1 GENERAL

1.1 THESE STANDARD DRAWINGS APPLY TO THE DESIGN AND SUPPLY OF SINGLE SPAN SINGLE-LANE STEEL GIRDERS WITH COMPOSITE PRECAST CONCRETE DECK PANELS. THE STANDARD DRAWINGS PROVIDE DESIGN SPECIFICATIONS AND STANDARD DETAILS.

1.2 VARIATIONS FROM THE STANDARD REQUIREMENTS MAY BE ACCEPTABLE IN CERTAIN SPECIAL SITUATIONS. ALL SUCH VARIATIONS SHALL BE DOCUMENTED AND APPROVED FROM MFR PRIOR TO USE.

1.3 A PROFESSIONAL ENGINEER REGISTERED TO PRACTICE IN THE PROVINCE OF BRITISH COLUMBIA SHALL DESIGN ALL BRIDGE COMPONENTS.

1.4 DETAILS - ENGINEER:

1.4.1 A PROFESSIONAL ENGINEER REGISTERED TO PRACTICE IN THE PROVINCE OF BRITISH COLUMBIA EXPERIENCED IN THE DESIGN OF STEEL GIRDERS AND COMPOSITE PRECAST CONCRETE DECK PANELS, WHO IS RESPONSIBLE FOR THE DETAILED STRUCTURAL DESIGN OF A BRIDGE IN CONFORMANCE WITH THESE DRAWINGS.

1.4.2 MFR: PROFESSIONAL ENGINEER DESIGNATED BY THE MINISTRY OF FORESTS AND RANGE.

1.5 APPLICABLE OVERALL BRIDGE GIRDER LENGTH (OUT-TO-OUT):

1.5.1 VARIATIONS FROM THE STANDARD DESIGN REQUIREMENTS MAY BE ACCEPTABLE IN CERTAIN SPECIAL SITUATIONS. ALL SUCH VARIATIONS SHALL BE DOCUMENTED AND REQUIRE APPROVAL FROM MFR PRIOR TO USE.

1.6 STANDARD DECK WIDTHS

1.6.1 THESE STANDARD DRAWINGS APPLY TO THE DESIGN AND SUPPLY OF SIMPLE SPAN SINGLE LANE STEEL GIRDERS WITH COMPOSITE PRECAST CONCRETE DECK PANELS. THE STANDARD DRAWINGS PROVIDE GENERAL ENGINEERING DESIGN GUIDELINES AND STANDARD DETAILS.

1.6.2 THE FOLLOWING TABLE SPECIFIES STANDARD DECK WIDTHS FOR THE DESIGNATED DECK VEHICLES.

<table>
<thead>
<tr>
<th>DECK VEHICLE</th>
<th>STANDARD DECK WIDTH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCL625, L190</td>
<td>4876</td>
</tr>
<tr>
<td>L180, L165</td>
<td>4876</td>
</tr>
</tbody>
</table>

1.7 STANDARD GIRDER SPACINGS

1.7.1 THESE STANDARD DRAWINGS APPLY TO THE DESIGN AND SUPPLY OF SIMPLE SPAN SINGLE LANE STEEL GIRDERS WITH COMPOSITE PRECAST CONCRETE DECK PANELS. THE STANDARD DRAWINGS PROVIDE GENERAL ENGINEERING DESIGN GUIDELINES AND STANDARD DETAILS.

1.7.2 THE FOLLOWING TABLE SPECIFIES STANDARD GIRDER SPACINGS FOR VARIOUS DECK WIDTHS.

<table>
<thead>
<tr>
<th>DECK WIDTH (mm)</th>
<th>STANDARD GIRDER SPACING (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4876 (14')</td>
<td>3000</td>
</tr>
<tr>
<td>4876 (16')</td>
<td>2800</td>
</tr>
<tr>
<td>5486 (18')</td>
<td>2650</td>
</tr>
</tbody>
</table>

1.8 STANDARD DECK PANEL EDGE THICKNESS AND DECK PANEL CROSSFALL

1.8.1 THESE STANDARD DRAWINGS APPLY TO THE DESIGN AND SUPPLY OF SINGLE SPAN SINGLE-LANE STEEL GIRDERS WITH COMPOSITE PRECAST CONCRETE DECK PANELS. THE STANDARD DRAWINGS PROVIDE DESIGN SPECIFICATIONS AND STANDARD DETAILS.

1.8.2 THE FOLLOWING TABLE SPECIFIES STANDARD DECK PANEL EDGE THICKNESS AND DECK PANEL CROSSFALL.

<table>
<thead>
<tr>
<th>DECK PANEL LENGTH</th>
<th>STANDARD DECK PANEL EDGE THICKNESS (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3048 (10')</td>
<td>175</td>
</tr>
<tr>
<td>3600 (12')</td>
<td>175</td>
</tr>
<tr>
<td>4876 (16')</td>
<td>200</td>
</tr>
<tr>
<td>5486 (18')</td>
<td>225</td>
</tr>
<tr>
<td>6876 (26')</td>
<td>250</td>
</tr>
</tbody>
</table>

2 DESIGN

2.1 DESIGN LIFE:

2.1.1 THE DESIGN LIFE OF THE BRIDGE SHALL BE 45 YEARS.

2.2 DESIGN LOADS AND MFR REFERENCES STANDARDS:

2.2.1 CAN/CSA S6-06

2.2.2 MINISTRY OF FORESTS AND RANGE BRIDGE DESIGN AND CONSTRUCTION MANUAL

2.2.3 THE FOLLOWING DRAWINGS SHALL CLEARLY SPECIFY THE DESIGN VEHICLE THAT WAS USED FOR THE BRIDGE DESIGN.

2.3 DESIGN VEHICLES

2.3.1 THESE STANDARD DRAWINGS APPLY TO THE DESIGN AND SUPPLY OF SINGLE SPAN SINGLE-LANE STEEL GIRDERS WITH COMPOSITE PRECAST CONCRETE DECK PANELS. THE STANDARD DRAWINGS PROVIDE DESIGN SPECIFICATIONS AND STANDARD DETAILS.

2.3.2 THE DESIGN DRAWINGS SHOWN IN DRAWING STD-EC-099-01 TO STD-EC-099-02 ARE THE DESIGN DRAWINGS SHOWN IN DRAWING STD-EC-099-01 TO STD-EC-099-02 THAT THE DESIGNER SHALL CLEARLY SPECIFY THE DESIGN VEHICLE THAT WAS USED FOR THE BRIDGE DESIGN.

ASSUME NOT TO SCALE NOT FOR CONSTRUCTION
3.1 STRUCTURAL STEEL:
- TO CAN/CSA-G40.21M
- STEEL GIRDER FLANGES AND WEB PLATES: GRADE 350A CATEGORY 3
- OTHER STEEL PLATE: 25A
- BRACING: DIAPHRAGMS AND PLAN BRACING: GRADE 23A
- AWAY REQUIRED VARIATIONS REQUIRE MFR APPROVAL. AT NO TIME WEATHERING STEEL IS APPROVED BY MFR. A CORROSION PROTECTION SYSTEM WILL BE REQUIRED.

3.2 STRUCTURAL BOLTS:
- ALL BOLTS INCORPORATED INTO STEEL GIRDER CONNECTIONS BOLTED FIELD SPACERS, DIAPHRAGMS AND BRACING TO BE ASTM A325 TYPE 3 M22 U.N.O. INSTALLED IN ACCORDANCE WITH CAN/CSA S6-06.
- ALL BOLTS INCORPORATED INTO STEEL GIRDER CONNECTIONS BOLTED FIELD SPACERS, DIAPHRAGMS AND BRACING TO BE ASTM A325 TYPE 3 M22 U.N.O. INSTALLED IN ACCORDANCE WITH CAN/CSA S6-06.

3.3 STUDS:
- ALL STUDS SHALL MEET THE REQUIREMENTS OF CSA W59 APPENDIX H FOR TYPE A AND B STUDS ACCORDANCE WITH CSA A23.4.

3.4 GALVANIZING:
- ALL ITEMS SPECIFIED AS GALVANIZED ARE TO BE GALVANIZED TO CSA G164.
- ASTM A108 GRADE 1015, 1018, 1020

3.5 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

3.6 PRECAST CONCRETE:
- WHERE EXPANSION JOINTS ARE USED, ENGINEER TO INCLUDE SUFFICIENT INFORMATION TO FACILITATE INSTALLATION AT VARIOUS TEMPERATURES.

3.7 GROUT:
- GRADE: C20/30 OR ALTERNATE EQUIVALENT PRODUCT. EQUIVALENT PRODUCTS MUST BE APPROVED BY MFR PRIOR TO USE.

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 A490 GRADE A MIN TENSILE STRENGTH OF 10% OF THE YIELD STRENGTH OF THE ELEMENTS BEING CONNECTED OR AS SPECIFIED ON THE STANDARD DRAWS.

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 RAINING LIFTING DEVICES. LIFTING DEVICES MUST MEET THE REQUIREMENTS OF CAN/CSA S314 AND BE INSTALLED IN ACCORDANCE WITH CAN/CSA S6-06.

4.3 STAINLESS STEEL BARS AND TIES:
- ALL REQUIRED VARIATIONS REQUIRE MFR APPROVAL. IF NON WEATHERING STEEL IS APPROVED BY MFR, A CORROSION PROTECTION SYSTEM WILL BE REQUIRED.

4.4 CERTIFICATION AND QUALITY CONTROL:
- PROVIDE CONCRETE TEST RESULTS BY AN APPROVED TESTING LABORATORY FOR ALL PRECAST CONCRETE COMPONENTS AND FOR FIELD GROUTING.

4.5 PROVIDE MILL CERTIFICATES FOR ALL STEEL INCORPORATED INTO THE STRUCTURE.

4.6 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.
ERECTION BRACE DETAIL
1:100

ERCTION BRACE REG'D EACH END
(SPLICED GIRDERS)
1 END ONLY (NON-SPLICED GIRDERS)
SEE GENERAL NOTES
STD-EC-030-01/02

TYPICAL STUD GROUP
1:100

228 STUD,
LENGTH TO SUIT DECK
PANEL, THICKNESS,
NUMBER OF STUDS,
SPACED & LAYOUT BY
ENGINEER TO SUIT POCKET
GEOMETRY.

ASSUME NOT TO SCALE
NOT FOR CONSTRUCTION
MINISTRY OF FORESTS & RANGE
ENGINEERING BRANCH, FIELD OPERATIONS DIVISION

TYPE 3 - REINFORCEMENT PLAN
1:50

TYPE 4 - REINFORCEMENT PLAN
1:50

ASSUME NOT TO SCALE
NOT FOR CONSTRUCTION
ASSUME NOT TO SCALE
NOT FOR CONSTRUCTION