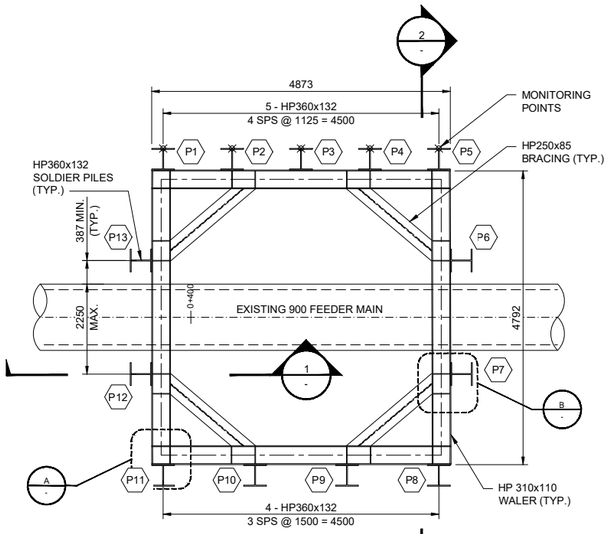
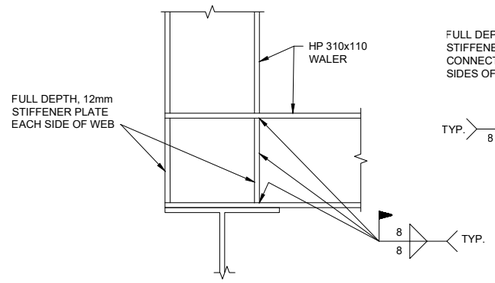


PLAN

Scale 1:50

0 1.25 2.5 m

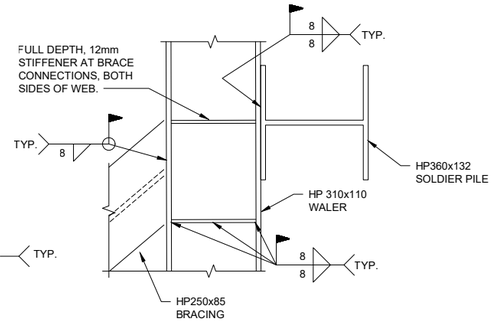
TIMBER LAGGING TABLE				
SIDE	TRACK	OTHER	OTHER	OTHER
MAXIMUM PILE SPACING (m)	1.200	1.500	2.250	2.250
MAXIMUM DEPTH FROM TOP OF PILE (m)	4.800	4.800	3.500	4.800
MINIMUM LAGGING THICKNESS (mm)	125	125	175	200



A DETAIL

Scale 1:10

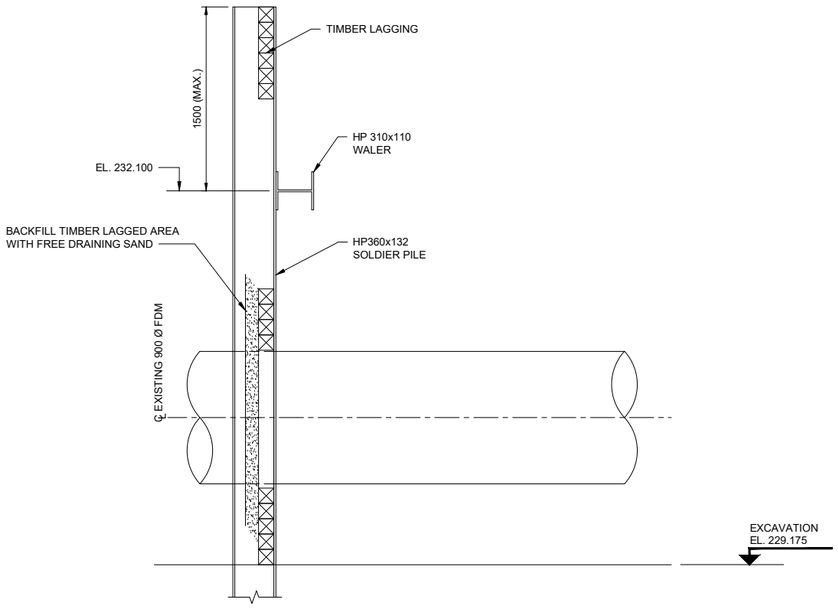
0 0.25 0.5 m



B DETAIL

Scale 1:10

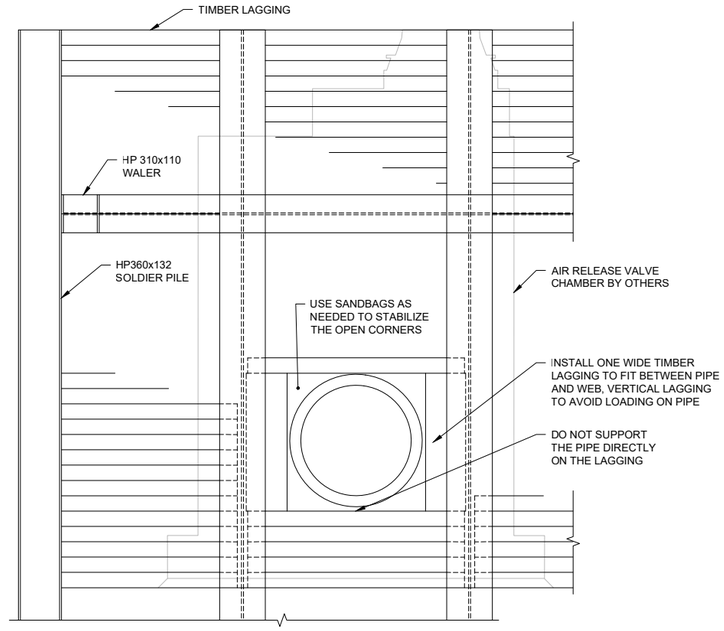
0 0.25 0.5 m



1 SECTION

Scale 1:25

0 0.625 1.25 m



2 SECTION

Scale 1:25

0 0.625 1.25 m

TEMPORARY SHORING NOTES

1. FOR GENERAL NOTES SEE DWG. C-1006.
2. FOR GEOTECHNICAL NOTES SEE TECHNICAL MEMORANDUM "GEOTECHNICAL RECOMMENDATIONS AND PLAXIS ANALYSIS FOR SHORING DESIGN, WEST END FEEDER MAIN - SITE 8, CITY OF WINNIPEG" BY AECOM.
3. ALL PILES SHALL BE HP 360 x 132 AS INDICATED ON THE DRAWINGS.
4. THE PILE INSTALLATION SHALL BE MONITORED BY QUALIFIED GEOTECHNICAL PERSONNEL.
5. AFTER INSTALLATION THE STEEL PILES SHALL BE LOCATED WITHIN 50mm OF THE LOCATION SHOWN ON THE DRAWING.
6. TIMBER LAGGING SHALL BE SPECIES (S.P.F.), BEAMS AND STRINGERS GRADE NO.1 OR BETTER, IN ACCORDANCE WITH AREMA CHAPTER 7. FOR ALLOWABLE BENDING STRESS USE 6.6 MPa (INCLUDING ALL MODIFICATION FACTORS).
7. FOR LAGGING THICKNESS SEE TABLE.
8. ALL VOIDS BEHIND THE LAGGING SHALL BE IMMEDIATELY PACKED WITH GRANULAR MATERIAL RAMMED INTO PLACE, OR FILLED WITH GROUT PLACED BY PRESSURE APPLIED TECHNIQUES.
9. DO NOT EXCAVATE MORE THAN 300mm BELOW WALER LEVELS UNTIL CORNER BRACES ARE ADEQUETLY INSTALLED.
10. ALL FIELD WELDS SHALL BE VISUALLY INSPECTED AND 50% SHALL BE INSPECTED BY MAGNETIC PARTICLE INSPECTION.

DESIGN NOTES

1. SPECIFICATIONS: AREMA 2021 CHAPTERS 8 AND 15
2. LIVE LOADS: COOPER E80 (TRACK SIDE)
   0.8M ADDITIONAL FILL (ALL SIDES OTHER THAN TRACK SIDE)
3. LATERAL SOIL PRESSURE: BACKFILL MATERIAL K=0.50
4. SOIL UNIT WEIGHT: GRANULAR BACKFILL 18 kN/m^3

MATERIAL SPECIFICATIONS

1. STRUCTURAL STEEL: ASTM A709 GRADE 50 OR CSA CAN3-G40.20/G40.21 350 MPa
2. WELDING: CSA W59

TRACK MONITORING

1. MONITOR RAIL TRACK IN ACCORDANCE WITH TRACK MONITORING PLAN, SEE SPECIFICATIONS.
2. REPORT MONITORING THRESHOLDS: ALERT THRESHOLD: 22mm
   REVIEW THRESHOLD: 11mm
3. SETTLEMENT MONITORING OF THE RAIL TRACK SHALL COMMENCE A MINIMUM OF 2 DAYS PRIOR TO CONSTRUCTION/EXCAVATION IN ORDER TO ESTABLISH BASELINE COORDINATES AND ELEVATIONS.
4. MONITORING POINTS SHOULD BE SURVEYED AT LEAST TWICE PER DAY DURING THE DURATION OF CONSTRUCTION AND AT LEAST 3 DAYS AFTER THE COMPLETION OF CONSTRUCTION.
5. SURVEY RESULTS SHALL BE SUBMITTED DAILY TO GEOTECHNICAL ENGINEER FOR REVIEW.

CONSTRUCTION MONITORING

1. MAKE PRE-CONSTRUCTION SURVEY OF ANY ADJACENT STRUCTURES.
2. PROVIDE MONITORING POINTS ON PILES P1-P5 AND INITIALIZE VERTICAL AND HORIZONTAL LOCATION BEFORE EXCAVATION.
3. TAKE HORIZONTAL PILE READINGS DAILY DURING ACTIVE EXCAVATION AND WEEKLY THEREAFTER.
4. TAKE VERTICAL PILE READINGS AT INSTALLATION, AFTER WALER, BRACE INSTALLATION AND AFTER EVERY SIGNIFICANT CUT GREATER THAN 1.2m DAILY.
5. ALL SURVEY RECORDS SHALL BE PROVIDED IMMEDIATELY TO THE CONTRACT ADMINISTRATOR AND KEPT ON FILE ON SITE.
6. INSTRUMENTS USED TO MEASURE THE MONITORING POINTS SHALL HAVE AN ACCURACY OF ±2mm OR BETTER.
7. REPORT MONITORING THRESHOLDS: REVIEW ≤ 14mm; ALERT > 14mm.
8. SURVEY MONITORING POINTS TWICE DAILY.

CONSTRUCTION SEQUENCE

1. PROTECT ALL UTILITIES DURING ALL PHASES OF CONSTRUCTION.
2. THE CONTRACTOR SHALL PERMIT ACCESS TO THE CONTRACT ADMINISTRATOR FOR MONITORING OF EXCAVATION .
3. HYDROEXCAVATE TO EXPOSE SIDES OF EXISTING PIPE AND TO LOCATE ANY OTHER UTILITY. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER FOR PROTECTION OR TREATMENT REQUIRED FOR THE PROPOSED WORK.
4. INSTALL PILES AS SHOWN ON THE DRAWINGS. PILES MUST BE PRE-BORED TO THE BOTTOM OF THE EXCAVATION ELEVATION.
5. DRIVEN PILES SHALL BE DRIVEN IN A WAY TO MINIMIZE PILE DISTORTION. USE GUIDE TEMPLATE IF NEEDED. PRE-BORED PILES SHALL BE BACKFILLED TO MAINTAIN INTIMATE CONTACT BETWEEN THE PILE AND THE GROUND.
6. EXCAVATE TO A MAXIMUM DEPTH OF 600mm AND INSTALL LAGGING. EXCAVATE SOIL FACES NEATLY TO ENSURE A TIGHT FIT FOR LAGGING. WEDGE AT PILE AS NECESSARY, PACK ALL VOIDS BEHIND LAGGING WITH GRANULAR MATERIAL RAMMED INTO PLACE.
7. INSTALL WALER AND CORNER BRACES WHEN EXCAVATION REACHES A MAXIMUM OF 300mm BELOW THE WALER PROPOSED ELEVATION. DO NOT FURTHER EXCAVATE UNTIL ALL BRACES ARE ADEQUATELY INSTALLED .
8. THE WALER SHALL BE IN UNIFORM CONTACT WITH THE PILES. PROVIDE SHIMS AS NEEDED TO FILL ANY GAP.
9. ON COMPLETION OF THE WORK, THE TEMPORARY SHORING ELEMENTS SHALL BE REMOVED.
10. THE TRACK SIDE SHALL ALWAYS BE SUPPORTED WHEN TRAINS ARE RUNNING. COORDINATE WITH CP FOR WORKBLOCKS .
11. INSTALL CONSTRUCTION SUMP AND MAINTAIN EXCAVATION IN A DRY CONDITION.

PILE WORKING POINTS

PILE NO.	NORTHING	EASTING	TOP OF PILE EL.	PILE TIP EL.
P1	5529845.350	629721.426	233.600	218.000
P2	5529845.512	629722.540	233.600	218.000
P3	5529845.673	629723.653	233.600	218.000
P4	5529845.835	629724.767	233.600	218.000
P5	5529845.996	629725.880	233.600	218.000
P6	5529844.413	629726.479	233.600	218.000
P7	5529842.579	629726.749	233.450	218.000
P8	5529840.890	629726.620	233.450	218.000
P9	5529840.675	629725.135	233.450	218.000
P10	5529840.460	629723.651	233.450	218.000
P11	5529840.245	629722.166	233.450	218.000
P12	5529841.829	629721.571	233.450	218.000
P13	5529843.662	629721.305	233.600	218.000

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
AECOM Canada Ltd.
No. 4671 Date: June 20, 2022

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES
0.0 5.0 10.0 15.0 20.0 25.0

WARNING

IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:

1) NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.

2) TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS.

SEE PROVINCIAL REGULATION 210/72 FOR DETAILS

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

NOTE:

LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M. 84R505 ELEV. 233.144m — N.W. Cor. Saskatchewan Ave. & Midland St., Tblt. on top of 0.05 m dia. x 1.2 m iron pipe 10.2 m S. of N.L. of Saskatchewan Ave. & 5.6 m E. of W.L. of Midland St.

CONSTRUCTION COMPLETION DATE: YYYY MM DD

NO.	REVISIONS	DATE	BY
E	REVISED AS PER ADDENDUM 3	22/07/14	KM
D	REVISED AS PER ADDENDUM 1	22/07/07	KM
C	ISSUED FOR TENDER	22/06/20	KM
B	REVISED AS PER CPR INDEPENDENT REVIEW	22/01/27	KM
A	ISSUED FOR CPR APPROVAL	21/12/23	KM

AECOM

DESIGNED BY	RN	CHECKED BY	EP
DRAWN BY	KM	APPROVED BY	KWF
SCALE: HORIZONTAL	AS NOTED	RELEASED FOR CONSTRUCTION	Paul Bortoluzzi
VERTICAL	N/A		
DATE	2022 07 14	DATE	June 21/22

PLOT DATE: 2022 07 14

ENGINEER'S SEAL
ORIGINAL SIGNED BY R. Nawaz June 20/22

CONSULTANT DRAWING NUMBER
C-4003

Tender No: 507-2021

Winnipeg

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

PROVISION OF PIPELINE ACCESS MODIFICATIONS, CLEANING AND SUPPORT SERVICES FOR RIVER CROSSING INSPECTIONS – PHASE THREE
SITE 8
TEMPORARY SHORING DETAILS
(AT OMAND'S CREEK)

SHEET 11 OF 11

CITY DRAWING NUMBER
1-0798E-C0006-001

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