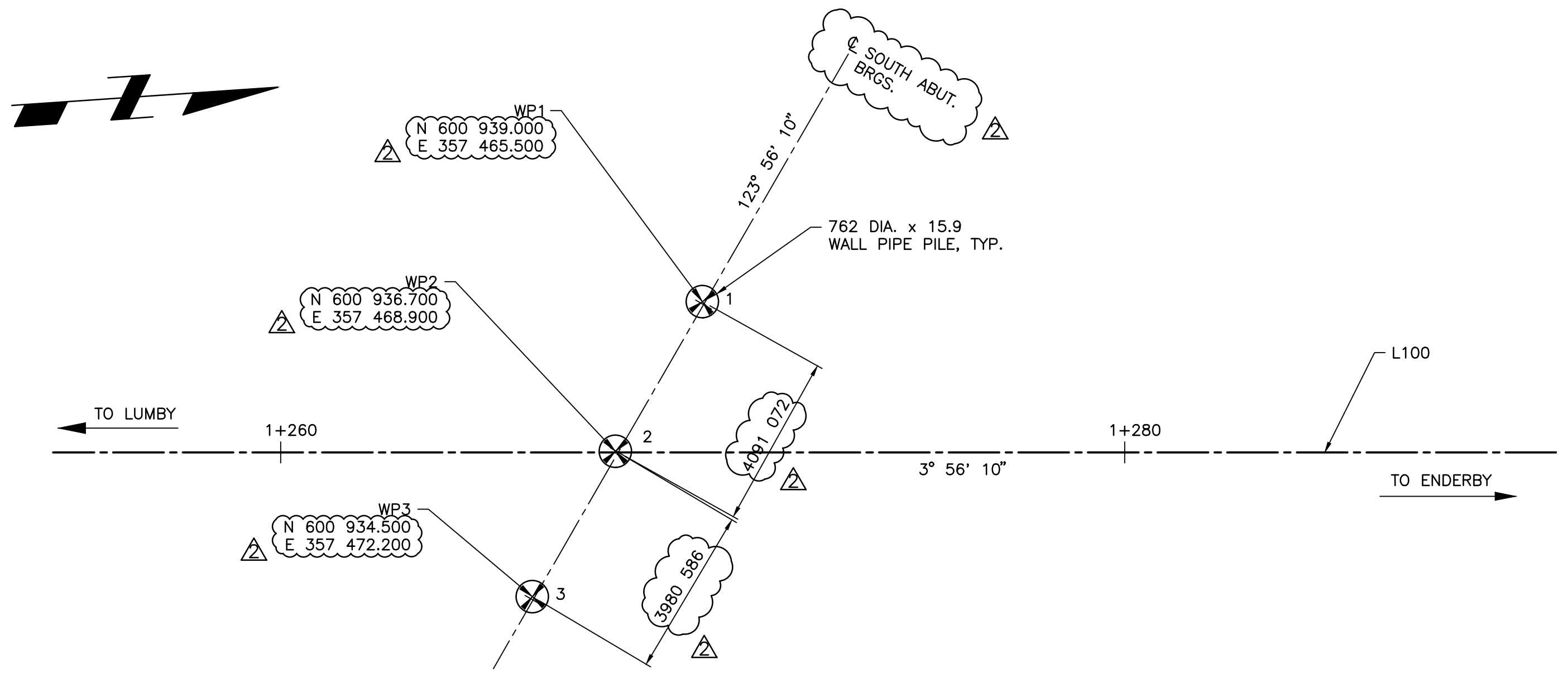
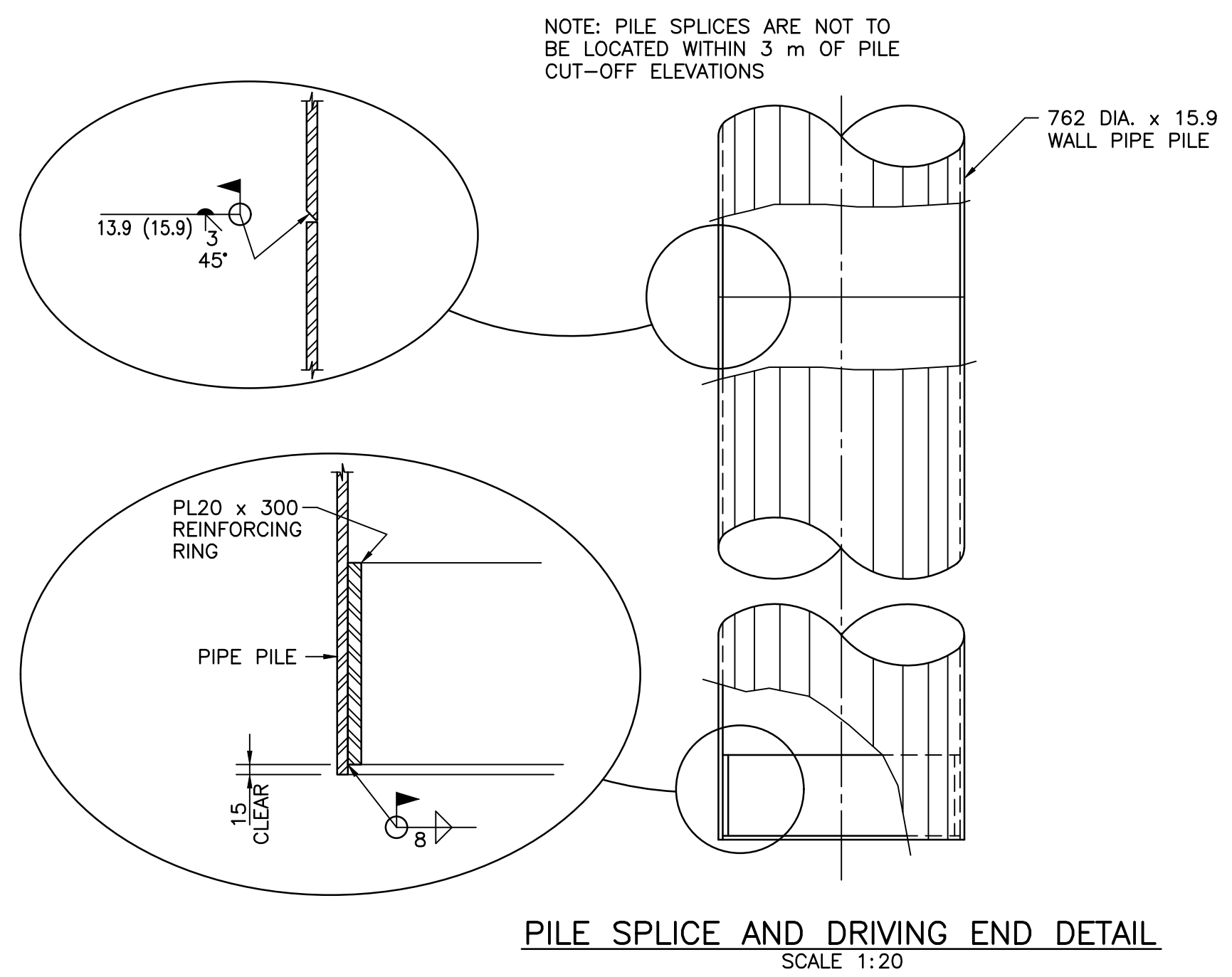


Last Saved - JShortridge  
 File: K:\241\2241\02729-00\Mot1-Baxter Bridge\10.0 Drawings\04 Structural\01 Sheets\01 Working Drawings\10200-4-Foundations\Plan and Details.dwg Plot Time: Oct 05, 2023 - 3:02pm



**SOUTH ABUTMENT**  
**FOUNDATION PILE LAYOUT**  
 SCALE 1:100 PILES ARE NUMBERED FOR IDENTIFICATION ONLY.  
 REFER TO INSTALLATION TABLE FOR CUT-OFF ELEVATIONS.  
 NOTE: AT END OF DRIVE THE TOP OF EACH PILE SHALL BE LEFT  
 A MINIMUM OF 3 m ABOVE THE CUT-OFF ELEVATION.



APPROXIMATE PILE SOIL PLUG ELEVATION	
PILE 1	346.7
PILE 2	346.5
PILE 3	345.5

BRIDGE PILE INSTALLATION			
	PILE 1	PILE 2	PILE 3
PILE CUT-OFF ELEVATION	361.600	361.600	361.600
APPROXIMATE PILE TIP ELEVATION	306.700	306.500	306.700

	SOUTH ABUTMENT	
	SLS	ULS
DEAD LOAD (DL) IN kN	1 285	1 545
DOWNDRAW LOAD (DRAG) IN kN	1 770	2 215
TOTAL (DL + DRAG) IN kN	3 055	3 760
LIVE LOAD (LL) IN kN	605	1 030
TOTAL (DL + LL) IN kN	1 890	2 575

- NOTES:**
- PILES SHALL BE INSTALLED TO ELEVATIONS SHOWN OR TO SUCH ELEVATIONS AS MAY BE INSTRUCTED BY THE MINISTRY REPRESENTATIVE.
  - PILE SUPPLY:  
 MATERIAL FOR REINFORCING RINGS SHALL CONFORM TO CSA G40.21M, GRADE 300W. STEEL PIPE FOR PIPE PILES SHALL CONFORM TO ASTM A252, GRADE 3 OR API 5L GRADE X52. PREVIOUSLY USED OR COATED PIPE WILL NOT BE ACCEPTED. THE BORON CONTENT OF STEEL PILING SHALL NOT EXCEED 0.0008%. PIPE PILES CONFORMING TO ASTM A252 ARE SUBJECT TO THE FOLLOWING ADDITIONAL REQUIREMENTS:  
 (1) PIPE PILES WITH SEAMS SHALL BE FABRICATED WITH FULL PENETRATION BUTT WELDS.  
 (2) CHEMICAL ANALYSIS OF THE MATERIAL SHALL SHOW AN EQUIVALENT CARBON CONTENT OF LESS 0.60%, THE PHOSPHORUS CONTENT SHALL BE A MAXIMUM OF 0.04%, AND THE SULPHUR CONTENT SHALL BE A MAXIMUM OF 0.05%.  
 (3) THE FULL LENGTH OF EXTERNAL SEAM WELDS AND REASONABLY ACCESSIBLE INTERNAL SEAM WELDS SHALL BE VISUALLY INSPECTED BY THE CONTRACTOR IN ACCORDANCE WITH CSA W59 CLAUSE 11. ALIGNMENT DEVIATIONS SHALL BE LESS THAN 3 mm.  
 (4) THE CONTRACTOR'S QUALITY CONTROL SHALL INCLUDE 100% ULTRASONIC TESTING OF SEAM WELDS BY AN INDEPENDENT TESTING FIRM. ULTRASONIC TESTING SHALL BE IN ACCORDANCE WITH W59 CLAUSE 11.  
 MILL TEST REPORTS AND NON-DESTRUCTIVE TESTING RECORDS, CONFIRMING SEAM WELD QUALITY, SHALL BE SUBMITTED TO THE MINISTRY REPRESENTATIVE. MANUFACTURER'S IDENTIFICATION MARKS ON THE PILES SHALL BE READILY IDENTIFIABLE ON SITE AND SHALL MATCH THE HEAT NUMBERS ON THE MILL CERTIFICATES PROVIDED. SECTIONS OF PILING SHORTER THAN THREE (3) METRES SHALL NOT BE USED, EXCEPT TO FINISH A PILE TO FINAL CUT OFF ELEVATION.  
 WHERE MILL TEST REPORTS ORIGINATE FROM OUTSIDE CANADA OR THE UNITED STATES OF AMERICA, THE CONTRACTOR SHALL HAVE MILL TEST REPORTS VERIFIED BY A CERTIFIED LABORATORY IN CANADA BY TESTING THE MATERIAL TO THE SPECIFIED MATERIAL STANDARDS, INCLUDING BORON CONTENT. THE TESTING LABORATORY SHALL BE CERTIFIED TO ISO/IEC 17025 BY AN ORGANIZATION ACCREDITED BY THE STANDARDS COUNCIL OF CANADA FOR THE TESTS REQUIRED.
  - SPLICING AND PILE MODIFICATION:  
 PILING SHALL BE SPLICED, IF NECESSARY, IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS. PILING SHALL BE ALIGNED SO THAT THE FINISHED PILES ARE STRAIGHT FROM END TO END.  
 PILE MODIFICATIONS, INCLUDING BUT NOT LIMITED TO, DRIVING SHOES, INTERMEDIATE CLOSURE PLATES AND/OR FORM SUPPORT PLATES, IF ANY SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS.  
 ALL WELDING SHALL CONFORM IN QUALITY AND WORKMANSHIP TO THE LATEST CSA W59. THE WELD AREA SHALL BE DRY AND WIND FREE DURING WELDING AND SHALL COOL WITHOUT CHILLING FOLLOWING WELDING.  
 WELDING SHALL BE UNDERTAKEN BY A COMPANY CURRENTLY FULLY CERTIFIED BY THE CANADIAN WELDING BUREAU (CWB) TO THE REQUIREMENTS OF CSA W47.1, DIVISION 2 OR BETTER.  
 PRIOR TO COMMENCEMENT OF WELDING, THE CONTRACTOR SHALL SUBMIT WELDING PROCEDURES AND DATA SHEETS, APPROVED BY THE CWB, FOR THE TYPE OF WELD BEING PERFORMED AND COPIES OF WELDING CERTIFICATES FOR ALL WELDERS CONFIRMING THAT THE INDIVIDUALS ARE CURRENTLY CERTIFIED BY THE CWB IN THE PROCESSES IN WHICH THEY ARE TO BE EMPLOYED.
  - PILE INSTALLATION:  
 PILES SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE DRAWINGS. MAXIMUM HORIZONTAL TOLERANCES FROM LOCATIONS SHOWN ON THE DRAWINGS SHALL BE AS FOLLOWS:  
 - AT GROUND LINE OR WATER LINE 75 mm  
 - AT CUT OFF FOR EXTENDED PILES 25 mm  
 MAXIMUM DEVIATION FROM PLUMB OR SPECIFIED BATTER, BELOW WATER OR GROUND LINE SHALL BE 20 mm PER METRE.  
 THE CONTRACTOR SHALL MAINTAIN PILE DRIVING RECORDS (MINISTRY FORM H0053), AS DIRECTED BY THE MINISTRY REPRESENTATIVE. AT A MINIMUM, THE PILE DRIVING RECORDS SHALL INCLUDE:  
 (1) INSTALLATION EQUIPMENT, INCLUDING DETAILS ON USE OF THE PILE CUSHION;  
 (2) PILE IDENTIFICATION (NUMBER), SIZE AND LENGTH, LOCATION OF PILE IN PILE GROUP, AND LOCATION OR DESIGNATION OF PILE GROUP;  
 (3) TIME FOR START AND FINISH OF DRIVING PILE AND SEQUENCE OF PILE DRIVING FOR PILES IN GROUP;  
 (4) PENETRATION UNDER PILE WEIGHT AND WEIGHT OF HAMMER, NUMBER OF BLOWS PER 250 MM OF PENETRATION FROM START OF DRIVING, AND BLOWS PER 25 MM OF PENETRATION FOR FOUR (4) CONSECUTIVE SERIES WHEN APPROACHING ANTICIPATED PILE TIP ELEVATION;  
 (5) OBSERVED STROKE AND BLOW RATE (BLOWS/MINUTE) OF DIESEL HAMMER, IF USED;  
 (6) TIP ELEVATION UPON TERMINATION OF DRIVING PILE AND FINAL TIP AND TOP ELEVATIONS UPON COMPLETION OF PILE GROUP;  
 (7) DURING SPLICING AND UPON TERMINATION OF DRIVING, RECORD THE DEPTH OF SOIL INSIDE THE PILE RELATIVE TO THE ADJACENT GROUND SURFACE;  
 (8) RECORDS OF RE-STRIKING, INCLUDING PILE SET FOR EACH BLOW;  
 (9) OTHER PERTINENT INFORMATION, SUCH AS INTERPRETATION OF CONTINUOUS DRIVING, OBSERVED PILE DAMAGE; ETC.  
 (10) RECORDS OF ELEVATION OF ADJACENT PILES BEFORE AND AFTER DRIVING OF PILE. THE CHANGE IN ELEVATION SHOULD BE LESS THAN THE TYPICAL SURVEY ERROR USING TOTAL STATION SURVEY EQUIPMENT (+/- 3 MM).  
 THE CONTRACTOR SHALL PROVIDE A COPY OF THE RECORD TO THE MINISTRY REPRESENTATIVE AT THE END OF EACH WORKING DAY.  
 AT LEAST TWO (2) WEEKS PRIOR TO INSTALLING PILES, THE CONTRACTOR SHALL SUBMIT TO THE MINISTRY REPRESENTATIVE THE DETAILS AND SPECIFICATIONS OF THE PROPOSED PILE INSTALLATION EQUIPMENT TO BE USED FOR THE PROJECT TO ALLOW WEAP ANALYSIS. DETAILS SHALL INCLUDE BUT NOT BE LIMITED TO HAMMER TYPE, CUSHION TYPE AND THICKNESS, AND HELMET WEIGHT.

PILE INSTALLATION EQUIPMENT SHALL BE CAPABLE OF INSTALLING THE PILE TO THE ANTICIPATED PILE TIP ELEVATIONS AND TO A RESISTANCE OF AT LEAST 2.5 TIMES THE MAXIMUM FACTORED LOAD AS SHOWN ON THE DRAWINGS. VIBRATORY HAMMERS OR JETTING SHALL NOT BE USED FOR PILE INSTALLATION.

PILES SHALL BE INSTALLED TO SUCH DEPTHS AS ORDERED BY THE MINISTRY. THE TIP ELEVATIONS SHOWN ON THE DRAWINGS ARE PRELIMINARY ESTIMATES OF THE DEPTHS REQUIRED. THE MINISTRY WILL ESTABLISH THE FINAL TIP ELEVATIONS BASED ON FACTORED LOADS AND MINIMUM PENETRATIONS FOR FIXITY, SETTLEMENT CONTROL, SAFETY AGAINST SCOUR AND RESISTANCE TO INSTALLATION. THE ANTICIPATED PILE TIP ELEVATIONS AND MAXIMUM FACTORED LOADS ARE NOTED ON THE DRAWINGS.

PILES SHALL BE INSTALLED OPEN ENDED TO THE ANTICIPATED TIP ELEVATION AS SHOWN ON THE DRAWINGS USING TOP DRIVING TECHNIQUES COMBINED WITH CHURN DRILLING METHODS IF NECESSARY. VIBRATORY TECHNIQUES OR DOWN HOLE DRILLING TYPE PROCEDURES SHALL ONLY BE PERMITTED BY THE MINISTRY REPRESENTATIVE. HOWEVER, DISTURBANCE OF THE ORIGINAL SOILS IS TO BE LIMITED TO A MAXIMUM OF 10 MM BEYOND THE DIAMETER OF THE PILE. ANY OBSTRUCTIONS ENCOUNTERED DURING PILE INSTALLATION SHALL BE REMOVED BY CLEANING THE SOILS INSIDE OF THE PILE AND THE OBSTRUCTION ITSELF TO FACILITATE ADVANCEMENT OF THE PILE TO THE ANTICIPATED TIP ELEVATION WITHOUT DAMAGING THE PILE.

PILES SHALL BE INSTALLED WITHOUT CAUSING DAMAGE TO THE PILE. THE TOP OF PILES SHALL BE PROTECTED BY A SUITABLE DRIVING CAP TO PREVENT DAMAGE TO THE PILES. ANY PILE SO DAMAGED AS TO BE UNFIT FOR THE USE FOR WHICH IT IS INTENDED, OR ANY PILE THAT CANNOT BE BROUGHT WITHIN TOLERANCE FOR LOCATION WILL BE REJECTED. A REJECTED PILE SHALL BE EXTRACTED AND REPLACED BY A NEW PILE. COSTS ASSOCIATED WITH REJECTED PILES SHALL BE FOR THE CONTRACTOR'S ACCOUNT. SUFFICIENT LENGTHS OF PILE ABOVE CUT-OFF SHALL BE ALLOWED SO THAT NO PART OF THE HEAD OF THE PILE DAMAGED DURING INSTALLATION REMAINS IN THE WORK.

WATER IN THE PILING SHALL BE MAINTAINED AT A LEVEL AT LEAST EQUAL TO THE SURROUNDING WATER TABLE. ALTERNATIVELY, SUFFICIENT SLURRY SHALL BE RETAINED WITHIN THE PILES TO MAINTAIN A ZERO HEAD.

ALL STEEL PIPE PILES SHALL BE TEMPORARILY CAPPED AFTER INSTALLATION FOR SAFETY REASONS.

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Rev	Date	Description	Init
2	OCT. 04, 2023	RECORD DRAWING WITH FINAL PILE LOCATIONS	C.P.R.
1	JULY 19, 2023	UPDATED PILE WORK POINTS	C.P.R.

REVISIONS

Ministry of Transportation  
& Infrastructure  
Southern Interior Region

OKANAGAN SHUSWAP DISTRICT  
 TRINITY VALLEY ROAD  
**BAXTER BRIDGE SOUTH ABUTMENT PILING  
 FOUNDATION PLAN AND PILE DETAILS**

PREPARED UNDER THE DIRECTION OF		DESIGNED	S.P.S.	DATE	Apr. 19, 2023
ENGINEER OF RECORD		CHECKED	C.P.R.	DATE	Apr. 19, 2023
DATE		DRAWN	Y.W.	DATE	Apr. 19, 2023
FILE No.		PROJECT No.		REG.	DRAWING No.
		22661-0000		2	H0200-4

SCALE AS NOTED  
 NEGATIVE No.  
 CANCEL PRINTS BEARING PREVIOUS LETTER