GENERAL

1. These notes are to be read in conjunction with the specifications.
2. This building has been designed in accordance with the 2011 edition of the Manitoba Building Code.
3. The contractor shall be responsible for the design and installation of all necessary shoring, bracing and formwork. Formwork for new construction shall be bridged over existing services. Procedure must be approved by the design Engineer.
4. Errors in drawings and/or specifications and/or previously unknown existing conditions shall be brought to the attention of the engineer before proceeding with the work. During the tender stage, contractor shall request an interpretation of conflicts prior to tender. If no request is made, both provisions shall be presumed to be included in the tender and the engineer shall determine which provision governs, and the contractor shall perform the work at no additional cost to the owner.
5. Any unsound structural conditions observed or created during construction are to be reported to Engineer immediately.
6. Contractor shall review, stamp, sign and date all shop drawings prior to forwarding to architect and/or engineer. The engineer's review is to be for conformance with the design concept and general compliance with the relevant contract documents. The engineer's review does not relieve the contractor of the sole responsibility to review, check and coordinate the shop drawings prior to submission.The contractor remains solely responsible for errors and emissions associated with the preparation of shop drawings as they pertain to member sizes, details, dimensions, etc..
7. Coordinate size and location of all openings in structural members with trades involved. All openings not indicated on structural drawings to be approved by Engineer.
8. Refer to Architectural, Mechanical and Electrical drawings for small openings, sleeves, recesses, depressions, sumps, trenches, curbs, housekeeping pads, equipment basses, and slopes not indicated on the structural drawings.
9. Coordinate placement and location of items by subsequent trades. Relevant trades shall review prior to erection and/or installation.
10. Confirm the location of all sub-grade services prior to commencing site work.
11. Verify all dimensions and elevations with architectural drawings prior to construction. Any discrepancies to be reported to engineer immediately. Do not scale drawings.
12. Do not backfill against structure until main floor is in place.
13. Do not exceed, during construction, design live loads shown on plans. Reduce as necessary until materials reach design strength.
14. Confirm all existing conditions prior to construction. Any discrepancies or conflicts to be reported to Engineer immediately.
15. Drawings indicate general and typical details of construction. Where conditions are not specifically shown, similar details of construction shall be used, subject to approval by the engineer.

C-I-P CONCRETE PILES

1. Cast-in-place piles are designed for an assumed skin friction of 12 kPa ULS and 10 kPa SLS between 2.5m and 9.0m below grade & 5 kPa ULS an4 kPa SLS between 9.0m and 12.0m below grade, based on ENG-TECH Consulting Limited geotechnical report dated November 2016.
2. Concrete for cast-in-place piles shall be 32 MPa @ 28 days using Sulfate Resisting Type HS or HSb cement, 20mm maximum size aggregate, 90mm slump and 4% to 7% air entrainment. Vibrate the top 3 metres of each pile.
3. Piles shall be no more than 2% out of plumb; and no more than 50mm out of alignment.
4. Pile reinforcing shall extend a minimum of 900mm into pilecap or grade beam/wall.
5. Slab sub-base to be built up of 'C-Base' granular fill compacted to 95% Standard Proctor Density in maximum 200mm lifts. Final lift to be 150mm 'A-Base' granular fill compacted to 98% Standard Proctor Density. All compaction densities to be confirmed by an independent testing agency prior to placement of any concrete.
6. Provide full time inspection of piles by Geotechnical Engineer of record.
7. Slab sub-base & over excavated footings to be built up of 'C-Base" granular fill compacted to 95% Standard Proctor Density in maximum 8" lifts. Final lift to be 6" 'A-Base' granular fill compacted to 98% Standard Proctor Density. All compaction densities to be confirmed by an independent testing agency prior to placement of any concrete.

CONCRETE

1. Concrete work shall be in accordance with CSA A23.1-09 for "Concrete Materials and Methods of Concrete Construction" including cold weather requirements when the temperature falls below 5°C.
2. Provide one set of concrete test cylinders in accordance with CSA A23.1-09 for every 50 m3 of concrete placed and a minimum of one set for each structural component.
3. Performance specification as per A23.1-09 Table 5:

a.	Min. Concrete Strength @ 28 days:		
	i.	Piles & pile caps	32 MPa
	ii.	All other conc.	30 MPa
b.	Exposure Class:		
	i.	Piles & pile caps	S-2
	ii.	Exterior structural slabs & beams	C-1
	iii.	Curbs/sidewalks/driveways	C-2
	iv.	All other conc.	N

4. For floor slabs, design the concrete mix with aggregate grading and water to cement materials ratio to minimize shrinkage.
5. Walls, piers and columns shall be poured a minimum of 24 hours before slabs and beams.

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No. 1156 Expiry: April 30, 2017

CONCRETE CONT'D

6. Provide dovetail anchor slots in concrete walls and columns where masonry abuts.
7. All structural slabs framing into concrete walls or beams shall have a minimum 1 1/2" chase into supporting member x the height of the slab.
8. Where concrete beams frame into concrete walls or other concrete beams and are poured later, provide 1 1/2" chase (height and width to match beam).
9. The use of calcium chloride is not permitted.
10. Construction joint keys in grade beams shall be formed at pile locations only.
11. Construction joint keys in structural slabs to be formed at 1/3 span. Provide key width equal to half the thickness of the slab. Provide 15M dowels @ 24" o/c top & bottom.
12. Saw cuts for slab on grade shall be 1" deep & 1/8" wide. Cutting to be done not sooner than 12 hours, and not later than 24 hours after the slab is poured. Cuts to be filled with approved bituminous compound or caulking.
13. Slip joint all paving against structural members with 1/2" impregnated fiberboard.
14. Provide minimum 6 mil poly vapor barrier below all slab on grade concrete slabs unless noted otherwise on drawings.
15. Coordinate the location of all items embedded in concrete work with Architectural, Mechanical & Electrical drawings.
16. Engineer to be notified at least 48 hours in advance of all major pours.
17. Refer to architectural drawings for concrete surfaces requiring architectural finishes.
18. Where void form is indicated on drawings use cardboard shearmat below structural slabs and low-density polystyrene below walls and gradebeams.
19. For structural slabs at grade, plywood over biodegradable wax mat cardboard, complete with moisture resistant treated paper faces, with sufficient strength to support the weight of wet concrete until initial set.
20. Exterior sidewalks to be 4" thick concrete on compacted granular fill reinforced with 10M @ 12" o/c each way mid depth. Provide tooled control joints @ maximum 5'-0" o/c and construction joints @ maximum 20'-0" o/c.

0	ISSUED FOR CONSTRUCTION	2016.11.28	JCR

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DATE 11/28/16

SCALE

JOB TITLE 1919 Monument Winnipeg, Manitoba

FILE NO. W16124

DRAWING NO. S-1

SEAL

PROVINCE OF MANITOBA
J.C.P. REID
Member 22314
2016-11-29
REGISTERED PROFESSIONAL ENGINEER