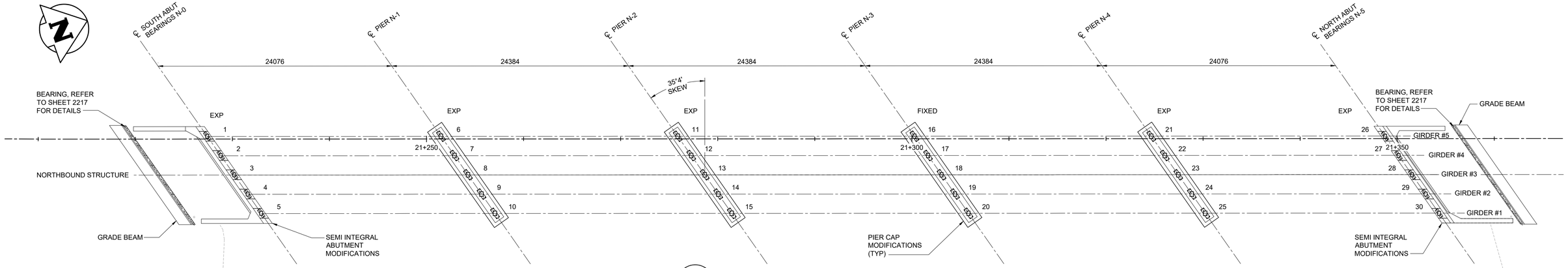


1 - 1 BEARING LAYOUT

1 : 200

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL BEARINGS SHALL BE POT BEARINGS WITH A CO-EFFICIENT OF FRICTION OF 5% OR LESS.
3. FABRICATION AND DESIGN OF BEARINGS SHALL MEET THE REQUIREMENTS OF THE CANADIAN HIGHWAY BRIDGE DESIGN CODE, CAN/CSA-S6-06.
4. IT IS THE SOLE RESPONSIBILITY OF THE SUPPLIER TO DESIGN THE BEARINGS FOR THE LOADS, MOVEMENTS, AND ROTATIONS AS NOTED IN THE BEARING DATA TABLE. MOVEMENTS INCLUDE FOR ADDITIONAL REQUIREMENTS AND ARE THE MINIMUM TO BE PROVIDED. BEARING HEIGHTS MAY VARY ±10mm FROM THAT INDICATED IN THE BEARING DATA TABLE.
5. DESIGN THE BEARINGS FOR AN OPERATING RANGE OF -40 DEGREES CELSIUS TO +40 DEGREES CELSIUS.
6. BEARINGS SHOWN IN THESE PLANS ARE FOR ILLUSTRATION PURPOSES ONLY.
7. ALL STEEL FOR THE BEARINGS SHALL BE CSA G40.21 GRADE 300W AND SHALL BE HOT DIPPED GALVANIZED TO CSA G164.
8. STAINLESS STEEL MATING SURFACES SHALL CONFORM TO ASTM A240 AND SHALL HAVE A MINIMUM THICKNESS OF 3mm. THE ROUGHNESS OF THE CONTACT SURFACE SHALL BE NOT GREATER THAN 0.25 MICROMETRES ARITHMETIC AVERAGE FOR PLANE SURFACES.
9. WELDING OF STAINLESS STEEL PLATES SHALL BE CONTINUOUS WITH STAINLESS STEEL WELDING RODS.
10. PTFE SHALL BE MADE FROM VIRGIN RESIN SATISFYING THE REQUIREMENTS OF ASTM D4895.
11. ELASTOMER SHALL BE NATURAL RUBBER, LOW TEMPERATURE, GRADE 4 OR 5 WITH A 50 DUROMETER SHORE A HARDNESS.
12. BEARING FIXING BOLTS SHALL BE A325/A325M. GALVANIZED BOLTS SHALL BE USED WHEN FIXING GALVANIZED PLATES.
13. BEARING DESIGN SHALL ALLOW REMOVAL/REPLACEMENT OF BEARINGS BY JACKING THE BRIDGE TO A MAXIMUM OF 6mm.
14. PROVIDE PROTECTION TO BEARINGS AND ITS COMPONENTS DURING SHIPPING, HANDLING, AND INSTALLATION.
15. BEARING SUPPLIER SHALL DESIGN BOLTED CONNECTION BEARING BEARING AND SOLE PLATE FOR A MINIMUM OF 1.25 TIMES THE COMBINED SPECIFIC HORIZONTAL LOADS.
16. ARRANGE CONNECTION TO ALLOW FOR BOLT REMOVAL WITHOUT INTERFERENCE FROM ANCHOR BOLTS OR OTHER OBSTRUCTIONS ONCE BEARING IS INSTALLED.
17. TAPERED SOLE PLATE DIMENSIONED SO THAT SLIDING SURFACE IS LEVEL UNDER DESIGN VERTICAL PROFILE
18. ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 105, HOT-DIPPED GALVANIZED.

BEARING REPLACEMENT SEQUENCE:

BELOW IS A PROPOSED SEQUENCE OF WORK FOR BEARING REPLACEMENT THAT MAY BE CONSIDERED BY THE CONTRACTOR. THE CONTRACTOR MAY PROPOSE AN ALTERNATE BEARING REPLACEMENT SEQUENCE WITH APPROVAL BY THE CONTRACT ADMINISTRATOR.

AT ABUTMENT BEARINGS :

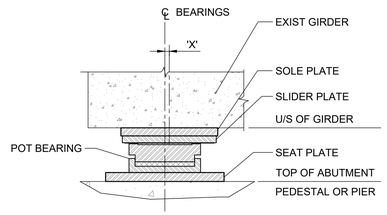
1. PRIOR TO DEMOLITION OF THE DECK, JACK THE GIRDERS FROM THE EXISTING ABUTMENT CONCRETE DIAPHRAGM. NOTE THAT DECK DEMOLITION MAY COMMENCE PRIOR TO JACKING AND BLOCKING, BUT THE LAST 5m OF DECK FROM THE CENTERLINE OF THE ABUTMENT BEARINGS MAY NOT BE DEMOLISHED UNTIL AFTER JACKING IS COMPLETE AND BRIDGE IS LOWERED ONTO TEMPORARY BEARINGS.
2. CONSTRUCT ABUTMENT CONCRETE BEARING PEDESTALS.
3. INSTALL TEMPORARY BEARINGS ON PEDESTALS AND LOWER BRIDGE.
4. COMPLETE BRIDGE DECK DEMOLITION, INCLUDING ABUTMENT END DIAPHRAGMS. PERMANENT ABUTMENT BEARING TOP PLATE TO BE CAST WITH ABUTMENT END DIAPHRAGM.
5. INSTALL NEW BEARING ANCHOR BOLTS PRIOR TO FORMING AND CASTING NEW CONCRETE DECK AND ABUTMENT END DIAPHRAGMS
6. COMPLETE NEW BRIDGE DECK CONSTRUCTION, INCLUDING ABUTMENT END DIAPHRAGMS. PERMANENT ABUTMENT BEARING TOP PLATE TO BE CAST WITH ABUTMENT END DIAPHRAGM.
7. JACK BRIDGE FROM ABUTMENT END DIAPHRAGM, REMOVE TEMPORARY BEARINGS AND INSTALL PERMANENT ABUTMENT BEARINGS. LOWER BRIDGE ONTO BEARINGS.

AT PIER BEARINGS :

1. FOLLOWING DEMOLITION OF EXISTING BRIDGE DECK, JACK GIRDERS FROM EXISTING GIRDER END BLOCK, ADJACENT TO LOCATION OF EXISTING BEARINGS. JACKING IS PERMITTED OFF PROPOSED PIER MODIFICATION CONCRETE PROVIDED CONCRETE HAS ATTAINED A MINIMUM OF 75% SPECIFIED CONCRETE STRENGTH.
2. INSTALL TEMPORARY BEARINGS IN LOCATION OF EXISTING BRIDGE BEARINGS. TEMPORARY BEARINGS SHALL BE LOCATED SO AS NOT TO INTERFERE WITH INSTALLATION OF PERMANENT PIER BEARINGS.
3. INSTALL NEW BEARING ANCHOR BOLTS PRIOR TO FORMING AND CASTING NEW CONCRETE DECK AND PIER END DIAPHRAGMS
4. COMPLETE BRIDGE DECK CONSTRUCTION, INCLUDING PIER END DIAPHRAGMS. PERMANENT PIER BEARING TOP PLATE TO BE CAST WITH PIER END DIAPHRAGM. BEARINGS MAY BE INSTALLED PROVIDED BRIDGE WEIGHT IS STILL SUPPORTED BY TEMPORARY BEARINGS.
5. JACK BRIDGE FROM PIER END DIAPHRAGM, REMOVE TEMPORARY BEARINGS, AND INSTALL PERMANENT PIERS BEARINGS. LOWER BRIDGE ONTO BEARINGS.

BEARING SETTING TABLE (REFER TO DETAIL)

	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
X' DISPLACEMENT AT N-0 (mm)	29	25	22	18	15	11	7	4	0	-4	-7	-11	-15	-18	-22	-25	-29
X' DISPLACEMENT AT N-1 (mm)	20	17	15	12	10	7	5	2	0	-2	-5	-7	-10	-12	-15	-17	-20
X' DISPLACEMENT AT N-2 (mm)	10	9	7	6	5	4	2	1	0	-1	-2	-4	-5	-6	-7	-9	-10
X' DISPLACEMENT AT N-4 (mm)	-10	-9	-7	-6	-5	-4	-2	-1	0	1	2	4	5	6	7	9	10
X' DISPLACEMENT AT N-5 (mm)	-20	-17	-15	-12	-10	-7	-5	-2	0	2	5	7	10	12	15	17	20



'X' IS POSITIVE WHEN MEASURED FROM CENTERLINE OF BEARING AWAY FROM PIER N-3, AND NEGATIVE WHEN MEASURED TOWARD PIER N-3.

BEARING LOADS AND MOVEMENT TABLE

LOCATION	BEARING MK.	MAX AVAILABLE BEARING HEIGHT	SLS DESIGN LOADS				ULS DESIGN LOADS				LIVE LOAD ROTATIONS**		MOVEMENT***
			VERTICAL		LONGITUDINAL	TRANSVERSE	VERTICAL		LONGITUDINAL	TRANSVERSE			
			DEAD	TOTAL	TOTAL	TOTAL	Dead	TOTAL	TOTAL	TOTAL	SLS	ULS	
		[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	[rad]	[rad]	[mm]
N-0 (EXP)	2	180	530	1060		106 (*)	640	1350		134 (*)	0.0014	0.028	-30 / +30
N-1 (EXP)	2	180	1050	1835		184 (*)	1265	2315		232 (*)	0.009	0.019	-20 / +20
N-2 (EXP)	2	180	930	1690		169 (*)	1115	2140		214 (*)	0.008	0.017	-10 / +10
N-3 (FXD)	2	190	930	1690	190 (*)	169 (*)	1115	2140	235 (*)	214 (*)	0.008	0.017	0
N-4 (EXP)	2	180	1050	1835		184 (*)	1265	2315		232 (*)	0.009	0.019	-10 / +10
N-5 (EXP)	2	180	530	1060		106 (*)	640	1350		134 (*)	0.0014	0.028	-20 / +20

NOTES:
LONGITUDINAL DIRECTION IS PARALLEL TO THE GIRDER LINE AT THE BEARING LOCATIONS. TRANSVERSE DIRECTION IS PERPENDICULAR TO THE GIRDER LINE.

* FIXED AND GUIDED BEARING SHALL BE CAPABLE OF RESISTING THE LARGER OF THE GIVEN LOADS OR 10% OF THE VERTICAL LOAD CAPACITY OF THE BEARINGS.
** FABRICATION AND INSTALLATION TOLERANCES ARE NOT INCLUDED IN THE GIVEN LIVE LOAD ROTATION COLUMN SHOWN ON THE ABOVE BEARING LOAD TABLE.
*** THESE ARE ACTUAL MAXIMUM MOVEMENTS ALONG THE CENTERLINE OF THE BRIDGE ASSUMING BEARINGS ARE ZEROED AT 0°C. DESIGN MOVEMENTS OF BEARINGS SHALL ALLOW FOR AN ADDITIONAL MINIMUM OF 25±mm OF LONGITUDINAL MOVEMENT.

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
Tetra Tech Canada Inc.
No. 6499

B.M.
ELEV.

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	25.08.07	SA

TETRA TECH

DESIGNED BY RL | REVIEWED BY SA
DRAWN BY EV | APPROVED BY KA
SCALE: AS NOTED | ACCEPTED BY CAM WARD, P.ENG. DATE 25.08.07
DATE 25.08.07

PROVINCE OF MANITOBA — S. Awad — S.Y.I. AWAD — Member 31981 — 2025-08-07 — REGISTERED PROFESSIONAL ENGINEER

CONSULTANT DRAWING NO.
704-INF.MBI03007.01-DWG-S2215

Winnipeg

THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

LAGIMODIERE TWIN OVERPASSES
OVER CPKC KEEWATIN
REHABILITATION AND RELATED WORKS

CITY DRAWING NUMBER B123-25-2215
SHEET 15 OF 48

NORTHBOUND STRUCTURE
BEARING LAYOUT

2215