

DESIGN SPECIFICATIONS:

- D-1. This structure is designed in accordance with and shall be constructed in compliance with the following Building Codes and applicable local bylaws:
 - a) The National Building Code of Canada 2005
 - b) Manitoba Building Code 2006
- D-2. Principal applied design loads are indicated on appropriate plans.
- D-3. All foundation elements are designed as per recommendations made by Genivar Geotechnical Engineer in his report dated December 7, 2010 (Ref: File Number: WE 101-17599-00)

GENERAL NOTES:

- 1) Design live loads should not be exceeded at any time during construction.
- 2) Do not scale the drawings.
- 3) Verify all dimensions, elevations, slopes, details, conditions, etc. shown on the structural drawings; with the latest civil drawings, other consultant drawings and the site, prior to construction or prefabrication of any building component.
- 4) Discrepancies or ambiguities on the drawings and/or the site, which affect the structural framing, shall be reported to the Contract Administrator.
- 5) Where an overlap or a duplication occurs on the drawings, the more costly solution shall be considered correct, unless approved otherwise by the Contract Administrator.
- 6) Modifications, alterations or substitutions must be authorized in writing by the Contract Administrator prior to implementation.
- 7) The General Contractor shall locate all existing site services prior to start of construction.
- 8) Location of the construction joints is the responsibility of the General Contractor, but approval must be obtained from the Contract Administrator before proceeding.
- 9) The contractor shall be responsible for the design and installation of all necessary shoring, bracing and formwork. Form work for new construction shall be bridged over existing services. Procedure must be approved by the Contract Administrator.
- 10) Construction safety requirements shall be the responsibility of the General Contractor and/or Contract Administrator.
- 11) The General Contractor shall notify the Contract Administrator at least 48 hours (72 hours for out-of-town projects) prior to all concrete pours and/or installation of interior sheathing, to allow for site inspections.
- 12) The Contractor shall visit the site to familiarize himself with the on-site conditions prior to submitting tender price.

EXCAVATION, BACKFILL AND COMPACTION

- 1) Prior to commencing excavation work notify applicable the City of Winnipeg or Authority having jurisdiction, establish location and state of use of buried utilities and structures. City of Winnipeg or Authorities having jurisdiction to clearly mark such locations to prevent disturbance of the work.
- 2) Confirm location of all buried utilities by careful test excavation.
- 3) Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered.
- 4) Where other utility lines or structures exist in the areas of excavation, obtain direction of the civil consultant before re-routing.
- 5) Record location of maintained, re-routed or abandoned underground lines.
- 6) Confirm locations of recent excavations adjacent to the area of excavation.
- 7) Consult a geotechnical engineer registered in the province of Manitoba for the stability of slopes, shoring criteria and any other associated workmans safety requirements when carrying out the excavation and backfill operations.
- 8) The backfill material shall be approved by the geotechnical engineer registered in the Province of Manitoba and holds a "Certificate of Authorization" of the APEGM.
- 9) Backfill material shall be placed and compacted in maximum 300mm lifts to 95% Standard Proctor Density, using appropriate compaction equipment.
- 10) Do not backfill on frozen ground or backfill using frozen materials.
- 11) Protect backfilled material, during and after completion of backfill operations from softening due to exposure to excess moisture.
- 12) Keep excavations free of water while work is in progress.

CAST IN PLACE CONCRETE PILES

- 1) Foundation elements are designed in accordance with the Geotechnical Report noted in Item D-3.
- 2) Concrete piles are designed for a skin friction value of 14.8kPa.
- 3) Installation of all concrete piles shall be inspected and approved by a geotechnical engineer, registered in the Province of Manitoba, prior to placement of concrete. A letter of certification shall be issued to the Contract Administrator upon completion of the foundation. The cost of this service shall be included in the piling contract.
- 4) Piles shall not be more than, 50mm out of the position shown on the foundation plan.
- 5) Refer to "concrete" and "reinforcing steel" notes for material specification and requirements.
- 6) Refer to "Pile Schedules" and "Reinforcing Steel" notes for material specifications and requirements.
- 7) Vibrate the top 3000mm (10'-0") of concrete of all cast-in-place piles.
- 8) Extend vertical pile reinforcing steel 450mm (18") into any structural concrete members supported unless noted otherwise.
- 9) Piling contractor will be required to sleeve holes during drilling and installation of concrete for piles.

REINFORCING STEEL:

- 1) Reinforcing steel shall be new billet, deformed bars in accordance with CSA Standard G30.18. Minimum yield strength to be 400 MPa.
- 2) Reinforcing steel shall be detailed in accordance with the latest A.C.I. Detailing Manual.
- 3) Lap top bars at center span and bottom bars over supports.
- 4) All reinforcing to be held in place and tied securely by the use of purpose made accessories such as hi-chairs, spacers, tie wire etc., to be supplied by the reinforcing steel fabricator.
- 5) Reinforcing in concrete beams/walls and masonry bond beams to be bent minimum 600mm around corners or use 900x900 corner bars.
- 6) Submit shop drawings which clearly indicate bar sizes, grade, spacings, hooks, bends and supporting/spacing devices, etc., for review to the Contract Administrator prior to fabrication of the reinforcing steel.
- 7) Prior to placing concrete, ensure that all reinforcing steel is clean, free of loose scale, rust, mud, oil or other foreign material which would reduce the bond.
- 8) Heating, quenching and bending of reinforcing steel on the site is not allowed.

CONCRETE

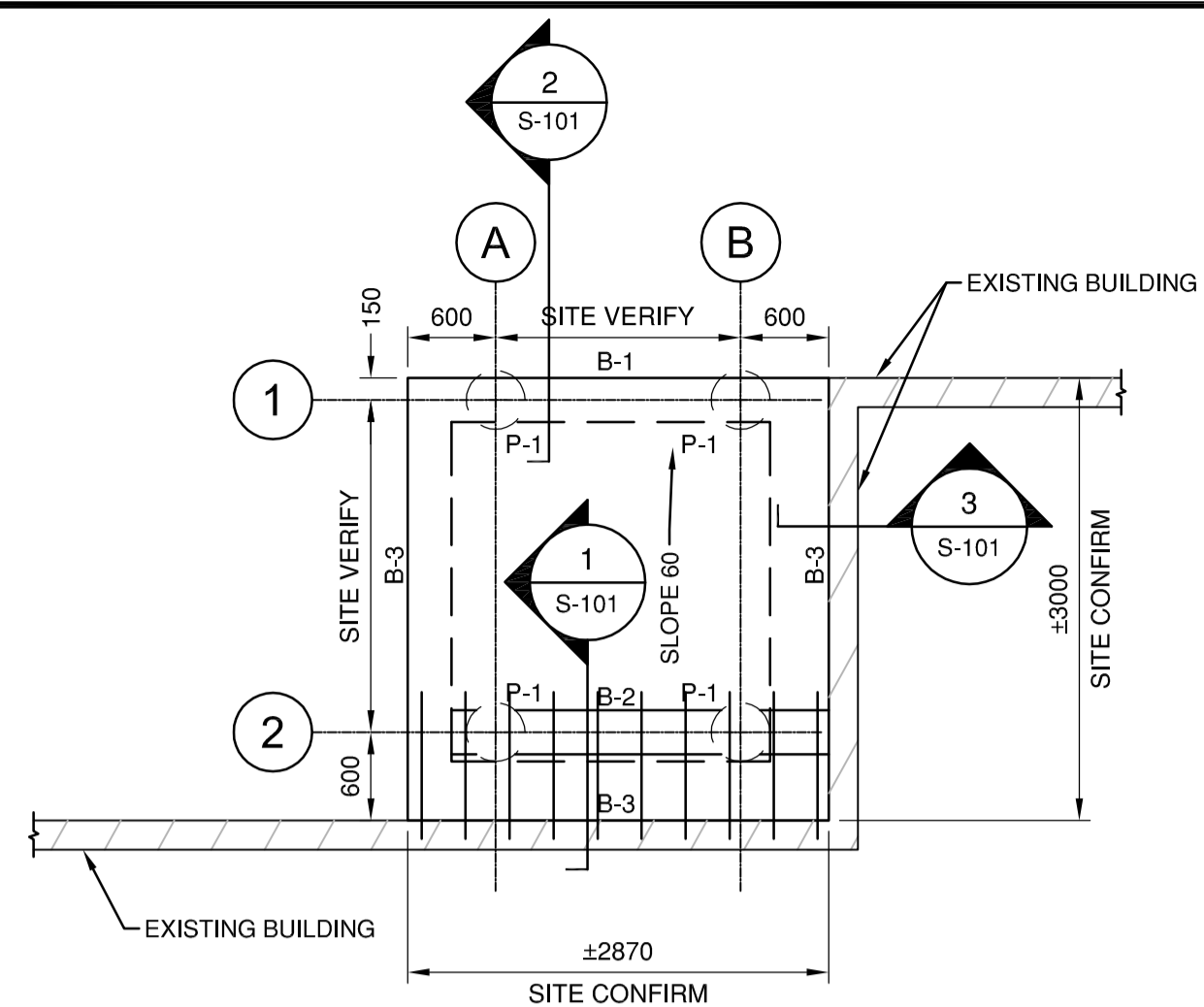
- 1.) All concrete work shall conform to CSA Standard A23.1 (Latest).
- 2.) Concrete Specifications:

COMPONENT	CEMENT TYPE	28-DAY STRENGTH (MPa)	SLUMP (mm)	MAX. AGGREGATE (mm)	ENTRAINED AIR (%)	COVER FOR REINF. STEEL (mm)
Cast-in place Piles	50 Sulphate Resistant	35	120	20	5	75
Grade Beams	10 Normal Portland	35	90	20	5	65
Slabs (structural)	10 Normal Portland	35	90	20	0	65 Top 20 Bottom

- 3.) The use of any additives within the concrete mix shall be approved by the Contract Administrator prior to construction.
- 4.) Vibrate all concrete work with appropriate internal vibrators.
- 5.) Concrete working time, from batching to placement and consolidation, shall not exceed 1-1/2 hours
- 6.) Concrete contractor should place all components to be embedded in the concrete (ie. weld plates, dowels for concrete and/or masonry, anchor bolts, inserts, water stop bars, sleeving, etc.). See structural, architectural, mechanical and any other pertinent drawings.
- 8.) See general notes regarding inspection notification.
- 9.) The general contractor (Contract Administrator) shall ensure that concrete testing be performed by a C.S.A. approved independent testing company. Three concrete test cylinders and one slump test shall be taken for every 50 (or less) cubic meters, or each day concrete is placed, whichever is greater. Testing shall be performed in accordance with CSA Standard A23.2 (latest), and the results shall be forwarded to the Architect and Contract Administrator.
- 10.) Void Forms, as detailed on the drawings shall be cardboard forms unless otherwise specified.
- 11.) Under ideal weather conditions, allow minimum curing time as scheduled below before removing formwork:
 - Grade Beams 3 days
 - Beam Sides 7 days
 - Beam & Slab Bottoms 14 days
- 12.) See Cold-Weather Concreting notes for additional requirements.
- 13.) All concrete be supplied by a ready mix concrete facility that is certified by the Manitoba Ready Mix Concrete Association.
- 14.) No flyash to be added to any concrete mix.

COLD WEATHER CONCRETING

- 1) This section applies when the average daily (24 hour) temperature is less than +5°C and the maximum duration of temperature of +10°C (and greater) is less than 12hours within the same 24 hour period.
- 2) Maintain concrete temperature between +10°C to +30°C from the time of batching to the end of the specified curing period. See Note 4.
- 3) All surfaces (formwork, rebar, grade, previous pours, etc.) against which new concrete is to be installed, shall be free of ice, snow and frost, and shall be pre-heated to +10°C (minimum) for a least 24 hours prior to concrete placement.
- 4) Provide enclosures, insulating blankets, heaters, etc. as necessary to maintain minimum concrete temperatures during the curing period as follows:
 - * first 3 days at +18°C
 - * next 3 days at +10°C
 - At no time shall concrete temperature exceed +30°C
- 5) Provide adequate venting for all heaters burning fossil fuels to prevent carbon dioxide and carbon monoxide buildup, which would result in health problems and poor concrete surfaces.



FOUNDATION AND MAIN FLOOR PLAN FOR NEW ENTRANCE SLAB

1:50

DESIGN LOADS:

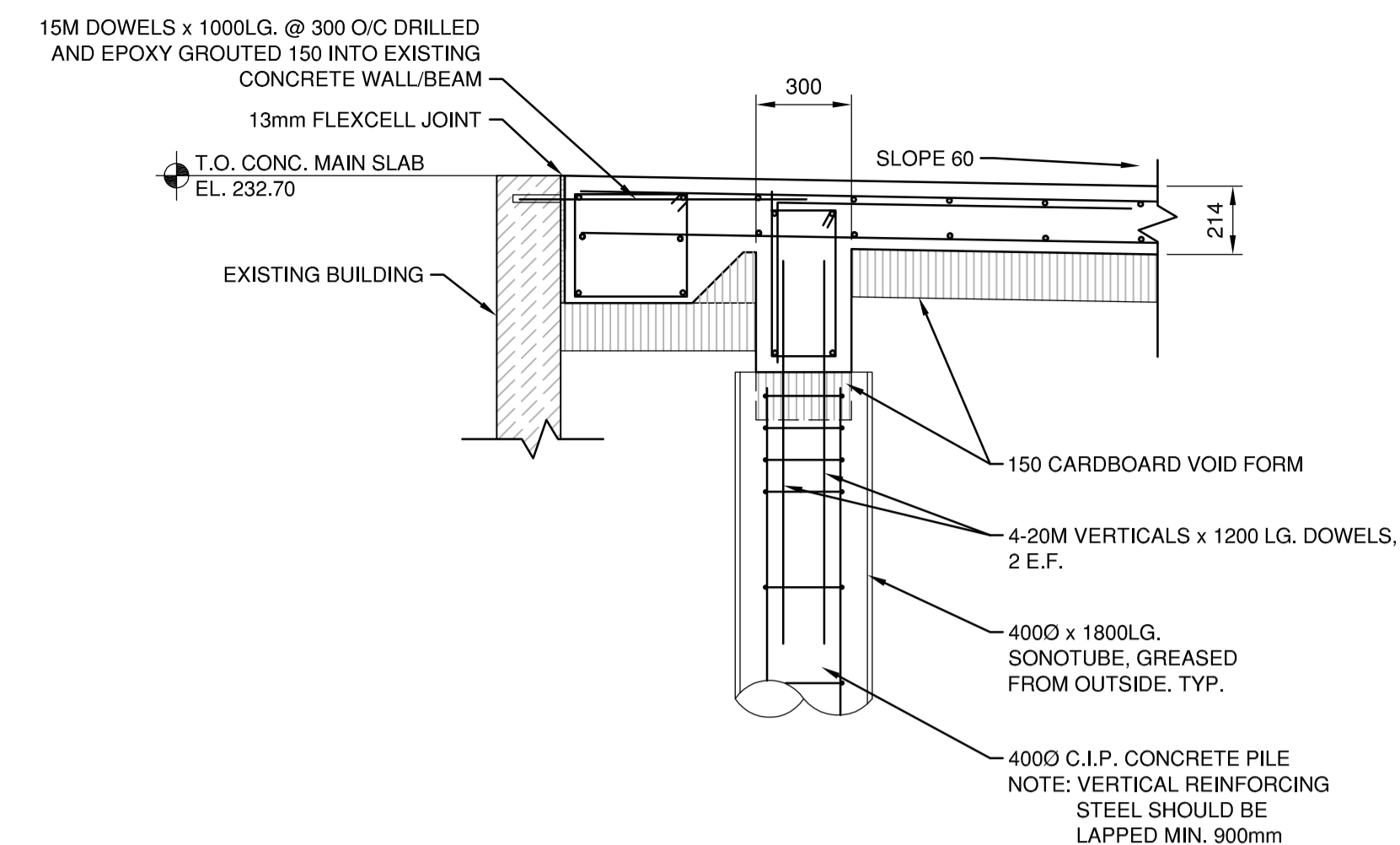
LIVE LOAD = 4.8kPa (UNFACTORED)
DEAD LOAD = 5.75 kPa (UNFACTORED)

NOTE: REMOVE EXISTING CONCRETE SLAB-ON-GRADE PRIOR TO START OF CONSTRUCTION

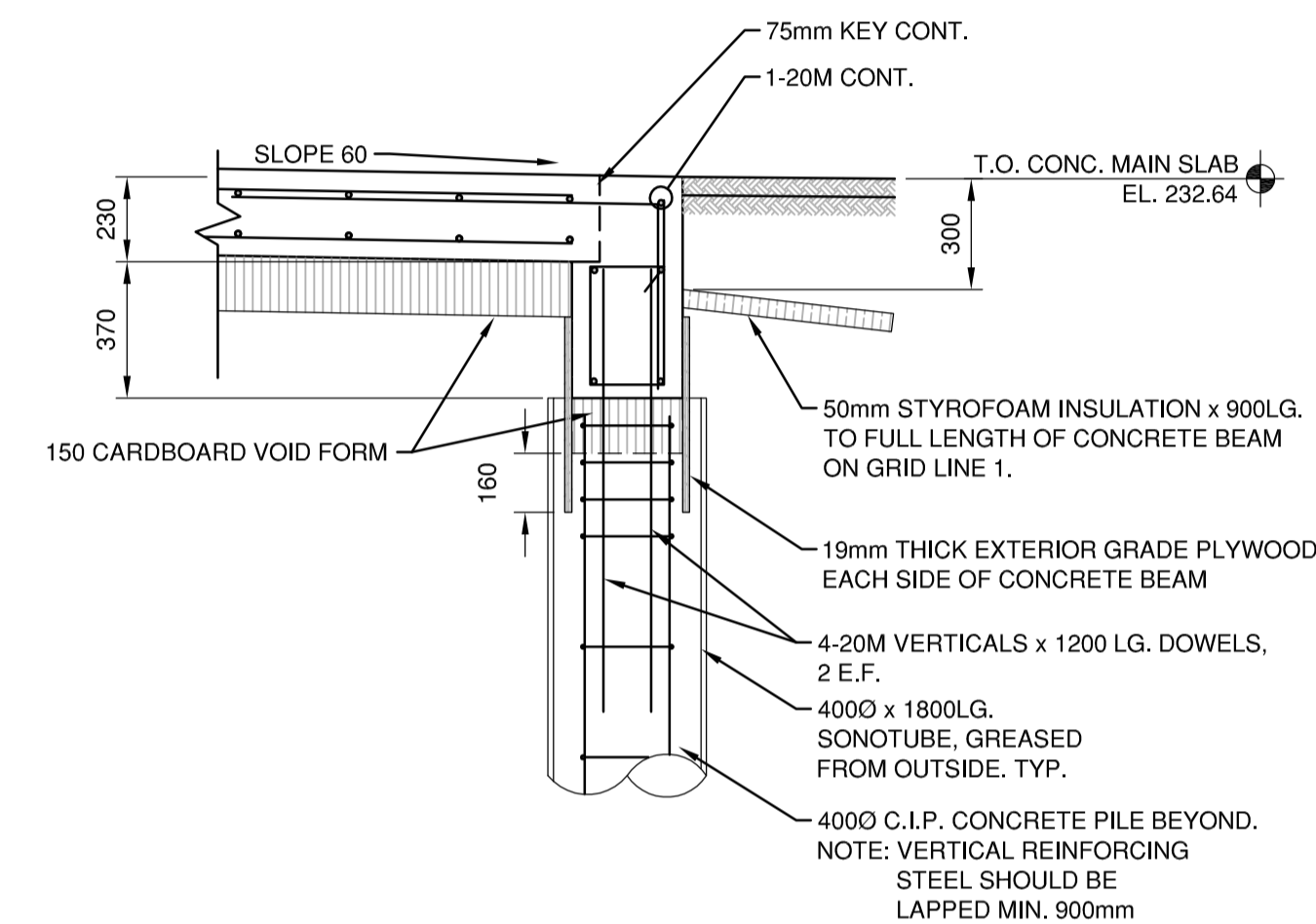
MARK	DIAMETER	LENGTH	VERTICAL REINFORCING STEEL	REMARKS
P-1	400	7600	5-15M x 7000LG. 10M TIES, 4@ 150 O/C FROM TOP, REM. @ 400/C. REFER TO NOTE RE: SPLICING IN SECTION 2.	PROVIDE 4-20M DOWELS x 1200LG. E.S. FOR GREASED SONOTUBE SEE SECTION 1.

MARK	SIZE		REINFORCING		STIRRUPS		
	WIDTH	DEPTH	TOP	BOTTOM	BAR SIZE	TYPE	SPACING
B-1	300	600	2-20M	2-20M	10M	[Diagram]	2 @ 150 O/C FROM E.E. OF SUPPORT. REM. @ 300 O/C
B-2	300	600	2-20M	2-20M	10M	[Diagram]	2 @ 150 O/C FROM E.E. OF SUPPORT. REM. @ 300 O/C
B-3	400	400	2-15M	2-15M	10M	[Diagram]	300 O/C

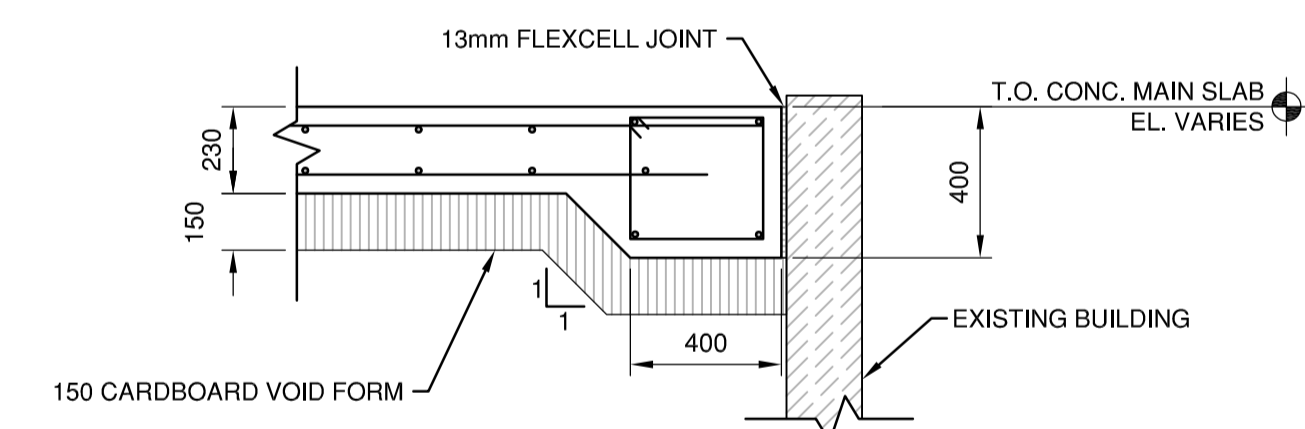
MARK	THICKNESS (mm)	BOTTOM REINFORCING		TOP REINFORCING			SUB-BASE CONSTRUCTION (U/N)	REMARKS
		SIZE & SPACING	T. ST.	SIZE & SPACING	EXTRA OVER SUPPORTS	T. ST.		
SL-1	230	15M @ 300 O/C	15M @ 300 O/C	15M @ 300 O/C	SEE SECTION 2	15M @ 300 O/C	150 CARDBOARD FORMS, 16mm PLYWOOD, & 10mil POLY	BROOM FINISH TOP OF SLAB



SECTION 1
1:20



SECTION 2
1:20



SECTION 3
1:20

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES



EXISTING	LEGEND - PLAN	PROPOSED	EXISTING	LEGEND - PLAN	PROPOSED	EXISTING	LEGEND - PROFILE	PROPOSED

SUPV. U/S STRUCTURES COMMITTEE	DATE

NO.	ISSUED FOR REVIEW	DATE	BY
0		11/02/04	R.C.

GENIVAR
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DESIGNED BY: R.G.	CHECKED BY: R.G./B.D.E.
DRAWN BY: T.L./R.DB.	APPROVED BY: B.D.E.
HOR. SCALE: 1:250 (A1)	RELEASED FOR CONSTRUCTION
VERT. SCALE:	
DATE: FEBRUARY 04, 2011	DATE:

ENGINEER'S SEAL

THE CITY OF WINNIPEG
PLANNING, PROPERTY & DEVELOPMENT

LAND DRAINAGE IMPROVEMENTS AND PARKING LOT REDEVELOPMENT FOR THE RICHMOND KINGS COMMUNITY CENTRE AND ARENA

STRUCTURAL PLAN & DETAILS

CITY DRAWING NO. 54-2011-S101	
SHEET 3 OF 3	
REV. 3	0

CONSULTANT DRAWING NO. 101-17599-S101