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G.I.-30 SEPT. 1976

GEOCRES No. 42B-6

DIST. 14 REGION

W.P. No. 103-88-01

CONT. No.

W. O. No.

STR. SITE No.

HWY. No. 101

LOCATION Ivanhoe River Bridge

No of PAGES - —

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT.

REMARKS:

Ministry
of
Transportation
Ontario

FILE No. _____ **DATE** _____

REMARKS GEOCRES # 42B-2

memorandum

Ontario

To:
G. Todd
Head of Planning & Design Section
Northern Region
Attention : Al Devolin

Date:
92 06 01

From: Foundation Design Section
Room 315, Central Building

Re : Highway 101 - from Highway 144 to 576
Highway 576 - from Highway 101 northerly 24.9 km
W.P. 37-89-00
District 14, New Liskeard

We refer to the contract data and plans sent to us for the above project. Our comments on them are restricted to the plans on rehabilitation of Ivanhoe River Bridge and Shawmere River Bridge where we have previous involvements.

Shawmere River Bridge (W.P. 151-77-02)

- The proposed construction consists of new timber deck, asphalt paving, diaphragms and concrete barrier walls. This will result in a total dead load of 925 kN as per information received earlier from your design consultant.

- No changes or modifications are planned for the existing foundations as per our memorandum dated 91 09 11. The existing foundation will carry the design load.

- We have no other comments from a foundation stand point.

Ivanhoe River Bridge (W.P. 103-88-01)

- The proposed construction mainly consists of new timber deck, asphalt paving, diaphragms, additional girders and concrete barrier walls. This will result in total loads of 116 kN and 247 kN per pile for the piers and abutments respectively as per information received earlier from your design consultant.

- No changes or modifications are planned for the existing foundations as per our memorandum dated 91 10 16. The existing foundation will carry the design load.

- We have no other comments from a foundation stand point.

Balu Iyer, P. Eng.
Senior Foundation Engineer
for
Murty Devata, P. Eng.
Chief Foundation Engineer

memorandum

Ontario

To: P. Furst
Head, Structural Section
Northern Region

Date: 1991 10 16

From: Foundation Design Section
Room 315, Central Building

Re: Foundation Recommendations
Ivanhoe River Bridge
W.P. 103-88-01, Site 46-03
District 14, New Liskeard

We have been asked to provide our opinion regarding the suitability of the existing foundations to support the additional loading resulting from a proposed 7-girder layout at the above captioned site.

According to information provided to this office, the subsurface conditions at the site generally consist of loose to medium dense silts to sands and gravels which are, in turn, underlain by very dense coarse sandy silts and/or hard glacial tills. Additional information provided to us indicates that the original timber piles at the abutment areas and steel H-piles installed at the pier locations have been driven to depths of 7.9 to 13.7 m (or elevations of 308.2 to 313.4 m).

Calculations by Morrison Hershfield Limited, indicate that the abutment and pier piles for the existing 5-girder layout are presently supporting 95 and 117 kN (SLS II), respectively. Their revised calculations, based on a 7-girder scheme, indicate that the loads on each pier and abutment pile will increase to 116 kN and 247 kN respectively. In our opinion, the existing piles will be able to support the relatively small increase in load due to the 7-girder scheme.

Should you have any questions regarding this letter, please do not hesitate to contact this office.

John A. Blair

John A. Blair, P. Eng.
Foundation Engineer

for

Balu Iyer, P. Eng.
Sr. Foundation Engineer

BI/JAB/jb

MH 11-304.02 (M-1:100) (RB1-A

NORTH FOR CONSTRUCTION

METRIC

DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN

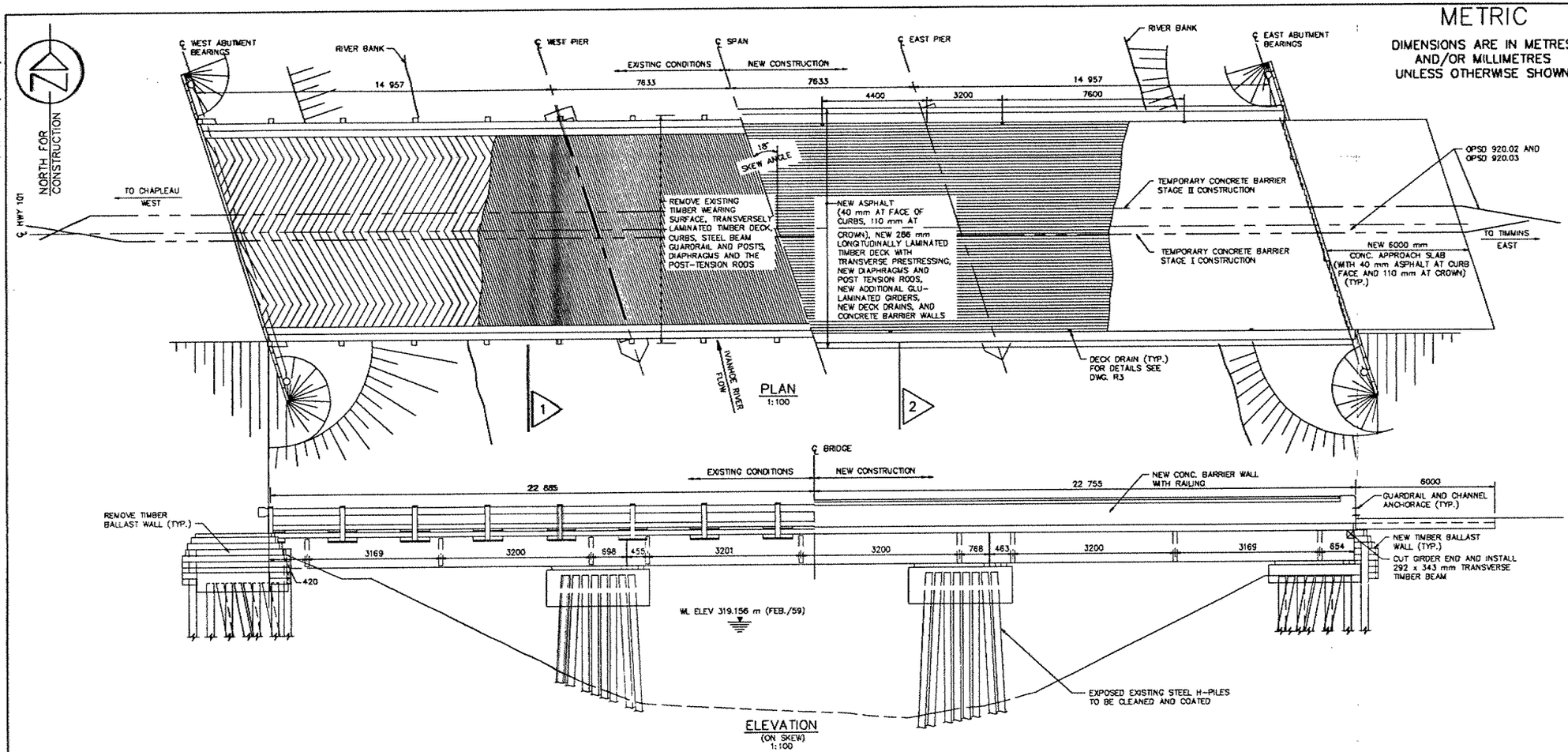
DIST. No.14 HWY 101
CONT. No.
WP. No.103-88-01

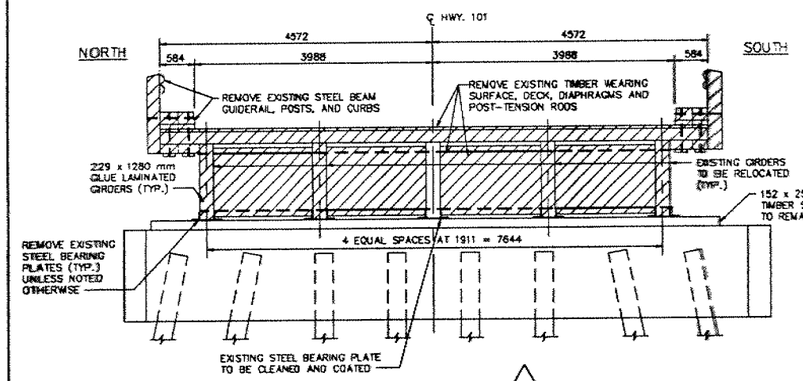
IVANHOE RIVER BRIDGE REHABILITATION

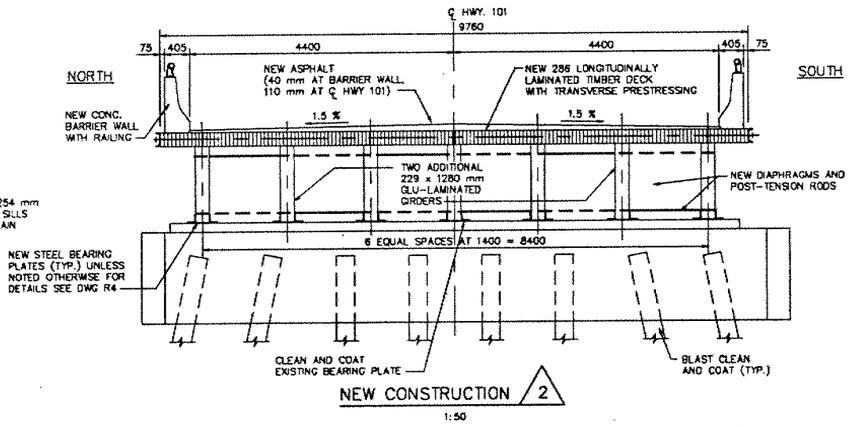
GENERAL ARRANGEMENT

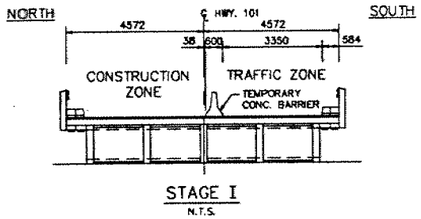
SHEET

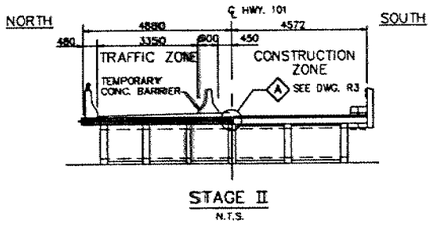
Morrison Hershfield Limited
Consulting Engineers











GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
2. CLASS OF CONCRETE 30 MPa.
3. REINFORCING STEEL SHALL BE GRADE 400. BARS MARKED WITH A SUFFIX 'C' SHALL BE COATED BARS.
4. ALL STEEL SHALL CONFORM TO C.S.A. STANDARD CAN 3-G40.21-M81-GRADE 300W.
5. BOLTS SHALL BE IN ACCORDANCE WITH ASTM A307.
6. STRESSING BARS SHALL CONFORM TO ASTM A722-75.
7. ALL HARDWARE AND STRUCTURAL STEEL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH C.S.A. STANDARD G164.
8. WOOD SHALL BE SUPPLIED IN ACCORDANCE WITH C.S.A. STANDARD O86. TRANSVERSE BEAMS AT ABUTMENTS SHALL BE SELECT STRUCTURAL GRADE DOUGLAS FIR. DECK LAMINATIONS SHALL BE DOUGLAS FIR OR JACK PINE No. 2 GRADE, AND BETTER.
9. TRANSVERSE BEAMS AND DECK LAMINATIONS SHALL BE CUT TO THE FINAL DIMENSIONS AND HOLES FOR PRESTRESSING BARS DRILLED PRIOR TO PRESERVATIVE TREATMENT. DIMENSIONS AND HOLE LOCATIONS SHALL BE ACCURATE TO ± 3 mm.
10. PRESERVATIVE TREATMENT FOR THE TIMBER DECK LAMINATIONS SHALL BE PENTACHLOROPHENOL IN TYPE 'A' HYDROCARBON SOLVENT WITH 8.4 Kg/m³ RETENTION. ALL OTHER TIMBER MEMBERS SHALL BE TREATED WITH CREOSOTE AT 130 Kg/m³ RETENTION.
11. TREATED WOOD SHALL BE HANDLED WITH CARE TO AVOID DEFACING THE SURFACES. NO CHAINS, HOOKS OR PEAVIES SHALL BE USED.
12. FRESH SURFACES EXPOSED BY FIELD CUTTING OR DRILLING OF HOLES SHALL BE TREATED WITH 3 COATS OF THE ORIGINAL PRESERVATIVE USED. A BOREHOLE TREATER SHALL BE USED TO APPLY THE PRESERVATIVE IN THE HOLES.
13. EXISTING STEEL H-PILES AT THE PIERS SHALL BE BLAST-CLEANED AND COATED WITH COAL TAR EPOXY COATING. THE COATING SHALL BE CARRIED OUT AT LOW WATER LEVEL, TO EXTEND THE COATING TO THE LOWEST POSSIBLE ELEVATION.
14. VEHICLES SHALL NOT BE PERMITTED ON THE NEW DECK PRIOR TO THE COMPLETION OF CYCLE I STRESSING.

SEQUENCE OF CONSTRUCTION

STAGE I

1. PLACE TEMPORARY CONCRETE BARRIER AND RESTRICT TRAFFIC TO SOUTH SIDE OF STRUCTURE.
2. REMOVE NORTH PORTION OF DECK, WEARING SURFACE, CURB, GUIDERAILS AND POSTS.
3. EXCAVATE AND INSTALL ROADWAY PROTECTION.
4. REMOVE NORTH PORTION OF THE TIMBER BALLAST WALLS.
5. REMOVE THE EXISTING DIAPHRAGMS AND RELOCATE EXISTING GIRDERS. INSTALL NEW STEEL BEARING PLATES.
6. PLACE NEW DIAPHRAGMS AND NEW GIRDERS. TOP OF DIAPHRAGM IS TO BE FLUSH WITH THE TOP OF THE GIRDER.
7. CUT GIRDER ENDS AND INSTALL TRANSVERSE TIMBER BEAM.
8. CONSTRUCT NEW TIMBER BALLAST WALL TO LEVEL WITH THE TOP OF GIRDER, INSTALL TIMBER LAGGING FOR STAGE II ROADWAY PROTECTION, AND BACKFILL WITH GRANULAR 'A'.
9. INSTALL AND STRESS FIRST STAGE DECK LAMINATION.
10. CONSTRUCT APPROACH SLABS, INSTALL DECK DRAINS, AND BARRIER WALL.
11. PAVE THE DECK WITH BINDER COURSE ASPHALT.

STAGE II

1. RELOCATE THE TEMPORARY CONCRETE BARRIER AND DIRECT TRAFFIC TO NORTH SIDE OF STRUCTURE.
2. REMOVE SOUTH PORTION OF DECK, WEARING SURFACE, CURB, GUIDERAILS AND POSTS.
3. EXCAVATE AND REMOVE TIMBER LAGGING (STAGE 1) AND SOUTH PORTION OF THE TIMBER BALLAST WALLS.
4. REPEAT STEPS 5 TO 10 (STAGE 1) WITH SECOND STAGE DECK LAMINATIONS.
5. PLACE ASPHALT
6. CLEAN AND COAT BEARING UNDER THE CENTRAL GIRDERS.

LIST OF DRAWINGS

ISSUED
MAR 13 1992
MORRISON HERSHFIELD LIMITED
DRAWING OFFICE

LICENSED PROFESSIONAL ENGINEER A.T.K. CHAN PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER S.S. QUACH PROVINCE OF ONTARIO

DRAWING NOT TO BE SCALED
100 mm ON ORIGINAL DRAWING

REVISIONS	DATE	BY	DESCRIPTION

DESIGN SSQ	CHK. ATC	CODE OHBDC 83	LOAD CLASS C	DATE FEB./92			
DRAWN DT	CHK. SSQ	SITE 48-03	STRUCT.	SCHEME	DWG. R1		