

**GENERAL NOTES**

- SCALES, WHERE INDICATED, ARE APPLICABLE FOR FULL-SIZE A1 DRAWING FORMAT
- ALL DRAWING REFERENCES REFER TO CURRENT DRAWINGS.
- ALL DIMENSIONS ARE GIVEN IN mm UNLESS NOTED OTHERWISE.
- ROADWAY ELEVATIONS SPECIFIED ELSEWHERE ARE GIVEN TO TOP OF THEORETICAL CROWN ON CENTRELINE ROADWAY.

**GEOTECHNICAL CONSIDERATIONS**

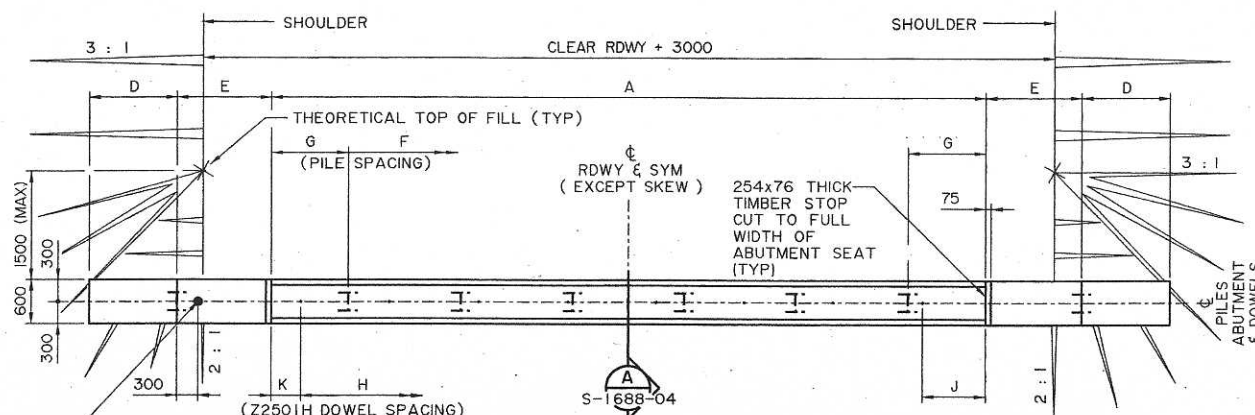
- IT IS THE RESPONSIBILITY OF OTHERS USING THESE SUBSTRUCTURE DRAWINGS TO OBTAIN THE NECESSARY SITE SPECIFIC GEOTECHNICAL INFORMATION. THE GEOTECHNICAL INVESTIGATION COMPLETED BY A QUALIFIED PROFESSIONAL ENGINEER SHOULD BE UNDERTAKEN PRIOR TO THE DESIGN PHASE IN ORDER TO ESTABLISH THE SUITABILITY OF THE DESIGN ASSUMPTIONS LISTED ON THESE PLANS, AND TO PROVIDE SUPPLEMENTARY INFORMATION WHERE REQUIRED INCLUDING CEMENT TYPE FOR CONCRETE MIXES.
- ADDITIONALLY, A GEOTECHNICAL INVESTIGATION IS DEEMED NECESSARY IN ORDER TO ESTABLISH THE SOIL CHARACTERISTICS AT THE SITE - THE PRESENCE AND THE EXTENT OF BOULDERS, HARD OR SOFT FORMATIONS, WATER TABLES, ARTESIAN CONDITIONS AND OTHER VARIABLES - AS THESE COULD SIGNIFICANTLY IMPACT THE CONSTRUCTION OF THE SUBSTRUCTURE AND ITS REQUIRED PERFORMANCE AND STRENGTH IF NOT IDENTIFIED AND ADDRESSED IN A TIMELY MANNER.

**HYDROTECHNICAL CONSIDERATIONS**

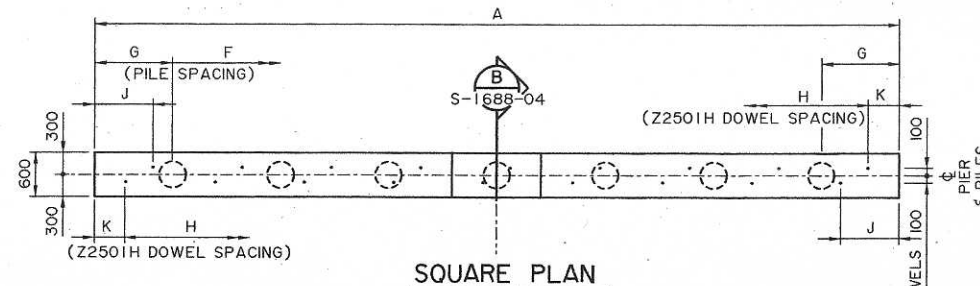
- IT IS THE RESPONSIBILITY OF OTHERS USING THESE SUBSTRUCTURE DRAWINGS TO COMPLETE A SITE SPECIFIC HYDROTECHNICAL ASSESSMENT IN ORDER TO ESTABLISH THE NEED FOR RIP RAP, TO DETERMINE THE SUITABILITY OF THE DESIGN ASSUMPTIONS LISTED ON THESE PLANS, AND TO SUPPLEMENT THESE WHERE REQUIRED. CONSULTATION WITH A QUALIFIED PROFESSIONAL ENGINEER WITH HYDROTECHNICAL EXPERIENCE PRIOR TO THE DESIGN PHASE IS RECOMMENDED.

**DESIGN**

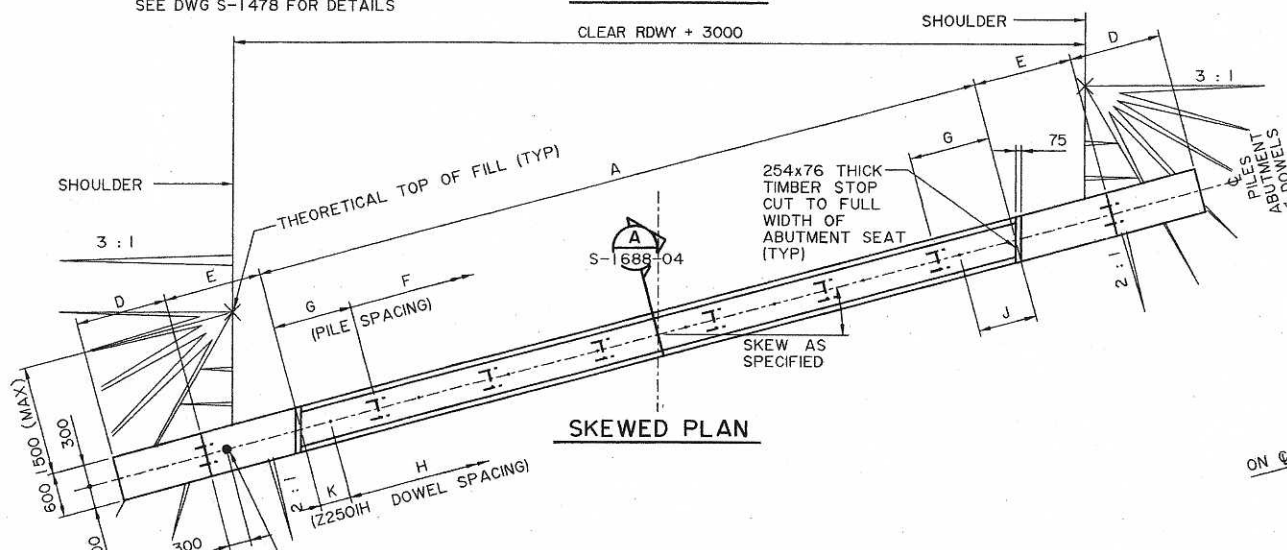
- **DESIGN SPECIFICATION:** CAN/CSA-S6-00
- **DESIGN VEHICLE:** CL-800
- **DEAD LOAD:** ABUTMENT & PIER CAP SELF WEIGHT GIRDER SELF WEIGHT & WEARING SURFACE ALLOWANCE AS PER STANDARD SC-510 GIRDER DRAWINGS S-1656-01, S-1658-01, S-1660-01, S-1662-01 & S-1678-01
- **WATER LOADS:** NOT CONSIDERED FOR PIER DESIGN, ICE LOADS USED
- **ICE LOADS:** THE FOLLOWING LIMITING ASSUMPTIONS WERE USED FOR PIER DESIGN AND THESE PLANS SHOULD NOT BE USED WHEN THESE DESIGN CONDITIONS ARE EXCEEDED:
  - EFFECTIVE CRUSHING STRENGTH  $p = 400 \text{ kPa}$
  - MAXIMUM ICE THICKNESS = 600 mm
  - SMALL STREAM REDUCTION FACTOR = 0.7
  - FLOW ANGLE BETWEEN AXIS OF PIER AND STREAM, 0 TO 45 DEGREES
  - HEIGHT OF DECK SURFACE ABOVE STREAM BED  $\leq 6.0 \text{ m}$
  - HEIGHT OF ICE FORCE ABOVE STREAM BED  $\leq 2.5 \text{ m}$
  - DEPTH BELOW STREAM BED TO EFFECTIVE PILE FIXITY = 1.5 m
- **EARTH PRESSURE:** THE FOLLOWING LIMITING ASSUMPTIONS WERE USED FOR SUBSTRUCTURE DESIGN. THESE PLANS SHOULD NOT BE USED WHEN ACTUAL SITE CONDITIONS RESULT IN MORE SEVERE LOAD EFFECTS OR LESS EFFECTIVE RESISTANCE:
  - UNIT WEIGHT OF SOIL  $\gamma = 22 \text{ kN/m}^3$
  - MAXIMUM HORIZONTAL DISTANCE FROM TOP OF FILL TO BURIED FACE OF ABUTMENT = 1.5m
  - MAXIMUM HEAD SLOPE INCLINATION, 2H : 1V
  - ANGLE BETWEEN AXIS OF ABUTMENT AND CENTRE LINE OF ROADWAY, 45 TO 90 DEGREES.
  - DEPTH BELOW UNDERSIDE OF ABUTMENT SEAT TO EFFECTIVE PILE FIXITY = 1.5m
- **SEISMIC:**  $Z_a = 1, a = 0.05, Z_v = 1, v = 0.05$
- **THERMAL:** MAXIMUM DAILY MEAN TEMPERATURE = 32°C  
MINIMUM DAILY MEAN TEMPERATURE = -42°C
- **WIND:** HOURLY MEAN WIND PRESSURE (50 YR) = 1.02 kPa
- **BRAKING FORCE:** CONSIDERED
- **COLLISION:** NOT CONSIDERED
- **BRIDGE LENGTH:** IT IS THE RESPONSIBILITY OF OTHERS USING THESE PLANS TO DETERMINE THE SUITABILITY OF THE DESIGN WHEN BRIDGE LENGTH EXCEEDS 50.0 m AND TO MAKE DESIGN ADJUSTMENTS IF AND WHERE REQUIRED.
- **GIRDER DOWEL HOLE:** IT IS THE RESPONSIBILITY OF OTHERS USING THESE PLANS TO DETERMINE THE SUITABILITY OF THE GIRDER REINFORCING OF THE 40mm DIAMETER DOWEL HOLE (REFERENCE STANDARD SC GIRDER DRAWINGS FOR DETAILS). THERE MAY BE CERTAIN BRIDGE CONFIGURATIONS FOR WHICH THE SUBSTRUCTURE DOWEL DESIGN LOAD EXCEEDS THE DOWEL HOLE REINFORCEMENT CAPACITY PRESENTED ON THE STANDARD GIRDER DRAWINGS.



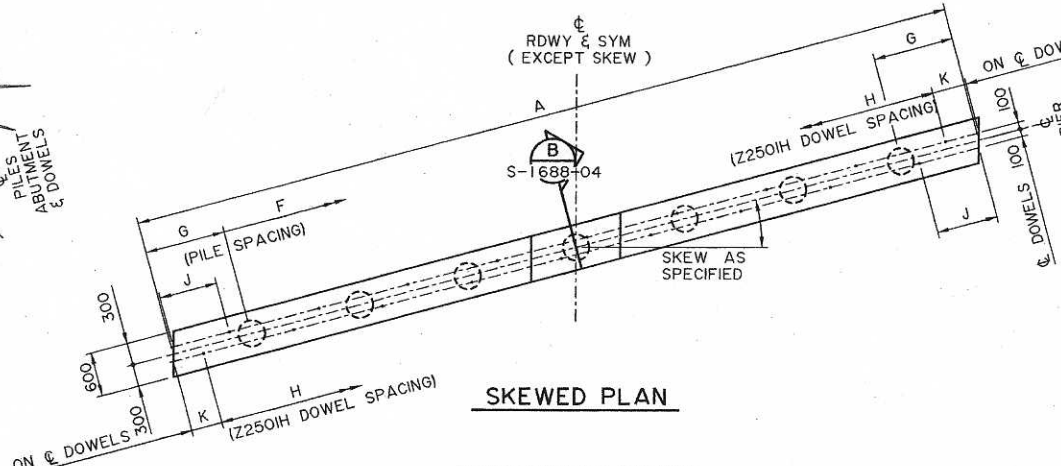
**SQUARE PLAN**



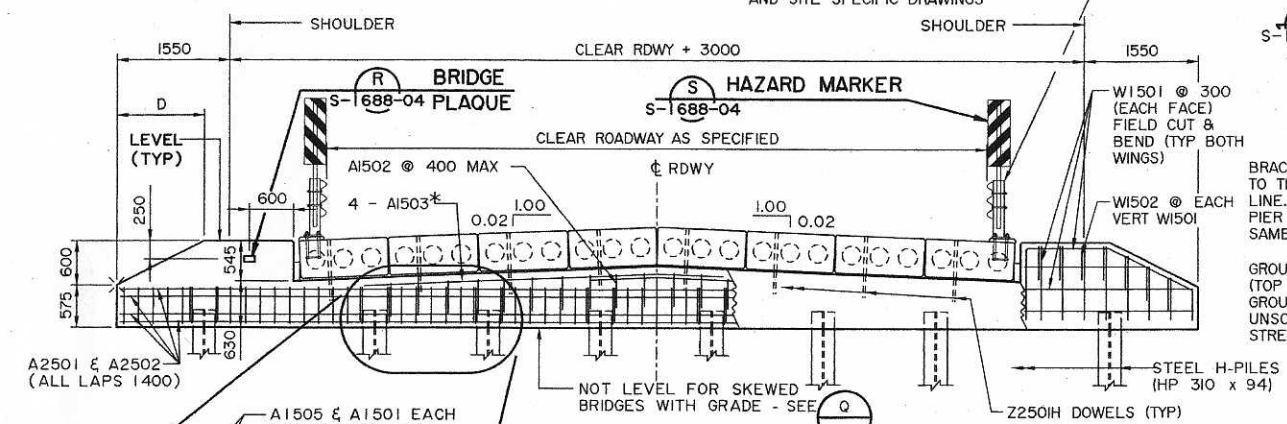
**SQUARE PLAN**



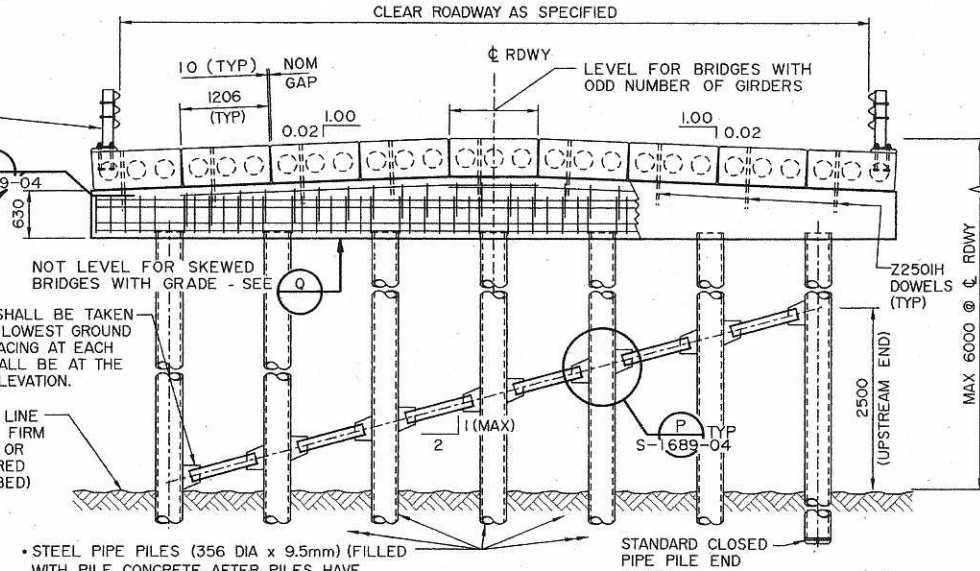
**SKewed PLAN**



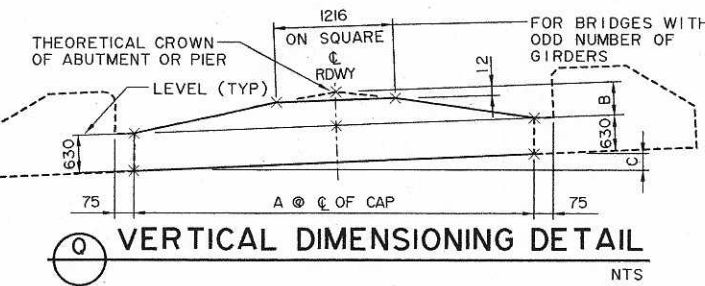
**SKewed PLAN**



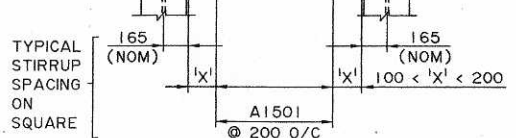
**ELEVATION ABUTMENTS**  
1:50



**ELEVATION PIERS**  
1:50



**VERTICAL DIMENSIONING DETAIL**  
NTS



TYPICAL STIRRUP SPACING ON SQUARE

NOTE:  
- EVEN NUMBER OF GIRDERS SHOWN  
\*- SUBSTITUTE 4-A1504 FOR ODD NUMBER OF GIRDERS

• STEEL PIPE PILES (356 DIA x 9.5mm) (FILLED WITH PILE CONCRETE AFTER PILES HAVE BEEN ALIGNED) OR STEEL H-PILES (HP 310 x 94) PILE SPLICES, WHERE REQUIRED, SHALL BE LOCATED AT LEAST 1000mm BELOW GROUNDLINE

• REFER TO SECTION E/S-1688-04 FOR NOSING DETAIL FOR H-PILE ALTERNATE

NOTE:  
- BRACING MAY BE OMITTED WHEN SO SPECIFIED.  
- ODD NUMBER OF GIRDERS SHOWN  
- PIPE PILE ALTERNATE SHOWN  
- REFER TO C/S-1689-04 FOR STIRRUP SPACING

WORK DRAWINGS S-1687-04, S-1688-04, AND S-1689-04 TOGETHER WITH SITE SPECIFIC GENERAL LAYOUT

**CH2MHILL**  
"Responsible Solutions for a Sustainable Future"

PERMIT TO PRACTICE  
CH2M HILL CANADA LIMITED  
Signature: *[Signature]*  
Date: **January 27, 2005**  
PERMIT NUMBER: P 2558  
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

DESIGNER  
PROFESSIONAL ENGINEER  
DATE: **JAN 27, 2005**

CHECKER  
PROFESSIONAL ENGINEER  
DATE: **Jan 27, 2005**

REV	DATE	REVISIONS	BY
2	2005-01-27	REDRAWN FROM S-1601-91 & S-1602-91 (REV. 3) TO COMPLY WITH CAN/CSA-S6-00 & NEW CURB GIRDERS	NGD

RECOMMENDED DIRECTOR BRIDGE ENGINEERING  
*[Signature]*  
APPROVED EXECUTIVE DIRECTOR TECHNICAL STANDARDS BRANCH  
*[Signature]*  
DATE: **Feb 3/05**

**Alberta** TRANSPORTATION  
**SC PRECAST GIRDER BRIDGES WITH CAST-IN-PLACE CONCRETE SUBSTRUCTURES - SHT 1**  
DEPARTMENT BAR CODE: \_\_\_\_\_ DATE: **2005-01-27** SHEET: **1 of 3** DRAWING: **S-1687-04**