

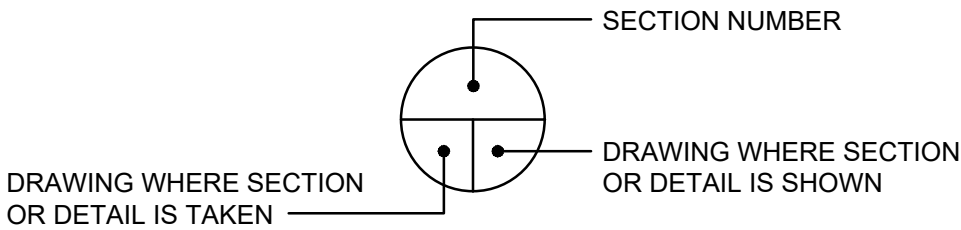
DESIGN DATA:


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| DESIGN SPECIFICATIONS: | <ul style="list-style-type: none">CANADIAN HIGHWAY BRIDGE DESIGN CODE CAN/CSA-S6-19 |
| LIVE LOADING: | <ul style="list-style-type: none">CHBDC CL-625 TRUCK AND LANE LOAD |
| STRUCTURAL CONCRETE: | <ul style="list-style-type: none">GRADE BEAM, ABUTMENT WINGWALLS<ul style="list-style-type: none">CSA A23.1, EXPOSURE CLASS C-1f_c= 35MPa @ 28 DAYSAIR CONTENT CATEGORY 1PIER CAPS, SLOPE PAVING<ul style="list-style-type: none">CSA A23.1, EXPOSURE CLASS C-1f_c= 35MPa @ 28 DAYSAIR CONTENT CATEGORY 1SUPERSTRUCTURE (DECK, TRAFFIC BARRIERS, DIAPHRAGMS, STRUCTURAL SLABS, APPROACH SLABS, AND SLOPE PAVING)<ul style="list-style-type: none">CSA A23.1, EXPOSURE CLASS C-1f_c= 35MPa @ 28 DAYSAIR CONTENT CATEGORY 1SYNTHETIC FIBRES (MACRO) |
| REINFORCING STEEL: | <ul style="list-style-type: none">CONCRETE COVER SHALL BE 60mm UNLESS OTHERWISE NOTEDDEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO CSA G30.18, GRADE 400WSTAINLESS STEEL CONFORMING TO ASTM A995M, 300 SERIES, MINIMUM GRADE 420. <p>MINIMUM LAP LENGTH (UNLESS OTHERWISE NOTED):</p> <p>15M OR 16SS - 800mm</p> <p>20M OR 19SS - 950mm</p> <p>25M OR 25SS - 1600mm</p> <p>30M OR 30SS - 2200mm</p> <p>35M OR 35SS - 2700mm</p> |
| MISCELLANEOUS METAL: | <ul style="list-style-type: none">ALL MISCELLANEOUS METAL SHALL CONFORM TO CAN/CSA-G40.21-M GRADE 300W UNLESS NOTED OTHERWISEMISCELLANEOUS METAL TO BE HOT DIP GALVANIZED SHALL CONFORM TO CAN/CSA G164M TO A NET RETENTION OF 610g/m² |
| PILES: | <ul style="list-style-type: none">HP PILES SHALL CONFORM TO CAN/CSA-G40.21 GRADE 350W<ul style="list-style-type: none">HP 310x110 STEEL PILESSLS PILE CAPACITY = 1480 kNULS PILE CAPACITY = 1575 kN |
| SOIL FOUNDATION DATA: | <ul style="list-style-type: none">UNIT WEIGHT OF BACKFILL = 18 kN/m³ACTIVE EARTH PRESSURE COEFFICIENT OF BACKFILL (K_a) = 0.3PASSIVE EARTH PRESSURE COEFFICIENT OF BACKFILL (K_p) = 2.0 |
| FRP STRENGTHENING: | <p>THE FACTORED RESISTANCE PROVIDED BELOW IS FOR THE SOLE USE FOR DESIGN OF FRP STRENGTHENING.</p> <ul style="list-style-type: none">THE FACTORED RESISTANCE OF EACH BEAM IN ITS CURRENT STATE ASSUMING CONCRETE GRADE OF 57 MPa AND YIELD STRESS REINFORCING STEEL AS 300 MPa IS AS FOLLOWS: SHEAR: 850 kNTHE TARGET INCREASE IN DESIGN FACTORED RESISTANCE OF EACH BEAM SHALL BE AS FOLLOWS: SHEAR: 400 kN |
| ROADWAY GEOMETRY: | <ul style="list-style-type: none">CONFORMS TO REQUIREMENTS OF THE LATEST EDITION OF THE CITY OF WINNIPEG TRANSPORTATION STANDARD MANUAL, TRANSPORTATION ASSOCIATION OF CANADA (TAC) GEOMETRIC DESIGN GUIDE FOR CANADIAN ROADS OR AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) - POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS |


GENERAL NOTES:

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| 1.0 | GENERAL | 4.0 | EXPANSION JOINT |
| 1.1 | DRAWINGS ARE BASED OFF OF AVAILABLE EXISTING RECORD DRAWINGS. | 4.1 | ALL STEEL COMPONENTS SURFACES, INCLUDING COVER PLATES SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE LATEST EDITION OF CAN/CSA G164 AND ASTM A123 TO A MINIMUM NET RETENTION OF 610 g/m² AFTER FABRICATION. |
| 2.0 | TYPICAL REPAIR NOTES | 4.2 | JOINT SHALL BE PRESET TO DIMENSION "A" FOR 20°C PRIOR TO SHIPMENT. |
| 2.1 | DURING DEMOLITION DO NOT DAMAGE EXISTING REINFORCING. | 4.3 | EXPANSION JOINT UNITS AND RELATED MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. |
| 2.2 | IMMEDIATELY PRIOR TO PLACEMENT OF CONCRETE, ALL MISCELLANEOUS METAL SURFACES WHICH WILL BE IN CONTACT SHALL BE COATED WITH EPOXY ADHESIVE. RATE OF PLACEMENT OF ADHESIVE SHALL BE SUCH THAT THE ADHESIVE DOES NOT DRY OR SET BEFORE CONCRETE IS PLACED. | 4.4 | CONTRACTOR SHALL ENSURE BLOCKOUT IS SMOOTH AND FLAT. THE CONTRACTOR SHALL LAY OUT THE LOCATIONS OF THE EXPANSION JOINT ANCHORS PRIOR TO PLACING REINFORCING. |
| 2.3 | ALL EXISTING CONCRETE TO BE CLEANED OF DUST, DEBRIS AND CONTAINMENTS PRIOR TO PLACEMENT OF CONCRETE. | 4.5 | CARE SHALL BE TAKEN DURING CONSOLIDATION OF CONCRETE TO ENSURE THERE ARE NO VOIDS IN THE CONCRETE AND AROUND EXPANSION JOINT COMPONENTS. FOLLOWING CONCRETING OPERATIONS THE ENGINEER SHALL INSPECT THE BLOCKOUT BY METHOD OF SOUNDING. ALL VOIDS SHALL BE FILLED WITH AN APPROVED NON-SHRINK GROUT. |
| 2.4 | IF REPAIR AREA EXPOSES EXISTING REINFORCING, EXISTING REINFORCING TO BE CLEANED TO BARE METAL WITH A WIRE WHEEL. | 4.6 | EXPANSION JOINT ASSEMBLY SHALL BE INSTALLED 3mm±1 BELOW ELEVATION AND GRADE OF ADJACENT BRIDGE DECK EXCEPT WHERE OTHERWISE NOTED. |
| 2.5 | GALVANIC ANODES SHALL BE INSTALLED IN CONCRETE REPAIR AREAS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. | 4.7 | ALL COVER PLATES SHALL BE RECESSED 5mm±1 FROM THE FACE OF THE CONCRETE. |
| 2.6 | CARE SHALL BE TAKEN DURING CONSOLIDATION OF CONCRETE TO ENSURE THERE ARE NO VOIDS IN THE CONCRETE. FOLLOWING CONCRETING OPERATIONS THE ENGINEER SHALL INSPECT THE REPAIR AREA BY METHOD OF SOUNDING. ALL VOIDS SHALL BE FILLED WITH AN APPROVED NON-SHRINK GROUT. | 4.8 | UNLESS NOTED, ROADWAY AND BARRIER PLATE DIMENSIONS SHOWN ARE TO CONCRETE FACES. EXPANSION JOINT FABRICATOR SHALL MAKE APPROPRIATE ADJUSTMENTS FOR CHAMFERS AND OFFSETS AS SHOWN ON DETAILS. |
| 2.7 | REPAIR AREA IS AN EXAMPLE. METHODOLOGY SHALL BE SIMILAR FOR REPAIRS AT OTHER LOCATIONS IF NECESSARY. | 4.9 | INSTALLATION TEMPERATURE SHALL BE TAKEN AS THE MEAN SHADE AIR TEMPERATURE UNDER THE BRIDGE 48 HOURS PRIOR TO CASTING THE JOINT INTO THE DECK. |
| 2.8 | REPAIR AREAS THAT LIE WITHIN THE EXTENTS OF THE PIER CAP MODIFICATIONS SHALL BE CAST MONOLITHICALLY WITH PIER CAP CONCRETE. | 4.10 | ALL AREAS OF DAMAGED GALVANIZING SHALL BE REPAIRED USING AN APPROVED GALVANIZING TOUCH UP PROCEDURE. |
| 3.0 | FRP STRENGTHENING | 4.11 | EXPANSION JOINTS ARE DESIGNED TO ACCOMMODATE THE ANTICIPATED THERMAL EXPANSION/CONTRACTION REQUIREMENTS BASED ON 80°C TEMPERATURE RANGE PLUS A MINIMUM ADDITIONAL 25mm OF MOVEMENT FOR EACH END OF THE TEMPERATURE SPECTRUM. |
| 3.1 | DRAWINGS PROVIDED FOR PROPOSED STRENGTHENING SYSTEM ARE FOR INFORMATION ONLY. CONTRACTOR SHALL DESIGN STRENGTHENING SYSTEM USING EXTERNALLY BONDED FIBER REINFORCED POLYMER (FRP) COMPOSITE WRAP SYSTEM CONSIDERING THE VERIFIED DIMENSIONS AND CONDITIONS AT SITE. | 4.12 | AVOID ANY CONTACT BETWEEN STAINLESS STEEL REINFORCING AND GALVANIZED COMPONENTS. |
| 3.2 | DESIGN OF FRP STRENGTHENING SHALL CONFORM TO THE FOLLOWING: <ul style="list-style-type: none">ACI 440.13-24CANADIAN HIGHWAY BRIDGE DESIGN CODE, CSA S6-19GUIDE SPECIFICATIONS FOR DESIGN OF BONDED FRP SYSTEMS FOR REPAIR AND STRENGTHENING OF CONCRETE BRIDGE ELEMENT, 2ND EDITION | | |
| 3.3 | STRUCTURAL CALCULATIONS SIGNED AND STAMPED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. | | |
| 3.4 | CONTRACTOR SHALL PREPARE THE SHOP DRAWINGS OF THE STRENGTHENING SYSTEM AND SUBMIT FOR APPROVAL. | | |
| 3.5 | FRP WRAP SHALL BE FULLY INSTALLED AND CURED PRIOR TO PLACING BRIDGE DECK CONCRETE. | | |
| 3.6 | FRP WRAP SHALL BE TYFO SEH-51A GLASS FIBER SYSTEM AND TYFO SCH-41-2X CARBON FIBER SYSTEM BY FYFE OR APPROVED EQUIVALENT. FRP COMPOSITE SYSTEM SHALL HAVE A CURRENT ICC EVALUATION REPORT COMPLIANT WITH THE 2012 IBC. | | |
| 3.7 | FRP WRAP SHALL BE PROTECTED WITH APPROVED COATING SYSTEM FOR PROTECTION FROM ENVIRONMENT. | | |
| 3.8 | THE ON SITE SUPERVISOR, FORMAN AND SATURATION/MIXING TECHNICIAN SHALL PROVIDE WRITTEN VERIFICATION FROM THE MATERIAL MANUFACTURE AS BEING FULLY TRAINED AND CERTIFIED. | | |
| 3.9 | COMPOSITE SYSTEM APPLICATOR SHALL SUBMIT WITNESS PANELS PREPARED AT THE JOB SITE FOR MATERIALS TESTING (ASTM D3039). THE TESTING SHALL BE DONE BY AN INDEPENDENT TESTING LABORATORY TO VERIFY ALL SUBMITTED DESIGN PROPERTIES. FIELD TEST RESULTS THAT ARE LOWER THAN DESIGN PROPERTIES SUBMITTED SHALL REQUIRE THE CONTRACTOR TO PAY FOR REMEDIAL MEASURES TO BE APPROVED BY THE ENGINEER. | | |

SECTIONS AND DETAILS:



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| B.M. ELEV. | | | |  TETRA TECH | | CONSULTANT DRAWING NO. 704-INF-MBI03007.01-DWG-S1004 |
| | | | | DESIGNED BY RL | REVIEWED BY SA | |
| | | | | DRAWN BY EV | APPROVED BY KA | |
| | | | | SCALE: AS NOTED | ACCEPTED BY DATE CAM WARD, P.ENG. 25.08.07 | |
| 0 | ISSUED FOR TENDER | 25.08.07 | SA | DATE 25.08.07 | | |
| NO. | REVISIONS | DATE | BY | | | |

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|  THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION | | CITY DRAWING NUMBER B123-25-1004 |
| LAGIMODIERE TWIN OVERPASSES OVER CPKC KEEWATIN REHABILITATION AND RELATED WORKS | | SHEET 4 OF 31 |
| DESIGN DATA AND GENERAL NOTES | | 1004 |