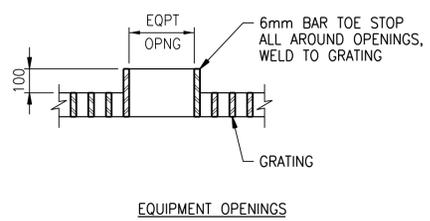
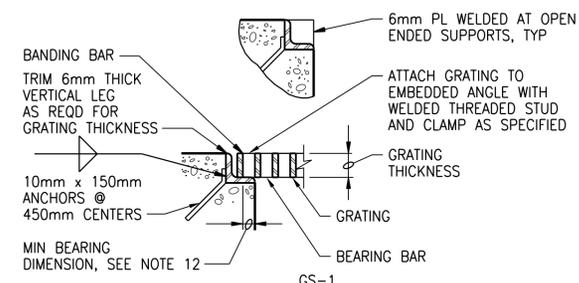
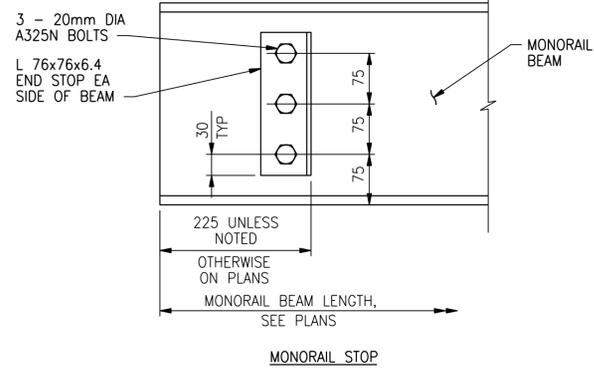


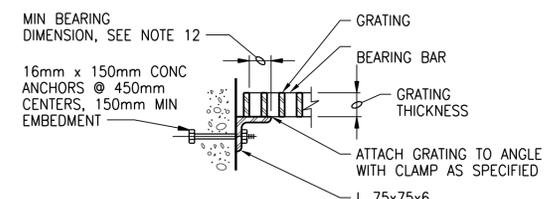
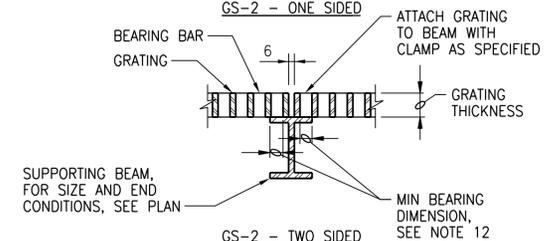
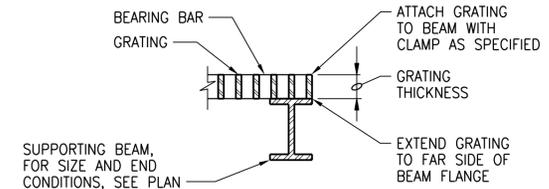
- NOTES:**
- WHERE BOTH ENDS OF BEAM ARE ATTACHED TO A WALL, PROVIDE LONG HORIZONTALLY SLOTTED HOLES IN BEAM WEB AT ONE END. TIGHTEN NUTS SNUG TIGHT, BACK OFF 1/2 TURN, AND LOCK WITH DOUBLE NUT.

**MONORAIL DETAILS**  
NTS

0512-101



- GENERAL NOTES:**
- GRATING SHALL BE LIGHT DUTY GRATING UNLESS OTHERWISE NOTED ON DRAWINGS.
  - GRATING SPAN → SEE PLAN.
  - INDIVIDUAL GRATING SECTIONS SHALL NOT EXCEED 900mm IN WIDTH OR WEIGH MORE THAN 40 kg, UNLESS INDICATED OTHERWISE. FOR TYPES 'A' & 'B' GRATING, TYPE 'C' GRATING SHALL HAVE A MINIMUM WIDTH OF 600mm REGARDLESS OF WEIGHT.
  - SHOP DRAWINGS BASED ON FIELD DIMENSIONS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION.
  - MATERIAL FOR SUPPORTS OF STEEL AND ALUMINUM GRATING TO BE SAME AS GRATING, EXCEPT METAL SUPPORTS THAT ARE TO BE EMBEDDED IN CONCRETE SHALL BE TYPE 316 STAINLESS STEEL.
  - UNLESS NOTED OTHERWISE ON PLANS, GRATING THICKNESS SHALL BE AS TABULATED IN "GRATING THICKNESS TABLE" FOR APPLICABLE GRATING TYPE.
  - FOR SERRATED BEARING BARS, INCREASE GRATING THICKNESSES SHOWN IN TABLES BY 6mm.
  - BEARING BAR THICKNESS FOR GRATING TO BE 5mm MINIMUM. SEE SPECIFICATIONS FOR SPACING OF BEARING AND CROSS BARS.
  - BAND ALL EDGES. MATCH DEPTH OF BEARING BAR.
  - TYPE OF MATERIAL USED SHALL BE AS SHOWN ON PLANS OR AS SPECIFIED. THIS STANDARD DETAIL INCLUDES 2 TYPES, ALTHOUGH BOTH MAY NOT BE INCLUDED IN PROJECT.
  - THE HORIZONTAL CLEARANCE BETWEEN THE GRATING AND GRATING SUPPORTS SHALL NOT BE LESS THAN 6mm NOR GREATER THAN 13mm AND AS SPECIFIED.
  - FOR TYPE A & B MIN BEARING HORIZONTAL DIMENSION = 25mm FOR GRATING DEPTH 57mm OR LESS, MIN BEARING HORIZONTAL = 50mm FOR GRATING DEPTH GREATER THAN 57mm.



**NOTE:**  
USE GS-3 ONLY FOR LIGHT DUTY GRATING, TYPE 'A'.

**LIGHT DUTY GRATING**  
TYPE 'A'  
(4.8 kPa)

MINIMUM GRATING THICKNESS TABLE		
MAXIMUM SPAN	STEEL	ALUMINUM
1050	25	32
1200	25	38
1350	25	44
1500	32	44
1650	32	51
1800	38	57
1950	38	57
2100	44	64
UP TO 2500	51	64

**MEDIUM DUTY GRATING**  
TYPE 'B'  
(24 kPa)

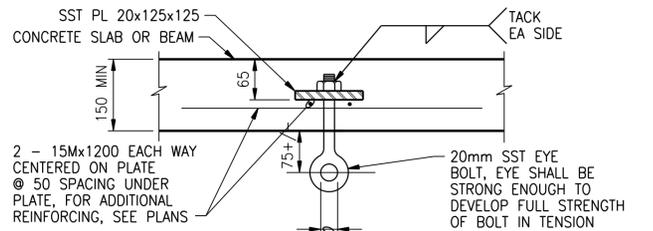
MINIMUM GRATING THICKNESS TABLE		
MAXIMUM SPAN	STEEL	ALUMINUM
< 600	25	25
750	25	32
900	32	38
1050	32	44
1200	38	51
1350	44	57
1500	44	64
1650	51	DO NOT USE ALUMINUM GRATING
1800	57	
1950	64	

**HEAVY DUTY GRATING**  
TYPE 'C'  
(H 20 WHEEL LOAD)

MINIMUM GRATING THICKNESS TABLE		
MAXIMUM SPAN	STEEL	ALUMINUM
300	51x4.8	DO NOT USE ALUMINUM GRATING
500	64x6.4	
600	64x9.5 OR 76x6.4	
750	76x9.5 OR 102x6.4	
1000	89x9.5	
1200	102x9.5	
1500	114x9.5	

**STANDARD GRATING**  
NTS

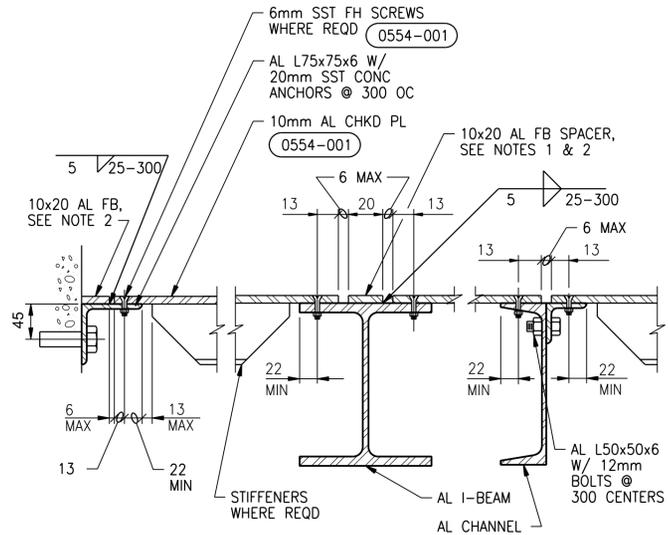
0553-001



- NOTES:**
- MAXIMUM LOAD RATING FOR LIFTING EYE: 900 kg
  - SUBMIT DATA ON EYE BOLT WITH SHOP DRAWINGS.

**LIFTING EYE**  
NTS

0512-121



- NOTES:**
- PROVIDE AL FB 10mm AT CL SUPPORT WHERE FLANGE WIDTH (OR FLANGE PLUS ANGLE) EXCEEDS 100mm..
  - TYPE "B" COVER SHOWN. DETAIL SIMILAR FOR TYPE "A" COVER. PROVIDE 13mm THICK FLAT BAR SPACERS FOR TYPE "C" COVER.

**FLOOR PLATE SUPPORT FRAMING**  
NTS

0554-002



NO.	REVISIONS	DATE	DESIGN	CHECK
02	ISSUED FOR TENDER - B.O. 899-2015	01/2016	G.O. J.C.	
01	ISSUED FOR CONSTRUCTION	10/2015	G.O. J.C.	
00	ISSUED FOR TENDER	08/2015	G.O. J.C.	

**CH2MHILL**  
SNC-LAVALIN  
DESIGNED BY: J. THANNICKAL  
CHECKED BY: E. LUI  
DRAWN BY: G. OMORI  
APPROVED BY: H.T. FREIHAMMER  
SCALE: NTS  
ISSUED FOR CONSTRUCTION BY: T. TURZAK  
DATE: 2015/08/13  
DATE: 2016/01/29  
CONSULTANT NO.: 474248

ENGINEER'S SEAL  
31/01/2016  
PROVINCE OF MANITOBA  
S.I.E. LUI  
Member 37003  
REGISTERED PROFESSIONAL ENGINEER

**THE CITY OF WINNIPEG**  
WATER AND WASTE DEPARTMENT  
SOUTH END WATER POLLUTION CONTROL CENTRE  
SEWPC UPGRADE/EXPANSION PROJECT  
STRUCTURAL  
STANDARD DETAILS (9)  
CITY DRAWING NUMBER: 1-0102-SDTL-A010  
SHEET: 02  
REV: A1  
SIZE: A1