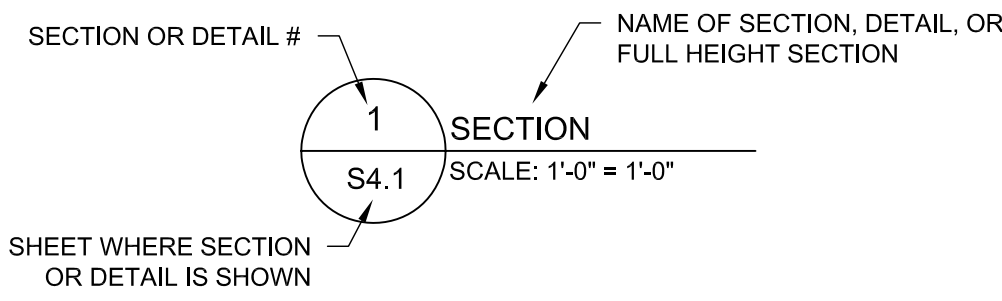


DRAWING LIST
S1.1 NOTES
S2.1 FOUNDATION/ MAIN FLOOR PLAN
S2.2 ROOF FRAMING PLAN
S3.1 TYPICAL SECTIONS AND DETAILS
S4.1 FULL HEIGHT SECTIONS
S4.2 FULL HEIGHT SECTIONS

**SECTION SYMBOL**



**DESIGN LOADING**

THE BUILDING IS DESIGNED IN ACCORDANCE WITH THE 2011 EDITION OF THE MANITOBA BUILDING CODE OF CANADA.  
 - SNOW (ROOF) = Is(0.8(Ss) + (S<sub>w</sub>)) = 1.72 kPa (36 psf)  
 - WIND q(150') = 0.45 kPa (9.4 psf)  
 - Is & Iw = 1.0 (NORMAL IMPORTANCE)

**GENERAL NOTES**

- ALL RELEVANT CSA CODES, PROVINCIAL BUILDING CODE, WORKMAN'S COMPENSATION BOARD, WORKPLACE HEALTH & SAFETY BOARD AND LOCAL BY-LAWS SHALL APPLY TO ALL WORK ON THIS PROJECT.
- DESIGN LIVE LOADS SHOULD NOT BE EXCEEDED AT ANY TIME DURING CONSTRUCTION. FOR CONCRETE STRUCTURES, DESIGN LIVE LOADS MAY ONLY BE APPLIED AFTER CONCRETE REACHES ITS DESIGN STRENGTH.
- THE CONTRACTOR IS TO VERIFY DIMENSIONS, ELEVATIONS, SLOPES, AND DETAILS NOTED ON THE STRUCTURAL DRAWINGS WITH CONDITIONS ON SITE AND ARCHITECTURAL DRAWINGS AND SHALL IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR OF ANY DISCREPANCY. DO NOT SCALE DRAWINGS.
- MODIFICATIONS, ALTERATIONS OR SUBSTITUTIONS MUST BE AUTHORIZED IN WRITING BY STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR. FOR OPENINGS IN SLABS, FLOORS, WALLS, ROOFS, ETC. REFER TO ARCHITECTURAL, MECHANICAL, STRUCTURAL AND OR OTHER PERTINENT DRAWINGS. DO NOT CUT OR DRILL ANY OPENINGS INTO STRUCTURAL MEMBERS WITHOUT OBTAINING WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- THE GENERAL CONTRACTOR SHALL LOCATE ALL EXISTING SITE SERVICES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL FORWARD A COMPLETE POUR SCHEDULE TO THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR IDENTIFYING ALL CONSTRUCTION JOINT LOCATIONS, ETC. PRIOR TO COMMENCEMENT OF WORK AND DETAILING AND SUBMITTING REBAR SHOP DRAWINGS. CONSTRUCTION JOINTS FOR SLABS AND BEAMS SHALL BE LOCATED SO AS NOT TO SIGNIFICANTLY IMPAIR THE STRENGTH OF THE STRUCTURE. THE LOCATION OF CONSTRUCTION JOINTS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION, AND SAFETY OF ALL NECESSARY SHORING, BRACING, FORMWORK, AND SCAFFOLDING DURING WORK IN THIS PROJECT.
- THE STRUCTURE AND GRADE BEAMS SHALL BE BRACED IN ALL DIRECTIONS TO SAFELY WITHSTAND ALL LATERAL FORCES WHICH MAY BE ENCOUNTERED DURING ERECTION, THE BRACING SHALL REMAIN IN PLACE UNTIL ALL PERMANENT BRACING, FRAMING, CLADDING AND BACKFILL ARE IN PLACE.
- THE CONTRACTOR SHALL VERIFY AND PAY SPECIAL ATTENTION TO THE VERTICAL ALIGNMENT AND CONCRETE TOLERANCES OF FLOOR ELEVATIONS.
- THE CONTRACTOR SHALL ENSURE ALL MATERIALS ARE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS' SPECIFICATIONS.
- ALL BEAMS, ANGLES AND MISCELLANEOUS METALS INDICATED ON ARCHITECTURAL DRAWINGS BUT NOT SHOWN ON STRUCTURAL DRAWINGS, SHALL BE INCLUDED IN THE BID PRICE. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING SIZES AND LOCATIONS OF THESE MEMBERS WITH BOTH THE ARCHITECT AND THE ENGINEER PRIOR TO TENDER CLOSING.

**CAST IN PLACE FRICTION PILES**

- CAST-IN-PLACE PILES SHALL BE PROVIDED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FILE #174006 ENTITLED "LA BARRIERE PARK - WASHROOM FACILITY GEOTECHNICAL INVESTIGATION" WRITTEN BY GIL ROBINSON, P.ENG. DATED MARCH 14, 2017. THE CONTRACTOR IS TO CONTACT THE GEOTECHNICAL ENGINEER TO INSPECT AND APPROVE THE INSTALLATION OF ALL PILES AND SUBMIT A FINAL INSPECTION REPORT TO OUR OFFICE.
- PILES HAVE BEEN DESIGNED ON THE BASIS OF SLS AND FACTORED ULS SHAFT ADHESION VALUES SHOWN IN CHART BELOW. THE UPPER 8'-2 1/2" (2500mm) OF SHAFT SUPPORT HAS BEEN DISCOUNTED DUE TO SOIL SHRINKAGE AWAY FROM PILES. VARIANCE IN SOIL CONDITIONS FROM THE ABOVE SHALL BE REPORTED TO THE ENGINEER BEFORE PROCEEDING.
- PILE REINFORCING FOR PILES LOCATED IN UNHEATED AREAS SHALL EXTEND THE FULL LENGTH OF THE PILE.
- THE CONTRACTOR SHALL CONFIRM THE LOCATION OF SUBGRADE SERVICE PRIOR TO COMMENCING DRILLING FOR PILES.
- THE UPPER 10'-0" (3000mm) OF ALL PILES SHALL BE CONSOLIDATED WITH A MECHANICAL VIBRATOR.
- PILE INSTALLATION SHALL BE PROVIDED UNDER THE FULL TIME INSPECTION OF A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER SELECTED BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- MAINTAIN ACCURATE RECORD OF EACH PILE. SUBMIT A COPY OF THIS RECORD TO THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- FULL-LENGTH STEEL SLEEVES SHOULD BE MAINTAINED ON SITE AND UTILIZED AS REQUIRED DURING CONSTRUCTION TO MAINTAIN PILE HOLES IN A CLEAN DRY STATE.

PILE LENGTH (m)	SLS (kPa)	FACTORED ULS (kPa)
0 TO 2.5	0.0	0.0
2.5 TO 11	16.6	20.0

**EXCAVATION AND BACKFILL**

- EXCAVATION, SUB-GRADE PREPARATION AND BACKFILL FOR SLABS ON GRADE SHALL BE PROVIDED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FILE #174006 ENTITLED "LA BARRIERE PARK - WASHROOM FACILITY GEOTECHNICAL INVESTIGATION" WRITTEN BY GIL ROBINSON, P.ENG. DATED MARCH 14, 2017.
- GRADE BEAMS OR WALLS SHALL BE BACKFILLED WITH GRANULAR MATERIAL. ALL PROPOSED GRANULAR BACKFILL SHALL BE TESTED FOR GRADATION. TEST RESULTS SHOULD BE FORWARDED TO THE GEOTECHNICAL ENGINEER, STRUCTURAL ENGINEER, AND CONTRACT ADMINISTRATOR.
- FOR EXCAVATION, BACKFILL AND COMPACTION, REFER TO GEOTECHNICAL ENGINEER'S RECOMMENDATION IN REPORT NOTED ABOVE.
- EXCAVATION, BACKFILL AND COMPACTION IS TO BE SUPERVISED BY A GEOTECHNICAL ENGINEER.
- ALL COMPACTION TEST RESULTS ARE TO BE FORWARDED TO GEOTECHNICAL ENGINEER, STRUCTURAL ENGINEER, AND CONTRACT ADMINISTRATOR
- EXCAVATION NEAR ADJACENT PROPERTIES AND EXISTING STRUCTURES INCLUDING UTILITIES SHALL BE PROTECTED FROM CAVE-IN OR MOVEMENT BY SHORING IF NECESSARY.
- REMOVAL AND DISPOSAL OF ALL EXCAVATED MATERIAL, INCLUDING ANY REQUIRED CLEANING SHALL BE THE RESPONSIBILITY OF THIS SUBTRADE.

**SLABS SUPPORTED ON GRADE**

- BASE PREPARATION FOR SLABS ON GRADE SHALL BE PROVIDED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FILE #174006 ENTITLED "LA BARRIERE PARK - WASHROOM FACILITY GEOTECHNICAL INVESTIGATION" WRITTEN BY GIL ROBINSON, P.ENG. DATED MARCH 14, 2017.
- REMOVE ALL TOP SOIL AND SOILS CONTAINING ORGANICS. CONTRACTOR IS TO REFER TO GEOTECHNICAL REPORT FOR INDICATION OF DEPTHS OF UNSUITABLE SOIL AND IS TO REMOVE SOFT OR WEAK AREAS TO COMPETENT MATERIAL. ALL OF THIS WORK IS TO BE CARRIED OUT UNDER THE DIRECT INSTRUCTIONS OF THE GEOTECHNICAL ENGINEER.
- PROOF ROLL SUB-GRADE AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- PREPARE GRANULAR LAYER AND SUB-BASE AS PER GEOTECHNICAL ENGINEERS RECOMMENDATION AND GEOTECHNICAL REPORT.
- SLAB MOVEMENT/CRACKING: SINCE THE STABILITY OF A SLAB-ON-GRADE IS ENTIRELY DEPENDENT ON THE NATURE OF THE SOIL UPON WHICH IT IS SUPPORTED, SOME MOVEMENT RESULTING IN DISPLACEMENT AND CRACKING OF THE SLAB SHOULD BE EXPECTED. ACCURATE LIMITS DEFINING THE AMOUNT AND FREQUENCY OF MOVEMENT CANNOT BE GIVEN DUE TO UNKNOWN AND/OR UNCONTROLLABLE FACTORS SUCH AS SOIL MOISTURE CONTENT, WATER TABLE, SILT POCKETS, ETC. THE CITY SHALL ASSUME ALL RISKS ASSOCIATED WITH THIS SYSTEM.

**CONCRETE**

- ALL CONCRETE WORK INCLUDING CURING SHALL BE PERFORMED IN ACCORDANCE WITH CSA-A23.1, CSA-A23.2, AND CSA-A23.3 (LATEST EDITIONS) INCLUDING COLD WEATHER PROTECTION REQUIREMENTS WHEN THE AMBIENT AIR TEMPERATURE FALLS BELOW ZERO DEGREES CELSIUS, AND ADVERSE WEATHER CONDITIONS INCLUDING WINDS AND PRECIPITATION. MECHANICALLY VIBRATE ALL CONCRETE.
- PROVIDE 6" (150mm) PLASTIC WRAPPED CARDBOARD VOID FORM BELOW STRUCTURAL SLABS. PROVIDE 12" (300mm) GEOSPAN BELOW ALL GRADE BEAMS.
- THE USE OF CALCIUM CHLORIDE IS NOT PERMITTED ON THIS PROJECT. PRIOR TO THE USAGE OF ANY ADMIXTURES TO THE CONCRETE IT SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- CONSTRUCTION JOINTS SHALL BE FIRST APPROVED BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR BEFORE CONSTRUCTION BEGINS ON AFFECTED STRUCTURAL ELEMENTS. PLACE CONCRETE AS A CONTINUOUS OPERATION STOPPING ONLY AT CONSTRUCTION JOINTS. CONSTRUCTION JOINTS SHALL BE ADEQUATELY DOWELED AND KEVED. IF NOT PROVIDED AS PART OF THIS DRAWING SET, DETAILS AND LOCATIONS OF CONSTRUCTION JOINTS SHALL BE PROVIDED BY THE CONTRACTOR AND REVIEWED BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- REINFORCING STEEL MUST BE REVIEWED BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR PRIOR TO PLACING CONCRETE.
- THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR SHALL BE NOTIFIED AT LEAST 48 HOURS (72 HOURS FOR OUT-OF-TOWN PROJECTS) PRIOR TO ALL CONCRETE POURS.
- FINIS ON CONCRETE SURFACES SHALL BE REMOVED. HONEYCOMBED OR OTHERWISE DEFECTIVE CONCRETE SHALL BE REMOVED SUFFICIENTLY TO EXPOSE SOUND CONCRETE AND SHALL BE REPAIRED AS DIRECTED BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- CONCRETE POURED IN WINTER TEMPERATURES IS TO BE PROPERLY INSULATED/PROTECTED AND BE HEATED DURING CURE PERIOD UNTIL CONCRETE IS 2/3 MINIMUM STRENGTH (4 DAY MINIMUM). ONLY PRE-APPROVED HEATERS ARE TO BE USED.
- TIMING FOR REMOVAL OF FORM WORK TO BE BASED ON STRENGTH OF CONCRETE, AS DETERMINED BY THE TESTING OF FIELD CURED CONCRETE CYLINDERS. DO NOT REMOVE FORM WORK FROM FOOTINGS BEFORE CONCRETE HAS REACHED 50% OF ITS DESIGN STRENGTH. FOR WALLS AND COLUMNS NOT SUPPORTING LOAD, REMOVE AT 60% OF DESIGN STRENGTH. FOR SUSPENDED STRUCTURAL SLABS, FORM WORK MAY BE REMOVED AT 80% OF DESIGN STRENGTH, PROVIDED THE SLAB IS RE-SHORED UNTIL FULL STRENGTH IS REACHED.
- SEE WRITTEN SPECIFICATIONS AND/OR ADDENDA FOR REQUIREMENTS FOR CYLINDER TESTING OF CONCRETE. CONTRACTOR TO TEST CONCRETE FOR EACH DAY'S CONCRETING AND/OR EVERY 40 CUBIC METERS EACH DAY CONCRETING. FORWARD TEST RESULTS TO THE STRUCTURAL CONSULTANT.
- CONCRETE AS PER SCHEDULE BELOW:

CONCRETE SCHEDULE						
ITEM	CLASS OF EXPOSURE	STRENGTH (MPa)	CEMENT TYPE	MAXIMUM AGGREGATE SIZE (mm)	SLUMP (mm)	AIR ENTRAINMENT (%)
PILES, PIERS, CAISSONS & PILECAPS	S-2	32	HS*	20	90	4-7
GRADE BEAMS	F-2	25	GU	20	90	4-7
SLABS ON GRADE, STRUCTURAL SLABS (EXTERIOR)	C-1	35	GU	20	90	5-8
STRUCTURAL SLABS (INTERIOR)	N	25	GU	20	90	-
CONCRETE FILL (MASONRY)	N	20	GU	14	150	-

\* "HSB" IS ACCEPTABLE TO BE USED IN PLACE OF "HS" CEMENT WHERE SPECIFIED. PRIOR TO APPROVING THIS CHANGE THE CONTRACTOR SHALL FORWARD TO THE ENGINEER ALL NECESSARY BATCH & MIX INFORMATION FOR THE "HSB" CEMENT FROM THE SUPPLIER FOR REVIEW AND APPROVAL.

**REINFORCING STEEL**

- REINFORCING STEEL SHALL BE NEW BILLET, DEFORMED BARS IN ACCORDANCE WITH CSA STANDARD CAN/CSA-G30.18-09 MINIMUM YIELD STRENGTH TO BE 400 MPa, EXCEPT 10M BARS FOR STIRRUPS AND COLUMN TIES MAY BE 300 MPa.
- ALL REINFORCING STEEL SHALL BE DETAILED AND INSTALLED IN ACCORDANCE WITH CSA-A23.1, CSA-A23.3, AND RISC REINFORCING STEEL MANUAL OF STANDARD PRACTICE.
- LAP TOP BARS AT CENTER SPAN AND BOTTOM BARS OVER SUPPORTS.
- ALL REINFORCING TO BE RIGIDLY HELD IN PLACE AND TIED BY THE USE OF PROPER ACCESSORIES SUCH AS HL-CHAIRS, SPACERS, ETC., TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. ALL REINFORCING SUPPORTS AND ACCESSORIES SHALL BE COMMERCIAL GRADE AND SHALL SECURE ALL BARS IN POSITIONS SHOWN ON THE DRAWINGS.
- REINFORCING IN CONCRETE BEAMS/WALLS AND MASONRY BOND BEAMS TO BE BENT 24" (600mm) AROUND CORNERS OR USE 3'-0" x 3'-0" (900mm x 900mm) CORNER BARS.
- FRAME ALL OPENINGS IN CONCRETE BEAMS, WALLS AND/OR SLABS WITH ADDITIONAL 2-20M BARS ALL FOUR SIDES. ADDITIONAL HORIZONTAL BARS TO EXTEND 24" (600mm) BEYOND EDGES OF OPENINGS EXCEPT AS NOTED. ADDITIONAL VERTICAL BARS TO EXTEND FULL HEIGHT OF GRADE OR WALL.
- PIT WALLS/SLABS SHALL BE 8" (200mm) THICK REINFORCED WITH 15M @ 12" (300mm) O.C. EACH WAY AT CENTER UNLESS OTHERWISE SHOWN.
- HOUSEKEEPING PADS SHALL BE A MINIMUM OF 3/2" (90mm) THICK AND REINFORCED WITH 10M @ 12" (300mm) O.C. EACH WAY AT CENTRE UNLESS OTHERWISE SHOWN.
- ALL REINFORCING STEEL SHALL BE PROPERLY CLEANED AND FREE OF ALL DIRT, GREASE, AND OTHER DELETERIOUS MATERIALS PRIOR TO PLACING CONCRETE AND TO BE STORED ABOVE GROUND AND IN DRY CONDITIONS.
- HEATING, QUENCHING AND BENDING OF REINFORCING STEEL ON THE SITE IS NOT ALLOWED.
- SPLICES AT POINTS OF MAXIMUM TENSILE STRESS SHALL BE AVOIDED WHEREVER POSSIBLE. SUCH SPLICES, WHERE USED, SHALL BE APPROVED BY THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR. THE MINIMUM LAP SHALL BE 48 BAR DIAMETERS.
- CONTINUOUS AND TEMPERATURE REINFORCING BARS SHALL BE LAPPED 24 BAR DIAMETERS, OR 18" (450mm) MINIMUM AT SPLICE OR AT CORNERS. TERMINATE CONTINUOUS BAR AT NON-CONTINUOUS ENDS WITH STANDARD HOOK.
- SUBMIT SHOP DRAWINGS INDICATING BAR SIZES, STEEL GRADE, BAR SPACING, HOOKS, BENDS, ACCESSORIES, ETC. FOR REVIEW PRIOR TO FABRICATION OF THE REINFORCING STEEL.
- MINIMUM CLEAR DISTANCE BETWEEN PARALLEL BARS SHALL BE GREATER THAN THE LARGEST OF THE FOLLOWING:
  - 1.4 TIMES BAR DIAMETER.
  - 1.4 TIMES MAXIMUM SIZE OF AGGREGATES.
  - 1 3/16" (30mm) MINIMUM.
- MINIMUM CONCRETE COVER TO REINFORCING:

EXPOSURE CONDITION	EXPOSURE CLASS		
	N	F-1, F-2, S-1, S-2	C-1, C-3, C-4, A-1, A-2, A-3
PILES, FOOTING, RETAINING WALL AND CONCRETE CAST AGAINST AND/OR PERMANENTLY EXPOSED TO EARTH.	--	3" (75mm)	3" (75mm)
BEAMS & COLUMNS	1 1/4" (30mm)	1 1/2" (40mm)	2 3/8" (60mm)
SLABS, WALLS, & JOISTS	3/4" (20mm)	1 1/2" (40mm)	2 3/8" (60mm)

**POST-INSTALLED ANCHORS**

- ALL PRE-ENGINEERED FASTENERS INSTALLED INTO CONCRETE MASONRY AFTER CASTING ARE TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS INCLUDING HOLE CLEANING, HOLE PREPARATION, ADHESIVE INSTALLATION (IF APPLICABLE), AND ANCHOR INSTALLATION.
- THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON-SITE INSTALLATION TRAINING FOR ALL THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

**STRUCTURAL STEEL**

- FABRICATE & ERECT STRUCTURAL STEEL IN ACCORDANCE WITH CSA-S16.1 (LATEST EDITION).
- STRUCTURAL STEEL SHAPES, PLATES, AND HSS (CLASS C) SHALL CONFORM TO CSA-G40.21; GRADE 350W.
- ALL WELDING OF STRUCTURAL STEEL SHALL CONFORM TO W59. THE STEEL FABRICATOR IS TO BE CERTIFIED IN ACCORDANCE WITH W47.1. PROVIDE WRITTEN PROOF OF WELDER'S CERTIFICATION UPON REQUEST.
- UNLESS SHOWN OTHERWISE ON THE DRAWINGS, CONNECT ALL FLEXURAL MEMBERS (BEAMS, CHANNELS, ETC...) AT EACH END FOR ONE HALF OF THE TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD OF THE LATERALLY SUPPORTED BEAM, IN ADDITION TO THE TRANSFER OF FACTORED MOMENTS, WHERE SHOWN ON THE DRAWINGS.
- SPLICING OF MEMBERS NOT PERMITTED UNLESS OTHERWISE NOTED.
- WHERE BEAMS ARE CONTINUOUS OVER SUPPORTS, NO HOLES PERMITTED IN TOP FLANGE. PROVIDE 2-3/8" (10mm) WELDED WEB STIFFENER PLATES EACH SIDE OF BEAM, ALIGNED WITH COLUMN WALLS.
- COLUMN BASE AND CAP PLATES SHALL BE WELDED TO COLUMNS. PROVIDE 3/4" (20mm) THICK CAP PLATE C/W 4-3/4"Ø (20mm) BOLTS FOR ALL COLUMNS SUPPORTING CANTILEVERED BEAMS.
- BOLTS, NUTS, AND WASHERS TO ASTM A325, MINIMUM BOLT DIAMETER 3/4" (20mm).
- ANCHOR BOLTS TO ASTM A307 UN.
- PRIMER TO CONFORM TO THE REQUIREMENTS OF CGSB OR CISC/CPMA STANDARDS. ALL STEEL SHALL RECEIVE A SHOP COAT OF PRIMER EXCEPT SURFACES TO BE CONCRETED, WELDED, LIGHT ZINC COATED OR GALVANIZED. CLEAN ALL FIELD WELDS AFTER ERECTION AND TOUCH UP ALL UNPAINTED SURFACES WITH ONE COAT OF PRIMER PAINT TO MATCH SHOP COAT.
- GROUT BED UNDER BASE PLATES TO BE 35 MPa NON SHRINK GROUT.
- ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS IN EACH CONNECTED PIECE AND BE DESIGNED WITH BEARING-TYPE CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE, UNLESS NOTED OTHERWISE. THE STEEL SUPPLIER SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAILING OF ALL STRUCTURAL STEEL CONNECTIONS NOT EXPLICITLY SHOWN ON THE DRAWINGS.
- UNLESS NOTED OTHERWISE ON PLANS PROVIDE 3"x3"x3/8" (75mmx75mmx10mm) ANGLE FRAME FROM JOIST TO JOIST ON EACH SIDE OF ALL STEEL DECK OPENINGS OVER 16" (450mm), AND C6x8.2 (C150x12) FRAME AT ALL MECHANICAL AND ELECTRICAL UNITS THAT SIT ON OR HANG FROM THE ROOF OR FLOORS.
- THERE SHALL BE NO CUTTING OF THE STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- ALL EXPOSED STEEL TO BE GALVANIZED UNLESS NOTED AS POWDER COATED (SEE ARCH).
- STRUCTURAL STEEL ERECTOR SHALL SUPPLY AND INSTALL ALL TEMPORARY GUYING AND BRACING NECESSARY TO PROVIDE STABILITY FOR THE STRUCTURE AS A WHOLE. THESE SHALL REMAIN IN PLACE UNTIL FLOOR SLABS ARE WELL CURED, STEEL ROOF DECK IS FULLY WELDED AND/OR PERMANENT BRACING IS INSTALLED.
- STEEL STAIRS, HANDRAILS, GUARDRAILS SHALL BE DESIGNED BY OTHERS. FABRICATOR SHALL SUBMIT SHOP DRAWINGS UNDER THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROJECT PROVINCE, TO THE ARCHITECT AND CONTRACT ADMINISTRATOR FOR APPROVAL PRIOR TO FABRICATION.
- STRUCTURAL STEEL SUPPLIER SHALL SUBMIT SHOP DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER IN THE PROJECT PROVINCE SHOWING ALL DESIGN AND FABRICATION DETAILS OF CONNECTIONS TO THE ARCHITECT AND CONTRACT ADMINISTRATOR FOR REVIEW PRIOR TO FABRICATION.

**SHEATHING/PLYWOOD**

- SHEATHING SHALL BE DOUGLAS FIR PLYWOOD TO CSA O121-08(R2013), SPRUCE PLYWOOD TO CSA STANDARD O151-09(R2014), OR OSB PANEL TO CSA 0325.
- WALL SHEATHING SHALL BE 1/2" (13mm) SPF PLYWOOD.
- ROOF SHEATHING SHALL BE 1/2" (13mm) WITH H-CLIPS SPF PLYWOOD
- ASPENITE OR WAFERBOARD IS NOT PERMITTED TO BE USED FOR ANY STRUCTURAL APPLICATION ON THIS PROJECT.
- SHEATHING FOR WALL, FLOOR AND ROOF SHALL BE INSTALLED WITH FACE GRAIN AT RIGHT ANGLES TO STUDS, TRUSSES AND JOISTS.
- ROOF AND WALL SHEATHING TO BE FASTENED WITH #8 HILTI PWH S.D. SCREWS @ 6" (150mm) O.C. AT PANEL EDGES AND 12" (300mm) O.C. IN THE FIELD.

**STEEL STUDS**

- STUDS ARE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CSA-S136-07(LATEST EDITIONS).
- STUD STEEL TO MEET THE REQUIREMENTS OF ASTM A653.
- GRADES ARE AS FOLLOWS: GRADE A, 33 ksi (228 MPa) MIN. YIELD FOR 0.048" (1.22mm) MATERIAL AND THINNER AND GRADE D, 50 ksi (345 MPa) MIN. YIELD FOR 0.060" (1.52mm) MATERIAL AND THICKER.
- ALL SCREWS SHALL BE MANUFACTURED BY "HILTI PRODUCTS" OR APPROVED EQUAL. ALL HILTI PRODUCTS SCREWS TO BE EITHER #10 PHILLIPS WAFERHEAD (PWH) S.D. OR 1/2"Ø (6mm) - 14 HEX WAFERHEAD (HWH) S.D. FASTENERS U/N ON PLANS.  
NOTE:  
-ALL SCREWS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.  
-WHERE FINISHES ARE NOT AFFECTED, SCREW FASTENERS ARE TO BE STRUCTURAL HEX WASHER HEAD. WHERE FINISHES ARE AFFECTED SCREW FASTENERS ARE TO BE PHILLIPS WAFERHEAD.
- ALL POWDER ACTUATED FASTENERS SUPPLIED BY HILTI. INSTALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- FOR HILTI X-U FASTENERS INSTALLED INTO CONCRETE, PROVIDE MINIMUM 3" (76mm) EDGE DISTANCE AND 1/2" (38mm) SPACING. FOR INSTALLATION INTO STEEL, PROVIDE MINIMUM 1/2" (13mm) EDGE DISTANCE, 1" (25mm) SPACING, AND 1/2" (13mm) POINT PENETRATION.
- PROVIDE 18 ga. INTERNAL BRIDGING COMPLETE WITH CLIP ANGLE AT 1220mm (4'-0") ON CENTRE FOR ALL STEEL STUD WALLS. SEE DETAIL 10 U.S3.1.
- PROVIDE SLIP TRACK AT TOP OF WALLS WHERE REQUIRED TO ACCOMMODATE VERTICAL DEFLECTION.
- LOCATION OF STUD WALLS AS PER ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- DESIGN LOADS ARE AS PER NOTES AND PLANS.
- DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL DWGS. ANY DISCREPANCIES SHALL BE REPORTED TO STRUCTURAL ENGINEER AND CONTRACT ADMINISTRATOR.
- ROUGH OPENING DIMENSIONS OF DOOR & WINDOW OPENINGS TO BE CONFIRMED WITH ARCHITECTURAL DRAWINGS AND WINDOW AND DOOR SHOP DRAWINGS.
- STEEL STUD AND JOIST MATERIAL TO BE MINIMUM 20ga. OR AS INDICATED ON PLANS. TRACK MATERIAL IS TO MATCH THE GAUGE OF JOIST OR STUD MATERIAL THAT IS ATTACHING TO IT.
- ALL STUDS TO HAVE 1 1/2" (42mm) FLANGES AND 1/2" (13mm) RETURN U/N.
- LENGTH OF SCREWS ARE TO BE DETERMINED BASED ON MAX THREADED LENGTH. REFER TO MANUFACTURER'S SPECIFICATIONS.
- AXIAL LOAD BEARING WALL STUDS MUST EXTEND WITHIN TRACK FLANGES TO LEAVE MAXIMUM 1/4" GAP FROM WEB.

**MASONRY**

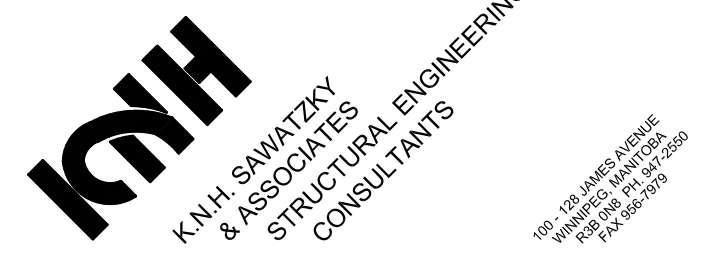
- MASONRY WORK SHALL CONFORM TO CSA STANDARDS S304.1, CSA-A370 & CSA-A371 (LATEST EDITIONS).
- MASONRY DESIGN SHALL COMPLY WITH S304.1-04 MASONRY DESIGN FOR BUILDINGS (LIMIT STATES DESIGN).
- ALL CONCRETE BLOCKS TO COMPLY TO CSA-A165 (LATEST EDITION). ALL CONCRETE MASONRY SHALL BE STANDARD BLOCK FOR ALL WALLS, U/N ON DRAWINGS. UNIT COMPRESSIVE STRENGTH TO BE 15 MPa U/N ON DRAWINGS (DESIGN VALUE FOR GROUTED MASONRY IS 7.5 MPa).
- MORTAR SHALL BE IN CONFORM TO CSA-A179 (LATEST EDITION). MORTAR SHALL BE TYPE S WITH A MINIMUM STRENGTH OF 13 MPa AT 28 DAYS.
- PROVIDE DURAWALL OR EQUAL HORIZONTAL LADDER REINFORCEMENT EVERY SECOND COURSE.
- PROVIDE 1 1/2"x8"x1/8" (40mmx200mmx3mm) MASONRY STRAP ANCHORS @ 16" (400mm) O.C. VERTICAL AT ALL COLUMNS THAT ARE WITHIN MASONRY WALLS U/N ON DRAWINGS.
- PROVIDE BLOCK WALL CONTROL JOINT WITH MAXIMUM SPACING TO BE AT 315" (8000mm). REINFORCE ONE CELL ON EITHER SIDE OF JOINT WITH 2-15M VERTICAL AND FILL WITH CONCRETE. CONFIRM JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS.
- VERTICAL CORE FILLS TO BE CAST IN LIFTS OF 10'-0" (3000mm) MAXIMUM. REINFORCING LAP SPLICE 10M BARS: 18" (450mm), 15M BARS: 26" (650mm), 20M BARS: 36" (900mm).
- INSPECTION HOLES SHALL BE PROVIDED AT ALL FILLED CORES. HOLES CANNOT BE ON VISIBLE INTERIOR SIDE.
- CONTRACTOR TO BE RESPONSIBLE FOR INSTALLING ALL REQUIRED TEMPORARY BRACING OF ALL MASONRY COMPONENTS UNTIL RELATED STRUCTURAL FRAMING IS HAS BEEN ERECTED AND COMPLETELY INSTALLED AND THE MASONRY GROUT AND CORE FILL HAVE ATTAINED SUFFICIENT STRUCTURAL STRENGTH.
- FOR MASONRY WALL CORE FILLS AND REINFORCEMENT SEE PLANS. UNLESS OTHERWISE NOTED ON PLANS PROVIDE 1 VOID CORE FILL COMPLETE WITH 1-15M VERTICAL @ 32" (800mm) O/C. PROVIDE MINIMUM OF 2 VOID CORE FILL WITH 1-15M EACH VOID AT ALL ENDS OF WALL, EACH SIDE OF WALL OPENINGS AND EVERY CORNER OF WALLS. PROVIDE MATCHING DOWELS x 36" (900mm) LONG AT FOUNDATION AND PROJECT 18" (450mm) ABOVE THE CONCRETE.
- FOR MASONRY COLUMN REINFORCEMENT SEE PLANS. UNLESS OTHERWISE NOTED ON PLANS PROVIDE MINIMUM OF 2 VOID CORE FILL AT W360 OR SMALLER BEAM, 3 VOID CORE FILL AT W410 AND W460 BEAMS, 4 VOID CORE FILLS AT W530 BEAMS AND 5 VOID CORE FILL AT W610 BEAMS AND U.N.O. PROVIDE 2-15M VERTICAL EACH VOID. PROVIDE MATCHING DOWELS x 36" (900mm) LONG AT FOUNDATION AND PROJECT 18" (450mm) ABOVE THE CONCRETE.
- FOR MASONRY OPENINGS END REINFORCEMENT SEE PLANS. UNLESS OTHERWISE NOTED ON PLANS PROVIDE 3 VOID CORE FILLS, 2-15M EACH VOID AT WALL OPENINGS OF 72" (1800mm) TO 96" (2400mm) AND PROVIDE 4 CORE FILLS, 2-15M EACH VOID AT WALL OPENINGS OF 96" (2400) TO 120" (3000) U.N.O. ON THE DRAWINGS. PROVIDE MATCHING DOWELS x 36" (900mm) LONG AT FOUNDATION AND PROJECT 18" (450) ABOVE CONCRETE.
- FULLY GROUT BOTTOM THREE COURSES U/N.
- PROVIDE 1 COURSE BOND BEAM WITH 2-15M HORIZONTAL C/W KNOCKOUT BLOCKS AT TOP OF ALL WALLS AND AT ROOFS AND FLOORS. FILL WITH CONCRETE.

ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF THE CONSULTANT. NO REPRODUCTIONS MAY BE MADE WITHOUT THE CONSENT OF THE CONSULTANT AND ALL REPRODUCTIONS MUST BEAR THE NAME OF THE CONSULTANT. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DATUMS AND LEVELS NOTED ON THE DRAWINGS WITH THE CONDITIONS ON SITE AND SHALL BE RESPONSIBLE FOR REPORTING ANY ERRORS OR OMISSIONS TO THE ENGINEER FOR ADJUSTMENTS. THIS DRAWING SHALL NOT BE SCALED



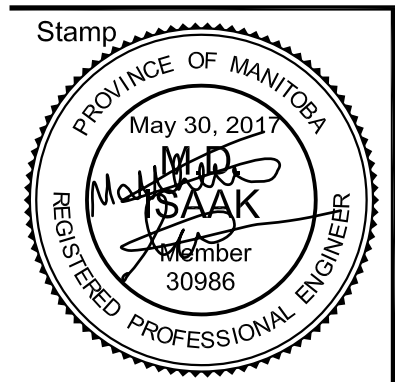
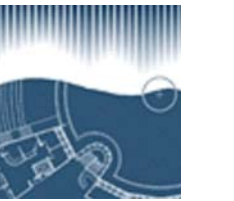
Date	Revision
17.05.30	ISSUED FOR CONSTRUCTION

Prime Consultant:



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Stamp  
- STRUCTURAL ONLY  
- CONTACT ENGINEER WHEN INSPECTIONS ARE REQUIRED

Project

# La Barriere Park Washroom Replacement

La Barriere Park, Manitoba

drawing title

**NOTES**

scale	as noted	designed by	js/mi
date	May 2017	drawn by	js
project no.	337-2017	approved by	mi
reference no.	16.235	sheet	S1.1 REV.