GENERAL NOTES

1. STRUCTURAL DESIGN BASED ON THE NATIONAL BUILDING CODE OF CANADA 2010 EDITION.
   A) IMPORTANCE CATEGORY: NORMAL
   B) WIND LOAD: Q50 = 0.49 KPA
   C) GROUND SNOW LOAD: SS = 1.9 KPA
   D) ASSOCIATED RAIN LOAD: SR = 0.2 KPA
2. DO NOT SCALE DRAWINGS.
3. DO NOT BACKFILL UNTIL GROUND FLOOR STRUCTURE IS IN PLACE AND POOL SLAB HAS BEEN POURED AND CURED.
4. ALL DIMENSIONS ARE TO BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS PROJECT DRAWINGS AND EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.
5. THESE STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE AND DO NOT INDICATE ALL COMPONENTS NECESSARY FOR SAFETY DURING CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON AND AROUND THE JOBSITE DURING CONSTRUCTION.

FOUNDATIONS

1. NOTWITHSTANDING THE INFORMATION PROVIDED IN THE GEOTECHNICAL REPORT THE FOUNDATION AND GENERAL CONTRACTORS SHALL SATISFY THEMSELVES AS TO THE PREVAILING CONDITIONS AT THE SITE AS NO EXTRAS SHALL BE GRANTED SHOULD CONDITIONS DIFFER FROM THOSE INDICATED.
2. ALL FRICTION PILES ARE DESIGNED ON AN FACTORED ULTIMATE SKIN FRICTION OF 15.0 KPA. EFFECTIVE LENGTH OF FRICTION PILES IS TOTAL LENGTH AS SHOWN ON PLAN MINUS 3000 MM FOR PERIMETER AND EXTERIOR PILES AND MINUS 1500 MM FOR INTERIOR PILES BELOW BASEMENT.
3. FRICTION PILE REINFORCING TO BE 6000 MM LONG UNLESS NOTED IN PLANS; 10M RINGS AT 1200 MM ON-CENTRE AND 3-10M RINGS AT 150 MM ON-CENTRE AT TOP. EXTEND VERTICAL PILE REINFORCING 450 MM INTO BEAMS OR WALLS. PILE REINFORCING TO BE 5-10M FOR 400 DIAMETER PILES, 5-15M FOR 500 MM, 5-15M FOR 550 MM, 6-15M FOR 600 MM.
4. PROVIDE 10 MIL POLYETHYLENE WRAPPED SONOTUBE, GREASED COMPLETELY ON INSIDE FOR TOP 1800 MM OF PILES INDICATED ON PLAN.

CAST-IN-PLACE CONCRETE

I CONCRETE

1. ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CAN/CSA-A23.1-09 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CAN/CSA-A23.2-09 "METHOD OF TEST FOR CONCRETE".
2. PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF QUALITY, YIELD AND STRENGTH AS SPECIFIED IN CONCRETE MIXES, AND WILL COMPLY WITH CAN/CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
3. PROVIDE CERTIFICATION THAT PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH REQUIREMENTS OF CAN/CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
4. CONCRETE STRENGTHS AT 28 DAYS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

PILES: 35 MPA MIN. AT 56 DAYS
CLASS OF EXPOSURE: S-2
ENTRAINED AIR/CATEGORY: 2 (4% TO 7%)
CEMENT TYPE: HS
AGGREGATE: MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL
SLUMP: MIN. 120 MM

EXTERIOR GRADE BEAMS: 25 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: F-2
ENTRAINED AIR/CATEGORY: 2 (4% TO 7%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

EXTERIOR STRUCTURAL SLABS: 35 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: C-1
ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

EXTERIOR SLABS-ON-GRADE: 32 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: C-2
ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

EXTERIOR WALLS AND BEAMS: 25 MPA MIN. AT 28 DAYS
CLASS OF EXPOSURE: C-1
ENTRAINED AIR/CATEGORY: NONE (LESS THAN 3%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 2 - ADDITIONAL

POOL DECK, SLABS, POOL WALLS, SLABS, BEAMS: 50 MPA MIN. AT 56 DAYS
CLASS OF EXPOSURE: C-1
CHLORIDE ION PENETRABILITY < 1500 COULOMBS
ENTRAINED AIR/CATEGORY: 2 (4% TO 7%)
AGGREGATE MAX. 20 MM
CURING TYPE: TYPE 3 - EXTENDED

UNLESS INDICATED OTHERWISE THE CONTRACTOR SHALL SPECIFY CONCRETE SLUMP APPROPRIATE WITH PLACEMENT METHODS AND SITE CONDITIONS. THE CONTRACTOR SPECIFIED SLUMP MUST BE SHOWN ON THE CERTIFICATION LETTER AND CONCRETE DELIVERY TICKET.

5. UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO THE LATEST EDITION OF CAN/CSA-A23.1-04 AS FOLLOWS:
   A) TYPE 1 - BASIC: 3 DAYS ≥ 10°C OR FOR A TIME NECESSARY TO ATTAIN 40% OF THE SPECIFIED STRENGTH.
   B) TYPE 2 - ADDITIONAL: 7 DAYS ≥ 10°C OR FOR A TIME NECESSARY TO ATTAIN 70% OF THE SPECIFIED STRENGTH.
   C) TYPE 3 - EXTENDED: 7 DAYS WET CURING ≥ 10°C.
6. AIR ENTRAINING ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C260-01 "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE". SUPERPLASTICIZING ADMIXTURES SHALL CONFORM TO ASTM C494/C494M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE" OR ASTM C1017/C1017M "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE" WHEN FLOWING CONCRETE IS APPLICABLE. AIR ENTRAINED ADMIXTURES TO HAVE A DURABILITY FACTOR GREATER THAN 75, WHEN TESTED TO ASTM STANDARDS C666/C666M PROCEDURE A. SPACING FACTOR FOR ANY AIR ENTRAINING ADMIXTURE MUST BE 0.17MM OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C457 "STANDARD TEST METHOD FOR MICROSCOPICAL DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE".

II REINFORCING STEEL

1. ALL REINFORCING STEEL TO BE CAN/CSA-G30.18M GRADE 400R DEFORMED BARS EXCEPT COLUMN TIES AND BEAM STIRRUPS WHICH SHALL BE GRADE 400W STEEL. ALL REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE REINFORCING STEEL INSTITUTE OF CANADA - MANUAL OF STANDARD PRACTICE, EXCEPT OTHERWISE NOTED.
2. WELDED STEEL WIRE MESH SHALL BE TO ASTM A185-02, 400 MPA YIELD, FLAT SHEETS ONLY.
3. REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-04 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

EXTERIOR WALLS: 40 MM OUTSIDE FACE

EXTERIOR STRUCTURAL SLABS: 40 MM TOP 40 MM BOTTOM

GRADE BEAMS: 50 MM BOTTOM TO TIES 40MM SIDES AND TOP TO TIES.

PILES: 75 MM TO TIES.

EXTERIOR SLABS-ON-GRADE: 40 MM TOP 40 MM BOTTOM

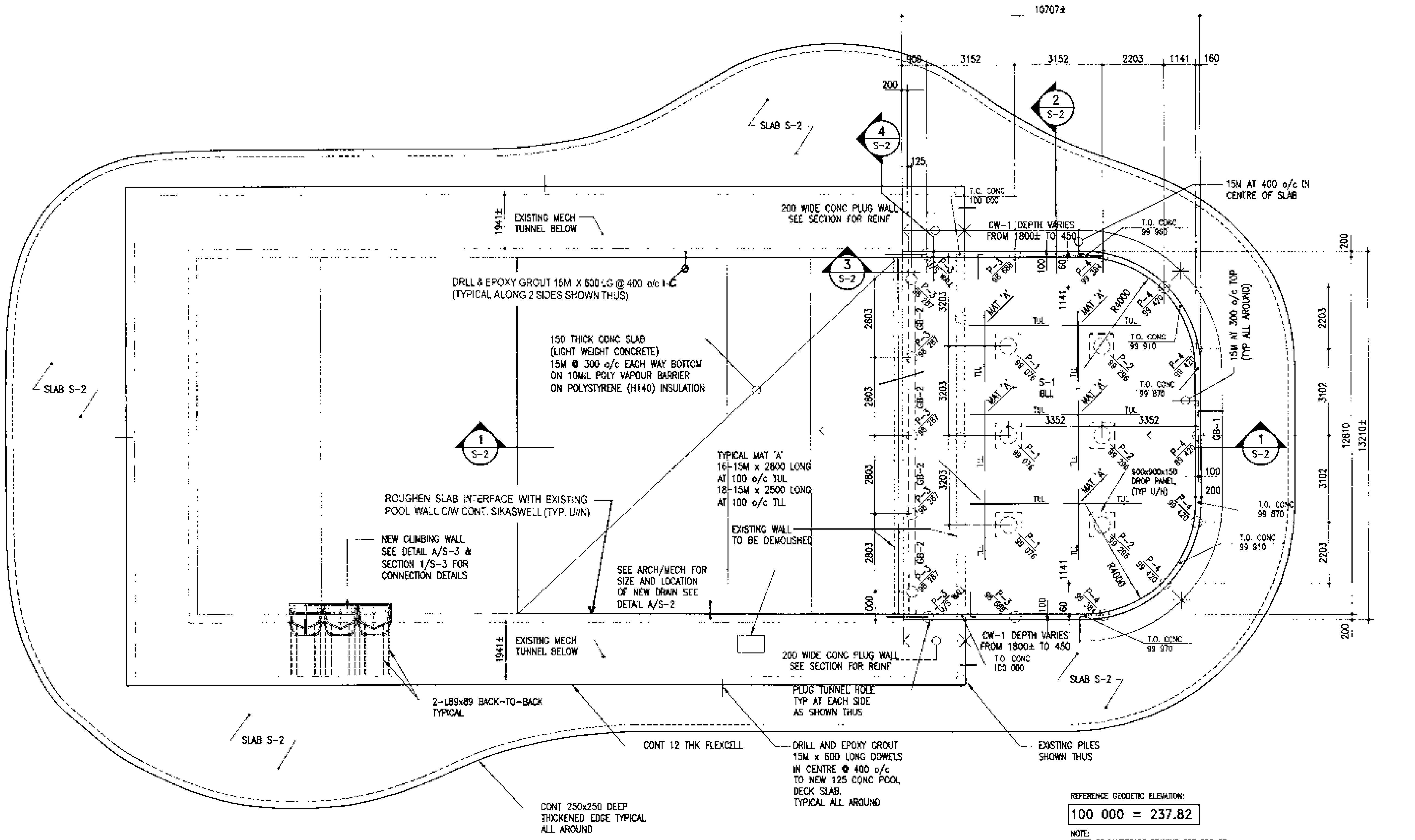
4. IN WALLS AND GRADE BEAMS, BEND ALL TOP AND INTERMEDIATE HORIZONTAL STEEL 600 MM AROUND CORNERS, OR USE EXTRA L BARS 1200 MM LONG. ALL OPENINGS IN WALLS TO HAVE 2-15M EACH SIDE AND 2-25M OVER, EXCEPT AS NOTED.
5. TOP STEEL IN BEAMS TO BE LAPPED AT CENTRE SPAN, BOTTOM STEEL TO BE BUTTED AT SUPPORT.
6. ALL REINFORCING TO BE HELD IN PLACE, AND TIED BY THE USE OF PROPER ACCESSORIES, SUCH AS HI-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
7. ALL OPENINGS IN CAST-IN-PLACE CONCRETE FLATWORK TO BE TRIMMED WITH 2-15M ALL AROUND ON BOTH FACES, EXCEPT AS NOTED.
8. FOR ALL STRUCTURAL SLABS A MINIMUM OF 50% OF THE BOTTOM STEEL SHALL BE CONTINUED A MINIMUM DISTANCE OF 150 MM INTO ALL SUPPORTING WALLS AND BEAMS. IF KEYS ARE USED AT JOINTS BETWEEN SLABS AND WALLS OR BEAMS, BOTTOM DOWELS EQUAL TO BOTTOM REINFORCEMENT OR 10M AT 300 MM SHALL BE PROVIDED WHICHEVER IS GREATER.
9. ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 400 MM O/C EACH WAY, UNLESS NOTED.
10. WHEN CONCRETE BEAMS ARE CAST INTO A WALL CHASE, DOWELS SIZE AND NUMBER SAME AS BEAM REINFORCING ARE TO BE PROVIDED FROM WALL, UNLESS OTHERWISE SHOWN ON PLAN.
11. PROVIDE INTEGRITY BARS THROUGHOUT STRUCTURES IN ACCORDANCE WITH CAN/CSA A23.3-04, CLAUSE 13.10.6.

III FORMWORK

1. SHEARMAT OR APPROVED CARDBOARD VOIDFORM WITH A MIN. DEPTH OF 150 MM SHALL BE USED AS THE BOTTOM FORM FOR STRUCTURAL SLABS AT GRADE, GRADE BEAMS, AND WALLS IN CONTACT WITH SOIL. SELECT AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC. SHALL BE SUPPORTED BY PADS OF PLYWOOD OR TEMPERED HARDBOARD TO PREVENT PUNCTURING THE VOIDFORM.
3. UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 MM ASPHALT IMPREGNATED FIBREBOARD.
4. ALL CONSTRUCTION JOINT KEYS ARE TO BE A MINIMUM OF 40 MM DEEP.
5. ALL STRUCTURAL SLABS FRAMING INTO BASEMENT WALLS ARE TO HAVE A MINIMUM KEY OF 40 MM.
6. ALL CONCRETE BEAMS FRAMING INTO CONCRETE WALLS ARE TO BE SUPPORTED BY A CHASE OF MINIMUM 100 MM DEPTH AND THE HEIGHT AND WIDTH OF THE BEAM.
7. PLACE 10 MIL POLYETHYLENE UNDER ALL SLABS ON FILL AND OVER TOP OF VOIDFORM.
8. PROVIDE 150 MM WIDE, RIBBED, PVC WATERSTOPS IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN ALL EXTERIOR WALLS BELOW GRADE AND PIT WALLS.

MISCELLANEOUS METAL - STEEL STAIR AND GUARDRAILS

1. STEEL STAIR AND GUARDRAIL SUPPLIER IS TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA FOR REVIEW BY THE PROJECT ENGINEER, PRIOR TO FABRICATION. ENGINEERING SHOP DRAWINGS SHALL INCLUDE DESIGN LOADS, LAYOUT PLAN, CONNECTION DETAILS, AND ALL OTHER PERTINENT INFORMATION.
2. STEEL STAIR AND GUARDRAIL SUPPLIER/DESIGNER SHALL PROVIDE A FINAL INSPECTION AND A LETTER SEALED BY THE ENGINEER RESPONSIBLE FOR THE STAIR AND GUARDRAIL DESIGN, CERTIFYING THAT STAIRS AND GUARDRAILS ARE CONSTRUCTED AND INSTALLED AS PER DESIGN ASSUMPTIONS AND INSTALLATION REQUIREMENTS.



SWIMMING POOL FOUNDATION PLAN

SCALE 1 : 100

- DESIGN LIVE LOAD = 3.6 kPa + WATER
- DESIGN DEAD LOAD = 3.6 kPa
- ALL SURFACES EXPOSED TO POOL WATER TO BE APPLIED WITH AQUAFIN INSTALLED AS PER SUPPLIER'S SPECIFICATION
- ALL DIMENSIONS TO BE SITE VERIFIED PRIOR TO CONSTRUCTION
- ALL DIMENSIONS AND T.O. CONCRETE ELEVATIONS ARE TO BE CONFIRMED WITH ARCHITECTURAL AND LANDSCAPE DRAWINGS PRIOR TO CONSTRUCTION

NOTES:
1. ADJUST THE DEPTH OF CONCRETE WALL THAT CROSSES THE TUNNEL WIDTH TO PLUG THE TUNNEL SEE SECTION 3/S-2
2. SITE VERIFY ALL EXISTING PILES THAT SUPPORT THE END WALL OF EXISTING POOL AND INSTALL NEW PILES IN BETWEEN THE EXISTING PILES
3. SEE ARCHITECTURAL DRAWINGS FOR ALL SLAB SLOPES, DRAIN LOCATIONS, & EXTENT OF NEW POOL DECK CONCRETE

PILE SCHEDULE

MARK	DESCRIPTION
P-1	600ø x 12500 LONG
P-2	600ø x 10000 LONG
P-3	400ø x 9000 LONG
P-4	400ø x 7600 LONG

CONCRETE SLAB SCHEDULE

MARK	DESCRIPTION
S-1	150 THICK CONCRETE SLAB ON 150 SHEARMAT 15M @ 200 O/C EACH WAY BOTTOM
S-2	125 THICK CONCRETE SLAB ON 10MIL POLY V.B. ON MIN 150 COMP GRANULAR FILL TO 100% SPMDD 10M @ 400 o/c EACH WAY TOP

GRADE BEAM SCHEDULE

MARK	DESCRIPTION
GB-1	200 WIDE x 450 DEEP CONCRETE GRADE BEAM R/W 2-20M TOP AND BOTTOM CONT 10M STIRRUPS AT 400 o/c
GB-2	250 WIDE x 900 DEEP CONCRETE GRADE BEAM R/W 2-20M TOP AND BOTTOM CONT 1-15M HORIZ MID HEIGHT EACH FACE 10M STIRRUPS AT 300 o/c
NOTE	PROVIDE 150 THICK SHEARMAT BELOW ALL GRADE BEAMS/WALLS

CONCRETE WALL SCHEDULE

MARK	DESCRIPTION
CW-1	200 WIDE CONCRETE WALL 2-20M TOP & BOTTOM 15M VERTICAL @ 300 o/c EACH FACE (OUTSIDE LAYER) 10M HORIZ @ 300 o/c EACH FACE (INSIDE LAYER)

APEGM
Certificate of Authorization
Crosier Kilgour & Partners Ltd.
No. 235 Date: Apr 9, 2014

3	9/04/14	ISSUED FOR CONSTRUCTION AND PERMIT	ATO
2	31/03/14	ISSUED FOR 95% REVIEW	ATO
1	11/03/14	ISSUED FOR 60% REVIEW	ATO
No.	Date	Issue/Revision	By

0 5m
0 15 feet

PROVINCE OF MANITOBA
T.K. MALKIEWICZ
REGISTERED PROFESSIONAL ENGINEER
Apr 9/14

Winnipeg

HTFC PLANNING & DESIGN
Contact: Mark Bauche, Monica Giesbrecht

Shelmerdine Ltd.
Contact: Ric Patle, Ian Taylor

FUL-FLO INDUSTRIES LIMITED
Contact: Doug Sinclair, Jason Hlatky

Crosier Kilgour & Partners Ltd

Contract Administrator
McGOWAN-RUSSELL
Contact: Jackie Wilkie

Project
WESTDALE POOL MODIFICATIONS
550 DALE BOULEVARD
WINNIPEG, MANITOBA

Sheet Title
SWIMMING POOL FOUNDATION PLAN, GENERAL NOTES AND SCHEDULES

Design	Drawn	Checked	Scale	Date	File	Sheet No	Rev
ATO	JMK	TKM	AS NOTED	31/03/2014	14-010	S-1	3

Tuesday, February 25, 2014