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GENERAL NOTES

1. CONFORM TO ONTARIO BUILDING CODE 2006 AND OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION OF THIS PROJECTS.
2. DIMENSIONS IN MILLIMETERS; ELEVATIONS IN METERS.
3. OBTAIN THE ENGINEER'S AGREEMENT BEFORE INSTALLING OPENINGS AND SLEEVES LARGER THAN 150mm, WHICH ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS.
4. EMBEDDED ITEMS REQUIRED FOR ARCHITECTURAL, MECHANICAL AND ELECTRICAL SHALL BE INCORPORATED INTO THE STRUCTURES.
5. FOR LOCATIONS AND DETAILS OF EQUIPMENT BASES, HANDRAILS, OPENINGS, AND SIMILAR ITEMS SEE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS.
6. THE STRUCTURE IS DESIGNED TO RESIST DESIGN LOADS IN THE COMPLETED STAGE ONLY. ANY CONSTRUCTION LOADING IMPOSED ON THE PARTIALLY COMPLETED STRUCTURE REQUIRES VERIFICATION.
7. THE SPECIFIED HORIZONTAL AND VERTICAL LOADS SHALL NOT BE EXCEEDED DURING CONSTRUCTION
8. LOADS SHOWN ON STRUCTURAL DRAWINGS ARE UNFACTORED UNLESS NOTED OTHERWISE (U.N.O.)

DESIGN NOTES

1. DESIGN IS BASED ON THE FOLLOWING CODES AND ASSOCIATED REFERENCE CODES.
   – ONTARIO BUILDING CODE, 2006.

EARTHQUAKE: Sa(0.2) = 0.26
Sa(0.5) = 0.13
Sa(1.0) = 0.055
Sa(2.0) = 0.015
PGA = 0.170
HOURLY WIND PRESSURE q = 0.52 kPa (1/50)
GROUND SNOW LOAD Ss = 0.9 kPa
ASSOCIATED RAIN LOAD Sr = 0.4 kPa

CONCRETE AND REINFORCING

1. CONCRETE MEMBERS ARE DESIGNED IN ACCORDANCE WITH CSA–A23.3–04.
2. METHOD OF TEST FOR CONCRETE TO CSA–A23.2–04.
3. CONCRETE: TO CSA–A23.1–04 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION".

1.	CONCRETE FOR STACK FOUNDATION, EXTERIOR CONCRETE CURB, EXTERIOR CONCRETE PAD	CLASS C–1 EXPOSURE 35 MPa @ 28 DAYS W/C RATIO = 0.40 MAXIMUM	MAXIMUM COURSE AGGREGATE SIZE = 20mm SUPERPLASTICIZED PLANT ADDED WITH THE MIX WATER AIR CONTENT 5–8% SLUMP BETWEEN 150 & 200mm FOR AT LEAST 90 MINUTES
2.	LIGHT WEIGHT CONCRETE FOR INTERIOR CURB, FILL, INTERIOR PAD, TOPPING, & ON METAL DECK	CLASS N EXPOSURE 30 MPa @ 28 DAYS W/C RATIO = 0.5 MAXIMUM	MAXIMUM COURSE AGGREGATE SIZE = 20mm MID RANGE WATER REDUCER PLANT ADDED WITH THE MIX WATER SLUMP =100–150mm MAX. FOR AT LEAST 90 MINUTES
3.	LEAN CONCRETE	CLASS N EXPOSURE 15 MPa @ 28 DAYS	MAXIMUM COURSE AGGREGATE SIZE = 20mm SLUMP 75mm

4. CONCRETE COVER FOR REINFORCING STEEL TO CSA–A23.1–04.
5. REINFORCING STEEL TO CAN/CSA–G30.18–M92 GRADE 400. WELDED WIRE FABRIC 440 MPa YIELD STRENGTH. WELDED WIRE MESH TO COMPLY WITH CSA G30.5 OR ASTM A185
6. BAR SPLICES CLASS B TENSION LAP U.N.O.
7. ALL EXPOSED EDGES TO BE CHAMFERED 20mmx20mm.

STEEL DECK

1. THE STRUCTURE DESIGN IS BASED ON THE FOLLOWING PROPERTIES OF THE STEEL DECK:
   ROOF: RD306 76mm DP. x 1.22mm TK. BY VICWEST STEEL INC.
   FLOOR: 114 DEEP x 1.90mm TK. (4 ½"x 14 GAGE) BY CANAM.
2. FOR ROOF DECK PROVIDE FOR MINIMUM 3–SPAN CONTINUOUS AND SPANNING IN DIRECTION SHOWN. FLOOR DECK SPAN BEAM TO BEAM (SINGLE SPAN).
3. SEE PLAN FOR DESIGN LIVE AND DEAD LOADS.
4. WELDING TO BE 20mm DIA. ARC SPOT WELDS.
5. OPENINGS IN STEEL DECK, 150 TO 450 REINFORCED BY STEEL DECK CONTRACTOR.
6. ROOF DECK IS DESIGNED AS A DIAPHRAGM FOR LATERAL WIND LOAD.
7. FOR ROOF DECK PROVIDE MINIMUM 3 TRANSVERSE WELDS/UNIT AT EVERY SUPPORT, LONGITUDINAL WELDS AT 900mm c/c AT SUPPORTS. SIDE LAP BUTTON PUNCH AT 450mm o.c.

STRUCTURAL STEEL

1. DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA–S16–01 EDITION.
2. MATERIAL:
   – STRUCTURAL WIDE FLANGE SHAPES (W) TO CAN/CSA–40.20/G40.21–04 GRADE 350W.
   – PLATES, ANGLES AND CHANNELS (L) TO CAN/CSA–40.20/G40.21–04 GRADE 300W
   – HOLLOW STRUCTURAL SECTIONS TO CAN/CSA–40.20/G40.21–04 350W CLASS H (UNO).
3. STRUCTURAL STEEL BOLTS & NUTS, TO ASTM A325M–02 UNLESS OTHERWISE NOTED. GALVANIZED WHERE STEEL GALVANIZED.
4. CONTRACTOR SUBMIT TO THE ENGINEER FOR REVIEW STRUCTURAL SHOP DRAWINGS SHOWING FRAMING, CONNECTION DETAILS, ETC., STAMPED BY A PROFESSIONAL ENGINEER, LICENSED TO PRACTICE IN ONTARIO.
5. EXTERIOR/EXPOSED STEEL HOT–DIP GALVANIZED.
6. WELDING CONFORM TO CSA–W59–M1989 (R1998) LATEST EDITION MIN. WELD SIZE = 6mm U.N.O.
7. BASE PLATE GROUTED WITH FLOWABLE NON–SHRINK GROUT, fc' = 40 MPa.
8. ALL STEEL SHALL BE SHOP PRIMED AND RECEIVE 2 COATS OF FINISH PAINTS.
9. PROVIDE MINIMUM 2–M20 A325 BOLTS IN ANY BOLTED CONNECTION.
10. DESIGN MEMBER CONNECTIONS TO 70% MEMBER ULTIMATE SHEAR CAPACITY, (U.N.O).
11. MAINTAIN TEMPORARY BRACING UNTIL COMPLETION OF ENTIRE STRUCTURE INCLUDING ROOF DECKS AND OTHER ELEMENTS, WHICH ARE PART OF THE LATERAL LOAD RESISTING SYSTEM.
12. THE GENERAL CONTRACTOR, UPON COMPLETION OF WORK, PROVIDE A REPORT SIGNED BY AN INDEPENDENT MATERIAL TESTING AGENCY CERTIFYING THAT THE WORK WAS CONSTRUCTED IN COMPLIANCE WITH PLANS AND CODE REQUIREMENTS.
13. WELDING CONFORM TO THE LATEST ISSUE OF CSA SPECIFICATION W59 USING E48OXX ELECTRODES, AND TO BE UNDERTAKEN BY A FABRICATOR FULLY APPROVED BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF THE LATEST ISSUE OF CSA SPECIFICATION W47.1.
14. PROVIDE WELDED STIFFENER PLATES ON BOTH SIDES OF BEAMS AT POINTS OF CONCENTRATED LOADS INCLUDING BEAMS SUPPORTING COLUMNS OR RUNNING OVER TOP OF COLUMNS.
15. DRILLED–IN ANCHOR – HILTI HIT HY150 MAX ADHESIVE INJECTION ANCHORING SYSTEM WITH HAS ROD ANCHORS U.N.O.

MASONRY

1. MASONRY IS DESIGNED TO COMPLY WITH THE REQUIREMENTS OF CSA–S304.1–04 "MASONRY DESIGN FOR BUILDING LIMIT STATES DESIGN".
2. MASONRY CONSTRUCTION AND REINFORCEMENT TO THE REQUIREMENTS OF CSA–A371–04 "MASONRY CONSTRUCTION FOR BUILDINGS".
3. MASONRY CONNECTORS TO CSA CAN3–A370–04.
4. HOLLOW CONCRETE BLOCK WALL TO CSA–A165.1–04 "CONCRETE MASONRY UNITS".
5. MORTAR AND GROUT TO CSA–A179–04, TYPE 'S'. U.N.O.
6. LOAD BEARING SOLID CONCRETE BLOCK TO CSA A165.1, TYPE S/15/D/M.
7. LOAD BEARING HOLLOW CONCRETE BLOCK TO CSA A165.1, TYPE H/15/D/M.
8. CONCRETE FILL OF HIGH SLUMP (180mm TO 200mm) CONCRETE WITH A COMPRESSIVE STRENGTH OF 20MPa AT 28 DAYS.
9. PROVIDE VERTICAL MASONRY JOINTS (KEY WAYS) AT THE WALL INTERSECTIONS COMPLETELY FILLED WITH GROUT.
10. PROVIDE MASONRY WALLS ADEQUATELY BRACED TO RESIST WIND PRESSURE AND OTHER LATERAL FORCES DURING CONSTRUCTION.
11. PROVIDE LINTELS OVER ALL OPENINGS OR RECESSES IN MASONRY WALLS INCLUDING THOSE FOR MECHANICAL AND ELECTRICAL SERVICES OR EQUIPMENT/REFER TO STRUCTURAL DETAIL NO.11 ON DWG. S–111 U.N.O.
12. PROVIDE ADDITIONAL 1–15M VERTICAL FULL HEIGHT COMPLETE WITH MATCHING DOWELS AT CORNERS, INTERSECTIONS, EACH SIDE OF OPENINGS, AND EACH SIDE OF CONTROL JOINTS. U.N.O.
13. MASONRY WALLS SHOWN ON STRUCTURAL DRAWINGS ARE LOAD BEARING U.N.O.
14. FULLY GROUT CONCRETE MASONRY BLOCK CELLS WITH REINFORCEMENT.
15. NO MASONRY WORK PERMITTED WITH TEMPERATURES BELOW 5°C UNLESS PROVISIONS ARE MADE FOR HEATING THE MATERIALS AND PROTECTING THE WORK.

HELICAL

1. HUBBEL–CHANCE SS5 (1– 1½ INCH SQUARE) HELICAL PIERS WITH 100mm DIAMETER GROUT COLUMN.
2. HUBBEL–CHANCE SS5 HELICAL PIERS / ANCHORS HAVE AN ALLOWABLE LOAD OF 110 KN PER HELICAL PIER IN COMPRESSION AND 75 KN IN TENSION APPLICATIONS.
3. APPROXIMATE DEPTH OF HUBBEL–CHANCE HELICAL PIERS / ANCHORS IS AT ELEVATION 64m (15m IN DEPTH FROM GROUND ELEVATION).

ALUMINUM

1. STRUCTURAL ALUMINUM DESIGN AND CONSTRUCTION TO CONFORM TO:
   CSA S157 : STRENGTH DESIGN IN ALUMINUM
   CSA S244 : WELDED ALUMINUM DESIGN AND WORKMANSHIP
   CSA W47.2 : ALUMINUM WELDING CERTIFICATION CODE.
2. MATERIAL
   – STRUCTURAL I BEAM, CHANNEL, PIPE AND PLATES ALLOY 6061–T6, Fy = 240 MPa
   – ALUMINUM EXTRUSIONS: 6063 ALLOY, TS TEMPERS, ANODIZING QUALITY
   – WELDING RODS–ALLOY 5356
   – FASTENERS–STAINLESS STEEL
3. BASE PLATE GROUTED WITH FLOWABLE NON–SHRINK GROUT, fc'=40 MPa.
4. ENSURE ALUMINUM FINISH IS FREE FROM BLEMISHES OR SCRATCHES AND UNIFORM IN COLOUR AND SHEEN. PRETREAT ALUMINUM AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
5. PREFINISH EXPOSED TO VIEW ALUMINUM SURFACES IN CLEAR ANODIZED STAIN FINISH.
6. PROVIDE TWO COATS OF BITUMINOUS PAINT WHERE ALUMINUM IS IN CONTACT WITH CONCRETE.

CONCRETE STAIRS SURFACE REPAIR (REFER TO ARCH. DRAWINGS FOR LOCATIONS)

1. SAND BLAST TO REMOVE ALL DEBRIS AND DUST IN AREA OF REPAIR
2. VERTICAL SAW CUT TO 10mm DEEP ALL AROUND PERIMETER OF AREA TO BE REPAIRED.
3. APPLY A BOND COAT SLURRY TO EXPOSED CONCRETE SURFACE
4. CAST CONCRETE TO REPAIR AREA BEFORE BOND COAT SLURRY HAS SET.

ABBREVIATIONS :

E.F.	=	EACH FACE	BLL	=	BOTTOM LOWER LAYER
E.W.	=	EACH WAY	BUL	=	BOTTOM UPPER LAYER
I.F.	=	INSIDE FACE	TLL	=	TOP LOWER LAYER
O.F.	=	OUTSIDE FACE	TUL	=	TOP UPPER LAYER
H	=	HORIZONTAL	EXP. JT.	=	EXPANSION JOINT
V	=	VERTICAL	C.J.	=	CONSTRUCTION JOINT
B	=	BOTTOM	DLS	=	DOWELS
T	=	TOP	EL.	=	ELEVATION
TYP.	=	TYPICAL	T/	=	TOP OF
EFF.	=	EFFECTIVE	T.O.S.	=	TOP OF STEEL
C/W	=	COMPLETE WITH	WP	=	WORKING POINT
ALT/W	=	ALTERNATE WITH	MIN.	=	MINIMUM
COL	=	COLUMN	MAX.	=	MAXIMUM
HP.	=	HIGH POINT	LP.	=	LOW POINT

TORONTO WATER

EarthTech Stantec

No.	DATE	REVISIONS	INITIAL	SIGNED
0	24/10/08	ISSUED FOR TENDER	AN	
A	18/07/08	ISSUED FOR BUILDING PERMIT	AN	

TORONTO

TECHNICAL SERVICES
Engineering Services - Works Facilities & Structures

FRANK QUARISA, P. ENG.
DIRECTOR,
WASTE WATER TREATMENT

TONY PAGNANELLI, P. ENG.
DIRECTOR, ENGINEERING SERVICES
WORKS FACILITIES AND STRUCTURES

ASHBRIDGES BAY TREATMENT PLANT
ODOUR CONTROL HVAC UPGRADES
'T' AND 'M' BUILDING
GENERAL NOTES

DESIGN:	SH	DRAFTING:	LL	CHECK:	AN	CONTRACT No. 08FS–44WP	
SCALE:	AS SHOWN			DRAWING NUMBER:	1001-2008-02-13	DISCP. No.	TM-S100
DATE:	October 2007						