

STRUCTURAL WORK

- 1. GENERAL
1.1. PROVIDE ALL MATERIAL AND LABOUR REQUIRED FOR THE COMPLETION OF THE WORK. BREAKDOWN OF WORK BY TRADE IS FOR GUIDANCE ONLY AND IS NOT NECESSARILY COMPLETE.
1.2. COORDINATE ALL WORK SHOWN ON THE STRUCTURAL DRAWINGS WITH EXISTING CONDITIONS. EXISTING CONDITIONS ARE ASSUMED. REPORT ANY INCONSISTENCIES TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK.
1.3. MAKE GOOD ALL EXISTING WORK DISTURBED BY THE SHORING OPERATIONS, EXCAVATION AND OTHER CONSTRUCTION PROCEDURES.
1.4. DO NOT SCALE THESE DRAWINGS.

- 2. CODES AND STANDARDS
2.1. COMPLY WITH THE REQUIREMENTS OF THE 2005 NATIONAL BUILDING CODE IN FORCE AND THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.

- 3. SUBMITTALS
3.1. SUBMIT FOR REVIEW BEFORE START OF WORK, 4 COPIES OF SHOP DRAWINGS FOR:
- CONCRETE REINFORCING (INCLUDING PLACING DIAGRAMS AND BAR LISTS)
3.2. SUBMIT CONCRETE MIX DESIGNS BEFORE START OF WORK.
3.3. REVIEW OF SHOP DRAWINGS IS ONLY FOR GENERAL CONFORMITY WITH STRUCTURAL CONTRACT DOCUMENTS AND SPECIFICATIONS. COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE STRUCTURAL CONTRACT DOCUMENTS AND SPECIFICATIONS. NOR DO THEY AUTHORIZE ANY CHANGES TO THE CONTRACT. REVIEW OF A SPECIFIC ITEM SHALL NOT INCLUDE REVIEW OF AN ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. THE CONTRACTOR'S RESPONSIBILITIES INCLUDE ALL QUANTITIES, DETAIL DIMENSIONS, FIELD MEASUREMENTS, FABRICATION PROCESS, MEANS, METHODS, SEQUENCES AND PROCEDURES OF CONSTRUCTION, COORDINATION OF WORK WITH ALL TRADES AND PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER. THE 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 (SUCH AS STRUCTURAL STEEL CONNECTIONS, STEEL JOISTS, PRECAST ELEMENTS, ETC.).

- 3.4. AFTER REVIEW, ERECTION DIAGRAMS WILL BE RETURNED TO THE CONTRACTOR STAMPED TO SHOW ONE OF THE FOLLOWING:
NOT REVIEWED - SHOWS WORK WHICH IS NOT WITHIN THE SCOPE OF STRUCTURAL CONTRACT.
REVIEWED - REVIEWED WITH NO COMMENTS.
NOTED - REVIEWED WITH COMMENTS NOTED ON DRAWING. SUBMIT TWO FINAL RECORD PRINTS AS SOON AS CORRECTIONS ARE MADE.
RESUBMIT - REVIEWED WITH COMMENTS NOTED ON DRAWING. CORRECT AND RESUBMIT FOR REVIEW.
CONFORM TO THE REQUIREMENTS OF EACH AUTHORITY THAT HAS REVIEWED THE DRAWING.
3.5. ALLOW A MINIMUM OF 5 WORKING DAYS FOR REVIEW OF EACH SUBMISSION OF SHOP DRAWINGS IN THE STRUCTURAL ENGINEER'S OFFICE. ALLOW MORE TIME WHEN LARGE QUANTITIES OF SHOP DRAWINGS ARE SUBMITTED. SUBMIT IN GENERAL CONFORMITY WITH THE SEQUENCE OF CONSTRUCTION INTENDED. CO-ORDINATE WITH THE CONSULTANT. SHOP DRAWINGS RECEIVED AFTER NOON WILL BE DATE STAMPED AS RECEIVED THE FOLLOWING WORKING DAY.

- 4. EXISTING STRUCTURE
4.1. TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE EXISTING STRUCTURE DURING CONSTRUCTION.
4.2. UNDERTAKE CHIPPING, CUTTING, CORING, REPAIRS, PATCHING, AND REMOVAL OF DEBRIS. MAKE CUTS WITH THE PROPER SAWS AND BITS WHEN A CLEAN LINE IS REQUIRED.
4.3. PROVIDE TEMPORARY SHORING AND BRACING REQUIRED FOR ALL CONSTRUCTION OPERATIONS.
4.4. EXISTING DRAWINGS CONDITIONS ARE ASSUMED. REPORT ANY VARIATIONS TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK.
4.5. MAKE GOOD ONCE STRUCTURAL WORK IS DONE AND REVIEWED.

- 5. FOUNDATIONS
5.1. SET FOUNDATIONS/THICKENED SLABS ON UNDISTURBED SOIL CAPABLE OF SUPPORTING AN ALLOWABLE BEARING PRESSURE OF 75 kPa AT ULS AND 50 kPa AT SLS.
5.2. PRIOR TO PLACING FOOTINGS, BEARING CAPACITY OF EACH FOOTING MUST BE CONFIRMED IN WRITTEN REPORTS BY A GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR. GEOTECHNICAL ENGINEER TO CARRY LIABILITY INSURANCE TO A MINIMUM REQUIRED BY PEO. SUBMIT EACH REPORT IMMEDIATELY TO CONSULTANT. SLAB TO BE PLACED ON MINIMUM 150 THICK GRANULAR A, COMPACTED TO 98% SPMDD, REVIEWED BY GEOTECHNICAL ENGINEER.
5.3. PROTECT FOOTINGS, WALLS, SLABS ON GRADE AND ADJACENT SOIL AGAINST FREEZING AND FROST ACTION AT ALL TIMES DURING CONSTRUCTION.
5.4. THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS FOR FOOTINGS OR TRENCHES SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10.
5.5. DO NOT BACKFILL AGAINST WALLS RETAINING EARTH UNTIL ELEMENTS PROVIDING LATERAL SUPPORT, INCLUDING SLAB ON GRADE, ARE COMPLETED. BACKFILL SIMULTANEOUSLY ON BOTH SIDES OF OTHER WALLS ABOVE GRADE.
5.6. DO NOT PLACE CONCRETE IN WATER OR ON FROZEN SOIL.

- 6. CONCRETE
6.1. CONFORM TO CSA A23.1 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION". REFER TO ARCHITECTURAL CONCRETE SPEC BELOW.
6.2. INTERIOR APPLICATIONS:
- CLASS OF EXPOSURE: N
- CEMENT: TYPE GU
- MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 25 MPa.
- MAXIMUM WATER/CEMENT RATIO: 0.45
- NOMINAL SIZE OF COARSE AGGREGATE: 20mm (3/4").
- SLUMP AT TIME AND POINT OF DISCHARGE: 50mm (2") TO 110mm (4 1/2").
6.3. USE NEW EXTERIOR PLYWOOD CONFORMING TO CAN/CSA O121 FOR FORMWORK. USE INTERNAL FORM TIES OF ADJUSTABLE METAL DESIGNED TO ACT AS SPREADERS, AND, WHICH WHEN REMOVED, WILL LEAVE NO METAL CLOSER THAN 25mm (1") TO CONCRETE SURFACE.
6.4. REINFORCEMENT: USE NEW DEFORMED BAR REINFORCEMENT CONFORMING TO CAN/CSA G30.18 GRADE 400R OR 400W.
6.5. WELDED WIRE FABRIC: CONFORM TO ASTM A185.
6.6. PROVIDE IN FLAT SHEETS ONLY.
6.7. ACCESSORIES, BAR SUPPORTS, AND TIES TO CONFORM TO RISC MANUAL OF STANDARD PRACTICE. PROVIDE EPOXY-COATED CHAIR-BARS AND BOLSTERS AND PLASTIC-COATED TIE WIRES FOR EPOXY-COATED REINFORCING.
6.8. WHERE CONCRETE IS CAST AGAINST AND PERMANENTLY

- 6.9. EXPOSED TO EARTH, THE MINIMUM CONCRETE COVER TO REINFORCING BARS CLOSEST TO THE CONCRETE SURFACE SHALL BE 75mm (3").
6.10. FOR CLASS N CONCRETE, THE MINIMUM CONCRETE COVER TO REINFORCING BARS CLOSEST TO THE CONCRETE SURFACE SHALL BE 20mm (3/4") FOR SLABS AND WALLS.
6.11. INCREASE COVER WHERE REQUIRED TO MAINTAIN MINIMUM RATIO OF COVER TO NOMINAL BAR DIAMETER OF 1 FOR CLASS N.
6.12. HEAT CONCRETE AND DELIVER AT A TEMPERATURE BETWEEN +15° AND +22° C. WHENEVER OUTDOOR TEMPERATURE IS LESS THAN +5° C.
6.13. CONVEY CONCRETE FROM TRUCK TO FINAL LOCATION BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF MATERIAL. CONSOLIDATE CONCRETE WITH ELECTRICAL VIBRATORS.
6.14. PROVIDE CONSTRUCTION JOINTS AT 30m (100 FT) CENTRES MAXIMUM. SAW CUT SLABS-ON-GRADE AT 25 TIMES SLAB THICKNESS, BUT NOT MORE THAN 5m (17 FT) MAXIMUM ON CENTRE EACH WAY BEFORE SHRINKAGE CRACKS CAN FORM. FILL SAWCUTS WITH 'LOADFLEX' BY SIKA CANADA AFTER SLAB IS 90 DAYS OLD. FILL OTHER SAWCUTS WITH SAND-CEMENT PASTE.
6.15. PROVIDE 6mm THICK JOINT FILLER TO SEPARATE SLABS-ON-GRADE FROM VERTICAL SURFACES AND EXTEND JOINT FILLER FROM BOTTOM OF SLAB TO WITHIN 20mm OF FINISHED SLAB SURFACE. TOP WITH 'LOADFLEX' BY SIKA.
6.16. CURE CONCRETE SURFACES NOT IN CONTACT WITH FORMS BY THE APPLICATION OF A CURING-SEALING COMPOUND CONFORMING TO ASTM C673-07 IMMEDIATELY AFTER DISAPPEARANCE OF SURFACE WATER SHEEN. CONTRACTOR TO PROVIDE MANUFACTURER LITERATURE CONFIRMING WILL NOT AFFECT CONCRETE COLOUR.
6.17. COLD WEATHER: PROTECT CONCRETE ACCORDING TO CSA-A23.1.
6.18. PREMIXED GROUT: MINIMUM STRENGTH 40 MPa AT 28 DAYS. INSTALL IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS.
6.19. ENSURE THAT SLEEVES AND OPENINGS DO NOT IMPAIR THE REQUIRED STRENGTH OF THE MEMBER, AND UNLESS SHOWN ON THE STRUCTURAL DRAWINGS, ARE ACCEPTED BY THE CONSULTANT FOR SIZE, LOCATION, AND REINFORCEMENT BEFORE CONCRETE IS CAST. NO TRADE SHALL CUT HOLES THROUGH EXISTING CONCRETE UNLESS ACCEPTABLE TO THE CONSULTANT.

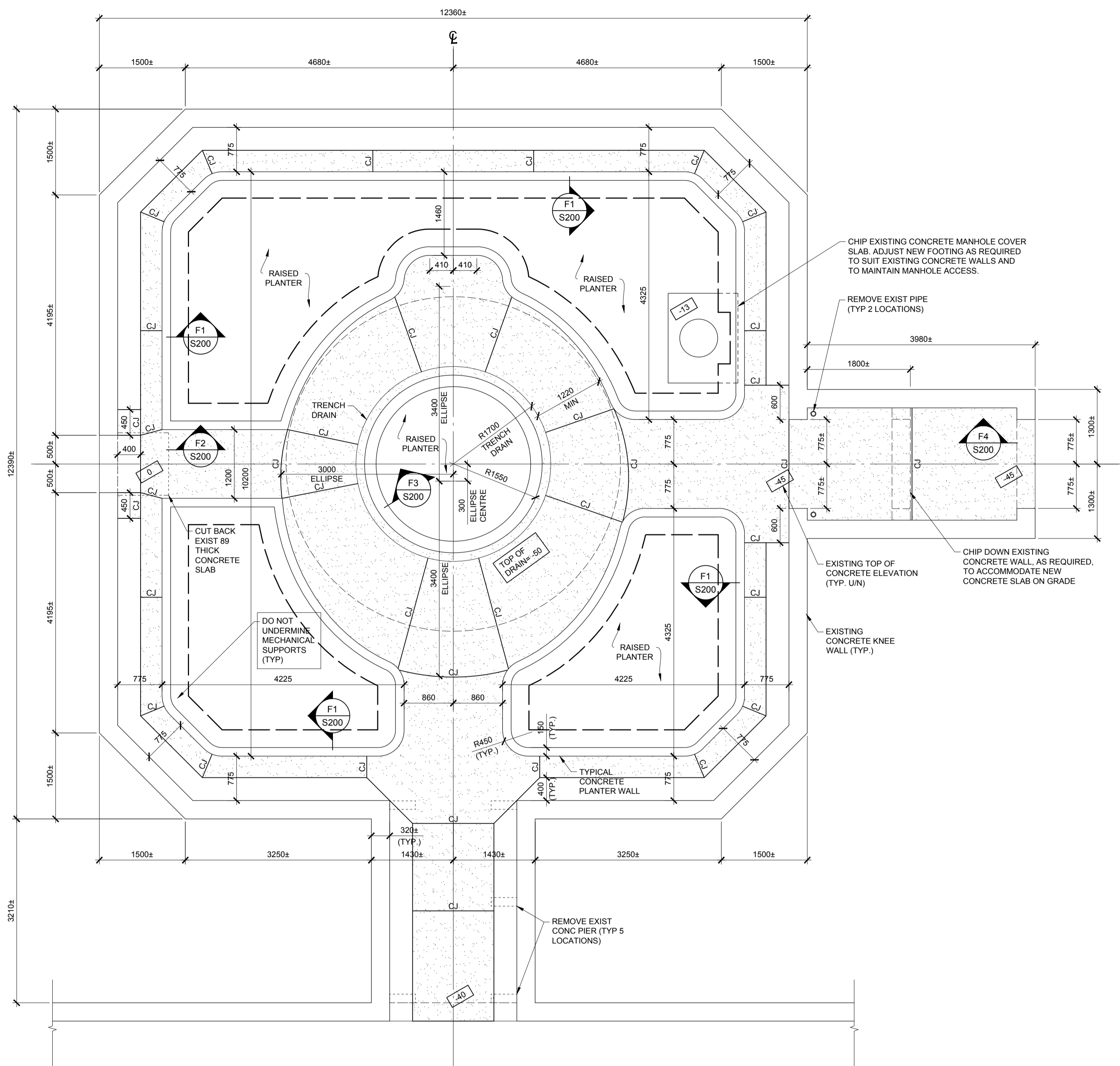
- 7. ARCHITECTURAL CONCRETE
7.1. ARCHITECTURAL CONCRETE IS CONCRETE WHICH WILL BE PERMANENTLY EXPOSED TO VIEW. THIS INCLUDES ALL CONCRETE CURBS AND SLABS ON GRADE.
7.2. ENSURE THAT EXPOSED SURFACES ARE DENSE, EVEN, UNIFORM IN COLOUR, TEXTURE AND DISTRIBUTION OF EXPOSED AGGREGATE. ENSURE THAT EXPOSED SURFACES ARE FREE FROM DEFECTS SUCH AS HONEYCOMBS, VOIDS, LOSS OF FINES, VISIBLE FLOW LINES, COLD JOINTS, EXCESSIVE BUG HOLES, INADEQUATE COVER TO REINFORCEMENT AND INCORRECT THE HOLES, SPACERS, REGLETS, FORMWORK JOINTS OR CONSTRUCTION JOINTS. ENSURE THAT CONCRETE MEMBERS HAVE SHARP ACCURATE DEFINITIONS OF CORNERS, REGLETS, ETC. AND ARE FREE FROM CHIPS AND SPALLS. FAILURE TO MEET ANY OF THESE REQUIREMENTS SHALL BE CAUSE FOR REJECTION AT THE DISCRETION OF THE CONSULTANT. FINAL APPEARANCE OF ARCHITECTURAL CONCRETE IS AS IMPORTANT A FACTOR AS THE ENGINEERING PROPERTIES OF THE CONCRETE AND FAILURE OF THE AS-CAST CONCRETE TO MEET THE REQUIRED STANDARD OF APPEARANCE SHALL BE CAUSE FOR REJECTION AT THE DISCRETION OF THE CONSULTANT.
7.3. PROTECT EXPOSED SURFACES DURING THE CONSTRUCTION PERIOD FROM DAMAGE, MARKING, STAINING AND BECOMING COATED WITH CONCRETE LEAKAGE. UNLESS REJECTED, REPAIR DAMAGE AND REMOVE MARKS AND STAINS TO THE APPROVAL OF THE CONSULTANT.
7.4. ALL EXPOSED CONCRETE FLOORS (i.e. NOT WITHIN PLANTERS):
7.5.1. PROVIDE MADAWASKA 'RED' AGGREGATE COLOUR: NR-5105R (3 BAGS). SMOKE BY INTERSTAR (SEE INTERSTAR, CA OR EQUIVALENT)
7.5.2. PROVIDE LIGHT SANDBLASTED FINISH
7.5.3.

- 8. SAMPLES FOR ARCHITECTURAL CONCRETE
8.1. CONSTRUCT MOCKUP FIELD SAMPLE CURB PANEL (1m LONG) AND SLAB SECTION (1m x 1m). CONFORM TO CSA A23.1 - 27.3. USE THE SAME MATERIALS AND WORKMANSHIP AS WILL BE EMPLOYED FOR THE ACTUAL WORK. INCLUDE A REPAIRED AREA FOR EACH SAMPLE. IF A SAMPLE DOES NOT MEET THE STANDARD OF QUALITY SPECIFIED FOR THE WORK, CONSTRUCT ADDITIONAL SAMPLES UNTIL THE REQUIRED STANDARD IS ACHIEVED AND ACCEPTED. THE ACCEPTED SAMPLES SHALL BE THE MINIMUM STANDARD OF QUALITY FOR WORK. DO NOT PROCEED UNTIL THE CONSULTANT ACCEPTS THE SAMPLES.

- 9. INSPECTION AND TESTING
9.1. THE CONTRACTOR MUST PROVIDE TEST REPORTS FOR CONCRETE. ALL REPORTS MUST BE PREPARED BY AN INDEPENDENT INSPECTION AND TESTING AGENCY.
9.2. MAKE ONE STANDARD TEST FOR EACH 50 CUBIC METRES OF CONCRETE, BUT NOT LESS THAN ONE TEST FOR CONCRETE CAST EACH DAY. PROVIDE A GROUP OF THREE CONCRETE CYLINDERS FOR EACH STANDARD CONCRETE TEST. BREAK ONE CYLINDER AT 7 DAYS.

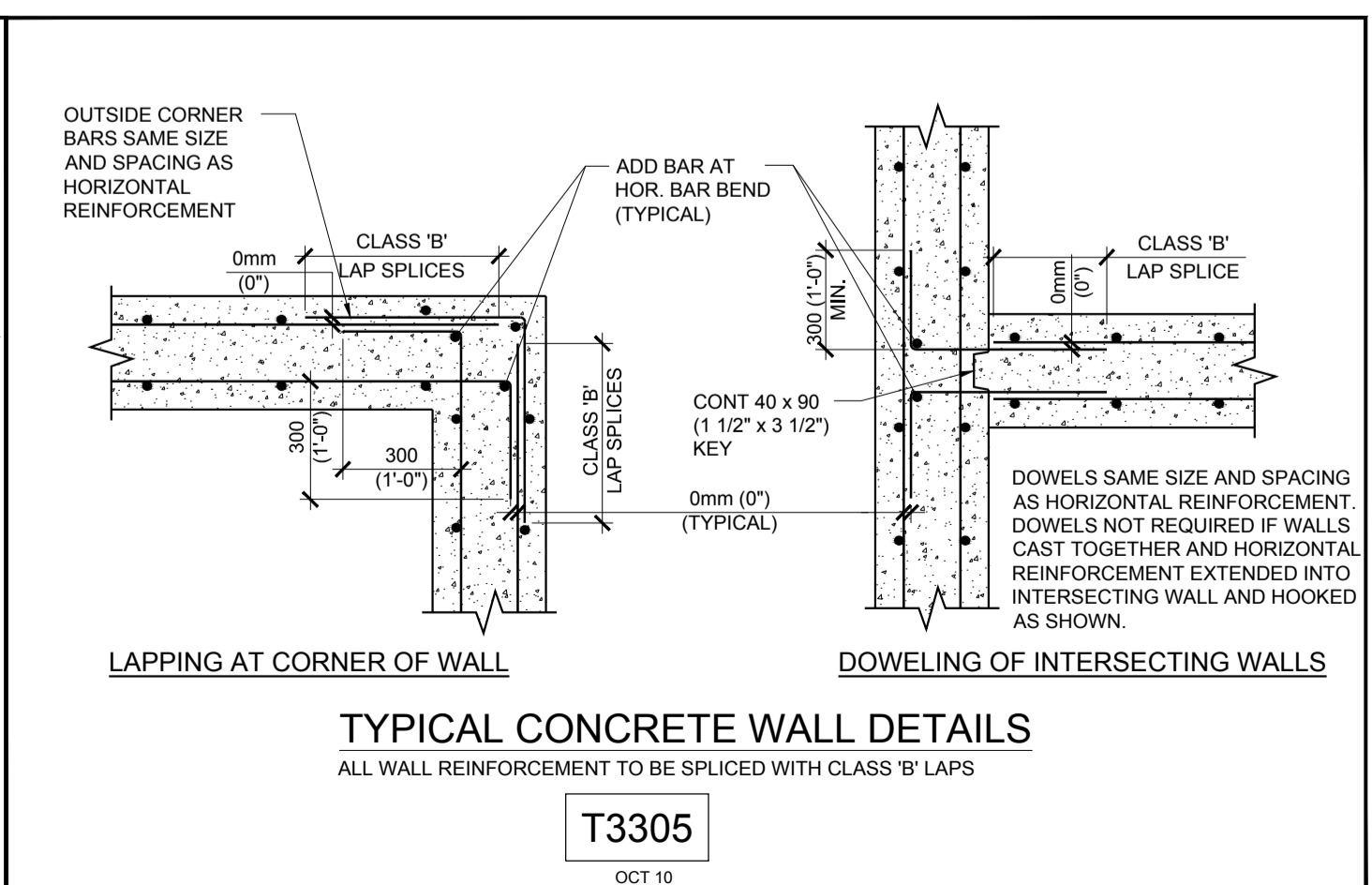
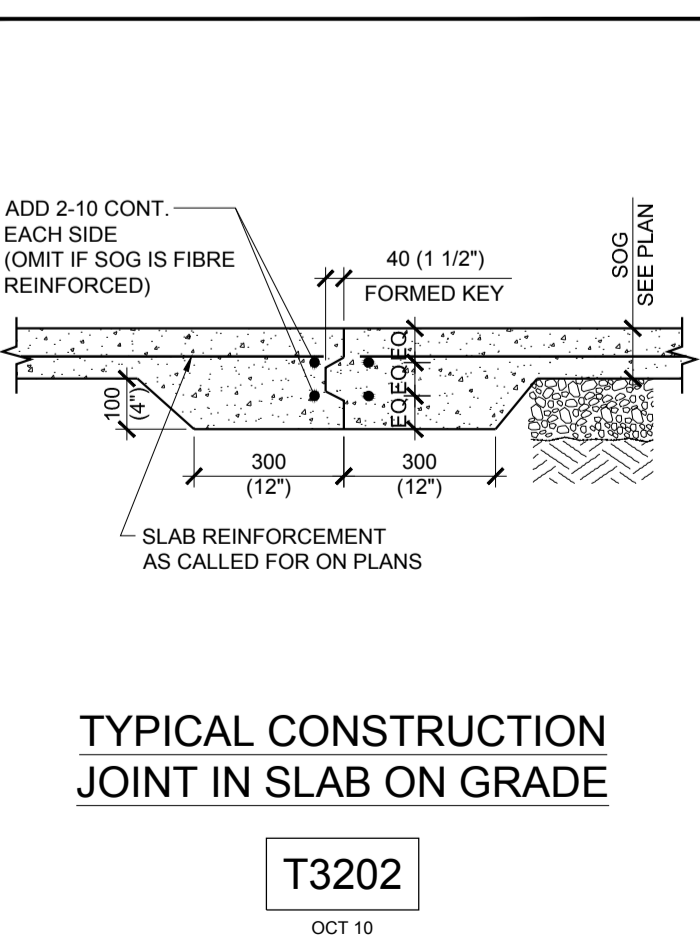
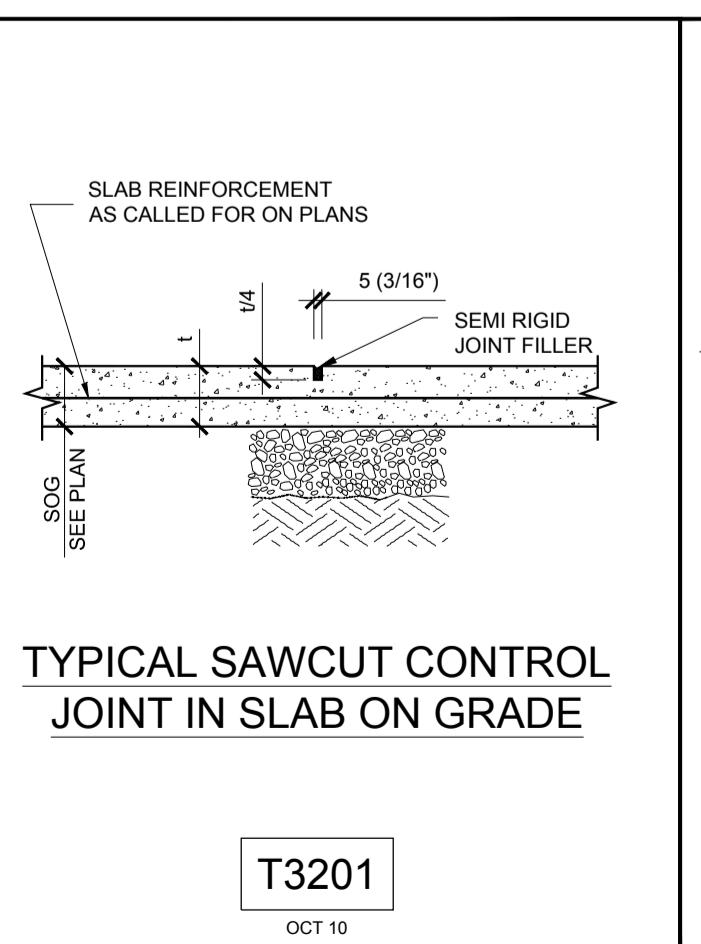
- 10. CONSTRUCTION REVIEW
10.1. NOTIFY THE CONSULTANT 48 HOURS PRIOR TO CONCRETE POURS, BACKFILLING, AND COVERING UP THE STRUCTURE WITH FINISHES.

- 11. REJECTED WORK
11.1. DO NOT DELIVER TO THE SITE MATERIALS, WHICH ARE KNOWN NOT TO MEET THE REQUIREMENTS OF THE SPECIFICATIONS. IF REJECTED AFTER DELIVERY, REMOVE IMMEDIATELY FROM SITE.



FOUNDATION AND GROUND FLOOR PLAN

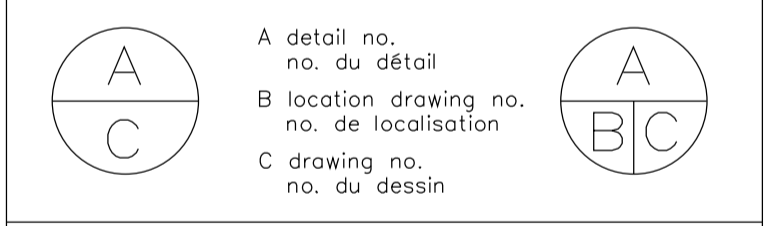
- 1. SEE GENERAL REQUIREMENTS AND TYPICAL DETAILS ON THIS DRAWING.
2. PROVIDE 125 THICK CONCRETE SLAB-ON-GRADE REINFORCED WITH 10@300 EA WAY PLACED 50mm BELOW TOP OF SLAB AT WALKWAYS. EXTEND AS PER SECTIONS.
3. FOR CONCRETE SLAB ON GRADE SLOPES, REFER TO ELEVATIONS ON PLAN.
4. 'CJ' ON PLAN DENOTES CONTROL JOINT. REFER TO TYPICAL DETAILS.



Halsall logo and contact information: 210 Gladstone Avenue, Suite 4001, Ottawa, ON Canada K2P 0Y6. Phone: 613.237.2462, 613.237.2935. Fax: 613.237.2462, 613.237.2935. Website: ottawa@halsall.com

KEY PLAN PLAN-REPÈRE

Table with 3 columns: revision, date, and description. Rows include O3 ISSUED FOR TENDER AUG. 27/13, O2 ISSUED FOR TENDER MAR. 31/13, O1 ISSUED FOR REVIEW DEC. 06/12.



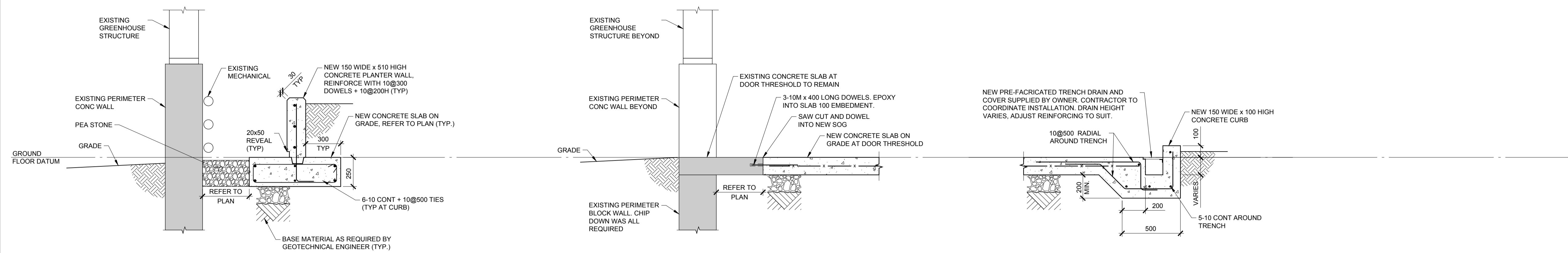
BUILDING 50 TROPICAL GREENHOUSE

CENTRAL EXPERIMENTAL FARM MAPLE DRIVE, OTTAWA, ON

GENERAL NOTES AND GROUND FLOOR PLAN

Table with 3 columns: date, name, and role. Rows include designed (SEF, conce), date (DEC 2012), drawn (IKD, dessiné), date (DEC 2012), revised, date, approved, date, tender (soumission), AAF Project Manager (Administrateur de projets AAF), project no., date, drawing no., and S100.

PLANNED BY: AAF, DESIGNED BY: SEF, DRAWN BY: IKD, CHECKED BY: JLD, DATE: OCT 10, 2012. FILE: T3305-01-01.DWG. PROJECT: BUILDING 50 TROPICAL GREENHOUSE. DRAWING NO.: S100. SCALE: 1:50. NOTES: SEE GENERAL NOTES AND TYPICAL DETAILS ON THIS DRAWING.



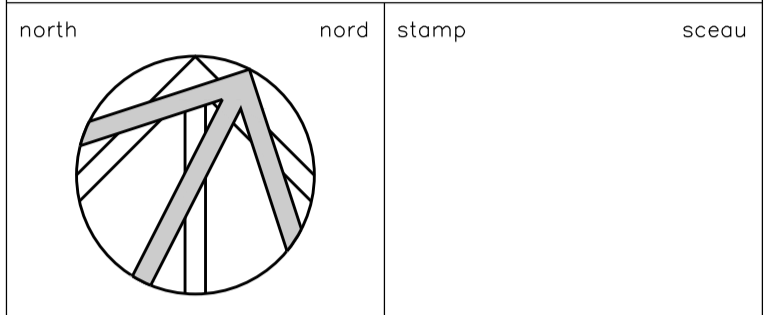
**F1**  
**S200**  
SCALE 1:20

**F2**  
**S200**  
SCALE 1:20

**F3**  
**S200**  
SCALE 1:20



**F4**  
**S200**  
SCALE 1:20



# Halsall

210 Gladstone Avenue t. 613.237.2462  
 Suite 4001 f. 613.442.5725  
 Ottawa, ON Canada f. 613.237.2935  
 K2P 0Y6 ottawa@halsall.com 213/8117A

KEY PLAN  
PLAN-REPÈRE

revision		date
O3	ISSUED FOR TENDER	AUG. 27/13
O2	ISSUED FOR TENDER	MAR. 31/13
O1	ISSUED FOR REVIEW	DEC. 06/12

<b>A</b> <b>C</b>	A detail no. no. du détail	<b>A</b> <b>BC</b>
	B location drawing no. no. de localisation	
	C drawing no. no. du dessin	

project / projet

## BUILDING 50 TROPICAL GREENHOUSE

CENTRAL EXPERIMENTAL FARM  
MAPLE DRIVE, OTTAWA, ON

drawing / dessin

### FOUNDATION SECTIONS

designed / conçu

date: SEF / DEC 2012

drawn / dessiné

date: IKD / DEC 2012

revised / révisé

approved / approuvé

date / soumission

tender / Administrateur de projets AAF

project no. / no. du projet

drawing no. / no. du dessin

**S200**

DRAWN BY: IAD, DATE: 08/11/2012, FILE: 11300001.DWG, PROJECT: 11300001, SHEET: 11300001-01, TITRE: FOUNDATION SECTIONS, PLAN-REPÈRE, PLAN-REPERE

