SHEET: COW-A1 (05/2005)

GENERAL NOTES

1. THE GENERAL NOTES AND STRUCTURAL STANDARD DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE. ALL ELEVATIONS ARE IN METRES AND ARE TO GEODETIC DATUM. THE CONTRACTOR SHALL VERIFY DIMENSIONS BEFORE BEGINNING CONSTRUCTION AND REPORT DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK. DO NOT SCALE THE DRAWINGS.
3. THE DESIGN AND CONSTRUCTION IS IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA 1995, ITS SUPPLEMENTS AND THE LATEST EDITIONS (UNLESS OTHERWISE NOTED) OF REFERENCED CODES AND STANDARDS THEREIN. WATER RETAINING STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH ACI 350.
4. REFER TO THE ARCHITECTURAL, PROCESS, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS. REPORT DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH CONSTRUCTION
5. CONTRACTOR TO CONFIRM ALL OCCURRENCES OF INTERFERENCE BETWEEN NEW AND EXISTING. REPORT ALL DISCREPANCIES BETWEEN THAT SHOWN ON THE DRAWINGS AND THAT WHICH EXISTS TO THE CONTRACT ADMINISTRATOR, IMMEDIATELY UPON DISCOVERY. KEEP ACCURATE AS-BUILT RECORDS OF ALL NEW WORKS AND RELOCATED OR MODIFIED EXISTING FACILITIES.
6. CONSTRUCTION METHODS REQUIRING TEMPORARY SHORING, OR BRACING, SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW. THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER, REGISTERED IN THE PROVINCE OF MANITOBA, TO PERFORM AND TAKE RESPONSIBILITY FOR ANY SHORING OR OTHER DESIGNS REQUIRED TO COMPLETE THE CONSTRUCTION.
7. VERIFY LOCATION OF ALL UNDERGROUND SERVICES PRIOR TO COMMENCING CONSTRUCTION AND BE RESPONSIBLE FOR DISRUPTIONS.

FOUNDATION NOTES:

1. ALL FOUNDATION CONSTRUCTION SHALL BE PERFORMED WITH REFERENCE TO THE RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL INFORMATION AVAILABLE FOR THE SITE.
2. AN EXCAVATION PLAN SHALL BE PREPARED, SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA WITH EXPERIENCE IN GEOTECHNICAL ANALYSIS INCLUDING SLOPE STABILITY. SUBMIT EXCAVATION PLAN FOR REVIEW.
3. IF SHORING IS USED IN THE CONSTRUCTION, THE SHORING SHALL BE DESIGNED, SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. SUBMIT SHORING PLAN AND DETAIL FOR REVIEW
4. FOUNDATIONS ARE DESIGNED IN COMBINATION AS DRIVEN, END BEARING, PRESTRESSED PRECAST CONCRETE PILES.
5. PRECAST PILE CUT-OFF ELEVATIONS SHALL BE AS SHOWN ON THE PILING SCHEDULE. A MINIMUM OF 450 mm OF STRAND LENGTHS SHALL BE EXPOSED FOLLOWING THE PILE CUT-OFF.
6. PRECAST PILE NOTES:
   - .1) PRECAST PRESTRESSED CONC PILES DESIGNED AS DRIVEN, END BEARING WITH THE FOLLOWING DESIGN CAPACITY:
     - .1 300MM HEX – ALLOWABLE LOAD CAPACITY = 445 KN
     - .2 350MM HEX – ALLOWABLE LOAD CAPACITY = 625 KN
     - .3 400MM HEX – ALLOWABLE LOAD CAPACITY = 800 KN
   - .2) SEE SPECS. FOR PREBORING REQUIREMENTS.

PRECAST CONCRETE NOTES

1. DESIGN, FABRICATION AND ERECTION TO CSA A23.4 AND PCI DESIGN HANDBOOK. DESIGN LOADS AS SHOWN ON DRAWINGS.
2. THE MANUFACTURER OF PRECAST CONCRETE UNITS SHALL BE CERTIFIED IN ACCORDANCE WITH CSA A251.
3. GROUT FOR HOLLOW CORE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 35 MPa.
4. PRESTRESSING TENDONS SHALL CONFORM TO CSA G279.

CONCRETE NOTES

1. PROVIDE CONCRETE AND PERFORM WORK TO CSA A23.1-00, TEST CONCRETE TO CSA A23.2-00. THE CONTRACTOR SHALL HAVE COPIES OF THESE STANDARD ON SITE AT ALL TIMES.
2. PROVIDE CLEAR CONCRETE COVER OVER REINFORCING STEEL AS FOLLOWS:
   - .1 BEAM STIRRUPS: 40mm, U/N OTHERWISE
   - .2 BEAM MAIN STEEL: 50mm U/N OTHERWISE
   - .3 SLABS TOP AND BOTTOM 50mm U/N OTHERWISE
   - .4 COLUMN TIES: 40mm, MAIN STEEL: 50mm
   - .5 WALLS: 50mm U/N OTHERWISE
   - .6 CONCRETE FORMED AGAINST EARTH, INCLUDING BOTTOM OF SLAB ON GRADE: 75mm
3. PROVIDE 20mm CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
4. CONSTRUCTION JOINTS NOT SHOWN TO BE REVIEWED BY THE CONTRACT ADMINISTRATOR

CONCRETE REINFORCEMENT

1. REINFORCING STEEL: NEW DEFORMED BARS TO CSA G30.18. "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT, WITH MIN. YIELD STRENGTH OF 400 MPa. WELDED WIRE FABRIC CONFORM TO CSA G30.5 WITH MIN. YIELD STRENGTH OF 450 MPa.

MASONRY NOTES

1. ALL MASONRY WORK SHALL CONFORM TO CSA S304.1, A371 AND TO DETAILS SHOWN ON DRAWINGS.
2. MASONRY BLOCK UNITS SHALL CONFORM TO CSA A165.1. CLASSIFICATION H/15/A/M WITH A MINIMUM UNIT STRENGTH OF 15 MPa, UNLESS NOTED OTHERWISE.
3. ALL MORTAR SHALL CONFORM TO CSA A179 AND SHALL BE TYPE 'S'.
4. ALL LINTELS, BOND BEAMS, AND PILASTERS SHALL BE FILLED WITH CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 20 MPa.
5. PROVIDE DOWELS FROM CONCRETE BEAMS OR WALLS TO MATCH MASONRY WALL REINFORCING.

STRUCTURAL STEEL AND METAL FABRICATION NOTES

1. FABRICATE AND ERECT STRUCTURAL STEEL TO CSA-S16.1.
2. BEAM END PLATES, LEDGER ANGLES AND MISCELLANEOUS STEEL: TO CAN/CSA-G40.21, TYPE W WITH MINIMUM YIELD STRENGTH OF 300W.
3. BASE AND CAP PLATES: TO CAN/CSA-G40.21, TYPE W WITH MINIMUM YIELD STRENGTH OF 300W.
4. STRUCTURAL STEEL WIDE FLANGE SECTIONS: CONFORMING TO CSA G40.21, TYPE W WITH MINIMUM YIELD STRENGTH OF 350 MPa
5. HOLLOW STRUCTURAL SECTIONS: CONFORMING TO CSA G40.21, TYPE W, MINIMUM YIELD STRENGTH OF 350 MPa, CLASS C
6. WELD TO CSA-W59 BY FABRICATORS CERTIFIED BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA-W47.1, DIVISION 2.
7. ANCHOR BOLTS: CONFORMING TO ASTM A307.

OPEN WEB STEEL JOIST NOTES

1. CONFORM TO REQUIREMENTS OF CAN/CSA-S16.1, CSA S136, CISC- CODE OF STANDARD PRACTICE FOR BUILDINGS AND CISC-STEEL JOIST FACTS
2. DESIGN AND FABRICATE OPEN WEB STEEL JOISTS TO CSA S16.1 FOR DEPTHS, DETAILS, AND LOADING SHOWN ON THE DRAWINGS. REFER TO MECHANICAL DRAWINGS FOR WEIGHT AND LOCATION OF EQUIPMENT AND CONFIRM WITH MECHANICAL CONTRACTOR.
3. SUBMIT SHOP DRAWINGS TO THE CONTRACT ADMINISTRATOR FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. SHOP DRAWINGS SHALL SHOW DETAILS, MATERIALS, UNIFORM AND CONCENTRATED DESIGN LOADS, BRIDGING AND ACCESSORIES.
4. CAMBER REQUIREMENTS AND DEFLECTION LIMITATIONS TO CSA S16 UNLESS NOTED ON DRAWINGS OR SPECIFICATIONS.
5. PROVIDE PERMANENT BRIDGING FOR ALL JOISTS IN ACCORDANCE WITH CSA S16, UNLESS NOTED OTHERWISE.

STEEL DECKING NOTES

1. DESIGN, FABRICATE AND INSTALL STEEL DECK IN ACCORDANCE WITH CSA S136, CSA-S16.1 AND CSSBI STANDARDS FOR STEEL ROOF OR FLOOR DECK
2. ROOF DECKING PROFILE: 38mm DEEP, MINIMUM 0.76mm WITH RIB SPACING OF 150mm.
3. FLOOR COMPOSITE DECKING PROFILE: 38mm DEEP, MINIMUM 0.76mm WITH RIB SPACING OF 150mm.
4. WELD DECK TO SUPPORTING STEEL WITH 20mm DIAMETER FUSION WELDS USING WELD WASHERS WHERE NECESSARY. SIDE LAPS FASTENED BY BUTTON PUNCHING @ 600 o/c. CLINCHING, TRANSVERSE WELDS, LONGITUDINAL WELDS AND PERIMETER WELDS @ 300 o/c.
5. INSTALL STEEL DECK CONTINUOUS OVER MINIMUM 3 SPANS EXCEPT WHERE OTHERWISE ACCEPTED.

ALUMINUM FABRICATIONS

1. DESIGN, FABRICATION AN INSTALLATION IN ACCORDANCE WITH CSA S157
2. PERFORM WELDING OF ALUMINUM IN ACCORDANCE WITH REQUIREMENTS OF CSA W59.2 AND CSA S244.
3. ALUMINUM TO CSA/CAN 3-S157, 6061-T6 OR 6063-T5 ALUMINUM ALLOY.
4. BOLTS AND ANCHOR BOLTS: STAINLESS STEEL.
5. ISOLATE ALUMINUM FROM FOLLOWING COMPONENTS, BY MEANS OF BITUMINOUS PAINT:
   - .1 DISSIMILAR METALS EXCEPT STAINLESS STEEL, GALVANIZED STEEL, ZINC, OR WHITE BRONZE OF SMALL AREA.
   - .2 CONCRETE, MORTAR AND MASONRY.

STANDARD ABBREVIATIONS:

ADDITIONAL	ADD'L
AT	@
ANCHOR BOLT	A. BOLT
ALTERNATE	ALTER.
ALUMINUM	ALUM.
APPROXIMATE	APPROX.
ARCHITECTURAL	ARCH.
AVERAGE	AVG.
BOTTOM	BOT.
BETWEEN	BET.
BUILDING	BLDG.
BENCH MARK	B.M.
BEARING	BRG.
BACK TO BACK	B/B
BY (Between dims)	x (lower case)
CENTERLINE	℄
CAST IN PLACE	C.I.P.
CONCRETE MASONRY UNIT	C.M.U.
CONSTRUCTION JOINT	C.J.
COMPLETE WITH	C/W
COLUMN	COL.
CONCRETE	CONC.
CONTINUOUS	CONT.
DEAD LOAD	D.L.
DOWN	DN.
DRAWING	DWG.
DOWEL	DWL.
EACH END	E.E.
EACH FACE	E.F.
EXPANSION JOINT	EXP. J.
EACH WAY	E.W.
ELEVATION	EL.
ELECTRICAL	ELEC.
EQUAL	EQ.
EXISTING	EXIST.
EXPANSION	EXP.
EXTERIOR	EXT.
FACE TO FACE	F. to F.
FACE OF CONCRETE	F.O.C.
FOUNDATION	FDN.
FOOTING	FTG.
GALVANIZE	GALV.
GRID LINE	G.L.
HANGER	HGR.
HORIZONTAL	HORIZ.
HOLLOW STRUCTURAL STEEL	HSS
HEIGHT	HT.
INSIDE FACE	I.F.
INSIDE DIAMETER	I.D.
INTERIOR	INT.
KILONEWTON	kN
KNOCK-OUT BLOCK	K.O.
LIVE LOAD	L.L.
MATERIAL	MATL.
MAXIMUM	MAX.
MECHANICAL	MECH.
MINIMUM	MIN.
MISCELLANEOUS	MISC.
NUMBER	No.
NOT TO SCALE	N.T.S.
ON CENTER	o/c (lower case)
OUTSIDE FACE	O.F.
OUT TO OUT	O/O
OUTSIDE DIAMETER	O.D.
OPENING	OPG.
OPPOSITE	OPP.
ORIGINAL	ORIG.
OPEN WEB STEEL JOIST	OWSJ
PLATE	PL.
PRELIMINARY	PRELIM.
PROJECTION	PROJ.
REINFORCE WITH	R/W
REINFORCING	REINF.
REQUIRED	REQ'D
REVISION	REV.
SECTION	SECT.
SHEET	SHT.
SIMILAR	SIM.
SPECIFICATION	SPEC.
STAINLESS STEEL	S.S.
SATURATED SURFACE DRY	S.S.D.
STANDARD	STD.
STIFFENER	STIFF.
STIRRUP	STIRR.
STRUCTURAL	STRUCT.
SYMMETRICAL	SYM.
TOP OF	T.O.
TYPICAL	TYP.
UNLESS NOTED	U/N
VERTICAL	VERT.
WIND LOAD	W.L.

STANDARD SYMBOLS:

T.O. XXXX
EL. 239.700 — TOP OF CONCRETE ELEVATION

TOP OF CONCRETE ELEVATION

2 / XX4.01 — SECTION NUMBER; DRAWING WHERE SECTION IS LOCATED

C / XX1.05 — DETAIL NUMBER; DRAWING WHERE DETAIL IS LOCATED

4 / XX1.05 — SECTION NUMBER; SECTION; SCALE 1:20; DRAWING WHERE SECTION TAKEN FROM

B / XX4.01 — DETAIL NUMBER; DETAIL; SCALE 1:20; DRAWING WHERE DETAIL TAKEN FROM

BOTTOM LOWER LAYER	BLL
BOTTOM UPPER LAYER	BUL
TOP LOWER LAYER	TLL
TOP UPPER LAYER	TUL

APEGM
Certificate of Authorization
Earth Tech Canada Inc.
No. 730 Expiry: April 30, 2007

NO.	REVISIONS	DATE	BY
	B.M. ELEV.		
00	ISSUED FOR TENDER	01/07/31	CMF

CH2MHILL / Frederickson Cooper ARCHITECTS — EarthTech, A Tyco International Ltd. Company

DESIGNED BY	ARA	CHECKED BY	AP
DRAWN BY	CMF	APPROVED BY	AHL
SCALE:	AS NOTED	RELEASED FOR CONSTRUCTION BY:	R. SOROKOWSKI
DATE	2006/08/30	DATE	2007/01/31

ENGINEER'S SEAL
ORIGINAL SIGNED BY
A. POCHANART
2007/01/31

CONSULTANT DRAWING NO.
WS-S0001

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

WATER TREATMENT PLANT
BULK CHEMICAL BUILDING
SODIUM HYPOCHLORITE AND CHEMICAL STORAGE BUILDING
STRUCTURAL
GENERAL NOTES

CITY FILE NUMBER
SHEET OF
CITY DRAWING NUMBER
1-0601S-A-S0001-001-00D