

STRUCTURAL GENERAL NOTES

GENERAL NOTES

- THE GENERAL NOTES AND STRUCTURAL STANDARD DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE. ALL ELEVATIONS ARE IN METERS 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.
- THE DESIGN AND CONSTRUCTION IS IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA 2010, ITS SUPPLEMENTS AND THE LATEST EDITIONS (UNLESS OTHERWISE NOTED) OF REFERENCED CODES AND STANDARDS THEREIN. UNDERGROUND PORTION OF THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH ACI 350.
- 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.
- CONTRACTOR TO CONFIRM ALL OCCURRENCES OF INTERFERENCE. 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.
- VERIFY LOCATION OF ALL UNDERGROUND SERVICES PRIOR TO COMMENCING CONSTRUCTION AND BE RESPONSIBLE FOR DISRUPTIONS.

CONCRETE NOTES

- PROVIDE CONCRETE AND PERFORM WORK TO CSA A23.1, TEST CONCRETE TO CSA A23.2. THE CONTRACTOR SHALL HAVE COPIES OF THESE STANDARDS ON SITE AT ALL TIMES.
- CONCRETE SHALL MEET THE FOLLOWING REQUIREMENTS:

MIX TYPE	INTENDED APPLICATION	MINIMUM COMPRESSIVE STRENGTH (MPa)	CSA EXPOSURE CLASS
1	STRUCTURAL CONCRETE FOR THE SUBSTRUCTURE SLAB ON GRADE AND WALLS IN DIRECT CONTACT WITH SOIL INCLUDING: EXCESS MORTAR USED AT CONSTRUCTION JOINTS	35 @ 28 DAYS	S-1
2	GROUT OR CONCRETE USED IN MASONRY FILL	25 @ 28 DAYS	N
3	LEAN MIX	15 @ 28 DAYS	N
4	CONCRETE CURB & CONCRETE PAD	32 MPa @ 28 DAYS	F-1

- PROVIDE CLEAR CONCRETE COVER OVER REINFORCING STEEL AS FOLLOWS:
 - CURBS: 40mm
 - SUBSTRUCTURE WALLS, SLABS, AND BEAMS: 50mm
- FORMWORK AND FALSEWORK DESIGN SHALL BE COMPLETED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. SUBMIT TO CONTRACT ADMINISTRATOR FOR REVIEW.
- TEST CONCRETE IN ACCORDANCE WITH CAN/CSA A23.2. TEST RESULTS SHALL BE SUBMITTED TO CONTRACT ADMINISTRATOR. CONTRACTOR TO NOTIFY THE CONTRACT ADMINISTRATOR 48 HOURS IN ADVANCE OF ALL CONCRETE CASTS.
- CONCRETE CONSTRUCTION TOLERANCES:
 - CROSS SECTIONAL DIMENSIONS

300mm OR LESS	± 6 mm
300mm TO 1000mm	± 12 mm
1000mm OR GREATER	± 20 mm
 - VARIATION FROM HORIZONTAL AND VERTICAL REFERENCE SYSTEM AND GENERAL DIMENSIONS:

A) HORIZONTAL	
FOOTINGS	± 20 mm
COLUMNS	± 6 mm
B) VERTICAL	
FOOTINGS	± 25 mm
COLUMNS	± 8 mm
BEAM	± 4 mm
C) FLATNESS	
GENERAL SURFACES	- MODERATELY FLAT (8mm GAP ALONG 3000mm STRAIGHT EDGE)
- PROVIDE 20mm CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
- VERIFY SIZE AND LOCATION OF ALL OPENINGS, CURBS AND EQUIPMENT PADS WITH PROCESS, MECHANICAL AND ELECTRICAL DRAWINGS AND PROCESS, MECHANICAL AND ELECTRICAL CONTRACTORS. MAJOR OPENINGS NOT SHOWN TO BE VERIFIED WITH CONTRACT ADMINISTRATOR.

CONCRETE REINFORCEMENT

- REINFORCING STEEL: NEW DEFORMED BARS TO CSA G30.18, "BILLET STEEL BARS FOR CONCRETE REINFORCEMENT", WITH MIN. 400 MPa YIELD STRENGTH.
- DEFORMED BARS CONFORMING TO CAN/CSA G30.18, GRADE 400. LAP SPLICES AS PER CSA A23.3.
- REINFORCING WORK SHALL BE IN ACCORDANCE WITH CAN/CSA 23.1 AND CSA 23.3.
- UNLESS SPECIFIED OTHERWISE HEREIN, TOLERANCES FOR REINFORCING STEEL REQUIREMENTS:

A) CONCRETE PROTECTION		
SECTIONS < 300		± 6 mm
ALL OTHERS		± 10 mm
B) LOCATION		
SECTIONS < 300		± 8 mm
SECTIONS 300 TO 600		± 12 mm
ALL OTHERS		± 20 mm
C) LOCATION OF BAR ENDS		
		± 50 mm

MASONRY NOTES

- ALL MASONRY WORK SHALL CONFORM TO CSA S304.1, A371 AND TO DETAILS SHOWN ON DRAWINGS.
- 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.
- ALL MORTAR SHALL CONFORM TO CSA A179 AND SHALL BE TYPE 'S'.
- ALL LINTELS, BOND BEAMS, BLOCKS AND PILASTERS SHALL BE FILLED WITH CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa.
- PROVIDE DOWELS FROM CONCRETE BEAMS OR WALLS TO MATCH MASONRY WALL REINFORCING UNLESS NOTED OTHERWISE.

PRE-FABRICATED STRUCTURAL WOOD

- PERFORM WORK IN ACCORDANCE WITH CAN/CSA O86.1 AND THE NATIONAL BUILDING CODE.
- DEFLECTION UNDER LIVE LOAD NOT TO EXCEED L/240 OF THE SPAN.
- TRUSSES FRAMING INTO OTHER TRUSSES OR BEAM TO BE CONNECTED USING PROPER METAL FRAMING ACCESSORIES PROVIDED BY THE TRUSS MANUFACTURER.
- SUBMIT SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA TO THE CONTRACT ADMINISTRATOR PRIOR TO FABRICATION.
- ALL MATERIALS TO BE NEW.
- TOP CHORD LIVE LOAD : 1.56 kPa
TOP CHORD DEAD LOAD : 0.5 kPa
BOTTOM CHORD LIVE LOAD : 0.75 kPa
BOTTOM CHORD DEAD LOAD
AT ANY PANEL POINT : 1.3 kN

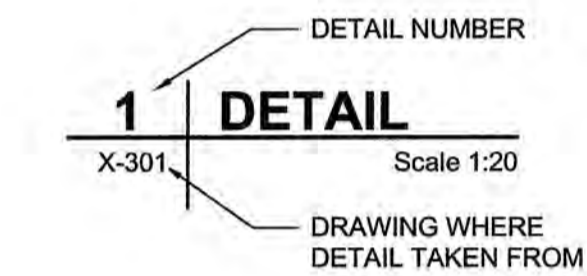
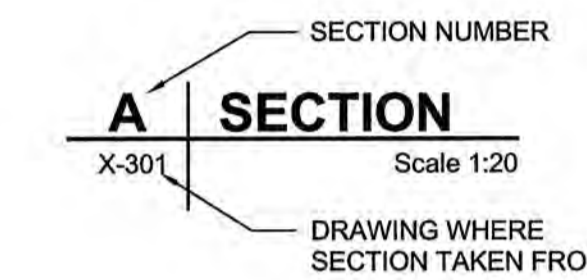
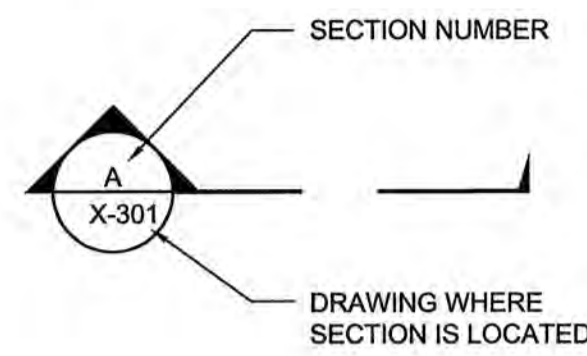
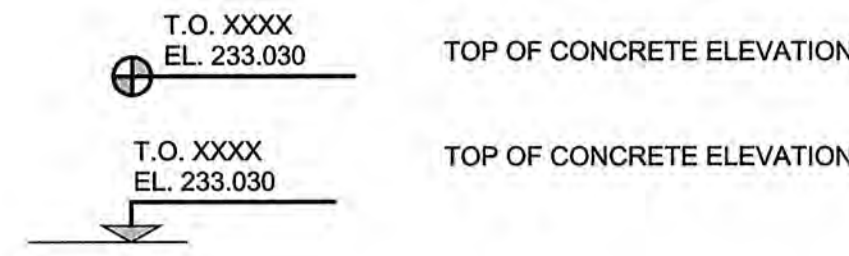
STRUCTURAL STEEL AND METAL FABRICATION NOTES

- FABRICATE AND ERECT STRUCTURAL STEEL TO CSA-S16.1.
- STRUCTURAL STEEL WIDE FLANGE SECTIONS: CONFORMING TO CSA G40.21, TYPE W WITH MINIMUM YIELD STRENGTH OF 350 MPa
- HOLLOW STRUCTURAL SECTIONS: CONFORMING TO CSA G40.21, TYPE W, MINIMUM YIELD STRENGTH OF 350 MPa, CLASS C.
- BEAM END PLATES, LEDGER ANGLES AND MISCELLANEOUS STEEL: TO CAN/CSA-G40.21, GRADE TYPE W, WITH MINIMUM YIELD STRENGTH OF 300 MPa.
- WELD TO CSA-W59 BY FABRICATORS CERTIFIED BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA-W47.1, DIVISION 2.
- ANCHOR BOLTS: CONFORMING TO ASTM A307.
- GALVANIZING CONFORMING TO CSA G164.
- CLEAN ALL STEEL PRIOR TO PRIMING TO SSPC SURFACE PREPARATION SPECIFICATION No. 7 "BRUSH-OFF BLAST CLEANING". PRIME TO CSIC CMPA 2-75.

ALUMINUM FABRICATIONS

- DESIGN, FABRICATION AND INSTALLATION IN ACCORDANCE WITH CSA S157
- PERFORM WELDING OF ALUMINUM IN ACCORDANCE WITH REQUIREMENTS OF CSA W59.2 AND CSA S244. FABRICATOR TO BE CERTIFIED TO DIVISION 2.
- ALUMINUM TO CSA/CAN 3-S157, 6061-T6 ALUMINUM ALLOY.
- BOLTS AND ANCHOR BOLTS: STAINLESS STEEL, ASTM 316 C/W ISOLATION WASHERS.
- ISOLATE ALUMINUM FROM FOLLOWING COMPONENTS, BY MEANS OF, 2 COATS OF ALKALI RESISTANT BITUMINOUS PAINT.
 - DISSIMILAR METALS EXCEPT STAINLESS STEEL, GALVANIZED STEEL, ZINC, OR WHITE BRONZE OF SMALL AREA.
 - CONCRETE, MORTAR AND MASONRY.

STANDARD SYMBOLS:



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

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	C
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 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.
HANGER	HGR.
HORIZONTAL	HORIZ.
HOLLOW STRUCTURAL STEEL	HSS
HEIGHT	HT.
INSIDE FACE	I.F.
INSIDE DIAMETER	I.D.
INTERIOR	INT.
KILO NEWTON	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.
STANDARD	STD.
STIFFENER	STIFF.
STIRRUP	STIRR.
STRUCTURAL	STRUCT.
SYMMETRICAL	SYM.
TOP OF	T.O.
TYPICAL	TYP.
UNLESS NOTED	UN
VERTICAL	VERT.
WIND LOAD	W.L.



DESIGNED BY	GGP	CHECKED BY	KK
DRAWN BY	DEP	APPROVED BY	<i>[Signature]</i>
HOR. SCALE	AS SHOWN	RELEASED FOR CONSTRUCTION	
VERT. SCALE	N/A		
DATE	12/07/30	DATE	
0 ISSUED FOR CONSTRUCTION	12/07/27	DEP/KLC	
NO. REVISIONS	YYMMDD	BY	

PROFESSIONAL'S SEAL

CONSULTANT DRAWING NO.
60221826-02-S-001-R0X.dwg

DESIGNED BY GGP

CHECKED BY KK

DRAWN BY DEP

APPROVED BY *[Signature]*

HOR. SCALE AS SHOWN

VERT. SCALE N/A

DATE 12/07/30

THE CITY OF WINNIPEG
WATER & WASTE DEPARTMENT

CONSTRUCTION OF FLOOD CONTROL STRUCTURE
AT PEMBINA HIGHWAY & BEAUJOLAIS COULEE

STRUCTURAL
FLOOD CONTROL STRUCTURE
GENERAL NOTES AND ABBREVIATIONS

SHEET 12 OF 19

CITY DRAWING NUMBER

LD-5851

REV 0