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135 LUSK STREET RETAINING WALL

LICENSED PROFESSIONAL ENGINEER
22/09/07
R. SQAPI
100101368
PROVINCE OF ONTARIO

LILY XU, MCIP, RPP
MANAGER, DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE & ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

APPROVED
By Lily Xu at 3:33 pm, Nov 01, 2022

NOTE: EXISTING CONDITIONS AS SHOWN ON THE STRUCTURAL DRAWINGS ARE BASED UPON INFORMATION AVAILABLE AT THE TIME THAT DRAWINGS WERE PREPARED AND ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE ANY VARIATIONS ARE TO BE REPORTED AND INSTRUCTIONS RECEIVED BEFORE PROCEEDING.

Job No.	20221469
Date	SEPT 07 2022
Drwn/Chkd By	EM/RS
Sheet No.	S-01A

No.	Description	Date
1.	ISSUED FOR SPA	09/07/22

DRAWING LIST

S1a-S1d - GENERAL NOTES
S2 - EXTENT OF WALLS SECTIONS ON PLAN
S3-S4 - WALL SECTIONS
S5 - TYPICAL DETAILS

A. GENERAL

1. READ STRUCTURAL DOCUMENTS IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND OTHER CONTRACT DOCUMENTS.

2. BEFORE PROCEEDING WITH THE WORK, CHECK ALL DIMENSIONS SHOWN ON THE STRUCTURAL DOCUMENTS WITH SITE CONDITIONS AND THOSE SHOWN ON ARCHITECTURAL, MECHANICAL AND ELECTRICAL DOCUMENTS AND REPORT DISCREPANCIES TO THE CONSULTANT. STRUCTURAL DRAWINGS MUST NOT BE SCALED.

3. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS AND SIZES OF OPENINGS, TRENCHES, PITS, SUMPS, EQUIPMENT, SLEEVES, DEPRESSIONS, GROOVES AND CHAMFERS NOT INDICATED ON THE STRUCTURAL DRAWINGS. UNLESS SPECIFICALLY NOTED, THE ABOVE ITEMS WHERE SHOWN ON THE STRUCTURAL DRAWINGS ARE INDICATED ONLY APPROXIMATELY AS TO SIZE AND LOCATION.

4. PROVIDE LABOUR, MATERIALS, PLANT AND EQUIPMENT TO COMPLETE ALL STRUCTURAL WORK INDICATED ON THE CONTRACT DOCUMENTS.

5. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISION HAS BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURING DURING CONSTRUCTION. THE CONTRACTOR IS TO PROVIDE ALL NECESSARY BRACING, SHORING, SHEET PILING OR OTHER TEMPORARY SUPPORTS REQUIRED FOR SAFETY AND PROTECTION OF NEW CONSTRUCTION, AS WELL AS TO SAFEGUARD ALL EXISTING OR ADJACENT STRUCTURES AFFECTED BY THIS WORK. CARRY OUT CONSTRUCTION OPERATIONS, INCLUDING THE INSTALLATION OF TEMPORARY GUYING AND SHORING REQUIRED, ENSURING THAT THE EXISTING STRUCTURE OR MEMBERS ALREADY ERECTED ARE NOT LOADED IN EXCESS OF THEIR SAFE LOAD CARRYING CAPACITY.

B. REFERENCE STANDARDS/CODES AND ACTS

1 DESIGN AND CONSTRUCTION IS TO CONFORM TO THE REQUIREMENTS OF THE CURRENT ONTARIO BUILDING CODE, AND ANY APPLICABLE REQUIREMENTS OR BY-LAWS OF THE AUTHORITY HAVING JURISDICTION. ALL CODES, MANUALS, STANDARDS AND SPECIFICATIONS REFERRED TO SHALL BE THE CURRENT EDITIONS, INCLUDING ALL LATEST REVISIONS, ADDENDA AND SUPPLEMENTS, UNLESS NOTED OTHERWISE IN BUILDING CODE. CONFORM ALSO TO THE FOLLOWING:

1.1 CSA A23.1 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION.

1.2 CSA A23.2 METHODS OF TEST FOR CONCRETE.

1.3 CSA A23.3 DESIGN OF CONCRETE STRUCTURES.

1.4 RSIC REINFORCING STEEL INSTITUTE OF CANADA (RSIC), MANUAL OF STANDARD PRACTICE.

2 ALL STANDARDS AND PUBLICATIONS REFERENCED BY THE STANDARDS NOTED ABOVE ARE TO APPLY.

3 WHERE THERE ARE DIFFERENCES BETWEEN THE DOCUMENTS AND THE STANDARDS, CODES AND ACTS, THE MOST STRINGENT SHALL GOVERN.

C. SUBMITTALS

1 SHOP DRAWINGS

1.1 SUBMIT FOR REVIEW BY THE CONSULTANT COMPLETE SHOP DRAWINGS FOR ALL TEMPORARY AND PERMANENT STRUCTURAL WORK INCLUDING, BUT NOT LIMITED TO: CONCRETE FORMWORK, REINFORCING STEEL.

1.2 THE SCALE OF THE DRAWINGS SHALL BE SUCH THAT THE DETAILS OF THE STRUCTURAL WORK ARE CLEARLY SHOWN, AND IN NO CASE SMALLER THAN 1:50 (1/4" = 1'0").

1.3 THE STRUCTURAL DRAWINGS SHALL NOT BE REPRODUCED, IN WHOLE OR IN PART, FOR USE AS SHOP DRAWINGS, UNLESS AUTHORIZED BY CONSULTANT.

1.4 EACH DRAWING SUBMITTED FOR CONCRETE FORMWORK SHALL BEAR THE SEAL AND SIGNATURE OF A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.

1.5 CONTRACTOR SHALL ALLOW FOR A 5 WORKING DAY TURN AROUND TIME FOR STRUCTURAL CONSULTANT TO REVIEW THE SHOP DRAWINGS.

1.6 STRUCTURE ERECTED PRIOR TO SUBMITTAL AND SATISFACTORY REVIEW OF SHOP DRAWINGS WILL BE CONSIDERED DEFICIENT.

1.7 REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL CONSULTANT IS ONLY TO ASSESS THAT THE SUBMITTED SHOP DRAWINGS REFLECT THE INTENT OF THE STRUCTURAL DESIGN. THIS REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR SEEING THAT THE WORK IS COMPLETE, ACCURATE AND IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

2 CALCULATIONS

2.1 SUBMIT CALCULATIONS, BEARING THE SEAL AND SIGNATURE OF PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO, FOR STRUCTURAL WORK, IF REQUESTED BY THE CONSULTANT.

3 MILL TEST REPORTS

3.1 MAKE AVAILABLE TO THE CONSULTANT COPIES OF ALL MILL TEST REPORTS COVERING CHEMICAL AND PHYSICAL PROPERTIES OF MATERIALS USED.

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4 CONCRETE MIX DESIGNS

4.1 SUBMIT CONCRETE MIX DESIGNS ALONG WITH A BRIEF DESCRIPTION OF WHERE EACH MIX WILL BE USED, FOR REVIEW BY THE CONSULTANT.

5 AS-BUILT DRAWINGS

5.1 MARK ON A COMPLETE SET OF REPRODUCIBLE AS-BUILT DRAWINGS ANY CHANGES, ADDITIONS, OR DELETIONS THAT OCCUR DURING CONSTRUCTION AS A RESULT OF THE CONTRACTOR'S WORK, CHANGE OF ORDERS OR FOR ANY OTHER REASON.

D. MATERIALS

1 PROVIDE ONLY NEW STRUCTURAL MATERIALS IN ACCORDANCE WITH THE REFERENCE STANDARDS AND THE FOLLOWING, UNLESS OTHERWISE NOTED.

1.1 CONCRETE:

1.1.1 NOT EXPOSED TO WEATHER: F'c = 25 MPa AT 28 DAYS, SLUMP 75 mm (3").

1.1.2 EXPOSED TO WEATHER OR CHLORIDES: F'c = 35 MPa AT 28 DAYS, SLUMP 80mm (3"), EXPOSURE CLASS C-1, W/C RATIO 0.40, AIR CONTENT 5%8%

1.2 REINFORCING STEEL: CONFORM TO CSA G30 SERIES, GRADE 400.

1.3 WELDED WIRE FABRIC: CONFORM TO CSA G30 SERIES, GRADE 386, IN FLAT SHEETS.

1.4 ANCHOR RODS: THREADED ROD CONFORMING TO ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.

1.5 CONCRETE ANCHORS: HEADED STUDS MANUFACTURED BY NELSON IOR APPROVED ALTERNATIVE). STUDS SHALL BE MADE FROM ASTM A-108 COLD ROLLED DEFORMED WIRE MEETING ASTM A-496.

1.6 NON-SHRINK GROUT = COMPRESSIVE STRENGTH OF 35 MPa AT 24 HOURS.

1.7 PLYWOOD (FOR SHEATHING): CONFORM TO CSA 0151 (CANADIAN SOFTWOOD PLYWOOD) OR CSA O121 (DOUGLAS FIR PLYWOOD)

E. EXECUTION

1. FOUNDATIONS

1.1. A COPY OF THE SOIL INVESTIGATION REPORT BY [ ] DATED [ ] IS AVAILABLE FROM THE CONSULTANT. READ THIS REPORT, VISIT THE SITE AND THOROUGHLY FAMILIARIZE YOURSELF WITH ALL SURFACE AND SUBSURFACE CONDITIONS. THIS INFORMATION IS GIVEN SOLELY AS A GUIDE. NO RESPONSIBILITY IS ACCEPTED BY THE OWNER OR THE CONSULTANT FOR ITS CORRECTNESS, NOR SHALL ITS ACCURACY OR ANY OMISSIONS AFFECT THE PROVISION OF THIS CONTRACT.

1.2. FOUND ALL FOOTINGS [AND UNDERPINNING] ON SOIL CAPABLE OF SUSTAINING AN UNFACTORED BEARING STRESS OF 150 kN/m² (3133 psf).

1.3. FOUND ALL FOOTINGS WHICH WILL BE EXPOSED TO FROST ACTION IN THE COMPLETED BUILDING A MINIMUM OF 1200 mm (4'-0") BELOW FINISHED GRADE.

1.4. DO NOT EXCEED A RISE OF 7 IN A RUN OF 10 IN THE LINE OF SLOPE BETWEEN ADJACENT FOOTING EXCAVATIONS OR ALONG STEPPED FOOTINGS. FOR STEPPED FOOTINGS, USE STEPS NOT EXCEEDING 600 mm (2'-0") IN HEIGHT AND 1200 mm (4'-0") (MIN.) IN LENGTH.

1.5. SOIL BEARING CAPACITY SPECIFIED MUST BE VERIFIED BY THE SOIL ENGINEER PRIOR TO THE PLACING OF FOOTINGS AND ANY NON-CONFORMANCE WITH THE SPECIFIED MINIMUM CAPACITIES MUST BE IMMEDIATELY REPORTED TO THE STRUCTURAL ENGINEERS.

1.6. UNLESS OTHERWISE NOTED IN GEOTECHNICAL REPORT, PROVIDE IMMEDIATELY UNDER SLABS-ON-GRADE A MINIMUM OF 200 mm (8") OF COMPACTED GRANULAR 'B' MATERIAL. COMPACTION TO ACHIEVE A MINIMUM OF 98% STANDARD PROCTOR MAXIMUM DRY DENSITY.

1.7. PROVIDE A VAPOUR RETARDER MEMBRANE COVER OVER THE PREPARED BASE MATERIAL BELOW SLABS-ON-GRADE, WHERE NOTED ON THE DRAWINGS. LAP JOINTS OF MEMBRANE 150 mm (6") AND TAPE WITH MATERIAL AS RECOMMENDED BY MEMBRANE MANUFACTURER.

2. CONCRETE

2.1. CONCRETE MIXING, TRANSPORTATION, HANDLING AND PLACING SHALL CONFORM TO CSA STANDARD A23.1

2.2. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FINISH TO EXPOSED CONCRETE. ALL HONEYCOMBING SHALL BE CUT OUT AND REPAIRED WITH APPROVED REPAIR MATERIAL. FLOOR FINISHES SHALL BE AS REQUIRED BY THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS, AND SHALL CONFORM TO CSA STANDARD A23.1

2.3. TOLERANCES FOR PLACING STRUCTURAL CONCRETE, REINFORCING STEEL, CAST-IN HARDWARE SHALL BE AS SPECIFIED IN CSA STANDARD A23.1

2.4. PROVIDE A VAPOUR RETARDER MEMBRANE COVER OVER THE PREPARED BASE MATERIAL BELOW SLABS-ON-GRADE, WHERE NOTED ON THE DRAWINGS.

2.5. THE CONTRACTOR SHALL ENSURE THAT REINFORCING STEEL IS ADEQUATELY BRACED AGAINST MOVEMENT DURING CONCRETE PLACING.

2.6. FOLLOW MANUFACTURER'S INSTRUCTIONS REGARDING INSTALLATION PROCEDURES AND MINIMUM EMBEDMENT OF POST-INSTALLED ANCHORS.

2.7. COMPLETELY FILL VOIDS BENEATH STEEL BASES ON CONCRETE WITH AN APPROVED NON-SHRINK 36MPa (5ksi) GROUT.

2.8. AN INDEPENDENT INSPECTION AND TESTING COMPANY SHALL DO THE FOLLOWING TASKS:

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2.8.1. REVIEW AND COMMENT ON THE SUITABILITY OF THE CONTRACTOR'S PROPOSED MATERIALS AND CONCRETE MIX DESIGNS AND THEIR CONFORMANCE WITH THE REQUIREMENTS OF CSA A23.1 AND THE CONTRACT DOCUMENTS.

2.8.2. MAKE AT LEAST ONE STRENGTH TEST FOR EACH 100 m3 (3500 FT3) OF EACH CLASS OF CONCRETE (OR FRACTION THEREOF). IN NO CASE SHALL THERE BE LESS THAN ONE STRENGTH TEST FOR EACH CLASS OF CONCRETE PLACED ON ANY ONE DAY. FOR SMALL POURS, THE STRUCTURAL CONSULTANT MAY DIRECT THAT ADDITIONAL STRENGTH TESTS BE MADE. PROVIDE A STORAGE FOX TO STORE CYLINDER SPECIMENS AT THE SITE IN ACCORDANCE WITH CSA A23.1. COORDINATE STORAGE LOCATIONS WITH THE CONTRACTOR TO PREVENT LOSS OR DAMAGE TO TEST SPECIMENS. THE NUMBERS OF COMPANION LABORATORY CURED SPECIMENS (100 X 200 mm CYLINDERS) THAT CONSTITUTE A STRENGTH TEST ARE AS FOLLOWS:

- THREE SPECIMENS FOR A CONCRETE MIX SPECIFIED FOR 28 DAY STRENGTH; TEST ONE SPECIMEN AT 7 DAYS AND TWO AT 28 DAYS.
- FOUR (4) SPECIMENTS FOR A CONCRETE MIX SPECIFIED AT 56 DAY STRENGTH; TEST ONE SPECIMENT AT 7 DAYS, ONE AT 28 DAYS AND TWO AT 56 DAYS.
- DURING PLACING OF CONCRETE IN COLD WEATHER, MAKE ONE ADDITIONAL SPECIMEN AND STORE AT THE JOBSITE UNDER CONDITIONS SIMILAR TO THE CONCRETE IT REPRESENTS. THIS SPECIMEN IS INTENDED AS A FIELD CONTROL TEST, SHALL BE FIELD CURED TO CONFORM TO CSA-A23.2 AND TESTED AT 7 DAYS.

2.8.3. MAKE AT LEAST ONE SLUMP TEST, ONE CONCRETE TEMPERATURE TEST AND ONE AIR ENTRAINMENT TEST FOR EVERY COMPRESSIVE STRENGTH TEST AS APPLICABLE.

2.8.4. WHEN DCI CORROSION INHIBITOR OR OTHER ADMIXTURES ARE SPECIFIED, TEST IN ACCORDANCE WITH CSA A23.1, MANUFACTURER'S RECOMMENDATIONS AND STANDARD INDUSTRY PROCEDURES.

2.8.5. MAKE AT LEAST ONE RAPID CHLORIDE PERMEABILITY TEST FOR EACH CONCRETE POUR CONSISTING OF CONCRETE EXPOSURE CLASS C-1, A-1 OR C-XL. EACH TEST SHALL CONSIST OF 4 CYLINDER SPECIMENS, TO BE FIELD CURED IN CONDITIONS SIMILAR TO THE IN-SITU CONCRETE. TEST ONE SPECIMEN AT 7 DAYS, ONE AT 28 DAYS AND TWO AT 56 DAYS.

2.8.6. OBTAIN FROM THE CONTRACTOR MILL TEST REPORTS FROM CANADIAN MILLS FOR ALL REINFORCEMENT. CHECK THESE REPORTS AGAINST THE SPECIFIED GRADES OF REINFORCMENT AND FOR COMPLIANCE WITH THE REQUIREMENTS OF CSA G30.18.

3. ALTERATIONS AND/ OR CONNECTIONS TO EXISTING STRUCTURE

3.1. PROPOSED SCHEDULE OF WORK TO BE COORDINATED WITH ALL SUBTRADES.

3.2. INSPECT THE EXISTING BUILDING AND BECOME THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS.

3.3. PRIOR TO PROCEEDING WITH THE WORK, DETERMINE THE EXACT FOUNDING ELEVATIONS OF EXISTING FOOTINGS ADJACENT TO THE NEW WORK. REPORT THESE FINDINGS TO THE CONSULTANT.

3.4. SHORE EXISTING WORK AS REQUIRED UNTIL ALL NEW WORK HAS BEEN COMPLETED AND REVIEWED BY THE CONSULTANT.

3.5. DO NOT CUT CONCRETE REINFORCEMENT UNLESS REVIEWED AND APPROVED BY THE CONSULTANT.

3.6. WHERE REQUIRED TO AVOID CUTTING EXISTING REINFORCEMENT, MODIFY THE LAYOUT OF NEW THROUGH BOLTS, EXPANSION ANCHORS AND OTHER ANCHORING DEVICES.

3.7. MAKE GOOD THE EXISTING WORK.

F. QUALITY CONTROL

1 GENERAL

1.1 IMPLEMENT A SYSTEM OF QUALITY CONTROL TO ENSURE THAT THE MINIMUM STANDARDS SPECIFIED HEREIN ARE ATTAINED.

1.2 BRING TO THE ATTENTION OF THE CONSULTANT ANY DEFECTS IN THE WORK OR DEPARTURES FROM THE CONTRACT DOCUMENTS, WHICH MAY OCCUR DURING CONSTRUCTION. THE CONSULTANT WILL DECIDE UPON CORRECTIVE ACTION AND GIVE RECOMMENDATIONS IN WRITING.

1.3 EXTRA SITE VISITS OR DESIGN WORK BY THE CONSULTANT THAT RESULT FROM THE CONTRACTOR'S CONSTRUCTION DEFICIENCIES, EXTRA REQUESTS FOR SITE MEETINGS, REVIEW OF EXISTING CONDITIONS, OR COORDINATION ISSUES WILL BE PAID IN FULL BY THE CONTRACTOR TO THE CONSULTANT UNLESS OTHERWISE AGREED UPON IN WRITING PRIOR TO THE CONSULTANT ENGAGING IN THE WORK. PAYMENT WILL BE STANDARDIZED AT THE CONSULTANT'S CURRENT PER DIEM RATE UNLESS OTHERWISE AGREED UPON.

1.4 THE CONSULTANT'S GENERAL REVIEW DURING CONSTRUCTION AND INSPECTION AND TESTING BY INDEPENDENT INSPECTION AND TESTING AGENCIES REPORTING TO THE CONSULTANT ARE BOTH UNDERTAKEN TO INFORM THE OWNER/ CLIENT OF THE CONTRACTOR'S PERFORMANCE AND SHALL IN NO WAY AUGMENT THE CONTRACTOR'S QUALITY CONTROL OR RELIEVE THE CONTRACTOR OF CONTRACTUAL RESPONSIBILITY.

2 NOTIFICATION

2.1 PRIOR TO COMMENCING SIGNIFICANT SEGMENTS OF THE WORK, GIVE THE CONSULTANT AND INDEPENDENT INSPECTION AND TESTING COMPANIES APPROPRIATE NOTIFICATION (MINIMUM 24 HOURS) SO AS TO AFFORD THEM REASONABLE OPPORTUNITY TO REVIEW THE WORK. FAILURE TO MEET THIS REQUIREMENT MAY BE CAUSE FOR THE CONSULTANT TO CLASSIFY THE WORK AS DEFECTIVE.

2.1.1 IT IS THE RESPONSIBILITY OF BOTH THE OWNER AND THE CONTRACTOR TO NOTIFY THE ENGINEER OF CONSTRUCTION PROGRESS SO THE ENGINEER CAN COMPLETE GENERAL REVIEWS. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A CONSTRUCTION SCHEDULE PRIOR TO STARTING THE WORK. GENERALLY, REVIEWS BY THE ENGINEER WILL BE REQUIRED FOR REBAR PRIOR TO CONCRETE PLACEMENT, FOOTING, AND FOUNDATIONS PRIOR TO BACKFILLING. THE ENGINEER WILL ALSO NEED TO INSPECT ALL ABOVE GRADE FRAMING PRIOR TO INSTALLATION OF INTERIOR FINISHES.

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By Lily Xu at 3:35 pm, Nov 01, 2022

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2.1.2 CONTRACTOR TO SITE VERIFY THAT THE CEILING SPACE IS CLEAR OF OBSTRUCTIONS PRIOR TO PRICING OR FABRICATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND REINSTATE/ RELOCATE EXISTING SERVICES WITHIN THE CEILING SPACE IN ORDER TO FACILITATE STRUCTURAL INSTALLATION. NO EXTRAS ARE ACCEPTABLE FOR COORDINATION TIME WITH ANY CONSULTANTS (M&E OR OUR OFFICE). SITE VISITS OR MEETINGS ON SITE WILL BE CONSIDERED AN EXTRA TO BE PAID BY THE CONTRACTOR.

3 INSPECTION AND TESTING

3.1 THE CONTRACTOR WILL APPOINT AN INDEPENDENT INSPECTION AND TESTING COMPANY TO MAKE INSPECTIONS OR PERFORM TESTS AS OUTLINED IN THIS DOCUMENT. THE INDEPENDENT INSPECTION AND TESTING COMPANIES SHALL BE RESPONSIBLE ONLY TO THE CONSULTANT AND SHALL MAKE ONLY SUCH INSPECTIONS OR TESTS AS THE CONSULTANT MAY DIRECT.

3.2 INCLUDE FOR AN INDEPENDENT THIRD PARTY GEOTECHNICAL INSPECTION COMPANY TO REVIEW THE FOUNDATION WORK. THIS COMPANY IS TO BE FAMILIAR WITH OUR DRAWINGS, THE GEOTECHNICAL REPORT, AND THE HELICAL PILE FOUNDATION WORK BEING PERFORMED SO THEY CAN REVIEW THE ADEQUACY OF THE FOUNDATION SYSTEM.

4 DEFECTIVE MATERIALS AND WORK

4.1 WHERE EVIDENCE EXISTS THAT DEFECTIVE WORK HAS OCCURRED OR THAT WORK HAS BEEN CARRIED OUT INCORPORATING DEFECTIVE MATERIALS, THE CONSULTANT MAY HAVE TESTS, INSPECTIONS OR SURVEYS PERFORMED, ANALYTICAL CALCULATIONS OF STRUCTURAL STRENGTH MADE, AND THE LIKE, IN ORDER TO HELP DETERMINE WHETHER THE WORK MUST BE CORRECTED OR REPLACED. TESTS, INSPECTIONS OR SURVEYS OR CALCULATIONS CARRIED OUT UNDER THESE CIRCUMSTANCES WILL BE MADE AT THE CONTRACTOR'S EXPENSE, REGARDLESS OF THEIR RESULTS, WHICH MAY BE SUCH THAT, IN THE CONSULTANT'S OPINION, THE WORK MAY BE ACCEPTABLE.

4.2 ALL TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, EXCEPT WHERE THIS WOULD, IN THE CONSULTANT'S OPINION, CAUSE UNDUE DELAY OR GIVE RESULTS NOT REPRESENTATIVE OF THE REJECTED MATERIAL IN PLACE. IN THIS CASE, THE TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE STANDARDS GIVEN BY THE CONSULTANT.

4.3 MATERIALS OR WORK, WHICH FAIL TO MEET SPECIFIED REQUIREMENTS, MAY BE REJECTED BY THE CONSULTANT WHENEVER FOUND AT ANY TIME PRIOR TO FINAL ACCEPTANCE OF THE WORK REGARDLESS OF PREVIOUS INSPECTION. IF REJECTED, DEFECTIVE MATERIALS OR WORK SHALL BE PROMPTLY REMOVED AND REPLACED OR REPAIRED TO THE SATISFACTION OF THE CONSULTANT, AT NO EXPENSE TO THE OWNER.

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Sheet No.	S-02

No.	Description	Date
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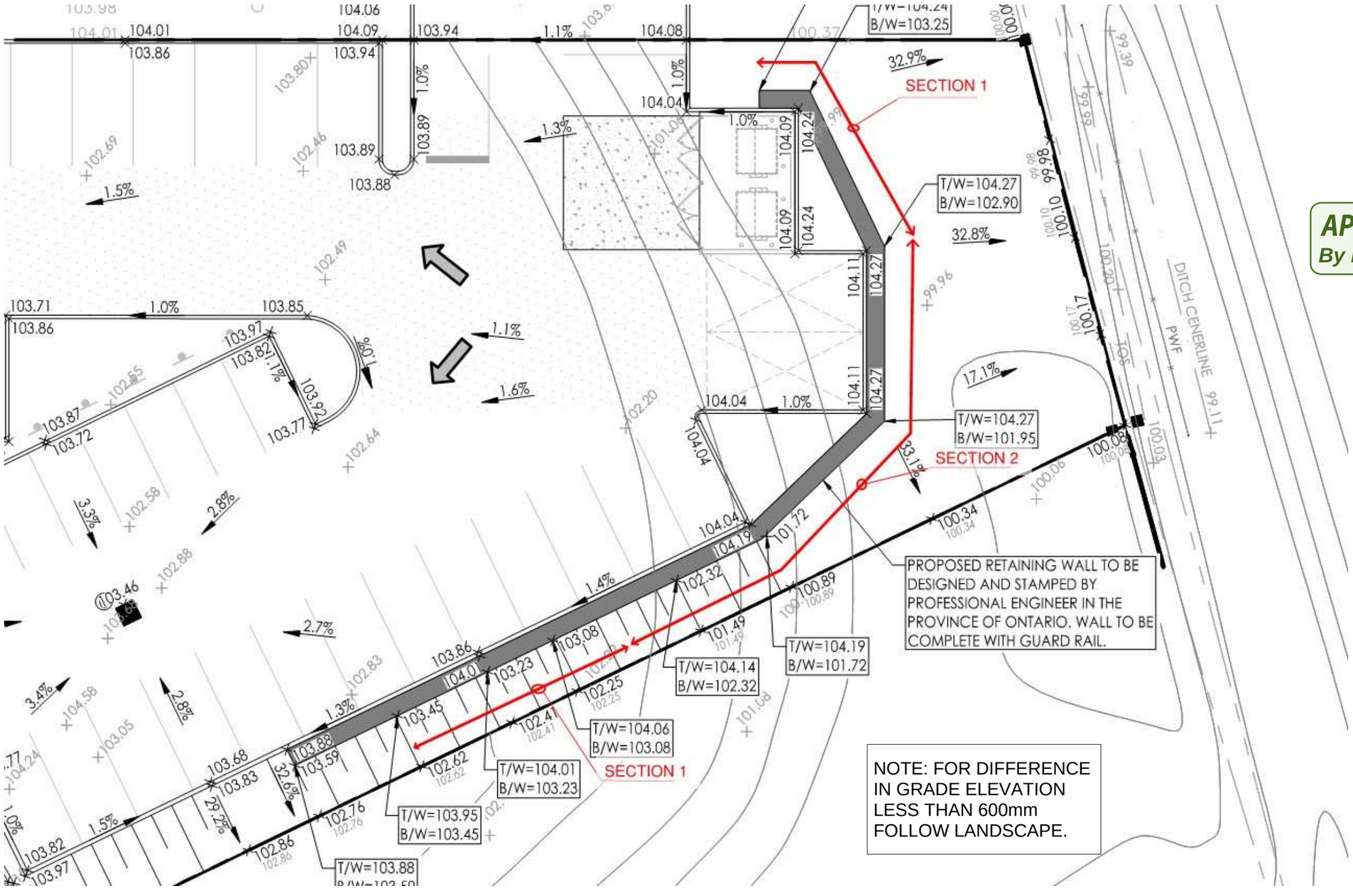
APPROVED
By Lily Xu at 3:36 pm, Nov 01, 2022



NOTE: FOR DIFFERENCE IN GRADE ELEVATION LESS THAN 600mm FOLLOW LANDSCAPE.

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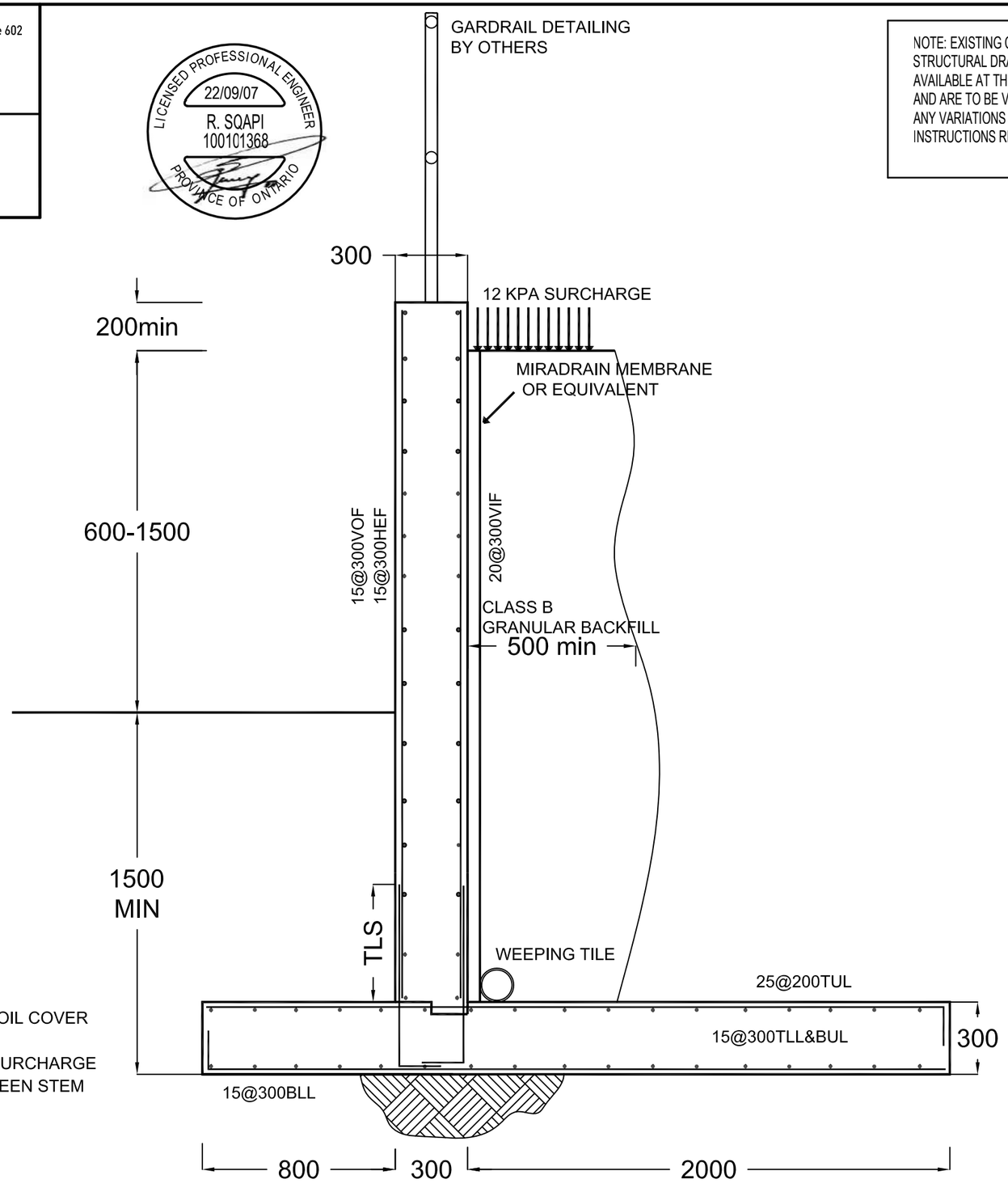
Sheet No.	S-03

No.	Description	Date
1.	ISSUED FOR SPA	09/07/22



SECTION 1

NOTES
-ALL CONCRETE SHALL BE 35MPA C1 EXPOSURE
-STEP FOOTINGS UP OR DOWN TO MAINTAIN 1500 SOIL COVER ON OUTSIDE FACE.
-ALL SECTIONS HAVE BEEN DESIGNED FOR 12KPA SURCHARGE
-PROVIDE A SHEAR KEY AT THE POUR BREAK BETWEEN STEM AND HEEL TO ENSURE AGGREGATE INTERLOCK.

APPROVED
By Lily Xu at 3:36 pm, Nov 01, 2022

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319 HARRIS AVENUE RETAINING WALL

LICENSED PROFESSIONAL ENGINEER
22/09/07
R. SQAPI
100101368
PROVINCE OF ONTARIO

GARDRAIL DETAILING
BY OTHERS

NOTE: EXISTING CONDITIONS AS SHOWN ON THE STRUCTURAL DRAWINGS ARE BASED UPON INFORMATION AVAILABLE AT THE TIME THAT DRAWINGS WERE PREPARED AND ARE TO BE VERIFIED BY THE CONTRACTOR ON SITE ANY VARIATIONS ARE TO BE REPORTED AND INSTRUCTIONS RECEIVED BEFORE PROCEEDING.

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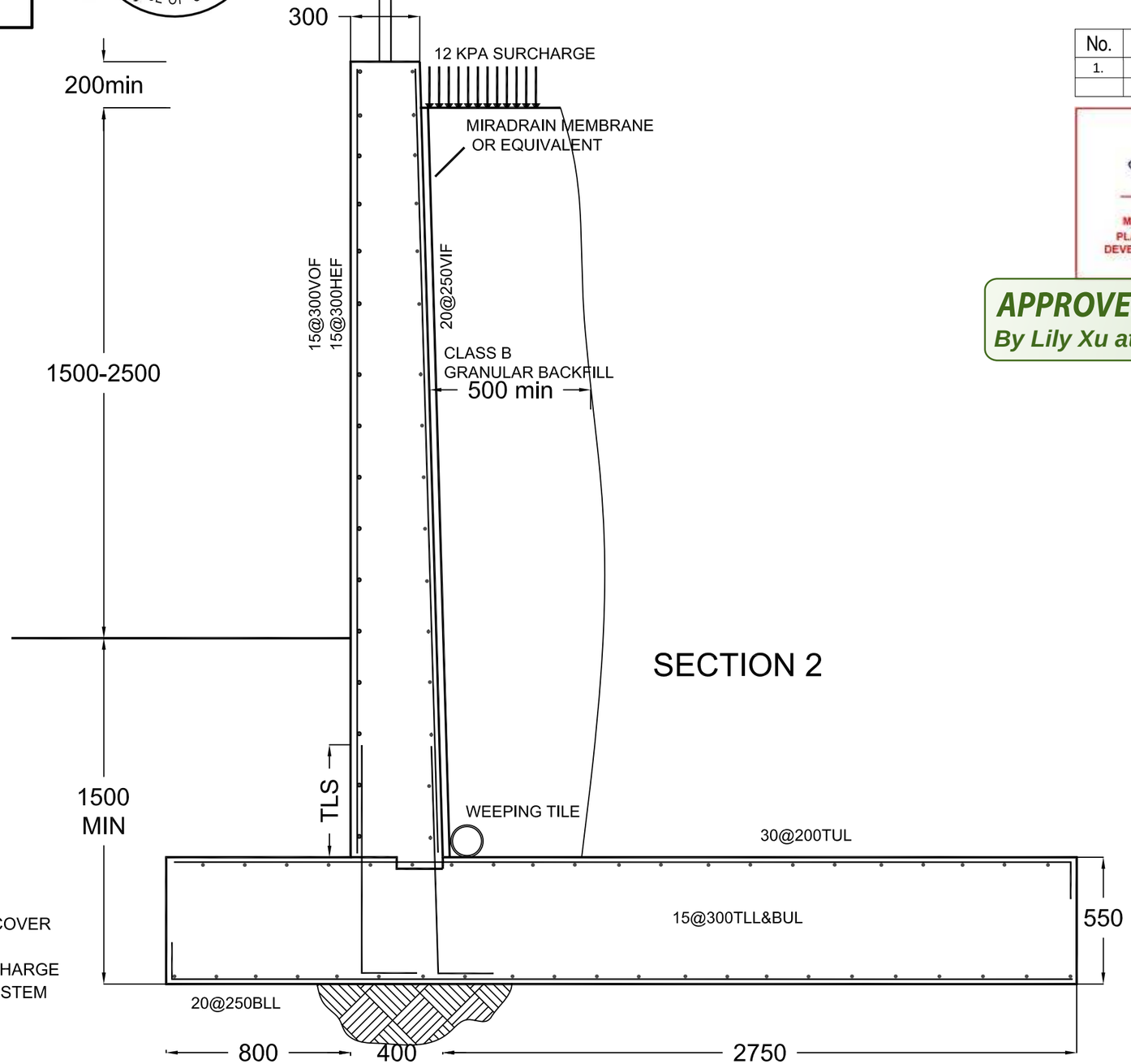
Sheet No.	S-04

No.	Description	Date
1.	ISSUED FOR SPA	09/07/22

LILY XU, MCIP, RPP
MANAGER, DEVELOPMENT REVIEW SOUTH
PLANNING, INFRASTRUCTURE & ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

APPROVED
By Lily Xu at 3:36 pm, Nov 01, 2022



SECTION 2

NOTES
-ALL CONCRETE SHALL BE 35MPA C1 EXPOSURE
-STEP FOOTINGS UP OR DOWN TO MAINTAIN 1500 SOIL COVER ON OUTSIDE FACE.
-ALL SECTIONS HAVE BEEN DESIGNED FOR 12KPA SURCHARGE
-PROVIDE A SHEAR KEY AT THE POUR BREAK BETWEEN STEM AND HEEL TO ENSURE AGGREGATE INTERLOCK.

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135 LUSK STREET RETAINING WALL

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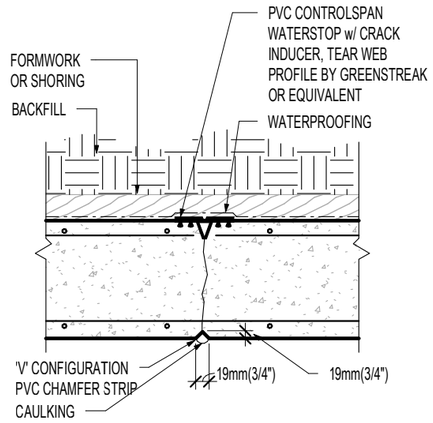
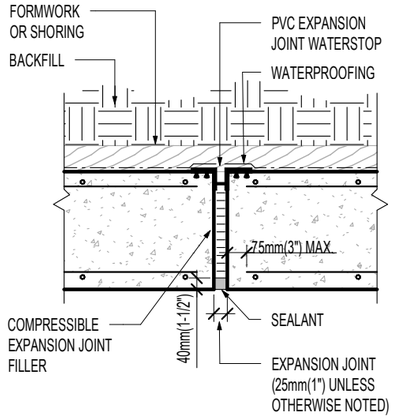
PROVINCE OF ONTARIO

TYPICAL JOINTS IN EXTERIOR CONCRETE FOUNDATION WALLS — CFW02A



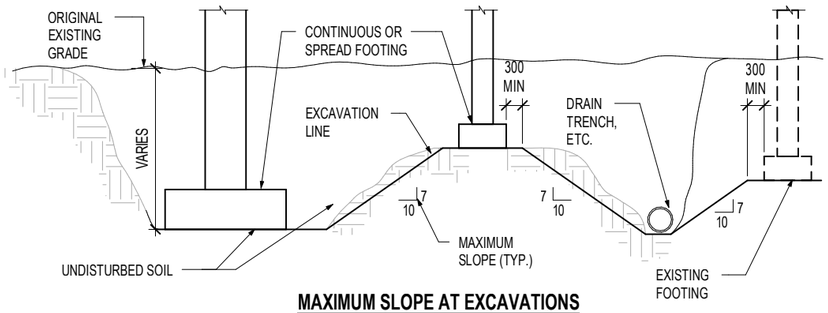
NOTES:
1. EVERY OTHER HORIZONTAL BAR TO BE CUT ACROSS CONTROL JOINT ON BOTH INSIDE AND OUTSIDE FACES.
2. CONTROL JOINTS ARE NOT TO BE PLACED IN AIR SHAFTS.

VERTICAL CONTROL JOINT
AT EXTERIOR CONCRETE WALL
JOINTS @ 3000mm (10'-0") CENTERS MAX.



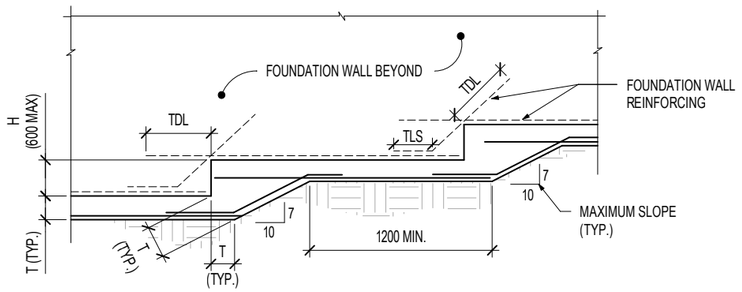
VERTICAL EXPANSION JOINT
AT EXTERIOR CONCRETE WALL
FOR LOCATIONS SEE PLAN

STEPPED FOUNDATION AND CONSTRUCTION EXCAVATION — F09



MAXIMUM SLOPE AT EXCAVATIONS

NOTES:
1. WHERE TRENCHING OR EXCAVATING AT ADJACENT FOOTING SATISFY THE MAXIMUM SLOPE REQUIREMENT SHOWN ABOVE.
2. IF EXCAVATION REQUIREMENTS VIOLATE SLOPE REQUIREMENTS PROVIDE PLANS FOR REMEDIAL MEASURES (BRACING OR UNDERPINNING) TO THE CONSULTANT PRIOR TO PROCEEDING



STEPS IN FOUNDATION WALL

NOTES:
1. STEPS IN FOUNDATION WALLS TO FOLLOW THE GEOMETRY SHOWN ABOVE UNLESS NOTED OTHERWISE ON PLANS

TLS: TENSION LAP SPLICE LENGTH (CLASS B) (mm)

fc'	UNCOATED BLACK BAR											
	10M		15M		20M		25M		30M		35M	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
20MPa	550	420	820	630	1090	840	1710	1310	2050	1570	2390	1840
25MPa	490	380	740	570	980	750	1530	1170	1830	1410	2130	1640
30MPa	450	350	670	520	890	690	1390	1070	1670	1290	1950	1500
35MPa	420	320	620	480	830	640	1290	990	1550	1190	1800	1390
40MPa	390	300	580	450	770	600	1210	930	1450	1110	1690	1300
45MPa	370	300	550	420	730	560	1140	880	1370	1050	1590	1230
50MPa	350	300	520	400	690	530	1080	830	1300	1000	1510	1160
55MPa	330	300	500	380	660	510	1030	790	1240	950	1440	1110
60MPa	320	300	480	370	630	490	990	760	1180	910	1380	1060
64MPa	310	300	460	360	610	470	960	740	1150	880	1340	1030

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No.	Description	Date
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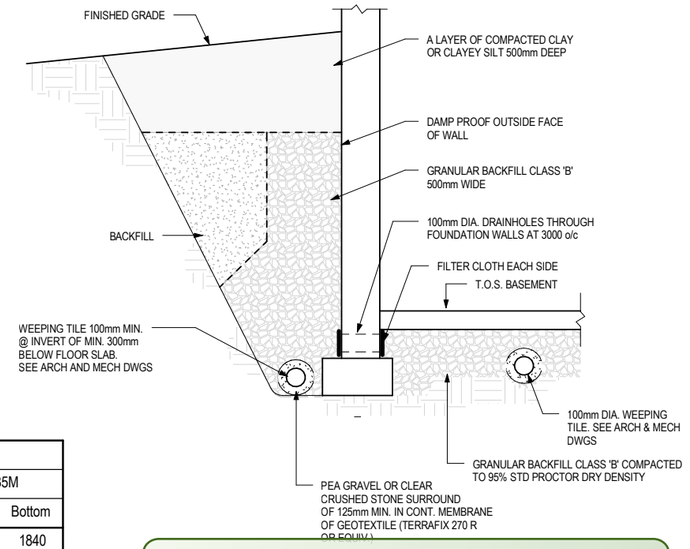
TYPICAL EXTERIOR WALL DRAINAGE SYSTEM — F22

REFER TO SOILS REPORT, ARCH DWGS, AND MECH. DWGS.



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