

- 2.13 STANDARD CONCRETE COVER:
 - THE FOLLOWING ARE THE STANDARD REQUIRED CONCRETE COVERS
 - TOP OF DECK PANEL 50 mm
 - UNDERSIDE OF DECK PANEL 25 mm
 - VERTICAL FACE OF EXPOSED DECK EDGE 50 mm
 - FACE OF STUD POCKET 25 mm
 - VERTICAL FACE OF TRANSVERSE GROUTED JOINT 25 mm

3 MATERIALS AND FABRICATION

- 3.1 STRUCTURAL STEEL:
 - TO CAN/CSA-G40.21M
 - STEEL GIRDER FLANGES AND WEB PLATES: GRADE 350AT CATEGORY 3
 - OTHER STEEL PLATE: 350A
 - BRACING (DIAPHRAGMS AND PLAN BRACING): GRADE 350A.
 - ANY REQUIRED VARIATIONS REQUIRE MFR APPROVAL. IF NON WEATHERING STEEL IS APPROVED BY MFR, A CORROSION PROTECTION SYSTEM WILL BE REQUIRED.
 - COMPLETE ALL WELDS IN ACCORDANCE WITH CSA W59. WELD METAL OF PRIMARY TENSION MEMBERS AND FRACTURE CRITICAL MEMBERS SHALL MEET THE CVN TOUGHNESS REQUIREMENTS OF TABLE 10.14 OF CAN/CSA S6-06.
 - INSPECT ALL BUTT WELDS BY ULTRASONIC OR X-RAY EXAMINATION IN ACCORDANCE WITH CSA W59.
 - FABRICATOR TO BE CERTIFIED FOR DIVISION 1 OR 2 IN ACCORDANCE WITH CSA W47.1
 - FIELD WELDING BY COMPANY CERTIFIED TO CSA W47.1 DIVISION 1,2 OR 3
 - FABRICATE GIRDERS AS FRACTURE CRITICAL MEMBERS IN ACCORDANCE WITH CAN/CSA-S6-06, AS NOTED ON DESIGN DRAWINGS. STEEL PLATES FOR BOTTOM FLANGES AND WEBS SHALL CONFORM TO THE REQUIREMENTS FOR FRACTURE CRITICAL IN ACCORDANCE WITH CAN/CSA-S6-06 EXCEPT THAT CHARPY V-NOTCH TESTING RESULTS ARE ONLY REQUIRED ON A PER HEAT FREQUENCY.
 - MAKE ALL I-GIRDER FLANGE TO WEB WELDS USING SUBMERGED ARC WELDING.
 - WHERE SPECIFIED BY MFR, PAINT STEEL GIRDERS IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:
 - SURFACE PREPARATION: BLAST CLEAN TO SSPC SP-6
 - PAINT: HIGH SOLIDS, SELF-PRIMING EPOXY OR MOISTURE CURE URETHANE. SPECIFIC PAINT PRODUCT TO BE AMERLOCK 400 OR ALTERNATE EQUIVALENT PRODUCT. EQUIVALENT PRODUCTS MUST BE APPROVED BY MFR PRIOR TO USAGE.
 - PAINT SHALL BE UTILIZED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
 - MINIMUM 2 COATS
 - MINIMUM 8 MILS DRY FILM THICKNESS
 - COLOUR BY MFR
 - SHOP TRIAL FIT ALL FIELD SPLICES UNLESS CNC EQUIPMENT IS USED.
- 3.2 STRUCTURAL BOLTS:
 - ALL BOLTS INCORPORATED INTO STEEL GIRDER CONNECTIONS (BOLTED FIELD SPLICES, DIAPHRAGMS AND BRACING) TO BE ASTM A325 TYPE 3 M22 U.N.O. INSTALLED IN ACCORDANCE WITH CAN/CSA-S6-06
- 3.3 STUDS:
 - SHEAR STUDS SHALL MEET THE REQUIREMENTS OF CSA W59 APPENDIX H FOR TYPE A AND B STUDS
 - ASTM A108 GRADE 1015, 1018, 1020
- 3.4 GALVANIZING:
 - ALL ITEMS SPECIFIED AS GALVANIZED ARE TO BE GALVANIZED TO CSA G164.
- 3.5 REINFORCING:
 - TO CAN/CSA G30.18M GRADE 400R
 - REINFORCING STEEL MUST NOT BE WELDED OR TACK WELDED
- 3.6 PRECAST CONCRETE:
 - CSA A23.1 EXPOSURE CLASS C1, $f_c = 35 \text{ MPa}$ AT 28 DAYS
 - PRECAST CONCRETE TO BE FABRICATED IN ACCORDANCE WITH CSA A23.4 BY A PLANT CERTIFIED IN ACCORDANCE WITH CSA A23.4
 - FABRICATION TOLERANCES TO CSA-A23.4
 - FINISH TO BE TRANSVERSE BROOM TO TOP OF DECK PANELS, OTHERWISE TO CSA-A23.1 AND A23.4.
 - ALL CORNERS TO COME WITH 20X20 CHAMFER U.N.O. ON THE APPLICABLE STANDARD DRAWING.
- 3.7 GROUT:
 - GROUT MIN $f_c = 35 \text{ MPa}$ AT 28 DAYS, INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS
 - GROUT FOR BLOCK-OUTS SHALL BE TARGET TRAFFIC PATCH WITH COARSE AGGREGATE, OR ALTERNATE EQUIVALENT PRODUCT. EQUIVALENT PRODUCTS MUST BE APPROVED BY MFR PRIOR TO USE.
 - GROUT FOR PANEL JOINTS SHALL BE TARGET TRAFFIC PATCH WITH FINE AGGREGATE, OR ALTERNATE EQUIVALENT PRODUCT. EQUIVALENT PRODUCTS MUST BE APPROVED BY MFR PRIOR TO USE.
 - COLD WEATHER GROUTING:
 - WHERE IT IS ANTICIPATED THAT THE TEMPERATURE SHALL DROP BELOW 5°C DURING GROUTING, THE CONTRACTOR SHALL IMPLEMENT COLD WEATHER CONCRETING PROCEDURES IN ACCORDANCE WITH CAN/CSA A23.1. PRIOR TO COMMENCING THE GROUTING OPERATION, THE CONTRACTOR SHALL PROVIDE MFR WITH WRITTEN COLD WEATHER CONCRETING PROCEDURES.

- 3.8 BEARINGS:
 - TO CAN/CSA-S6-06: OZONE RESISTING NATURAL RUBBER, (NATURAL POLYISOPRENE).
 - WHERE EXPANSION JOINTS ARE USED, ENGINEER TO INCLUDE SUFFICIENT INFORMATION TO FACILITATE INSTALLATION AT VARIOUS TEMPERATURES.
- 3.9 COUPLERS
 - COUPLERS SHALL CONFORM TO ASTM A563 GRADE A MIN TENSILE STRENGTH OF 120% OF THE YIELD STRENGTH OF THE ELEMENTS BEING CONNECTED OR AS SPECIFIED ON THE STANDARD DRAWINGS.

4 TRANSPORTATION AND ERECTION OF BRIDGES


- 4.1 SUPPORT STEEL GIRDERS IN SUCH A WAY THAT THEY SUSTAIN NO DAMAGE DURING TRANSPORTATION. WHEN TRANSPORTING STEEL GIRDERS ON THE FLAT, PROVIDE A TRANSPORTATION PLAN PREPARED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF BRITISH COLUMBIA.
- 4.2 LIFTING DEVICES:
 - ALL PRECAST COMPONENTS (EXCEPT CONCRETE ROADSIDE BARRIERS AND UNREINFORCED INTERLOCKING CONCRETE BLOCKS) MUST UTILIZE BURKE LIFTING INSERTS (OR PREAPPROVED EQUIVALENT) AS LIFTING DEVICES. GROUT RECESS AFTER INSTALLATION.
 - ENGINEER TO DESIGN LIFTING INSERTS TO FACILITATE LIFTING USING FOUR EQUAL LENGTH SLINGS/CHAINS.
 - ONLY LOW IMPACT LIFTS ARE PERMITTED. ANGLE OF LIFT MUST NOT EXCEED 30 DEGREES FROM VERTICAL.
- 4.3 STEEL GIRDERS SHALL BE CLEAN AND FREE OF SHOP MARKS.

5 CERTIFICATION AND QUALITY CONTROL

- 5.1 PROVIDE CONCRETE TEST RESULTS BY AN APPROVED TESTING LABORATORY FOR ALL PRECAST CONCRETE COMPONENTS AND FOR FIELD GROUTING.
- 5.2 FIELD GROUT SAMPLES FOR THE BLOCKOUTS AND DECK JOINTS CAN COMPRISE 50 mm CUBE SAMPLES OR 50mm DIAMETER X 100 mm CYLINDERS.
- 5.3 PROVIDE MILL CERTIFICATES FOR ALL STEEL INCORPORATED INTO THE STRUCTURE.
- 5.4 CERTIFICATION TO CSA STANDARDS FOR THE STEEL AND PRECAST CONCRETE MANUFACTURERS MUST BE IN EFFECT AT THE TIME OF TENDER OPENING AND THROUGHOUT THE MANUFACTURING PERIOD.

ASSUME NOT TO SCALE
ORIGINAL SIGNED AND SEALED

SCALE AS SHOWN		Designed <u>J.H.</u> Checked <u>D.J.H.</u> Drawn <u>W.R.</u>	Date <u>MAR 2010</u> Date <u>MAR 2010</u> Date <u>MAR 2010</u>
Rev	Date	DESCRIPTION	Init
REVISIONS			



MINISTRY OF FORESTS & RANGE
ENGINEERING BRANCH, FIELD OPERATIONS DIVISION

STANDARD BRIDGE DRAWING

STANDARD STEEL GIRDER BRIDGE WITH COMPOSITE DECK
GENERAL NOTES – SHEET 2

ORIGINAL SIGNED and SEALED BY: JULIEN HENLEY	APPROVED BY:
DESIGN ENGINEER	MOF ENGINEER
DATE JULIEN HENLEY	DATE
FILE No.	DRAWING No.
	STD-EC-030-02