



- MATERIALS**
- ALL CAP CONCRETE SHALL BE CLASS C, AND CLASS D FOR SITE PLACED BLOCKOUT CONCRETE; MODIFIED AS INDICATED, OR PILE CONCRETE FOR PILE PILE INFILL. SULPHATE RESISTANT PORTLAND CEMENT (TYPE 50) SHALL BE USED FOR ALL CONCRETE IF DETERMINED NECESSARY FROM GEOTECHNICAL INVESTIGATION FINDINGS.
  - REINFORCING STEEL SHALL CONFORM TO G30. 18M GRADE 400. REBAR BENDING DETAILS SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE MANUAL OF STANDARD PRACTICE OF REINFORCING STEEL INSTITUTE OF CANADA.
  - GIRDER DOWELS SHALL BE FABRICATED FROM SMOOTH ROUND BAR STOCK CONFORMING TO ASTM A193-B7 (F<sub>y</sub> = 725MPa, F<sub>u</sub> = 860MPa). GALVANIZING SHALL STRICTLY FOLLOW THE FOLLOWING PROCEDURE WITH THE PRESENCE OF THE CONSULTANT:
    - BRUSH BLAST DOWELS TO REMOVE MILL SCALE AND OIL.
    - FLASH PICKLING NOT TO EXCEED 5 MINUTES.
    - QUICK DRY PRIOR TO HOT-DIP GALVANIZING (DO NOT STORE IN FLUX OR ACID RINSE.)
  - ALL STEEL PLATE AND SHAPES SHALL CONFORM TO THE REQUIREMENTS OF CSA G40.21M GRADE 350W EXCEPT PIPE MATERIAL WHICH SHALL CONFORM TO THE REQUIREMENTS OF ASTM 252 GRADE 2 (F<sub>y</sub> = 240MPa).
  - PIER PILES AND BRACES SHALL BE HOT-DIPPED GALVANIZED. GALVANIZING MAY BE OMITTED FROM PILE SURFACES LOCATED MORE THAN 1000 mm BELOW GROUNDLINE. ALL FIELD WELDS OF GALVANIZED MATERIAL SHALL BE TOUCHED-UP WITH MINIMUM TWO COATS OF DEPARTMENT APPROVED ZINC-RICH PAINT AND ARE SUBJECT TO THE APPROVAL OF THE CONSULTANT.
  - GALVANIZING SHALL CONFORM TO THE CURRENT CSA STANDARD G164.
  - ALL WELDING SHALL CONFORM TO THE CURRENT AWS SPECIFICATION D1.5.
  - TREATED TIMBER (TT) SHALL CONFORM TO SECTION 23 OF THE SPECIFICATIONS FOR BRIDGE CONSTRUCTION.
  - GRANULAR BACKFILL SHALL BE PLACED TO A MINIMUM OF 95% PROCTOR DENSITY AND OTHERWISE CONFORM TO THE SPECIFICATIONS FOR BRIDGE CONSTRUCTION.
  - BEARING PADS SHALL CONSIST OF NEOPRENE 60 HARDNESS AND SHALL CONFORM TO SECTION 18 "BEARING DEVICES" DIVISION II OF AASHTO DESIGN STANDARD.
  - DOWEL HOLE GROUT TO BE SIKA 212 MINIMUM 28 DAY STRENGTH = 40MPa.
  - ASPHALT IMPREGNATED FIBREBOARD (AIFB) SHALL CONFORM TO THE CURRENT ASTM SPECIFICATION D1751 FOR PREFORMED EXPANSION JOINT FILLER.

- PRECAST ABUTMENT AND PIER CAPS**
- FABRICATION - SHALL CONFORM TO CURRENT REQUIREMENTS OF THE SPECIFICATIONS FOR BRIDGE CONSTRUCTION SECTION 7 - PRECAST CONCRETE UNITS, EXCEPT AS NOTED OTHERWISE. ALL REFERENCES TO "GIRDER" OR "GIRDERS" IN THIS SPECIFICATION SECTION SHALL BE SUBSTITUTED WITH THE WORD "CAP" OR "CAPS" FOR THE PURPOSE OF THE SUBSTRUCTURE PORTION OF THIS WORK.
  - BLOCKOUT & SLEEVE VOIDS TO BE FORMED WITH REMOVABLE MATERIALS ALL SURFACES OF VOIDS & SLEEVES TO BE FINISHED WITH A HEAVY SANDBLAST.
  - CAP CONCRETE - CLASS C (BRIDGE SPEC SECTION 4), MODIFIED TO HAVE A STRENGTH AT STRIPPING & PRIOR TO CAP HANDLING = 25MPa. MINIMUM 28 DAY CONCRETE STRENGTH = 30MPa. ASSUMED  $\gamma = 24.0kN/m^3$
  - FINISH - ALL EXPOSED CONCRETE SURFACES EXCEPT BEARING AREAS SHALL BE GIVEN A CLASS 2 FINISH.
  - ERECTION - REFER TO THE CAP LIFTING DETAILS FOR LIFTING REQUIREMENTS. IT IS THE RESPONSIBILITY OF OTHERS USING THESE DOCUMENTS TO CONSULT WITH A QUALIFIED PROFESSIONAL ENGINEER PRIOR TO PROPOSING AND/OR IMPLEMENTING ANY ADJUSTMENTS TO THE SPECIFIED LIFTING CRITERIA. REFER TO SPECIFICATION FOR ADDITIONAL ERECTION REQUIREMENTS. ALL LIFTING ASSEMBLIES (CABLES DISTRIBUTION BEAM, ETC.) BY CONTRACTOR.
  - PILE BLOCK-OUT CONCRETE - CLASS D EXCEPT MODIFIED TO HAVE A MINIMUM 7 DAY STRENGTH = 30MPa.
  - CAP ERECTION SHIMS - GALVANIZED STEEL, SIZE AND THICKNESS TO SUIT TEMPORARY SUPPORT BLOCKING REQUIREMENTS. MINIMUM BEARING AREA 5000 mm<sup>2</sup> PER STACK SHIMS TO BE ENCASED IN PILE BLOCK-OUT CONCRETE OR, IF EXPOSED, REMOVED AFTER BLOCKOUT CONCRETE HAS CURED A MINIMUM OF 24 HOURS.
  - CAP SHIM SUPPORT REQUIRED AT 4500mm MAXIMUM SPACING IN ORDER TO MINIMIZE THE AMOUNT OF CAP CRACKING PRIOR TO PILE BLOCKOUT CONCRETE PLACEMENT.
  - CAPS SHALL BE ERECTED AND BUILT ONTO PILE FOUNDATIONS TO THE SPECIFIED POSITIONS, LINES AND GRADES. THE CONTRACTOR SHALL USE WHATEVER ACCEPTABLE MEANS NECESSARY TO ACHIEVE THIS REQUIREMENT, WHICH MAY INCLUDE SHIMMING, TEMPORARY SUPPORTS/FALSEWORK, JACKS, TIE-LINES, ETC.
  - PATCHING - AFTER CAPS ARE CONCRETED INTO POSITION LIFTING STRANDS ARE TO BE CUT OFF FLUSH WITH BOTTOM OF LIFTING POCKET. POCKET TO BE FILLED WITH A DEPARTMENT APPROVED LTH PATCHING MATERIAL.

WORK DRAWINGS S-1690-04, S-1691-04, S-1692-04, S-1693-04, S-1694-04 AND S-1695-04 TOGETHER WITH SITE SPECIFIC GENERAL LAYOUT

<p>PERMIT TO PRACTICE CH2M HILL CANADA LIMITED Signature: <i>[Signature]</i> Date: January 27, 2005 PERMIT NUMBER: P 2558 The Association of Professional Engineers, Geologists and Geophysicists of Alberta</p>	<p>DESIGNER DATE: JAN. 27, 2005</p>	<p>CHECKER DATE: Jan 27, 2005</p>	<p>RECOMMENDED DIRECTOR BRIDGE ENGINEERING <i>[Signature]</i></p>	<p>SC PRECAST GIRDER BRIDGES WITH PRECAST CONCRETE SUBSTRUCTURES - SHT 2</p>
			<p>APPROVED EXECUTIVE DIRECTOR TECHNICAL STANDARDS BRANCH <i>[Signature]</i> DATE: Feb/05</p>	
<p>REV DATE REVISIONS BY</p>			<p>DEPARTMENT BAR CODE DATE SHEET DRAWING</p> <p>2005-01-27 2 of 6 S-1691-04</p>	