

**ABBREVIATIONS**

@	AT
ALT.	ALTERNATING
∠	ANGLE
APPROX.	APPROXIMATE
ATP	ACTIVE TRANSPORTATION PATH
AVE	AVENUE
B.O.	BY OTHERS
B/O	BOTTOM OF
BOT.	BOTTOM
B.W.	BOTH WAYS
BLDG.	BUILDING
C.I.P.	CAST-IN-PLACE
⊕	CENTERLINE
C.L.	CENTERLINE
C/C	CENTER TO CENTER
C/W	CENTER WITH
C.J.	CONSTRUCTION JOINT
C/A	CONTRACT ADMINISTRATOR
CONC.	CONCRETE
CONT.	CONTINUOUS
CL.	CLEAR
C/W	COMPLETE WITH
CSP	CORRUGATED STEEL PIPE
DIA.	DIAMETER
∅	DIAMETER
D.L.	DEAD LOAD
DTL.	DETAIL
DWL	DOWEL
DWG.	DRAWING
DR	DRIVE
E/B	EASTBOUND
EA.	EACH
E.E.	EACH END
E.F.	EACH FACE
E.S.	EACH SIDE
E.W.	EACH WAY
ELEV.	ELEVATION
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EQ.	EQUAL
EQ. SP.	EQUAL SPACING
EXP. JT.	EXPANSION JOINT
EXIST.	EXISTING
F.F.	FAR FACE
FOC	FIBRE OPTIC CABLE
FTG.	FOOTING
GALV.	GALVANIZED
GRAN.	GRANULAR
G.V.W.	GROSSE VEHICLE WEIGHT
G.B.M.	GEODETIC BENCH MARK
HORIZ.	HORIZONTAL
I.F.	INSIDE FACE
INV.	INVERT
L.L.	LIVE LOAD
m	METER

mm	MILLIMETER
M.H.	MANHOLE
MAX.	MAXIMUM
MIN.	MINIMUM
MK	MARK
N.F.	NEAR FACE
N.I.C.	NOT IN CONTRACT
N/B	NORTHBOUND
NO.	NUMBER
N.T.S.	NOT TO SCALE
O.C.	ON CENTRE
OD	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
O/H	OVERHEAD
O/O	OUTSIDE TO OUTSIDE
OPNG.	OPENING
PCS	PIECES
P.I.	POINT OF INTERSECTION
PVI	POINT OF VERTICAL INTERSECTION
R.C.	REINFORCED CONCRETE
PL	PLACE
ℙ	PROPERTY LINE
P.L.	PROPERTY LINE
PLT	PLATE
±	PLUS OR MINUS
P.F.	PREFINISHED
PROP.	PROPOSED
PVC	POLYVINYL CHLORIDE
QTY.	QUANTITY
R	RADIUS
REINF.	REINFORCEMENT
ROW	RIGHT-OF-WAY
R/W	REINFORCED WITH
R.P.	REFERENCE POINT
S.A.	SELF ADHESIVE
SHT.	SHEET
S/B	SOUTHBOUND
SLP.	SLOPE
STA.	STATION
ST	STREET
SU.	SUBSTRUCTURE UNIT
THK.	THICK
T	TOP
T.O.	TOP OF
TYP.	TYPICAL
U/N	UNLESS NOTED
U.N.O.	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VERT.	VERTICAL
WY	WAY
W	WITH
W/B	WESTBOUND
W.P.	WORKING POINT

**GENERAL NOTES:**

- THE EXISTING PLAN/SECTIONS/DETAILS AND DIMENSIONS SHOWN ON ALL DRAWINGS ARE TAKEN FROM ORIGINAL CONTRACT DOCUMENTS AT TIME OF CONSTRUCTION. ACTUAL CONDITIONS MAY VARY. VERIFY EXISTING CONDITIONS BEFORE COMMENCING WITH THE WORK.
- THESE DRAWINGS TO BE READ IN CONJUNCTION WITH THE CONTRACT SPECIFICATIONS.
- DESIGN BASED ON THE FOLLOWING:

**CLIMATIC DESIGN DATA:**

- AS PER TABLE C-2, APPENDIX C OF THE NATIONAL BUILDING CODE OF CANADA 2010, VOLUME 2 FOR WINNIPEG HAVING POST DISASTER IMPORTANCE CATEGORY.
- SNOW: S<sub>s</sub> = 1.9 kPa S<sub>r</sub> = 0.2 kPa I<sub>s</sub> = 1.25 ULS, 0.90 SLS
- WIND (1/50) = 0.450 kPa I<sub>w</sub> = 1.25 ULS, 0.75 SLS CATEGORY 1 BUILDINGS

**CAST-IN-PLACE CONCRETE:**

- CONCRETE MATERIAL, QUALITY, MIXING, PLACING, FORM WORK AND OTHER CONSTRUCTION PRACTICES SHALL CONFORM TO CSA-A23.
- SEE SPECIFICATIONS FOR CONCRETE MIX DESIGN REQUIREMENTS.
- REQUIRED CONCRETE STRENGTH 35 MPa AT 52 DAYS.

**REINFORCING STEEL:**

- REINFORCING STEEL SHALL CONFORM TO CSA G30.18 GRADE 400.
- CONCRETE CLEAR COVER TO REINFORCEMENT UNLESS OTHERWISE NOTED, SHALL BE:
  - EXPOSED TO EARTH = 75 mm
  - ALL OTHER LOCATIONS = 60 mm

**REINFORCING LAP SPLICES:**

- LAP SPLICES ARE FOR CLASS B SPLICES OF TOP BARS AND APPLIES TO REINFORCING SPLICES NOT OTHERWISE DETAILED.
- ALL REINFORCING SHALL BE CLEAN AND FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATING WHICH WOULD REDUCE THE BOND TO CONCRETE.

**MISCELLANEOUS METAL:**

- MISCELLANEOUS METAL, EXCEPT FOR STAINLESS STEEL SHALL CONFORM TO CSA G40.21 GRADE 300W.
- MISCELLANEOUS METALS EXCEPT FOR STAINLESS STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH CSA G164 TO A MINIMUM ZINC THICKNESS RETENTION OF 610 g/m<sup>2</sup>.
- ALL STAINLESS STEEL SHALL CONFORM TO ASTM A276 GRADE 316L.

**WELDING:**

- WELDING SHALL CONFORM TO CSA W59.

**ALLOWABLE CONSTRUCTION LOADING:**

- EXISTING ROOF ENVELOPE G.V.W. (LOADED) = 5300 kg WITH MAXIMUM SINGLE AXLE OF 3500 kg.
- NAKED ROOF WITH MEMBRANE G.V.W. (LOADED) = 7200 kg WITH MAXIMUM SINGLE AXLE OF 4400 kg.

**CONSTRUCTION PROCEDURE RESTRICTIONS AND GENERAL SCHEDULING REQUIREMENTS:**

STRICT COMPLIANCE TO THE FOLLOWING CONSTRUCTION PROCEDURE RESTRICTIONS AND SCHEDULING REQUIREMENTS IS A CONTRACTUAL OBLIGATION OF THE WORK AND ANY VARIATION FROM THESE REQUIREMENTS WILL ONLY BE PERMITTED WITH WRITTEN APPROVAL BY THE CONTRACT ADMINISTRATOR. DETAILED CONSTRUCTION PROCEDURES FOR EACH WORK ACTIVITY ARE INCLUDED ON THE DRAWINGS.

**CONSTRUCTION PROCEDURE RESTRICTIONS:**

- ANY EQUIPMENT RELEASING EMISSIONS, SUCH AS THOSE POWERED BY GASOLINE, DIESEL, OR ANY OTHER FOSSIL FUELS SHALL NOT BE PERMITTED WITHIN THE RESERVOIR CELLS. ALL EQUIPMENT TO BE USED IN THE CELLS SHALL BE OF AN ELECTRIC, BATTERY POWERED, OR PNEUMATIC TYPE. GENERATORS OPERATING ON FOSSIL FUELS WILL BE PERMITTED OUTSIDE THE CELLS TO POWER EQUIPMENT REQUIRED FOR THE WORKS IN THE CELLS. ALL FOSSIL FUEL OPERATED GENERATORS SHALL BE SETUP IN A WELL VENTILATED AREA AND SHALL BE USED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- FUELING OPERATIONS SHALL ONLY BE CARRIED OUT AT THE DESIGNATED LOCATION WITHIN THE LAYDOWN AREA. THE CONTRACTOR'S PROPOSED REFUELING METHODS SHALL BE DESCRIBED IN THE ENVIRONMENTAL PLAN SUBMISSION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- ALL EQUIPMENT MUST BE IN GOOD WORKING CONDITION, ANY EQUIPMENT NOT IN GOOD WORKING CONDITION AND/OR EXHIBITING LEAKAGE OF FUEL OR OIL WILL NOT BE PERMITTED ON SITE. ENVIRONMENTAL CLEAN-UP PROCEDURES FOR ACCIDENTAL LEAKAGES AND/OR SPILLS SHALL BE IN STRICT ACCORDANCE WITH THE ENVIRONMENTAL PLAN OF THE CONTRACT DOCUMENTS.
- ACCESS HOLE ROOF PENETRATIONS FOR RUNNING POWER OR COMPRESSED AIR LINES MAY BE PROVIDED BY CORING 150 mm DIAMETER HOLES THROUGH HOLLOWCORE ROOF SLABS DESIGNATED FOR REPLACEMENT. THESE PENETRATIONS ARE LIMITED TO ONE (1) HOLE PER HOLLOWCORE ROOF SLAB. ACCESS HOLES MUST BE SAND BAGGED WITH 10 ml POLYETHYLENE TO ENSURE THE ROOF REMAINS WATERPROOFED. THE NUMBER AND LOCATION OF ALL OF THE PROPOSED ACCESS HOLES SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW AND APPROVAL.
- CONTRACTOR TO PROVIDE MEANS OF LOWERING EQUIPMENT AND MATERIALS INTO THE RESERVOIR CELLS. EQUIPMENT AND MATERIAL ACCESS INTO THE RESERVOIR CELLS WILL BE LIMITED TO THE EXISTING RESERVOIR ACCESS HATCHES ONLY. ACCESS HATCHES MEASURE APPROXIMATELY 2.6 m x 4.1 m. SAFETY GUARD RAILING SHALL BE CONSTRUCTED AROUND ALL ACCESS HATCHES. ALL GUARD RAILING MUST COMPLY WITH APPLICABLE WORKPLACE, SAFETY AND HEALTH REQUIREMENTS. TEMPORARY WEATHERPROOF TIMBER FRAME AND SHEETING HATCH COVERS SHALL BE CONSTRUCTED AND IN PLACE WHEN THESE ACCESS OPENINGS ARE NOT IN USE. CONTRACTOR TO PROVIDE MANPOWER ACCESS AT THE DESIGNATED SITES (ONE PER CELL AS SHOWN ON THE DRAWINGS) BY REMOVING TWO HOLLOWCORE ROOF SLABS DESIGNATED FOR REPLACEMENT AND INSTALLING SCAFFOLD STAIRWAYS. THE FOOTPRINT OF THE REMOVED HOLLOWCORE NOT USED FOR STAIRWAY ACCESS MUST BE SECURED WITH TIMBER FRAME FLOORING CAPABLE OF SUPPORTING 2.4 MPa LIVE LOAD AND WATERPROOFED WITH TARPS. A WATERPROOF TIMBER FRAME SHELTER A MINIMUM 2.44 m IN HEIGHT SHALL BE CONSTRUCTED TO ENCLOSE THE STAIRWAY ACCESS. THE CONTRACTOR SHALL SUBMIT PLANS FOR THESE TEMPORARY WORKS TO THE CONTRACT ADMINISTRATOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

**CONSTRUCTION PROCEDURE RESTRICTIONS CONTINUATION:**

- ANY EQUIPMENT OPERATING ON THE RESERVOIR CELL ROOF MUST COMPLY WITH THE ROOF LOADING RESTRICTIONS. ONLY ONE (1) PIECE OF EQUIPMENT SHALL BE PERMITTED TO OPERATE ON A SINGLE HOLLOWCORE SLAB AT ANY GIVEN TIME. THE MAXIMUM (LOADED) GROSS VEHICLE WEIGHT (GVW) OF EQUIPMENT OPERATING ON THE HOLLOWCORE ROOF STRUCTURE SHALL NOT EXCEED THE FOLLOWING:

**DURING REMOVAL OF THE CONCRETE PAVERS:**

- 5300 kg MAXIMUM GVW
- 3500 kg MAXIMUM SINGLE AXLE LOAD

AFTER REMOVAL OF THE CONCRETE PAVERS EXCEPT THOSE NECESSARY TO BALLAST AND SECURE THE EXISTING EPDM MEMBRANE:

- 7200 kg MAXIMUM GVW
- 4400 kg MAXIMUM SINGLE AXLE LOAD

THE CONTRACTOR SHALL SUBMIT HIS PROPOSED EQUIPMENT LIST AND PERTINENT INFORMATION AS PART OF THE CONSTRUCTION METHOD STATEMENT SUBMISSION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

- HEAVY EQUIPMENT (EXCEEDING GVW OF 25 TONNES) WILL NOT BE PERMITTED TO OPERATE WITHIN 5.0 m OF THE EXTERIOR RESERVOIR WALLS.
- LARGE CRANES SHALL OPERATE ON TIMBER MATS PLACED AS PER THE MINIMUM REQUIREMENTS NOTED ON THE DRAWINGS TO ENSURE CRANE STABILITY AND UNIFORM LOAD DISTRIBUTION. SMALLER RUBBER Tired CRANES WILL BE PERMITTED TO OPERATE ON 500 mm WELL COMPACTED GRANULAR BASE WITHOUT THE REQUIREMENT FOR TIMBER MATS. ALL CRANES SHALL OBSERVE THE 5 m OPERATING RESTRICTION LISTED ABOVE REGARDLESS OF WHETHER OR NOT THEY ARE OPERATING ON TIMBER MATS. THE CONTRACTOR SHALL SUBMIT A CRANE OPERATION PLAN INCLUDING EQUIPMENT SPECIFICATIONS AND OPERATION DATA AND PRECAUTIONARY ENVIRONMENTAL PROTECTION MEASURES AS PART OF THE CONSTRUCTION METHOD STATEMENT SUBMISSION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACTOR'S EQUIPMENT SHALL NOT CROSS OR TRAVEL ALONG EITHER SIDE OF THE 1500 mm DIAMETER BY-PASS PIPE WITHIN A MINIMUM LATERAL DISTANCE OF 5.0 m OF THE CENTERLINE OF THE PIPE.
- PROTECTION MEASURES FOR RESERVOIR INFRASTRUCTURE AND OPERATION:

**CELL DIVIDING WALL ISOLATION**

- DURING STAGE 1, THE WEST CELL SHALL BE ISOLATED FROM THE EAST CELL AT THE DIVIDING WALL OVERFLOW WEIR. THE CONTRACTOR SHALL PROPOSE AND CONSTRUCT AN APPROPRIATE ISOLATION WALL CONSISTING OF WOOD STUDS AND PLYWOOD SHEET FRAMING. THE CONTRACTOR SHALL SUBMIT PLANS FOR THE ISOLATION WALL TO THE CONTRACT ADMINISTRATOR FOR APPROVAL PRIOR TO CONSTRUCTING THE WALL. PLACEMENT OF THE ISOLATION WALL SHALL NOT PREVENT THE EAST CELL FROM OVERFLOWING INTO THE OVERFLOW WEIR IF REQUIRED. THE WALL SHALL BE RECONSTRUCTED IN STAGE 2 AND SHALL NOT PREVENT THE WEST CELL FROM OVERFLOWING INTO THE OVERFLOW WEIR. THE ISOLATION WALL SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF THE INTERIOR WORK ITEMS IN THE RESERVOIR.

**SUCTION INTAKES**

- THE CONTRACTOR SHALL PROPOSE AND CONSTRUCT PROTECTION CONSISTING OF TARPING AND SAND BAGS FOR THE SUCTION INTAKES. THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION COVERS TO THE CONTRACT ADMINISTRATOR FOR APPROVAL PRIOR TO CONSTRUCTING THE COVERS.
- THE SUCTION PITS SHALL ALSO BE PROTECTED FROM ANY INFILTRATION AND DEBRIS DURING CONSTRUCTION AND CLEANING OPERATIONS BY BARRIERS CONSISTING OF SANDBAGS AND 10 ml POLYETHYLENE.

**FLOOR DRAINS**

- THE CONTRACTOR SHALL BE REQUIRED TO PREVENT ANY CONSTRUCTION DEBRIS OR EXTRANEOUS MATERIALS FROM ENTERING THE RESERVOIR DRAINAGE PIPING SYSTEM. ALL FLOOR SLAB DRAINAGE GRATES SHALL BE PROTECTED WITH THREE LAYERS OF AN APPROVED FILTER CLOTH FABRIC AND SAND BAGS. DEBRIS COLLECTED SHALL BE REGULARLY REMOVED AND DISPOSED OF AS WELL AS REPLACEMENT OF FILTER MATERIAL IN THE EVENT THAT IT BECOMES CLOGGED.
- DURING FINAL CLEANING AND PRESSURE WASHING OF THE INTERIOR OF THE CELL ALL CLEANING WATER SHALL BE FILTERED TO ENSURE THAT ALL SUSPENDED MATERIAL AND CONTAMINANTS ARE PREVENTED FROM ENTERING THE FLOOR DRAINAGE SYSTEM.

**ROOF ENVELOPE**

- THE CONTRACTOR SHALL PROTECT THE EXISTING AND NEW ROOF ENVELOPE ALONG GRID LINE 9 WITH STRUT BARRICADES DURING STAGE 1 AND 2 OF CONSTRUCTION. THE CONTRACTOR SHALL PROTECT THE HOLLOWCORE SLABS FROM INFILTRATION OF WATER AT ALL TIMES BY ENSURING THE EXISTING EPDM MEMBRANE PROVIDES A CONTINUOUS WEATHER BARRIER. FAILURE TO DO SO WILL REQUIRE DRILLING DRAINAGE HOLES IN THE AFFECTED HOLLOWCORE SLAB VOIDS AT THE CONTRACTORS OWN COST.

**GENERAL SCHEDULING RESTRICTIONS:**

- PROCEED WITH PARTIAL REMOVAL OF THE EXISTING ROOF AND WALL ENVELOPE OF STAGE 1 CONSTRUCTION CONSISTING OF PRECAST CONCRETE PAVERS AND INSULATION BOUNDED BY GRID LINES A, N, 1 AND 9. THIS SAME PROCESS SHALL BE FOLLOWED DURING STAGE 2 CONSTRUCTION FOR THE ROOF AREA BOUNDED BY GRID LINES 9, A, N AND 19, AS SHOWN ON THE DRAWINGS.
- REMOVE EXISTING HOLLOWCORE ROOF SLABS AT THE DESIGNATED AREAS FOR INSTALLATION OF TEMPORARY MANPOWER SCAFFOLD ACCESS STAIRS. REMOVE EXISTING EQUIPMENT ACCESS HATCH COVERS AND SAFELY STORE ON SLEEPERS IN THE LAYDOWN AREA. CONTRACTOR SHALL TAKE CARE AND NOT DAMAGE EXISTING ACCESS HATCH COVERS. ANY DAMAGE TO THE ACCESS HATCH COVERS SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS OWN EXPENSE.
- CLEAN ALL EXPOSED BEAM ENDS BY SAND BLASTING.
- PROCEED WITH INSTALLATION OF NEW BEARING PLATES, BEAM REPAIRS AND REPAIR OR REPLACEMENT OF HOLLOWCORE ROOF SLABS IN ACCORDANCE WITH THE DETAILED CONSTRUCTION PROCEDURES, RELATED WORK RESTRICTIONS AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- UNDERTAKE FLOOR SLAB REMOVAL AND REPLACEMENT AT SUCTION PITS AND PROCEED WITH SUBGRADE AND PIPE BACKFILL LEAKAGE SOIL SEALING WITH EPOXY GEL IN ACCORDANCE WITH THE DETAILED CONSTRUCTION PROCEDURES AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. UNDERTAKE RETROFIT WORK AT THE RESERVOIR WALL AND FOOTING EXPANSION JOINTS.
- INSTALL NEW LAYERE STAIR ACCESS INTO THE RESERVOIR CELL AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- WHEN ALL INTERIOR CELL WORK IS COMPLETE THOROUGHLY SWEEP UP AND REMOVE ALL FLOOR DEBRIS TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AND PRESSURE WASH ENTIRE RESERVOIR CELL INCLUDING WALLS, UNDERSIDE OF ROOF COLUMNS AND BEAMS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- REMOVE THE REMAINDER OF THE EXISTING ROOF ENVELOPE AND INSTALL NEW ROOF ENVELOPE, WALL ENVELOPE AT THE RESERVOIR AND ENTRANCE BUILDING, AND TEMPERATURE MONITORING SYSTEM IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- CRANE PADS SHALL BE REMOVED AND THE GRANULAR BASE MATERIAL SHALL BE PLACED ON GEOTEXTILE FABRIC AND COMPACTED ADJACENT TO THE EAST RESERVOIR WALL AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. ALL ORIGINAL GRASSED AREAS OF THE SITE SHALL BE RESTORED TO ORIGINAL GRADES AND RE-SEEDED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

**METRIC**

WHOLE NUMBERS INDICATE MILLIMETRES  
DECIMALIZED NUMBERS INDICATE METRES



LOCATION APPROVED UNDERGROUND STRUCTURES N/A		B.M. ELEV.	CHECKED BY	DRA		ENGINEER'S SEAL
SUPV. U/G STRUCTURES COMMITTEE DATE		CONSTRUCTION COMPLETION DATE:	APPROVED BY	SSR		
NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.			DESIGNED BY	FAK		
			DRAWN BY	TLK		
			SCALE:	HORIZONTAL AS NOTED	RELEASED FOR CONSTRUCTION	
		1 ISSUED FOR TENDER	2015 11 20	SSR		14-1411-G-102
		NO.	REVISIONS	DATE	DATE	2015 11 20
		PLOT DATE: 2015 11 18		FILE PATH: P:\20154593\00_Kemp_Wilkes\Working_Dwgs\900_Project_Standards\1-0650R-00003-001.dwg		
		CONTRACT NUMBER: 930-2015		FILE NAME: 1-0650R-00003-001.dwg		
		SHEET OF CITY DRAWING NUMBER		1-0650R-D0003-001		