GENERAL NOTES:

- 1. NOTES TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS.
- 2. DO NOT SCALE DRAWINGS.
- 3. VERIFY ALL DIMENSIONS, ELEVATIONS AND SCOPE OF WORK PRIOR TO CONSTRUCTION.

DESIGN LOADS:

IMPORTANCE CAT	IMPORTANCE CATEGORY:		
LIVE LOADS:	FLOORS: HATCHES	_	10.0 kPa 5.0 kPa
ROOF LOADS:	SNOW		=1.9 kPa =0.2 kPa
WIND DESIGN PF	RESSURE:(1 IN 50))–	0.45 kPa
WIND EXPOSURE	FACTOR:	OPEN	TERRAIN
FOUNDATION SOI SUF SOIL, UNIT WEIG	RCHARGE: 9	=	6.0 kPa 18 kN/m³
at rest lateral Pressure coefi		=	0.70
LATERAL PRESSU	RE ON WALL,		

UNIT MASONRY:

WHERE H = HEIGHT OF SOIL

1. MASONRY UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH CAN/CSA A165 (LATEST). CONSTRUCT MASONRY IN ACCORDANCE WITH CAN/CSA A371-(LATEST). CONNECTORS SHALL BE IN ACCORDANCE WITH CAN/CSA A370 (LATEST).

 $= K \left(\nabla_{xx} \times H + 7 \right)$

- 2. ALL CONCRETE MASONRY TO BE AS NOTED AND DETAILED. NORMAL WEIGHT HOLLOW, LOADBEARING UNITS SHALL BE H/20/A/M. REFER TO EXISTING WALLS.
- 3. MORTAR SHALL BE TYPE 'S' AND MANUFACTURED TO CAN/CSA A179-(LATEST). ADMIXTURES SHALL NOT BE USED WITHOUT WRITTEN APPROVAL FROM THE DESIGN ENGINEER.
- 4. GROUT IN-FILL SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 12.5 mPa AT 28 DAYS BY CYLINDER TEST AS PER CAN/CSA A179-(LATEST); MAXIMUM AGGREGATE SIZE 10mm; SLUMP 100mm (HORIZONTAL IN-FILL) 200mm (VERTICAL IN-FILL), AIR 1%-3%.
- 5. PROVIDE 3.89mm (9 GA.) LADDER TYPE 'DUR-O-WAL' (OR EQUAL) HORIZONTAL JOINT REINFORCEMENT AT EVERY SECOND COURSE. EXTERIOR WALL/VENEER REINFORCEMENT TO BE HOT-DIPPED GALVANIZED MINIMUM JOINT REINF'G. LAP 150mm. DISCONTINUE JOINT REINF'G. AT CONTROL JOINTS. SEE DRAWING NOTES AND DETAILS FOR ADDITIONAL CORE/COURSE REINF'G.
- 6. INSTALL ALL BLOCK IN RUNNING BOND PATTERN TOOL. ALL MORTAR JOINTS CONCAVE.

CONCRETE:

- 1. CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CSA A23.1 (LATEST). SEE BELOW FOR MIX REQUIREMENTS.
- 2. ADMIXTURES SHALL NOT BE USED UNLESS SPECIFIED HEREIN OR APPROVED BY THE DESIGN ENGINEER. CALCIUM CHLORIDE SHALL NOT BE USED.
- 3. MIX WATER SHALL BE POTABLE.
- 4. DESIGN, FABRICATE AND ERECT FORMWORK/SHORING IN ACCORDANCE WITH CAN/CSA-S269.3 (LATEST). ALLOW SUFFICIENT CONCRETE CURING TIME PRIOR TO REMOVAL.
- 5. CONCRETE FINISHING SHALL MEET THE REQUIREMENTS OF CSA A23.1 (LATEST).
- 6. FORM RELEASE AGENT SHALL BE BIODEGRADABLE, NON-STAINING AND NON-VOLATILE.
- 7. PROVIDE ADEQUATE COLD/HOT WEATHER PROTECTION AS REQUIRED DURING CURING PERIOD.
- 8. PLACE AND SECURE ALL EMBEDDED ANCHORS, WELD PLATES, SLEEVES, BUCKS, DOWELS, INSERTS, WATERSTOPS, ETC., PRIOR TO PLACING CONCRETE. CO-ORDINATE WITH ALL TRADES FOR EMBEDDING OF ALL OTHER, CONDUIT, SERVICES, BLOCKING, ETC.

- 9. LOCATE AND FABRICATE ALL CONSTRUCTION JOINTS, CONTROL JOINTS AND EXPANSION JOINTS AS DETAILED ON THE DRAWINGS. JOINTS NOT SHOWN SHALL BE APPROVED BY THE DESIGN ENGINEER PRIOR TO THE PLACEMENT OF CONCRETE.
- 10. WATERSTOP TO BE 100mm PVC TYPE 2 BY DURAJOINT (NO MOVEMENT), OR APPROVED EQUAL.
- 11. ALL EXPOSED CORNERS TO HAVE 25mm CHAMFER FILLET UNLESS NOTED.
- 12. CAST-IN-PLACE ANCHOR BOLTS SHALL MEET REQUIREMENTS OF ASTM A307 (LATEST).
- 13. EXPANSION ANCHORS SHALL BE HILTI KWIK-BOLTS OR APPROVED EQUAL, UNLESS NOTED. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.
- 14. ADHESIVE ANCHORS SHALL BE HILTI HY200 HAS RODS OR APPROVED EQUAL, UNLESS NOTED. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.
- 15. GROUT REINFORCING DOWELS WITH EPOXY GROUT HILTI HIT-HY200 OR APPROVED EQUAL. GROUT BASE PLATES WITH NON-SHRINK GROUT SIKA M-BED STANDARD, OR APPROVED EQUAL. PLACE AND CURE ALL GROUT WITHIN TEMPERATURE RANGE RECOMMENDED BY MANUFACTURER.
- 16. THE CONCRETE SUPPLIER SHALL BE CERTIFIED TO MEET THE REQUIREMENTS OF CSA A23.1.
- 17. THE CONCRETE SUPPLIER SHALL SUBMIT CONCRETE MIX DATA SUBMISSION FORMS FOR EACH TYPE OF CONCRETE SPECIFIED FOR REVIEW PRIOR TO BATCHING ANY CONCRETE.
- 18. EXTERIOR LANDING SLABS TO BE REINFORCED WITH A MINIMUM OF 15M BARS IN EACH DIRECTION, TOP BARS

CONCRETE MIX DESIGNS:

CONCRETE MIX DESIGN SHALL BE PROPORTIONED TO MEET THE FOLLOWING PERFORMANCE REQUIREMENTS:

FOUNDATION SLAB, WALLS & STRUCTURAL SLAB:

EXPOSURE CLASS MIN. 56 DAY COMP. STRENGTH CEMENT TYPE	S-2 32 MPa HS		
MAX. W/C RATIO	0.45		
MAX. AGGREGATE SIZE	20mm		
ENTRAINED AIR CONTENT	4%-7%		

EXTERIOR SLABS (NON-STRUCTURAL):

EXPOSURE CLASS MIN. 28 DAY COMP. STRENGTH	C-2 32 MPa		
MAX. W/C RATIO	0.45		
MAX. AĞGREGATE SIZE	20mm		
ENTRAINED AIR CONTENT	5%-8%		

LEAN MIX CONCRETE:

		RE CLA DAYS	ASS COMPRESSIVE	STRENGTH	N 15	MF
MAX. AGGREGATE SIZE AIR CONTENT					20 5%	

STRUCTURAL AND MISCELLANEOUS STEEL:

- 1. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH CAN/CSA S16 (LATEST).
- 2. STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF CAN/CSA G40.20/G40.21 (LATEST).

ROLLED W-SHAPES	CSA G40.21-350W
ROLLED SHAPES & PLATES	CSA G40.21-300W
HSS SECTIONS	CSA G40.21-350W
	CLASS C
STANDARD PIPE	ASTM A53
COLD FORMED STEEL	CSA S136
ANCHOR BOLTS (GALV.)	ASTM A307
BOLTS, NUTS, & WASHERS	ASTM A325
WELDING ELECTRODES	CSA W48
WEEDING ELECTRODES	OUA IITO

- 3. WELDING SHALL BE IN ACCORDANCE WITH CSA W59 (LATEST), BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.1-(LATEST). ALL WELDS TO BE 6mm UNLESS NOTED OTHERWISE.
- 4. FIELD CONNECTIONS SHALL BE BOLTED 19MM DIAMETER A325 BEARING TYPE UNLESS NOTED OTHERWISE. BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH CSA S16 (LATEST).
- 5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.

6. STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE FINISHED AS INDICATED BELOW, UNLESS OTHERWISE NOTED, OR APPROVED EQUAL .:

INTERIOR STEEL (INDUSTRIAL)

- SURFACE PREP. TO SP6 (COMMERCIAL BLAST) - ONE PRIME COAT INTERZINC 52 ZINC-RICH EPOXY
- (2.5 MIL DFT.) - ONE FINISH COAT INTERGARD 345 HIGH BUILD EPOXY (6.0 MIL DFT.)

GALVANIZED STEEL

- SURFACE PREP. TO SP8 (PICKLING) - HOT DIPPED GALVANIZED TO CAN/CSA G164
- 7. FIELD TOUCH-UP WITH GALVANIZING SOLDER TO MATCH GALVANIZED STEEL. ACCEPTABLE PRODUCT: GAL-VIZ OR APPROVED EQUAL.
- 8. PAINTED SURFACES OF EXISTING STEEL SHALL BE GROUND SMOOTH TO BARE METAL PRIOR TO FIELD WELDING.

STEEL STUD FRAMING (NON-LOADBEARING):

1. INSTALL ALL FRAMING PLUMB, LEVEL, AND SQUARE.

INTERIOR WALL FRAMING

- 2. INTERIOR WALL STEEL STUDS, TRACK, FURRING BARS, ETC. TO BE 0.455mm (25 GA.) SECTIONS ROLL FORMED FROM ZINC COATED SHEET STEEL TO ASTM C645. SEE DRAWINGS FOR SECTION SIZES AND SPACING.
- 3. PROVIDE LONG-LEGGED DOUBLE TOP TRACKS AT TOP OF ALL FULL HEIGHT WALL FRAMING TO ALLOW 6mm DEFLECTION. FOR FIRE-RATED PARTITIONS INSTALL TOP OF STUDS AN ADDITIONAL 6mm SHORT WITHIN LOWER TRACK OF THE DOUBLE TRACK ASSEMBLY (TO ALLOW FOR 13mm TOTAL EXPANSION).

ALUMINUM:

- 1. ALUMINUM SHALL BE IN ACCORDANCE WITH CAN/CSA S157 AND THE ALUMINUM ASSOCIATION "SPECIFICATION FOR ALUMINUM STRUCTURES". ALUMINUM FOR PLATES AND EXTRUDED SHAPES SHALL BE TYPE 6061-T651.
- 2. ALUMINUM WELDING SHALL BE AN ACCORDANCE WITH CSA W59.2-(LATEST) BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.2-(LATEST) ALL WELDS TO BE 6mm UNLESS OTHERWISE NOTED.
- 3. INSTALL NYLTITE ELECTROCHEMICAL ISOLATION GASKETS TO ELECTRICALLY ISOLATE DISSIMILAR METALS (SUPPLIER: SPAENAUR).
- 4. ALL ALUMINUM IN CONTACT WITH CONCRETE OR CAST INTO CONCRETE TO HAVE BITUMINOUS ISOLATION
- 5. FASTENERS TO BE TYPE 316 STAINLESS STEEL. SIZE AS SHOWN ON THESE DRAWINGS.

WOOD ROOF TRUSSES:

APEGI

Certificate of Authorization

KGS Group

No. 245

- 1. WOOD TRUSSES SHALL BE DESIGNED BY OTHERS FOR LOADS SHOWN ON DRAWINGS. THE SIZE, WEIGHT AND LOCATION OF ALL MECHANICAL EQUIPMENT SHALL BE CO-ORDINATED WITH THE MECHANICAL CONTRACTOR.
- 2. SHOP DRAWINGS INDICATING SIZES, LENGTHS, SLOPES, SPACING, CAMBER, LOADING CRITERIA, CONNECTIONS, ETC. SHALL BE SUBMITTED BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- 3. MANUFACTURE ALL TRUSSES WITH CAMBER TO OFFSET DEAD LOAD DEFLECTION.
- 4. DEFLECTION DUE TO LIVE LOADS SHALL NOT EXCEED SPAN/360.
- 5. REDUCE TRUSS SPACING TO 400mm MAXIMUM AS REQUIRED AT BUILT-UP SNOW LOAD AREAS TO PREVENT OVERSTRESSING OF ROOF SHEATHING.
- 6. ALL FLUSH FRAMED TRUSSES SHALL BE SUPPORTED WITH METAL HANGERS, ALL HANGERS AND TRUSS TO TRUSS CONNECTIONS TO BE DESIGNED BY TRUSS MANUFACTURER.

NO. REVISIONS

PLOT DATE: Sep 02, 2016 - 3:45pm

- 8. ALL ROOF TRUSSES SHALL BE TIED TO SUPPORTING STRUCTURE WITH 18 GA. GALV. "HURRICANE" TIES AT EACH END IN ADDITION TO NORMAL TOE-NAILING.
- 9. VERTICAL SWAY BRACING AND HORIZONTAL CROSS BRACING SHALL BE INSTALLED AS PER THE TRUSS SUPPLIERS REQUIREMENTS.
- 10. TRUSSES SHALL NOT BE FIELD MODIFIED IN ANY WAY WITHOUT WRITTEN CONSENT OF THE MANUFACTURER AND THE DESIGN ENGINEER.
- 11. SHIP, STORE, HANDLE AND INSTALL PREFABRICATED WOOD TRUSSES AND RELATED COMPONENTS IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

REINFORCING STEEL:

- 1. REINFORCING STEEL TO BE NEW DEFORMED BILLET STEEL BARS CONFORMING TO CSA G30.18-(LATEST). GRADE TO BE 400 MPa.
- 2. REINFORCING STEEL SHALL BE CLEAN, FREE OF RUST, DIRT, LOOSE SCALE, OIL, GREASE OR ANY OTHER MATERIAL WHICH WOULD REDUCE BOND WITH THE
- 3. WELDED STEEL WIRE FABRIC SHALL CONFORM TO A185 OR A497 (LATEST). 400 MPa MINIMUM GRADE IN FLAT SHEETS ONLY UNLESS APPROVED OTHERWISE.
- 4. SUBMIT SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, SPACINGS, LOCATIONS & QUANTITIES OF REINFORCING STEEL, BENDING & CUTTING SCHEDULES. SUPPORTING & SPACING DEVICES, ETC. FOR REVIEW PRIOR TO FABRICATION. DETAIL, FABRICATE AND PLACE REINFORCING IN ACCORDANCE WITH CSA A23.1 (LATEST), CSA A23.3 (LATEST) AND ACI SP-66 (LATEST) UNLESS NOTED. LAP STEEL 36 BAR DIAMETERS (MINIMUM) UNLESS NOTED.
- 5. LAP BEAM AND STRUCTURAL SLAB TOP REINFORCING AT CENTER SPAN, AND BOTTOM STEEL AT SUPPORTS.
- 6. BEND ALL HORIZONTAL REINFORCING 305mm AROUND CORNERS OR PROVIDE ADDITIONAL 610mm X 610mm ANGLE BARS.
- 7. PROVIDE AT EACH FACE, 2-15M EXTRA BARS ALONG ALL SIDES, AND 2-15M DIAGONAL BARS AT ALL RE-ENTRANT CORNERS OF OPENINGS UNLESS NOTED. PROJECT ALL BARS 610MM PAST CORNERS.
- 8. TIE, SUPPORT AND SPACE ALL REINFORCING STEEL WITH PROPER APPROVED DEVICES DESIGNED FOR USE IN REINFORCED CONCRETE. TO PREVENT DISPLACEMENT OF REINFORCING AND ENSURE SPECIFIED CONCRETE COVER.
- 9. PROVIDE MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:

FOUNDATION	WALLS	(EXTERIOR FACE)	60mm
FOUNDATION	WALLS	(INTERIOR FACE)	40mm
FOUNDATION	WALLS	(BOTTOM)	60mm
FOUNDATION	FLOOR	(TOP & BOTTOM)	60mm
SLAB-ON-GR	RADE (E	EXTERIOR TOP)	50mm
STRUCTURAL	SLAB ((TOP)	40mm

50mm

STRUCTURAL SLAB (BOTTOM)

LEGEND:

CONC. 4 LEAN MIX CONCRETE

> STEEL

CONC. BLOCK

ALUMINUM HATCH

BATT INSULATION

1111111 RIGID INSULATION

UNDISTURBED SOIL /X/X/X

GRANULAR BACKFILL

METRIC WHOLE NUMBERS INDICATE MILLIMETRES DECIMALIZED NUMBERS INDICATE METRES

KGS ELEV. GROUP CONSULTING ENGINEERS DESIGNED BY K. R. DYCK CMS APPROVED BY: F. B. VALENCIA SUED FOR CONSTRUCTION SCALE: AS NOTED 2016/03/17 2016/09/02 VED CMS CONSULTANT NO.: 15-0107-019_S01 ISSUED FOR CONSTRUCTION 00

ENGINEER'S SEAL SIEPMÄN Member 20813

Winnipe

THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT

WEST END SEWAGE TREATMENT PLANT EFFLUENT MONITORING STATION LEGEND & GENERAL NOTES STRUCTURAL

SHEET REV. SIZE CITY DRAWING NUMBER -0103 - SAAA - Z00

FILE NAME: 15-0107-019_S01.dwg