GROUND - ROOF	1200	REFER TO ZONE DETAIL	10M@200	REFER TO ZONE DETAIL	F	REFER TO ZONE DETAIL	REFER TO ZONE DETAIL

SHEAR WALL NOTES:

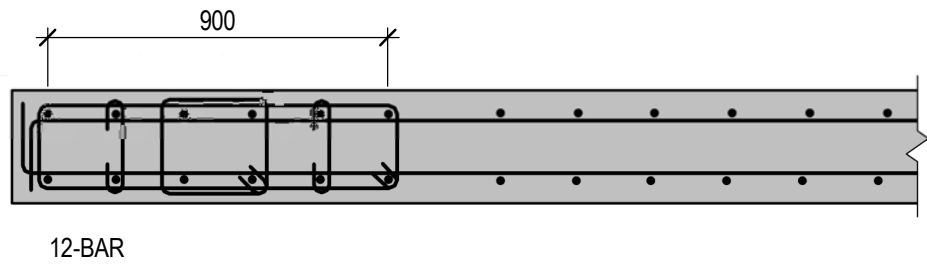
1. SEE GENERAL NOTES AND TYPICAL DETAILS ON S100 SERIES DRAWINGS
2. UNLESS OTHERWISE NOTED ON SHEAR WALL ELEVATIONS, CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS TO BE 45MPa.
3. ALL SHEAR WALLS ARE 300 THICK UNLESS OTHERWISE NOTED.
4. FOR CONCENTRATED (ZONE) REINFORCEMENT, SEE TC-WALL-41 AND ZONE REINFORCEMENT SCHEDULE(S) ON DRAWINGS Sxx.
5. TIE ZONE REINFORCEMENT AS COLUMNS, REFER TO TYPICAL DETAIL TC-COL-02.
6. UNLESS OTHERWISE NOTED IN ZONE REINFORCEMENT SCHEDULES, ELEVATIONS OR DETAILS, TIE SIZE AND SPACING TO BE SAME AS SPECIFIED. FOR COLUMNS IN COLUMN SCHEDULE NOTES. FOR RECTANGULAR END ZONES, "MINIMUM COLUMN DIMENSION" (WHICH DETERMINES MAXIMUM TIE SPACING) IS EQUAL TO THE SHORTER ZONE DIMENSION; FOR "T" AND "L" SHAPED ZONES, THAT "MINIMUM COLUMN DIMENSION" IS EQUAL TO THE THICKNESS OF THE THINNEST WALL IN THE ZONE.
7. SEE FOUNDATION PLANS AND SECTIONS FOR ADDITIONAL REINFORCEMENT AT AND BELOW THE GRADE LEVEL.
8. PROVIDE CLASS "B" TENSION LAPS FOR ALL REINFORCEMENT.
9. UNLESS NOTED OTHERWISE, SPLICE VERTICAL REINFORCEMENT IMMEDIATELY ABOVE TOPS OF SUPPORTED SLABS. FOR WALLS THAT ARE UNBRACED FOR TWO OR MORE STOREYS, EITHER PROVIDE CONTINUOUS VERTICAL REINFORCEMENT FOR THE ENTIRE UNSUPPORTED HEIGHT OR USE MECHANICAL TENSION COUPLERS.
10. WHERE VERTICAL REINFORCEMENT CHANGES, LAP LENGTH TO SUITE LARGER BARS.
11. WHERE DISTRIBUTED WALL REINFORCEMENT IS NOT SHOWN IN WALL SCHEDULE OR ELEVATIONS, PROVIDE MINIMUM WALL REINFORCEMENT AS SHOWN IN CONCRETE REINFORCEMENT GENERAL NOTES.
12. FOR WALL PANELS WHERE END ZONE REINFORCEMENT IS NOT SPECIFIED, PROVIDE 4-15 EACH END AND TIE PER COLUMN SCHEDULE NOTES.
13. CARRY ALL WALLS AND REINFORCEMENT TO TOP OF FOOTINGS.

UNLESS NOTED OTHERWISE, PROVIDE DOWELS FROM FOOTING TO WALL TO MATCH CONCENTRATED AND DISTRIBUTED VERTICAL WALL REINFORCEMENT. EXTEND ALL DOWELS TO BOTTOM OF FOOTINGS, MATS OR PILE CAPS AND TERMINATE WITH 90° HOOKS.

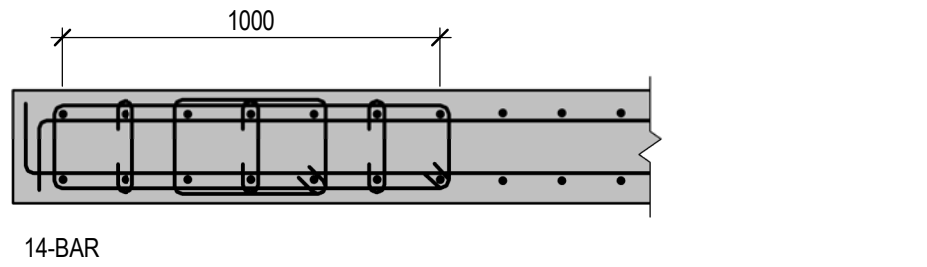
SHEAR WALL ZONE DETAILS:



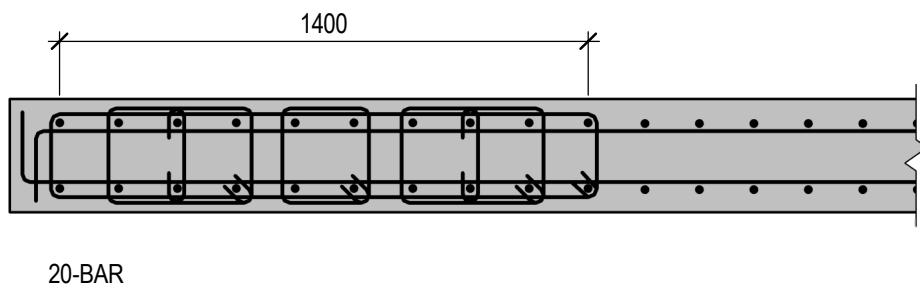
SHEAR WALL DETAIL 'A'



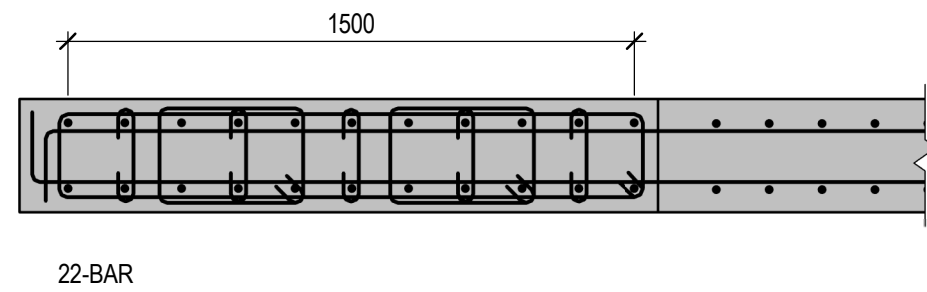
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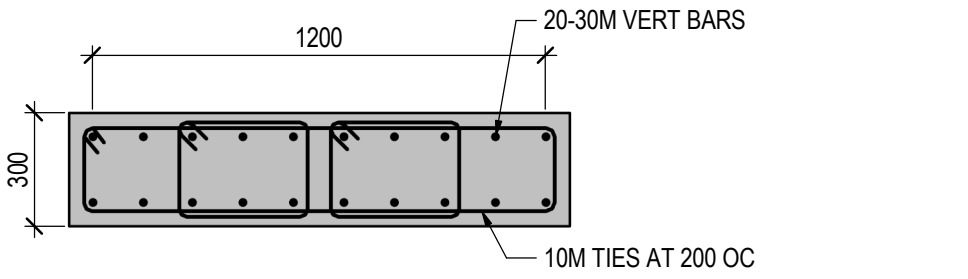
SHEAR WALL DETAIL 'C'



SHEAR WALL DETAIL 'D'



SHEAR WALL DETAIL 'E'



SHEAR WALL DETAIL 'F'

STAMP			
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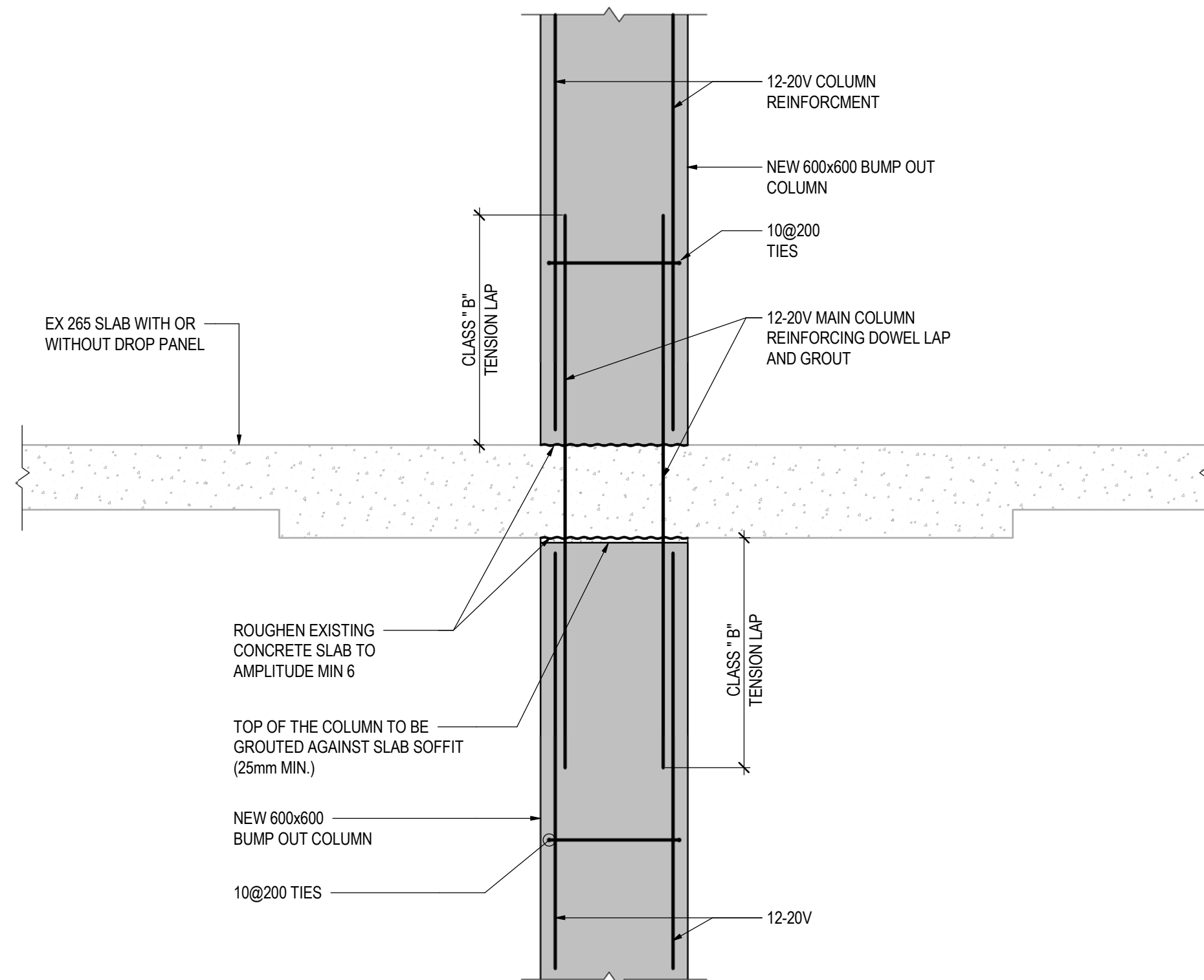
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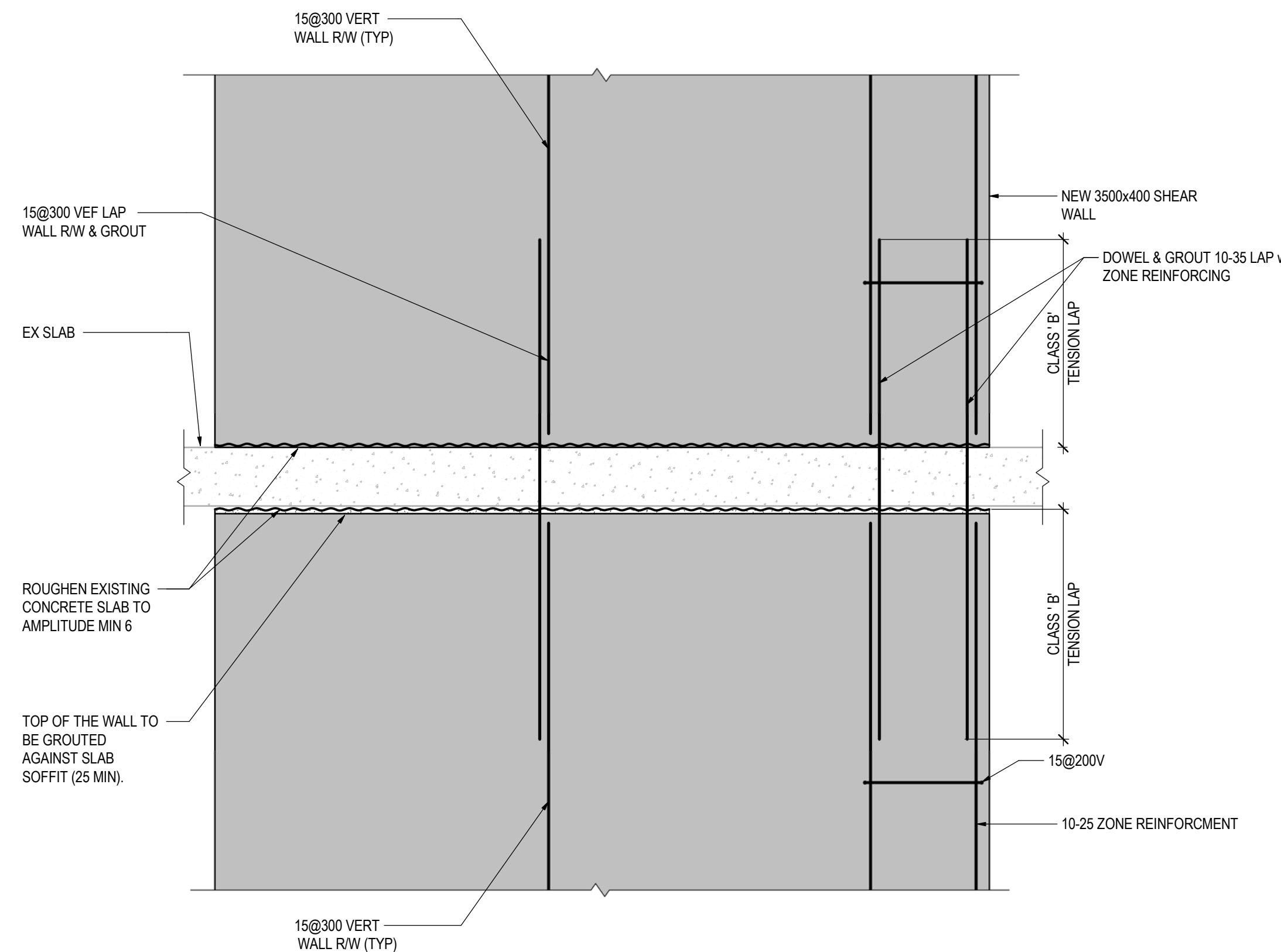
SHEAR WALL SCHEDULES

DRAWN: W.DABROWSKI
APPROVED: I.FULLER
SCALE: 1: 20
DATE PRINTED: 2025-01-13 2:49:28 PM

REV	DRAWING NO.
2	S305

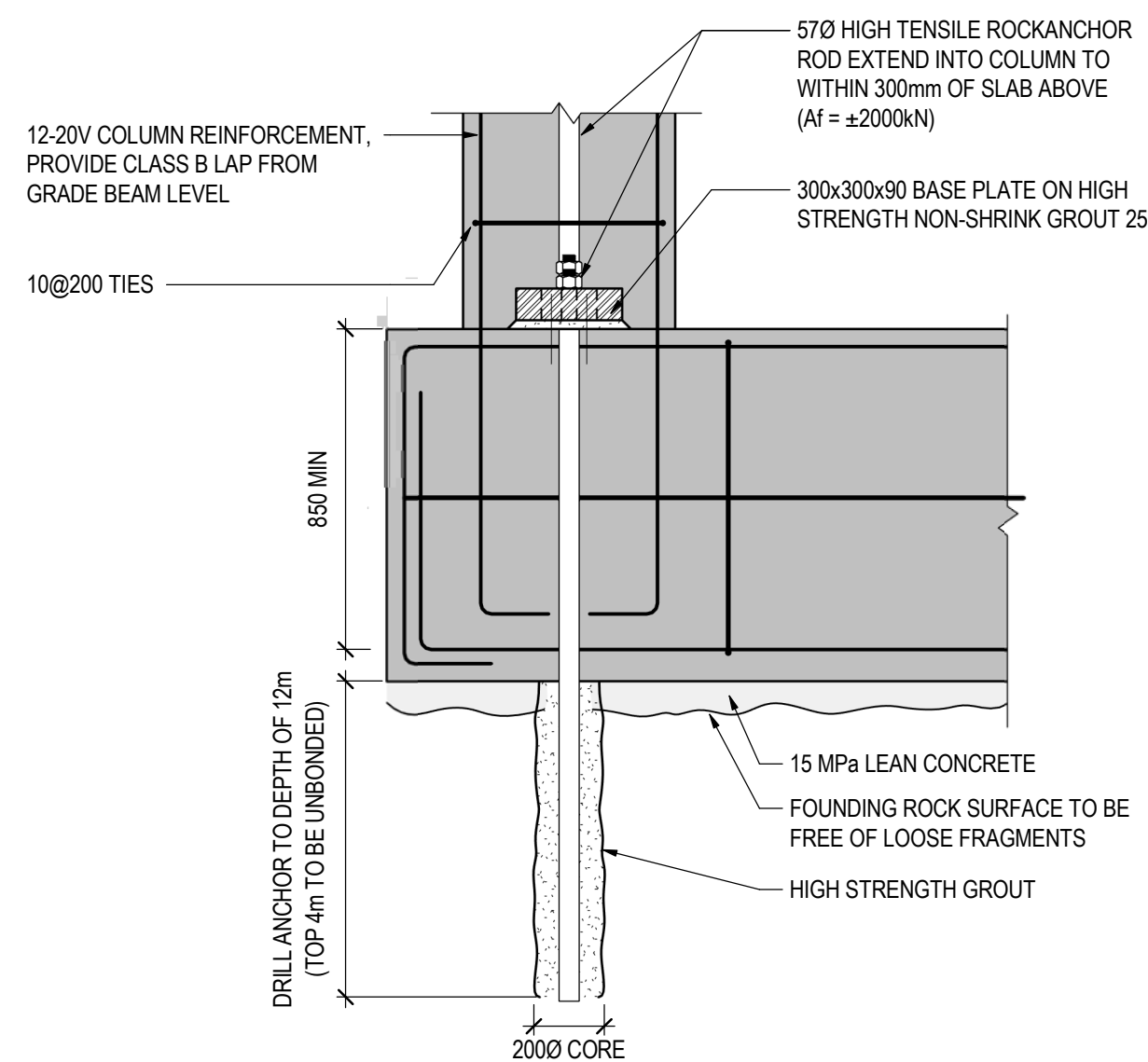


1 TYPICAL 600x600 COLUMN REBAR DETAIL THROUGH EXISTING SLAB
S306 1: 20



THIS DETAIL TO BE READ IN CONJUNCTION
WITH NEW SHEAR WALL REINFORCING

2 TYPICAL 3500x400 SHEAR WALL REBAR THROUGH EXISTING SLAB
S306 1: 20



3 TYPICAL DETAIL OF ROCK ANCHOR FOR GRADE BEAM w / 600x600 COLUMN SECTION
S306 1: 20

STAMP

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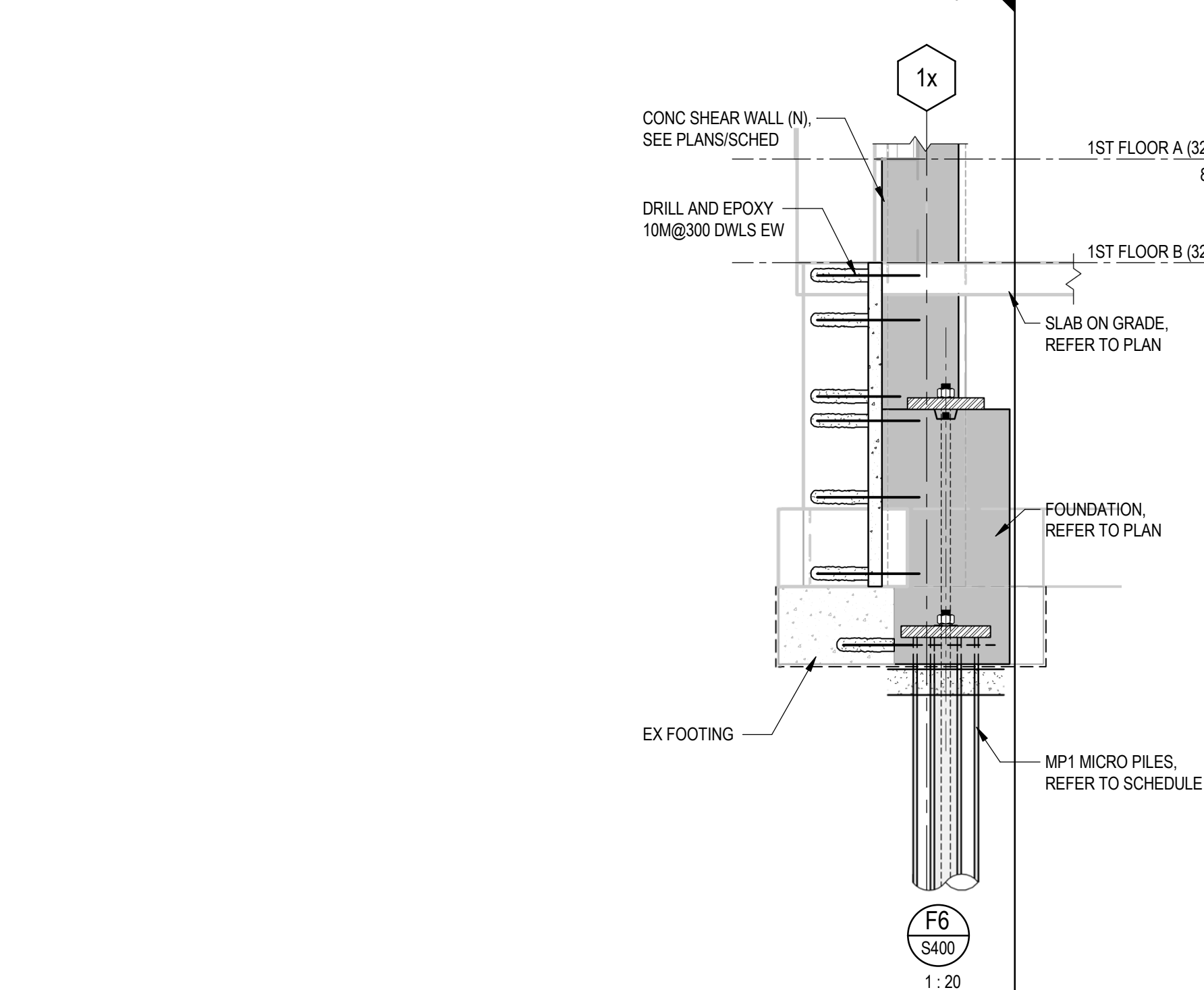
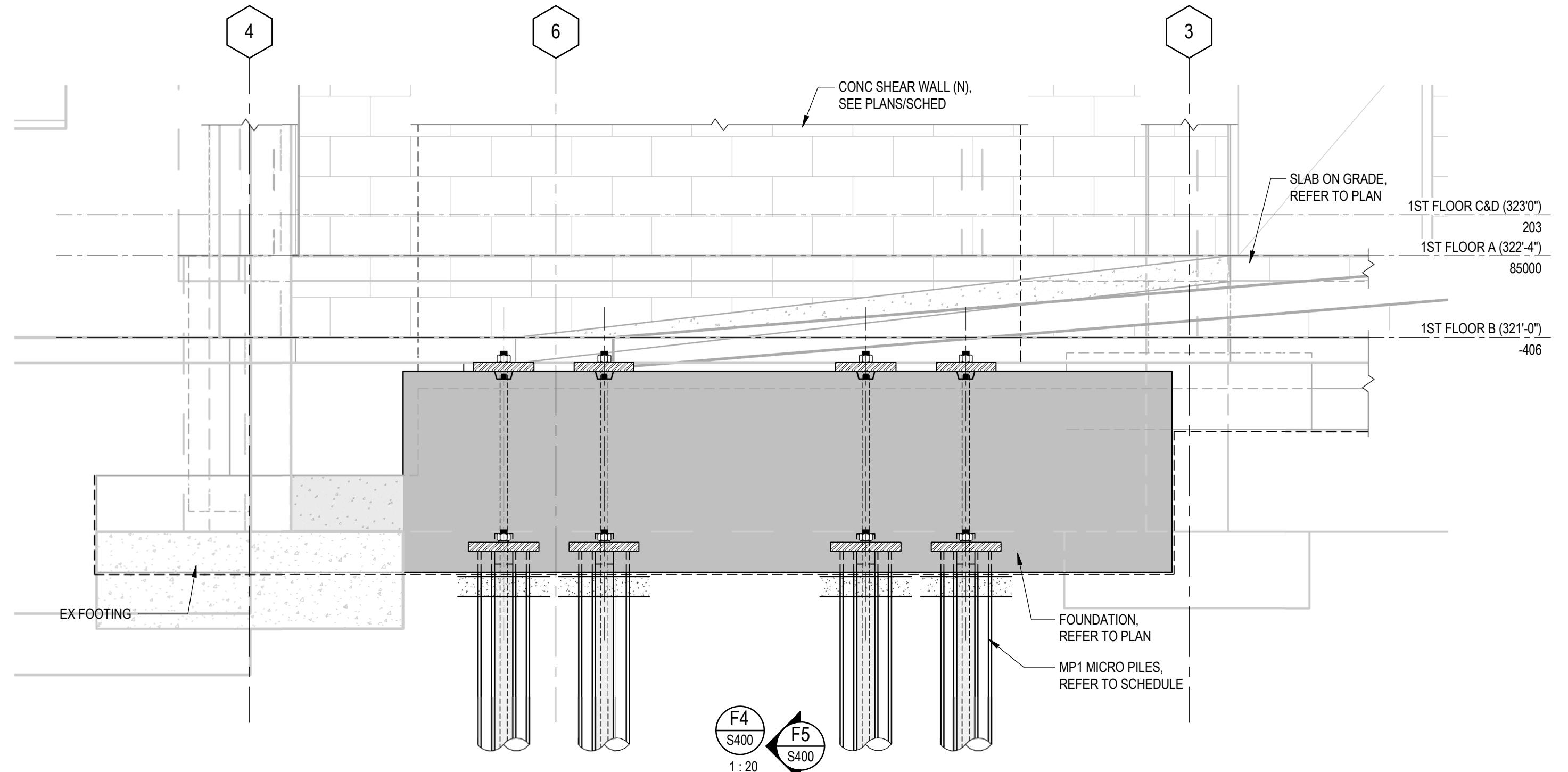
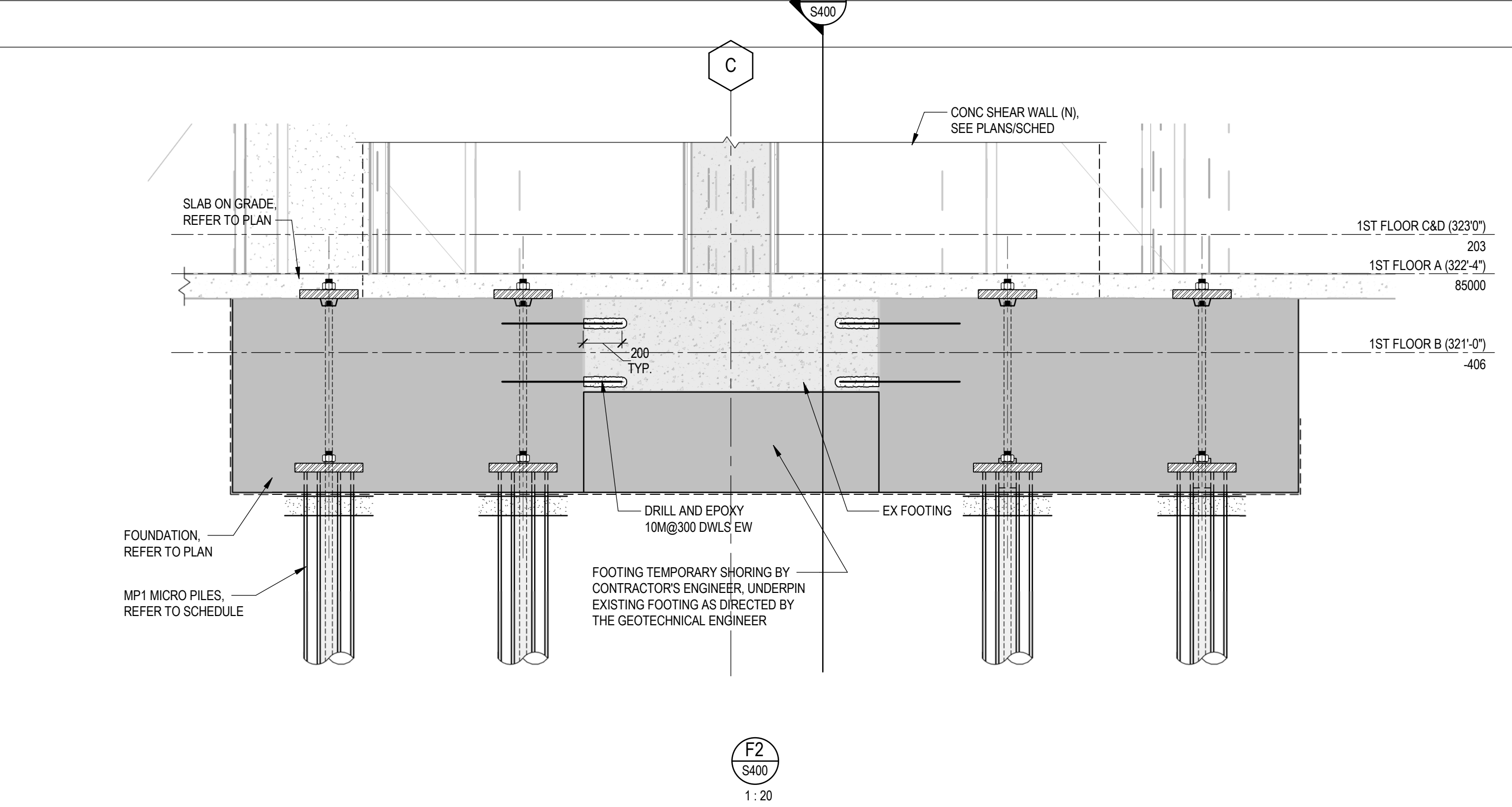
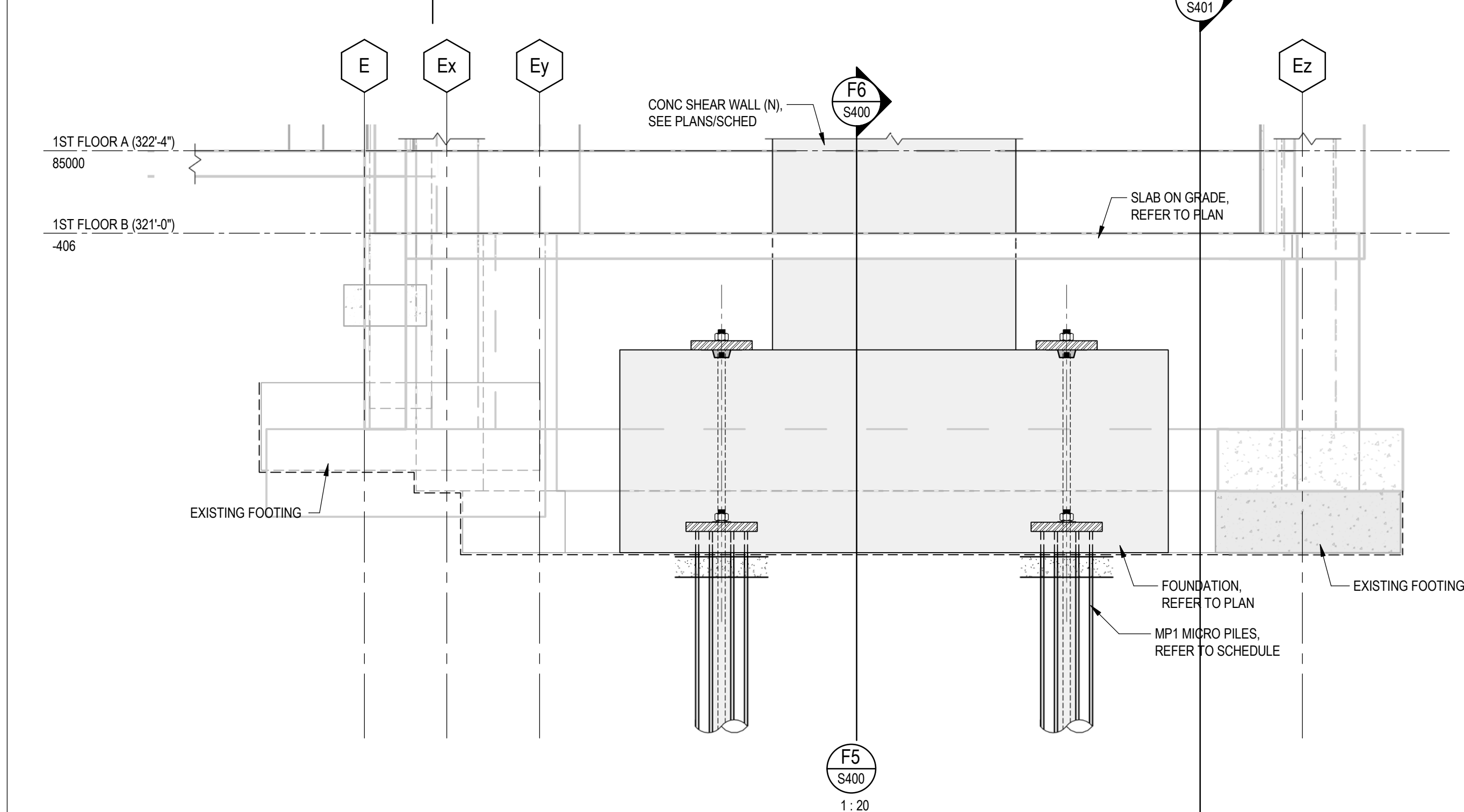
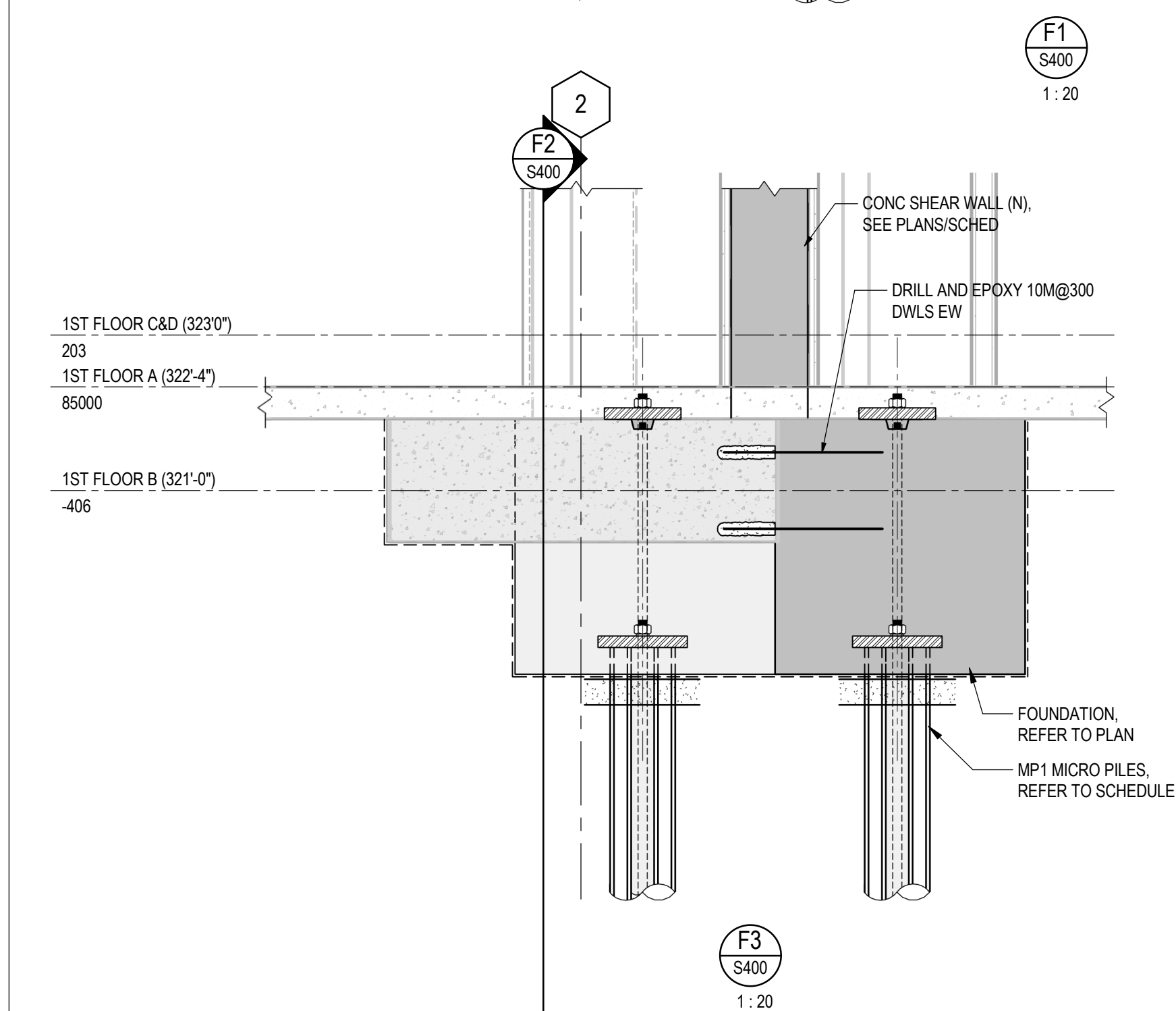
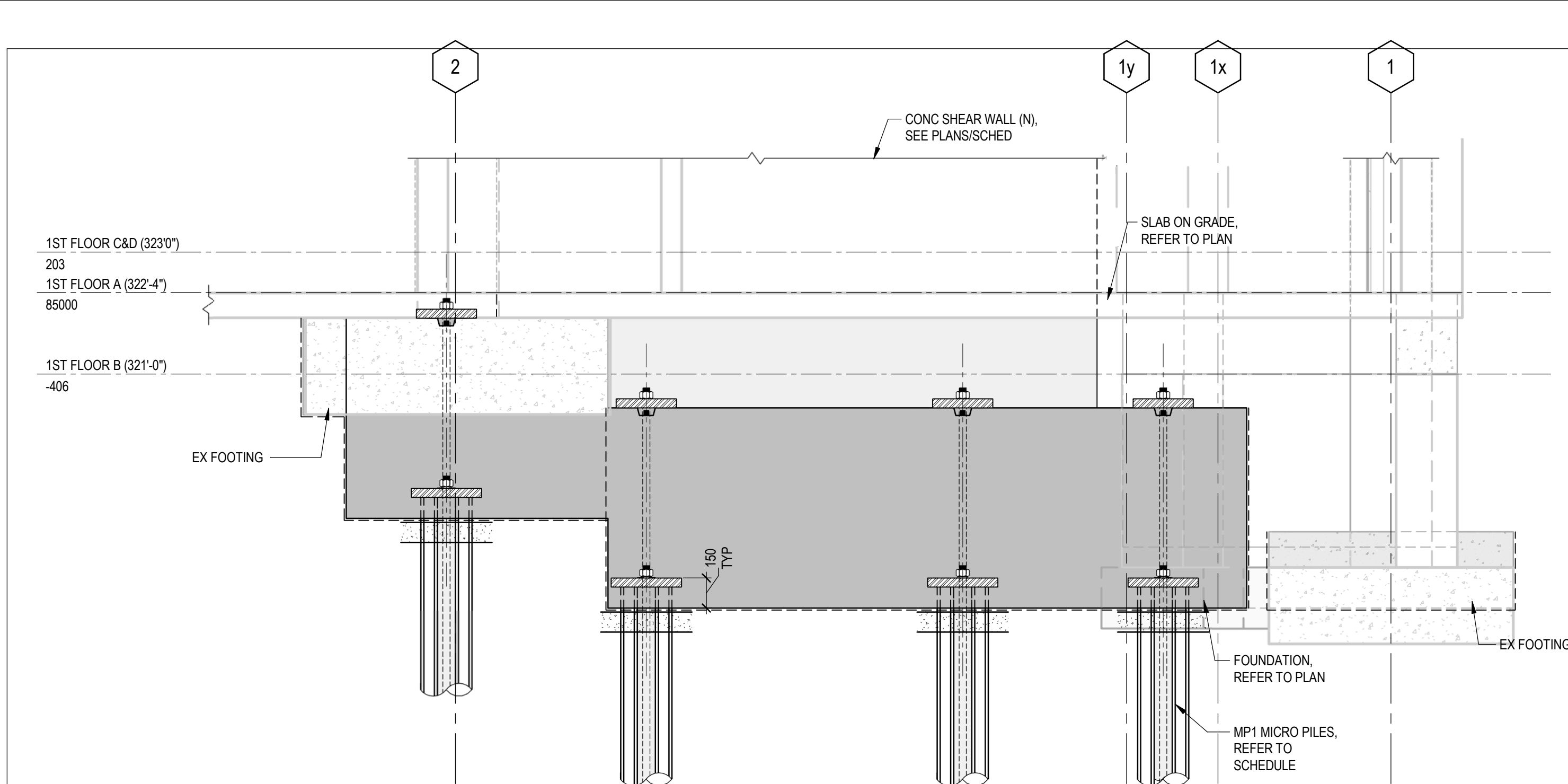
SHEAR WALL ELEVATIONS AND SECTIONS

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SCALE: 1: 20
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REV DRAWING NO.

2

S306



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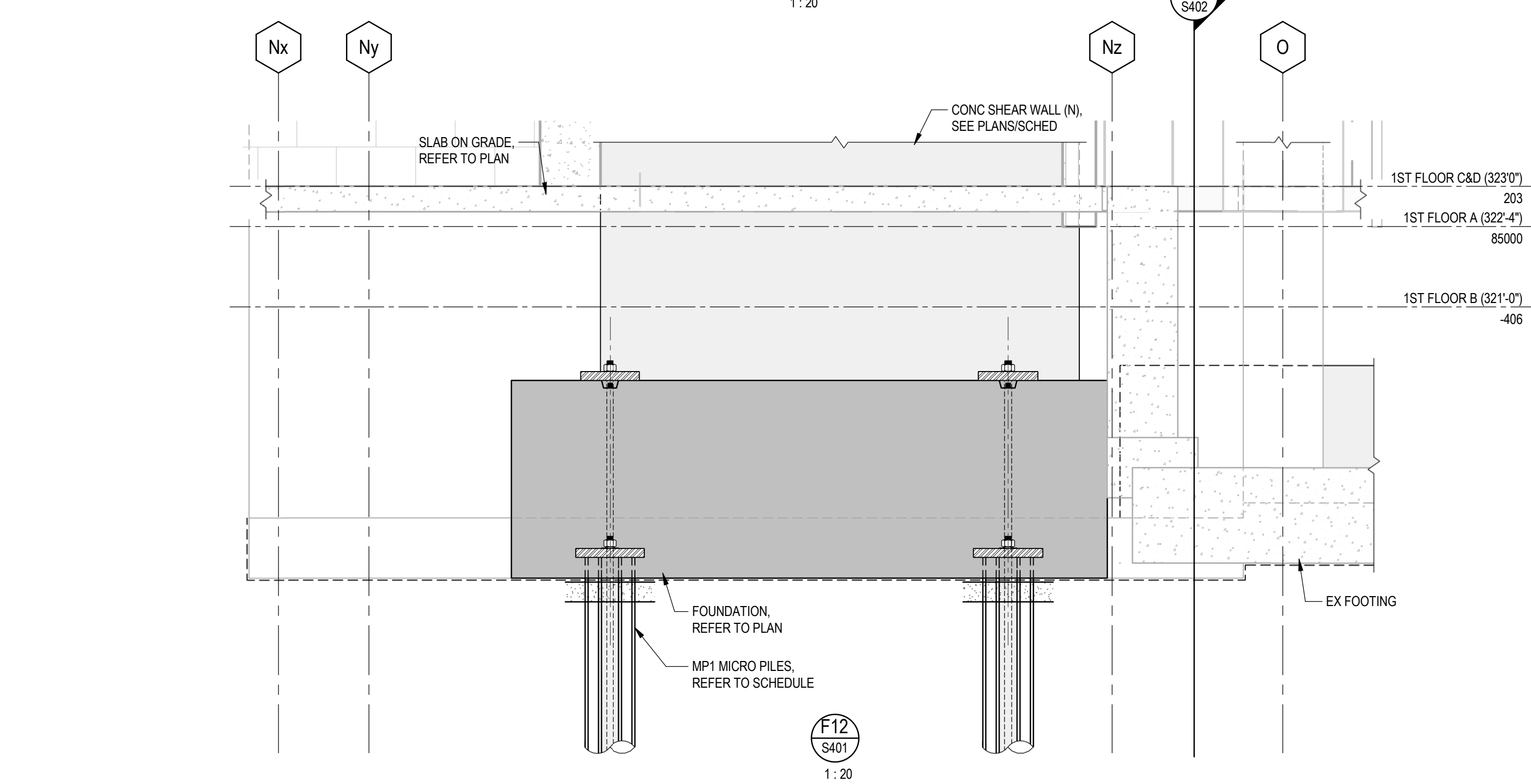
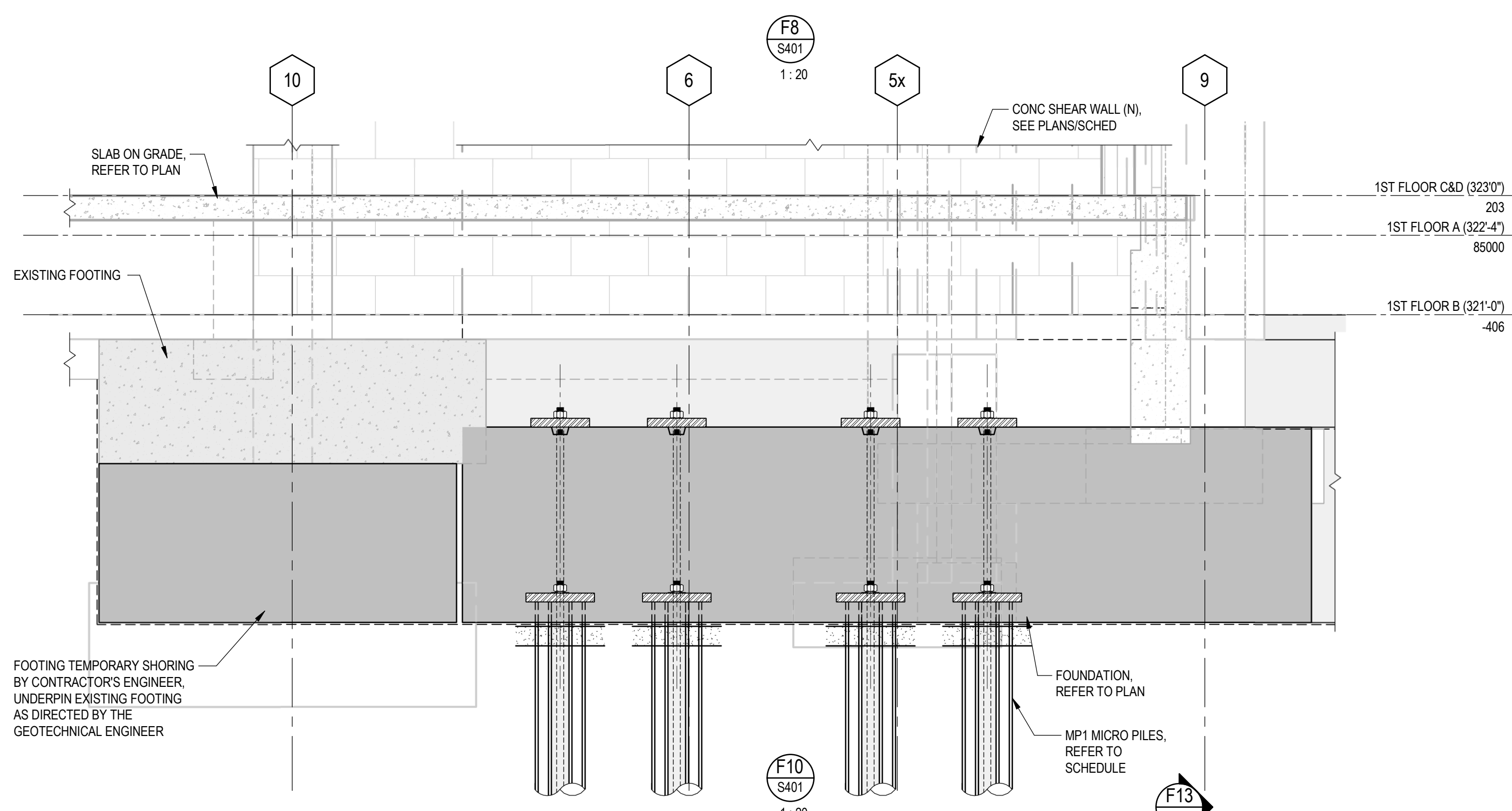
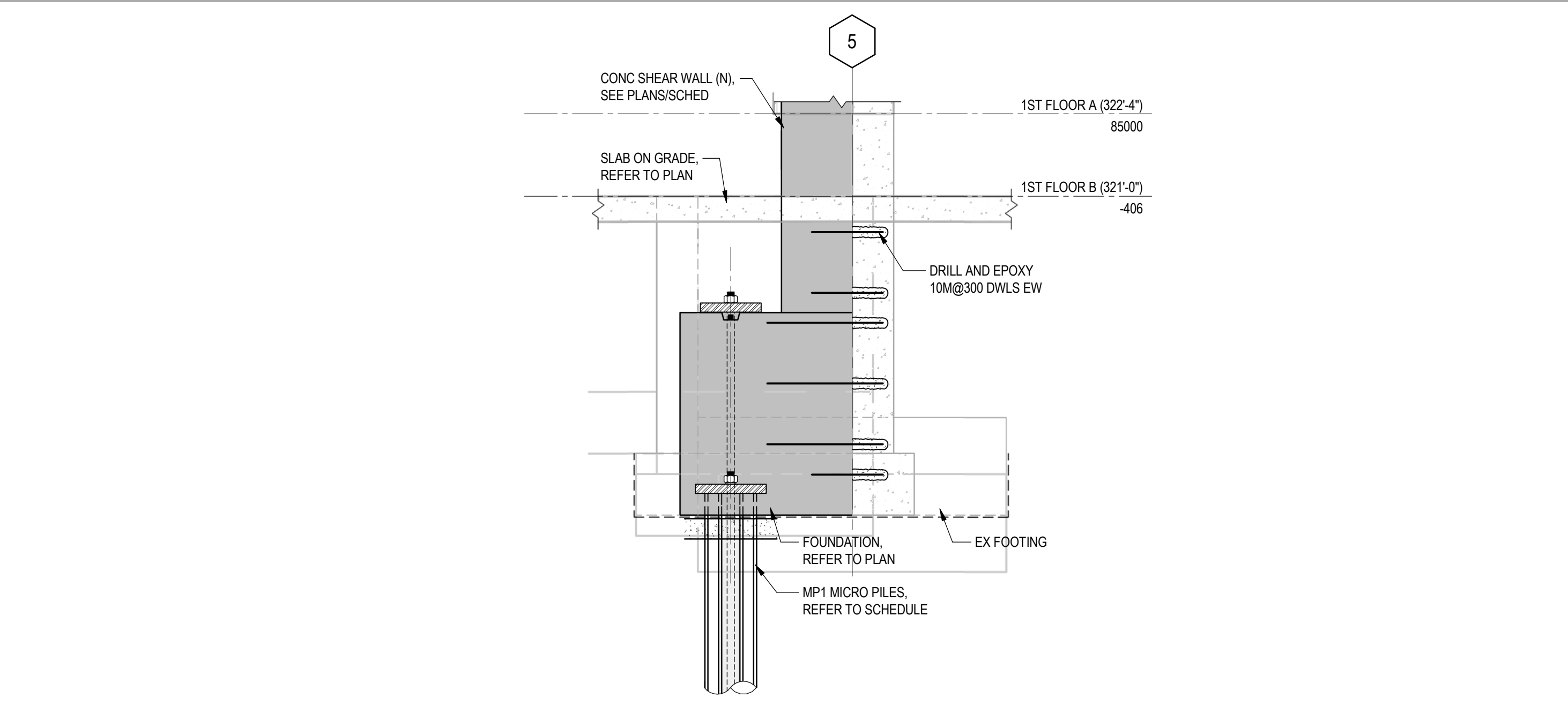
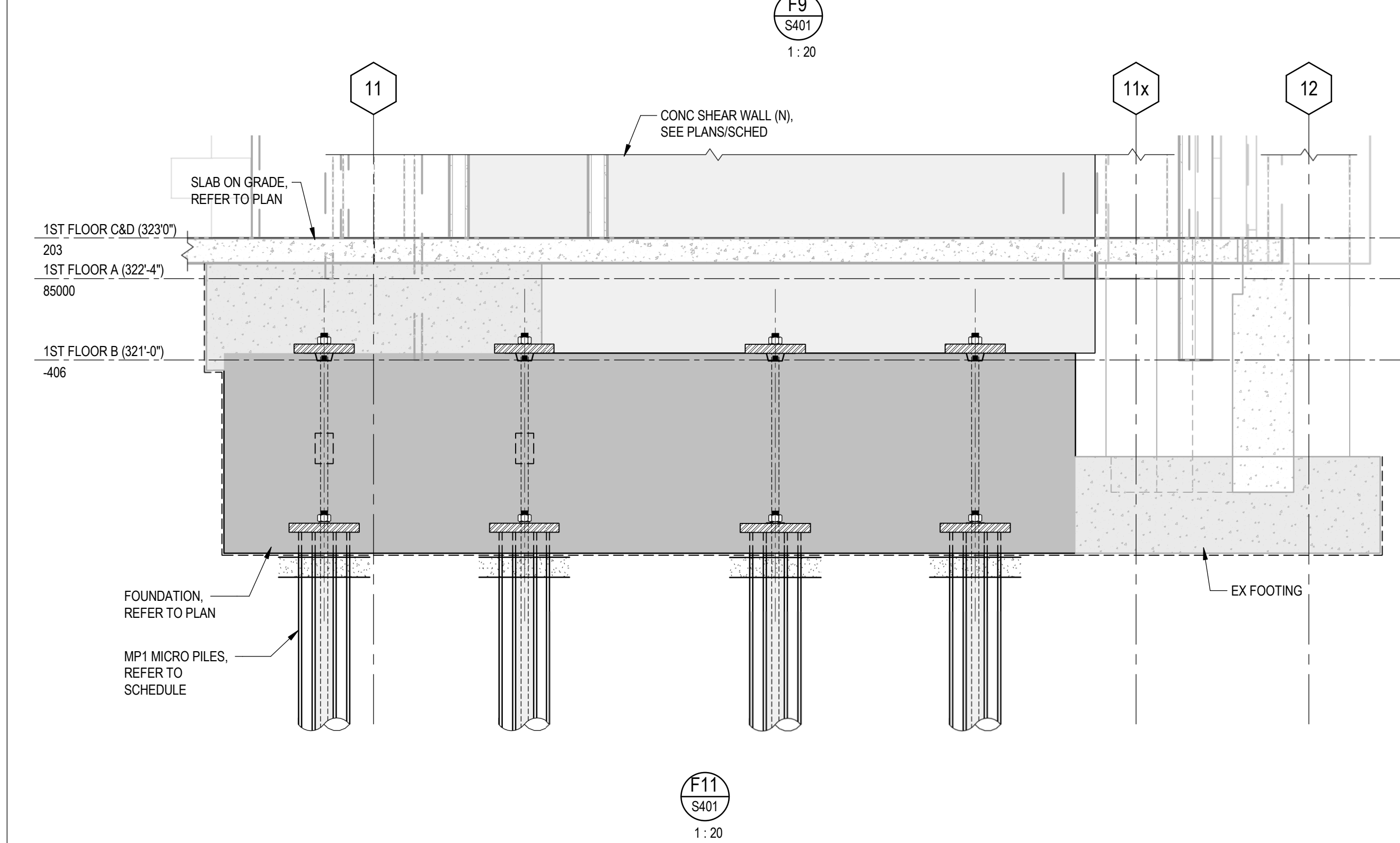
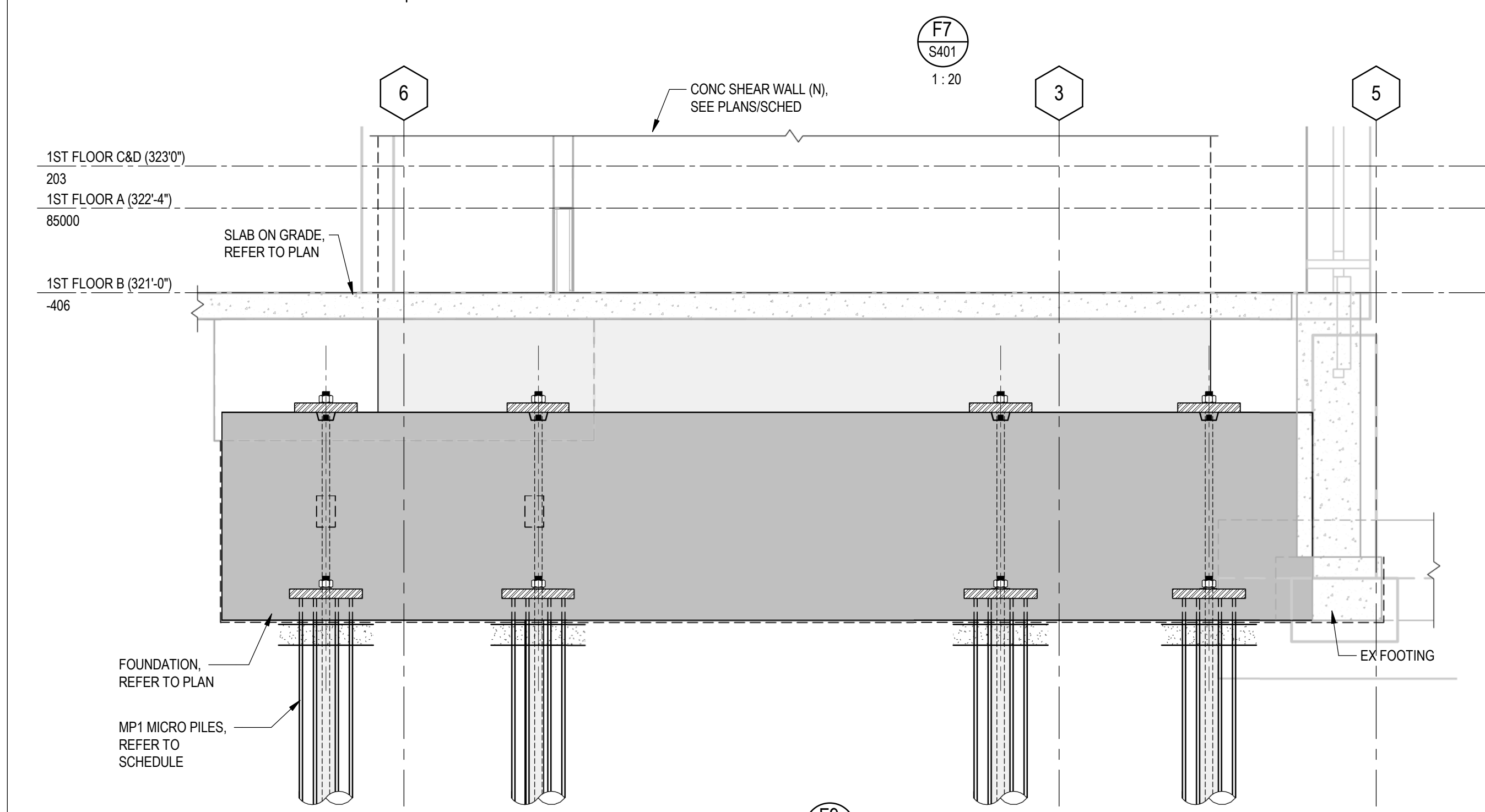
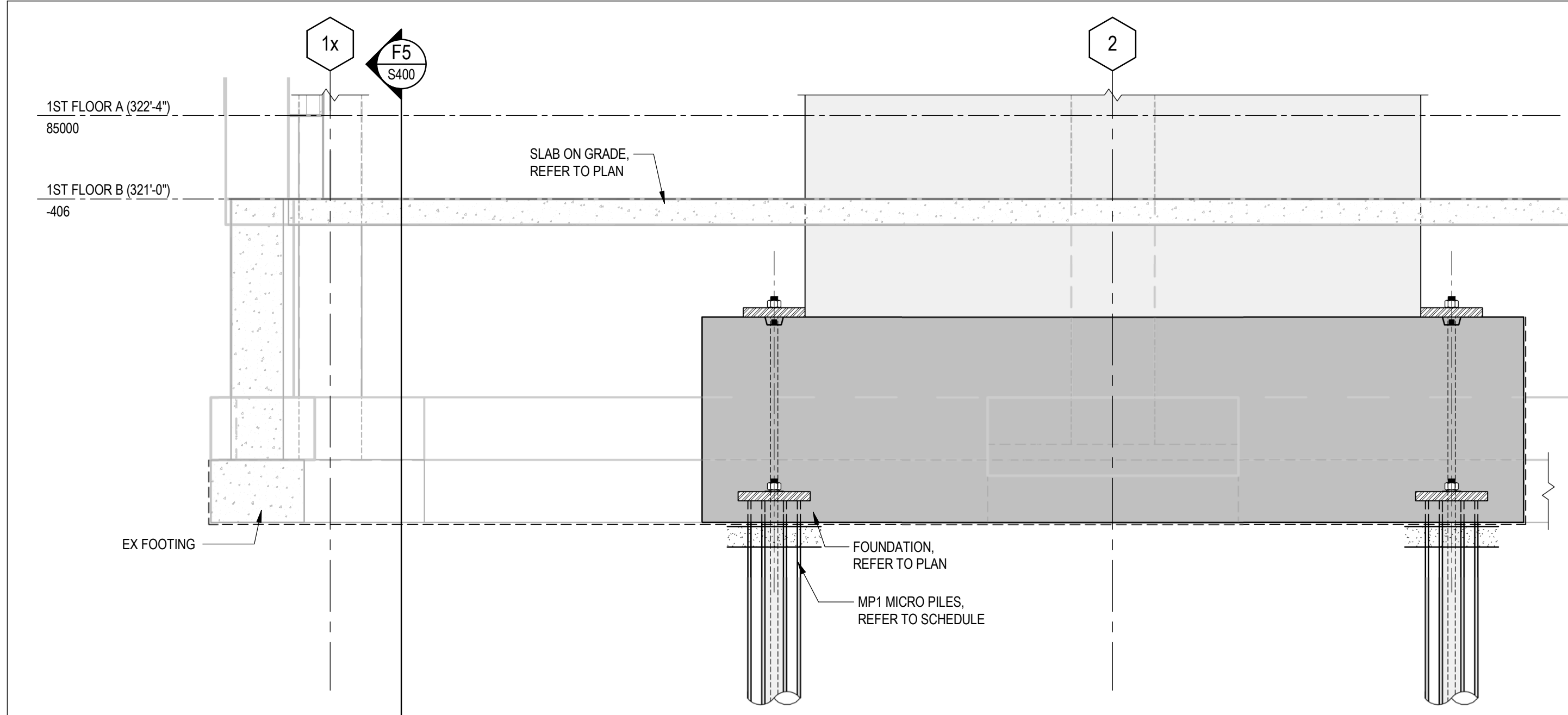
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FOUNDATION SECTIONS

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REV DRAWING NO.

2 S400



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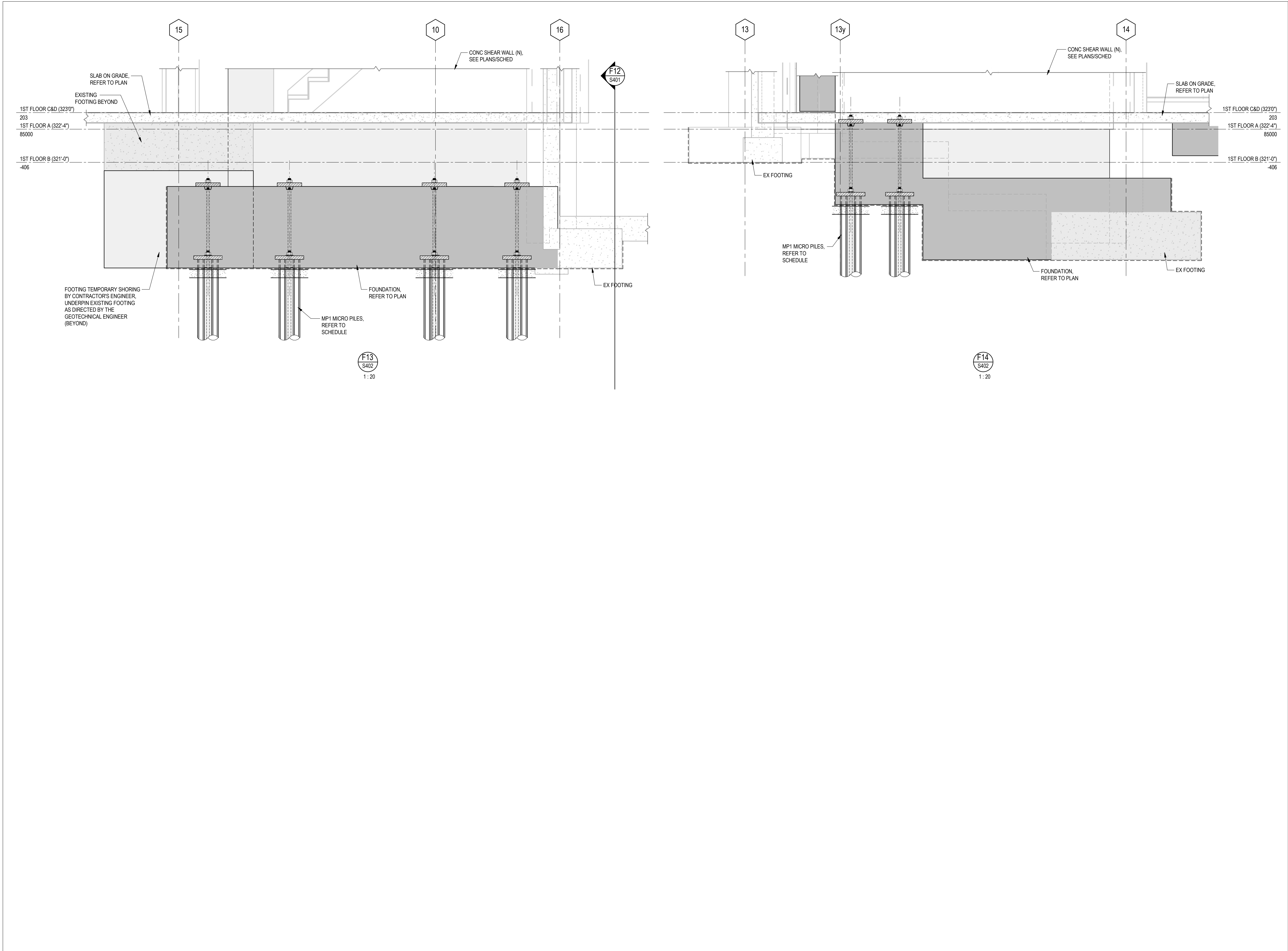
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2 S401





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2	S402

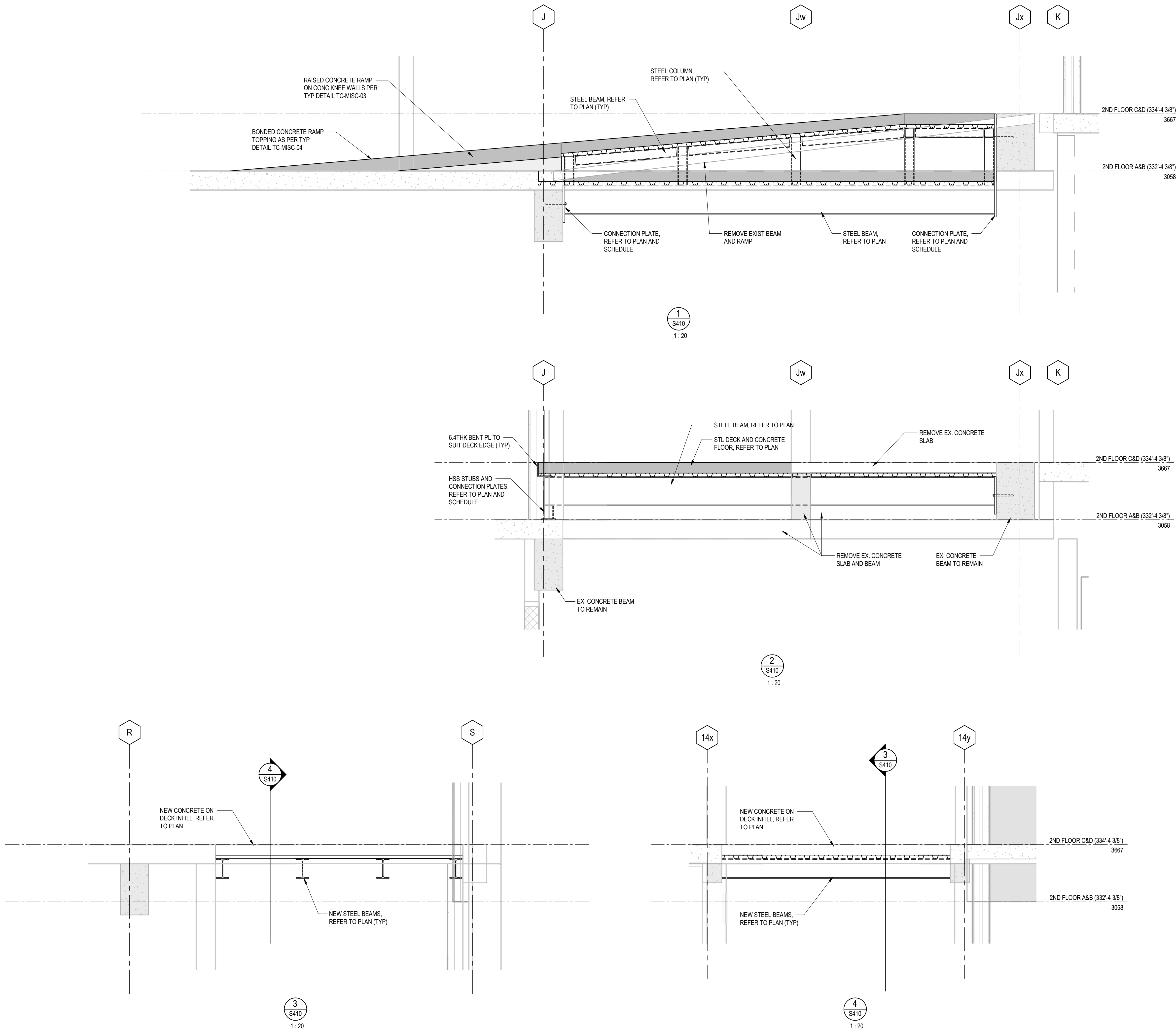


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REV	DRAWING NO.
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2	S410
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