

LIST OF DRAWINGS:

CITY OF WPG. DRAWING NUMBER	SHEET NUMBER	DRAWING DESCRIPTION
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B107-26-006	6	TEMPORARY WORKS
B107-26-007	7	SITE PLAN, PROFILE AND CROSS SECTION WORK PLATFORM WEST
B107-26-008	8	SITE PLAN, PROFILE AND CROSS SECTION WORK PLATFORM EAST
B107-26-009	9	PIER SU.2 AND SU.4 PHASE 1 CONSTRUCTION SEQUENCE OF WORK
B107-26-010	10	PIER SU.2 AND SU.4 SHEET PILES LAYOUT AND DETAILS
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B107-26-033	33	BEARING PLAN AND JACKING PROCEDURE
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DESIGN DATA:

GENERAL:

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH CONTRACT SPECIFICATIONS.
- GEOMETRY, REINFORCEMENT AND LAYOUT OF THE EXISTING STRUCTURE ARE BASED ON EXISTING DESIGN INFORMATION AND LIMITED FIELD SURVEY DATA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL NECESSARY DIMENSIONS SUCH THAT WORK CAN BE CONSTRUCTED AS SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.
- WHOLE DIMENSIONS SHOWN ON THESE DRAWINGS ARE IN MILLIMETERS. DECIMAL DIMENSIONS ARE IN METERS. THE ORIGINAL STRUCTURE WAS CONSTRUCTED WITH IMPERIAL UNITS OF MEASURE (HARD UNIT CONVERSION WHERE APPLICABLE)
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXACT LOCATIONS OF ALL EXISTING ABOVE GROUND AND BELOW GROUND UTILITIES AND REPORTING ANY DISCREPANCIES OR CONFLICTS TO THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.
- EXCEPT WHERE INDICATED OTHERWISE THESE DRAWINGS SHOW DETAILS FOR THE COMPLETED STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF WORKERS AND THE DESIGN AND STABILITY OF ANY TEMPORARY WORKS DURING CONSTRUCTION. CONSTRUCTION METHODS REQUIRING THE TEMPORARY INSTALLATION OF SHORING, SCAFFOLDING, BRACING, ETC. SHALL BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW AND ACCEPTANCE PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA TO PERFORM AND TAKE RESPONSIBILITY FOR ANY SUCH DESIGNS NECESSARY TO COMPLETE THE CONSTRUCTION AND AS REQUIRED BY THE CONTRACT DOCUMENTS.

ENVIRONMENTAL PROTECTION:

- NO IN- STREAM WORK IS PERMITTED BETWEEN APRIL 1 AND JUNE 15.
- IMPLEMENT ENVIRONMENTAL PROTECTION MEASURES AS DESCRIBED BY THE SPECIFICATIONS.

DESIGN SPECIFICATIONS:

- CANADIAN HIGHWAY BRIDGE DESIGN CODE CAN/CSA-S6-25

LIVE LOADING:

- 36.5 TONNE GVW BASIC LEGAL TRUCK CONFIGURATION AS NORMAL TRAFFIC - ALTERNATIVE LOADING

STRUCTURAL CONCRETE:

- PIER CONCRETE
- CSA A23.1, EXPOSURE CLASS C-1
 - f_c= 35MPa @ 28 DAYS
 - AIR CONTENT CATEGORY 1 (5-8%)
 - NOMINAL MAX SIZE OF AGGREGATE 20mm

- PEDESTAL CONCRETE
- CSA A23.1, EXPOSURE CLASS C-1
 - f_c= 35MPa @ 28 DAYS
 - AIR CONTENT CATEGORY 1 (6-9%)
 - NOMINAL MAX SIZE OF AGGREGATE 10mm

REINFORCING STEEL:

- CONTRACTOR TO PROVIDE COMPLETE REINFORCING STEEL SHOP DRAWINGS, BAR LISTS AND BENDING SCHEDULES AS A SHOP DRAWING SUBMISSION FOR THE CONTRACT ADMINISTRATOR'S APPROVAL PRIOR TO FABRICATION. STRUCTURAL DRAWINGS HEREIN SHOW DESIGN INTENT ONLY. DETAILING (INCLUDING HOOKS, BENDS AND DEVELOPMENT LENGTHS), FABRICATION AND PLACEMENT SHALL COMPLY WITH THE LATEST EDITIONS OF CSA A23.1, CSA A23.3 AND RSIC MANUAL OF STANDARD PRACTICE.
- CONCRETE COVER SHALL BE 75mm UNLESS OTHERWISE NOTED
- DEFORMED CARBON STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO CSA G30.18, GRADE 400W
- MECHANICAL CONNECTIONS BETWEEN PIER CAP STAGE 1 AND STAGE 2 CONSTRUCTION SHALL BE DBDI REBAR SPLICES AS MANUFACTURED BY DAYTON SUPERIOR CORP. OR AS APPROVED BY THE CONTRACT ADMINISTRATOR.

MINIMUM LAP LENGTH (UNLESS OTHERWISE NOTED):

- 15M - 700mm
- 20M - 850mm
- 25M - 1300mm
- 30M - 1550mm

ADHESIVE FOR POST-INSTALLED REINFORCING STEEL:

- REBAR DOWELS TO BE PLACED WITH HILTI HIT RE500 V3 EPOXY OR ACCEPTED ALTERNATE.

TIE-BARS THROUGH PIER:

- TIE BARS CORED THROUGH PIER SHALL BE DEFORMED CARBON STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO CSA G30.18, GRADE 500W
- TIE BARS SHALL BE DEVELOPED USING T-BAR COUPLERS ON THEIR END. END ANCHORAGE SHALL BE DAYTON SUPERIOR D251L OR ACCEPTED ALTERNATE.
- TIE BARS TO BE PRESSURE GROUTED IN PLACE WITHIN A 73mm OUTSIDE DIAMETER (2.875" SCHEDULE 40 PIPE OR ACCEPTED EQUIVALENT) PLASTIC BAR DUCT. THE HOLE FOR THE DUCT SHALL BE CORED TO ALLOW FOR INSTALLATION OF THE DUCT. THE GAP AROUND THE OUTSIDE OF THE DUCT SHALL BE KEPT TO A MINIMUM (+/-5 mm) AND BE SEALED THROUGH THE DEPTH OF LIMESTONE WITH EPOXY AROUND THE PERIMETER OF PIPE. THE GROUT IS FOR BAR DURABILITY ONLY AND NOT BOND TO THE CORE OF THE PIER. GROUT TO CAN/CSA A3000 TYPE GU /20. MINIMUM GROUT STRENGTH OF 40 MPa AT 28 DAYS.

MISCELLANEOUS METAL:

- ALL MISCELLANEOUS METAL SHALL CONFORM TO CAN/CSA-G40.21-M GRADE 300W UNLESS NOTED OTHERWISE.
- MISCELLANEOUS METAL TO BE HOT DIP GALVANIZED SHALL CONFORM TO CAN/CSA G164M TO A MINIMUM 87 UM THICKNESS.

STRUCTURAL STEEL:

- ALL STRUCTURAL STEEL PLATE AND ROLLED SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF CAN/CSA G40.21 GRADE 300W.
- ALL BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125/F3125M GRADE A325, UNLESS NOTED OTHERWISE.
- ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.5M / D1.5, AWS D1.6/1.6M AND CSA W59 (LATEST EDITIONS).
- BEARING STIFFENERS SHALL BE SHOP PRIMED UNLESS OTHERWISE APPROVED BY THE CONTRACT ADMINISTRATOR.

MICROPILES:

- IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS THE MICROPILES SHALL BE DESIGN BY THE MICROPILE CONTRACTOR OR THEIR DELEGATED ENGINEER UNDER THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED TO PRACTICE IN THE PROVINCE OF MANITOBA.
- ALL MICROPILES SHALL BE DESIGNED TO RESIST A MINIMUM AXIAL LOAD IN COMPRESSION OF 1500 kN AT ULS COMBINED WITH A LATERAL LOAD OF 65 KN TAKEN BY SOIL PILE INTERACTION APPLIED AT THE TOP OF THE MICROPILE. BATTERED COMPONENTS SHALL NOT BE ACCOUNTED FOR IN THE DESIGN OF THE PILE LATERAL CAPACITY, AS IT HAS BEEN ACCOUNTED FOR TO DETERMINE THE UPPER THRESHOLD OF LATERAL LOAD. DETAILED LOADING AT EACH PILE IS AVAILABLE UPON REQUEST. HOWEVER THE SPECIFIED DESIGN LOADS CONTAIN AN ALLOWANCE FOR FUTURE STRUCTURE REHABILITATION.
- MICROPILES SHALL HAVE AN EMBEDMENT OF 2 TIMES THE PILE DIAMETER INTO THE REINFORCED CONCRETE JACKET, WITH A MINIMUM EMBEDMENT OF 650mm AS SHOWN ON THESE PLANS, UNLESS NOTED OTHERWISE.
- CONSTRUCTION TOLERANCES, AT COMPLETION OF INSTALLATION
 - FACE OF EXISTING PIER TO TOP OF MICROPILE WITHIN ±25 MM OF LOCATION INDICATED
 - BATTER TO BE WITHIN 1H:100V OF SPECIFIED BATTER
 - TOP OF MICROPILE ELEVATION ±25 mm

SHEET PILES:

- SHEET PILE SECTION NUCORE NZ 26-700 OR ACCEPTED EQUIVALENT DRIVEN TO MINIMUM 5.8m BELOW DESIGN CUT-OFF ELEVATION.
- SHEET PILE STEEL TO CAN/CSA G40.21-13 LATEST EDITION GRADE 350W AS A MINIMUM.
- CONSTRUCTION TOLERANCES, AT COMPLETION OF INSTALLATION
 - FACE OF WALL AT TOP OF SHEET PILE WITHIN ±25 mm OF LOCATION INDICATED
 - BATTER NOT TO EXCEED 1H:100V
 - TOP OF SHEET PILING CUT-OFF ELEVATION ±25 mm
 - SPLICES NOT PERMITTED

HEATING AND HOARDING:

- HEATING AND HOARDING SHALL BE IMPLEMENTED FOLLOWING MICROPILE INSTALLATION TO ALLOW FOR STUD WELDING, DOWEL PLACEMENT INTO MASONRY, CONCRETE JACKET PLACEMENT
- DURING DOWEL INSTALLATION THE EXISTING PIER SHALL BE AT SUFFICIENT TEMPERATURE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE EPOXY TO CURE.
- DURING CONCRETE PLACEMENT THE EXISTING CORE OF THE PIER SHALL BE AT A MINIMUM OF 5°C .

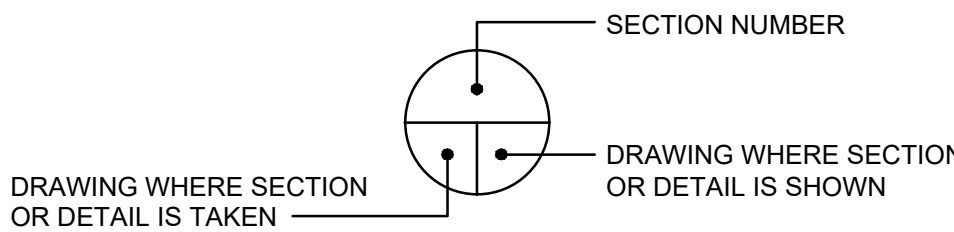
NEW BEARINGS:

- POT BEARINGS FOR SU1 HAVE BEEN FABRICATED UNDER SEPARATE CONTRACT ARE AVAILABLE FOR PICKUP FROM THE CITY OF WINNIPEG BRIDGE YARD LOCATED AT 960 THOMAS AVENUE.
- PIER SU.2 AND SU.4 SPHERICAL BEARINGS AND PIER SU.5 POT BEARINGS TO BE FABRICATED AND SUPPLIED BY CONTRACTOR.
- INSTALLATION OF NEW BEARINGS BY CONTRACTOR.
- REFER TO SHEETS 33 TO 39 FOR FURTHER DETAILS AND BEARING DESIGN REQUIREMENTS.

FOR SLOPE STABILITY AND HYDRAULICS:

- FLOOD OF RECORD (1997): Q = 2286 m³/s. V_{PEAK} = 2.97 m/s. WSEL = 229.12m (CGVD1928).
- NORMAL SUMMER FLOW: Q = 200 m³/s, WSEL = 223.64 m (CGVD1928)
- RIPRAP : CLASS 350 MINIMUM, SIZED FOR THE PEAK MODELED BRIDGE-OPENING VELOCITY DURING THE 1997 FLOOD.
- RIPRAP PLACEMENT: MINIMUM THICKNESS 0.525m (1.5 x D₁₀₀) WITH TOE EMBEDDED AT LEAST 30% BELOW THE LOCAL SCOUR DEPTH
- RIVERBANK FILTER LAYER: PLACE RIPRAP SUB-CUT OVER NON-WOVEN GEOTEXTILE OR GRANULAR FILTER IN ACCORDANCE WITH FHWA HEC-23. GRANULAR FILTERS SHALL BE A MINIMUM OF 4x D50 OR 150mm THICK, WHICHEVER IS GREATER.

SECTIONS AND DETAILS:



VERTICAL DATUM:			
HORIZONTAL DATUM:			
0	ISSUED FOR TENDER	26.07.15	TN
NO.	REVISIONS	DATE	BY

DESIGNED BY TN	REVIEWED BY BN
DRAWN BY BM	APPROVED BY MJB
SCALE: AS NOTED	ACCEPTED BY DATE CAM WARD, P.ENG. 26.07.15

CONSULTANT DRAWING NO. 704-INF.MB\03029-01-DWG-S3002

THE CITY OF WINNIPEG PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION	
LOUISE BRIDGE SUBSTRUCTURE REHABILITATION AND RIVERBANK STABILIZATION WORKS	CITY DRAWING NUMBER B107-26-002
LIST OF DRAWINGS AND DESIGN DATA	SHEET 2 OF 39
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