



## DAILY OBSERVATION REPORT

PROJECT NO. TBD  
PROJECT NAME Nason Creek

(1) DAY: Monday DATE: 7/1/2013 WORK PERIOD: 9:15 ☒ a.m. ☐ p.m. TO 3:00 ☐ a.m. ☒ p.m. REPORT. 1

WEATHER Partly Sunny TEMP. MAX 90 °F MIN 90 °F PRECIPITATION \_\_\_\_\_

(2) **KEY PERSONNEL ON SITE:**

Jim Gunter - BNSF

Ryan Lawrence – CH2M HILL

(3) **MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE**

No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		

(4) **WORK ACCOMPLISHED TODAY:**

I arrived on site at 9:15am.

I met with Jim Gunter with BNSF. He initially told me that track window was from 10am to 2pm. I got all my supplies ready and reviewed the design memo. We ended up not getting track access until approximately 11:30am. We loaded all the supplies and got to the site at approximately 12:00pm. I marked the pile in 1-foot increments while the BNSF crew setup. They initially had trouble getting the hammer to operate correctly – the piston was not being raised and dropped correctly. BNSF spent around 20 minutes working on the hammer. BNSF started driving the first pile at around 12:30pm. Advanced Pile 3 at Bent 3. The pile did not advance as easily as was expected, but still advanced without difficulty. BNSF drove pile to 55.5 feet, then added a temporary H-pile extension on top of the pile to drive it down to approximately 59.5 feet. BNSF then cut off approximately 8 inches from the top of the pile so that trains could travel over the top of it. We left the jobsite at around 2:30pm.

I left the site at 3:00pm.

(5)

Ryan Lawrence, P.E.  
OBSERVER'S SIGNATURE

7/1/2013  
DATE



Photo 1: View of site before the start of pile driving.



Photo 2: View of Pile 3 before the start of pile driving.



Photo 3: View of Pile 3 at the end of pile driving. Upper 8 inches of pile was cut off.

# Pile Driving Record



Pile Type: HP 14x117	Size: 60 foot long sections	PROJECT: Nason Creek
Top Elev: _____	Basic Length: _____	PROJECT No: TBD
Cutoff El: _____	Penetration: _____	Pile Location: Bent No. <u>3</u>
Ground El: _____	Cutoff Length: _____	Pile Number: <u>3</u>
Tip Elev: _____	Pay Length: _____	Min. Penetration: _____
Hammer Type: OED	Model: Berminghammer B3505	Driving Completed: _____
Cap Typ: _____	Weight: 12,000lb + 4,000 piston	Driving Started: 7/1/2013
Cushion: Steel striker plate	Thickness: 6"	Elapsed Time/Date: _____

DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks	DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks
1.0					Setup	48.0	42		47	6.2	
2.0	15		51	5.3		49.0	31		48	6.1	
3.0	9			6		50.0	46		48	6.1	
4.0	5			5.7		51.0	42		47	6.2	
5.0	8			5.6		52.0	33		46	6.6	
6.0	8			6.1		53.0	35		46	6.5	
7.0	8			6.2		54.0	38		46	6.6	
8.0	19			6.2		55.0	31		46	6.6	TempExt
9.0	14			6		56.0	35		46	6.7	
10.0	12			6.3		57.0	24		45	6.8	
11.0	14		48	6		58.0	35		46	6.5	
12.0	16		49	5.8		59.0	28		47	6.3	Cut@59.5
13.0	12		49	5.7		60.0					
14.0	13		50	5.6		61.0					
15.0	14		49	5.6		62.0					
16.0	14		50	5.5		63.0					
17.0	12			5.4		64.0					
18.0	11		49	5.8		65.0					
19.0	10		49	5.7		66.0					
20.0	8			5.3		67.0					
21.0	4			4.8		68.0					
22.0	7			5.3		69.0					
23.0	16		47	6.2		70.0					
24.0	15		47	6.2		71.0					
25.0	16		48	6.1		72.0					
26.0	12		47	6.2		73.0					
27.0	16		47	6.3		74.0					
28.0	17		47	6.4		75.0					
29.0	21		47	6.6		76.0					
30.0	18		46	6.6		77.0					
31.0	22		46	6.5		78.0					
32.0	25		46	6.6		79.0					
33.0	27		46	6.6		80.0					
34.0	24		46	6.5		81.0					
35.0	23		46	6.4		82.0					
36.0	30		46	6.5		83.0					
37.0	29		46	6.5		84.0					
38.0	26		46	6.7		85.0					
39.0	26		46	6.6		86.0					
40.0	30		45	6.9		87.0					
41.0	26		46	6.7		88.0					
42.0	27		46	6.5		89.0					
43.0	64		54	4.8	Soft blows	90.0					
44.0	30		46	6.5		91.0					
45.0	32		46	6.5		92.0					
46.0	31		46	6.5		93.0					
47.0	34		47	6.2		94.0					

Observer: R. Lawrence





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Tuesday DATE: 7/2/2013 WORK PERIOD: 8:30 ☒ a.m. ☐ p.m. TO 2:30 ☐ a.m. ☒ p.m. REPORT. 2  
WEATHER Sunny TEMP. MAX 90 °F MIN 90 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Jim Gunter - BNSF

Ryan Lawrence – CH2M HILL

(3) **MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE**

No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to life pile driving hammer		

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 8:30am.

I met with Jim Gunter with BNSF. He told me that we were just waiting for a work window to open up for us to get on the tracks. We received track authority at approximately 11:45am. We got to the jobsite at around 12:00pm. While the pile equipment was being setup, Jim and some of his crew attempted to help another BNSF crew get an excavator unstuck from a soft area adjacent to the tracks that it had sunk into. Pile driving began at 12:30pm and lasted until 1:10pm. Worked on Pier 3 Pile 4 today. No problems were encountered during pile driving. The pile was driven to just below the railroad tie level and did not need to be cutoff. BNSF crew cleaned up, loaded equipment, and left jobsite by 2:00pm.

I left the site at 2:30pm.

See attached photos.

(5)

Ryan Lawrence, P.E.  
OBSERVER'S SIGNATURE

7/2/2013  
DATE



Photo 1: View of site before the start of pile driving.



Photo 2: View of the temporary pile extension that was used to drive the pile from 55.5 to 60 feet.



Photo 3: View of Pile 3 and Pile 4 at the end of the day. Note the slight rotation to Pile 3 that was driven yesterday.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Wednesday DATE: 7/3/2013 WORK PERIOD: 8:30 ☒ a.m. ☐ p.m. TO 4:30 ☐ a.m. ☒ p.m. REPORT: 3

WEATHER Sunny TEMP. MAX 90 °F MIN 90 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Jim Gunter - BNSF	Martin Fisher - ICF
Ryan Lawrence – CH2M HILL	
Alan Schmidt – Chelan County	

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to life pile driving hammer		

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 8:30am.

I met with Martin Fisher and Alan Schmidt when I arrived on site this morning and briefed them on the status of the pile driving progress for this project. I met with Jim Gunter with BNSF. He told me that we were just waiting for a work window to open up for us to get on the tracks. We received track authority at approximately 11:45am. We got to the jobsite at around 12:00pm. The BNSF crew welded the second segment (60-120 foot section) of Pier 3 Pile 4. BNSF resumed driving this pile at approximately 12:50pm. The re-strike blows were as follows:

- 2 blows for the first 1 inch.
- 5 blows for the first 2 inches
- 10 blows for the first 4 inches
- 14 blows for the first 6 inches
- 18 blows for the first 8 inches
- 23 blows fir the first 10 inches
- 26 blows for the first 12 inches

BNSF advanced Pier 3 Pile 4 without difficulty to a depth of 117 feet and then temporarily stopped driving the pile. They then began installing the first segment (0-60 feet) of Pier 3 Pile 2 at approximately 1:30pm. BNSF advanced this pile without difficulty to a depth of approximately 55 feet. They used an excavator to help keep the pile alignment straight. Then BNSF used their temporary pile extension to drive Pier 3 Pile 2 to a depth of 60 feet. Then BNSF used their temporary pile extension to drive Pier 3 Pile 4 to a depth of 120 feet. Between 117-120 feet, the number of blows required to advance the pile increased significantly, but it was unclear if this was due to setup or more difficult driving conditions. The batter of all the piles so far is roughly 1.5 inches over 12 inches. BNSF is having some difficulty keeping the piles from rotating. We left the jobsite at approximately 3:00pm.

We waited for 2 trains to pass and then tried to get back on the tracks at approximately 4:15pm, but the tracks were only going to be clear for 1 hour before the next train. The BNSF crew went back to the jobsite to do some non-pile driving work and I left the site, since no more piles would be installed today.

I left the site at 4:30pm.

See attached photos.

A total of 120 feet of pile was driven today (60 feet each on Pier 3 Pile 2 and Pier 3 Pile 4).

Current pile totals are:  
Pier 3 Pile 2: 60 feet



Pier 3 Pile 3: 59.5 feet  
Pier 3 Pile 4: 120 feet

(5)

Ryan Lawrence, P.E.  
OBSERVER'S SIGNATURE

7/3/2013  
DATE



Photo 1: View of first and second segments of Pier 3 Pile 4 being welded together.



Photo 2: View of the weld between the first and second segment of Pier 3 Pile 4.



Photo 3: View of Pile 2 and Pile 4 advanced as far as they can be using just the hammer. BNSF crew is attaching cables to pick up the temporary pile section that they will use to drive the piles to below the track elevation.





Photo 4: View of Piles 2, 3, and 4 (left to right) at Pier 3. Note the slight rotation of Pile 2 and Pile 3.



# DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Thursday DATE: 7/4/2013 WORK PERIOD: 8:30 ☒ a.m. ☐ p.m. TO 6:15 ☐ a.m. ☒ p.m. REPORT. 4

WEATHER Sunny TEMP. MAX 83 °F MIN 83 °F PRECIPITATION None

## (2) KEY PERSONNEL ON SITE:

Jim Gunter - BNSF  
Ryan Lawrence – CH2M HILL  
Andrew Banas – RMDT, Inc.

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to life pile driving hammer		

## (4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 8:30am.

The BNSF crew was preparing to mobilize as I arrived because we had a track window from 8:30am to 12:30pm. Andrew Banas with RMDT arrived at approximately 8:45am. While Andrew setup his instrumentation on Pier 3 Pile 4, the BNSF crew advanced the base section of Pier 3 Pile 1 to a depth of approximately 55 feet. Then BNSF welded the third section of Pier 3 Pile 4 and began advancing the pile. The pile driving sensors worked correctly and successfully transmitted data to the pile driving analyzer. Preliminary analysis by Andrew indicated the capacity of the pile during restrike was around 250 kips and then was around 200 kips once the pile started moving, which was well below the desired capacity of 470 kips. Andrew felt the pile needed to be advanced deeper. Andrew also indicated that the pile hammer was not working as well as it should be. During the course of driving Pier 3 Pile 4, the stroke height decreased from around 7.5 to 6.5 feet. Ideally, the hammer stroke height should be around 10 feet. The hammer operator indicated the hammer was old and was not operating as well as it should be. The smaller amount of energy being produced by the hammer resulted in more hammer blows being needed to advance the pile, which resulted in longer pile driving time. The pile was only able to be advanced to a depth of 160 feet before the BNSF crew was out of time and had to get off the track. They cutoff the Pier 3 Pile 4 at a depth of 160 feet and Pier 3 Pile 1 at a depth of 56 feet.

The re-strike blows were as follows for Pier 3 Pile 4 at a depth of 120 feet:

- 8 blows for the first 1 inch.
- 17 blows for the first 2 inches
- 26blows for the first 3 inches
- 36blows for the first 4 inches
- 45blows for the first 5 inches
- 54 blows for the first 6 inches
- 64 blows for the first 7 inches
- 73 blows for the first 8 inches
- 82 blows for the first 9 inches
- 92 blows fir the first 10 inches
- 102 blows for the first 11 inches
- 111 blows for the first 12 inches

We were off the track by approximately 12:30pm. Jim was hopeful we could get another track window later in the day, so we stayed and waited to see if another track window would open. We were able to get another track window from approximately 3:30pm to 6:00pm. We used this time to weld on the second segment of Pier 3 Pile 3. Andrew also attached the pile driving sensors to this pile and used his pile driving analyzer to monitor the advancement of the pile. BNSF advanced the pile from a depth of 59.5 to 120 feet.



The re-strike blows were as follows for Pier 3 Pile 3 at a depth of 59.5 feet:

4 blows for the first 1 inch.  
8 blows for the first 2 inches  
13 blows for the first 3 inches  
18 blows for the first 4 inches  
21 blows for the first 5 inches  
26 blows for the first 6 inches  
29 blows for the first 7 inches  
33 blows for the first 8 inches  
38 blows for the first 9 inches  
41 blows fir the first 10 inches  
45 blows for the first 11 inches  
48 blows for the first 12 inches

I left the site at 6:15pm.

See attached photos.

A total of 156.5 feet of pile was driven today (56 feet on Pier 3 Pile 1, 40 feet on Pier 3 Pile 4, and 60.5 feet on Pier 3 Pile 3).

Current pile totals are:

Pier 3 Pile 1: 55 feet  
Pier 3 Pile 2: 60 feet  
Pier 3 Pile 3: 120 feet  
Pier 3 Pile 4: 160 feet

(5)

Ryan Lawrence, P.E.

7/4/2013

OBSERVER'S SIGNATURE

DATE



Photo 1: View of the first segment of Pier 3 Pile 1.

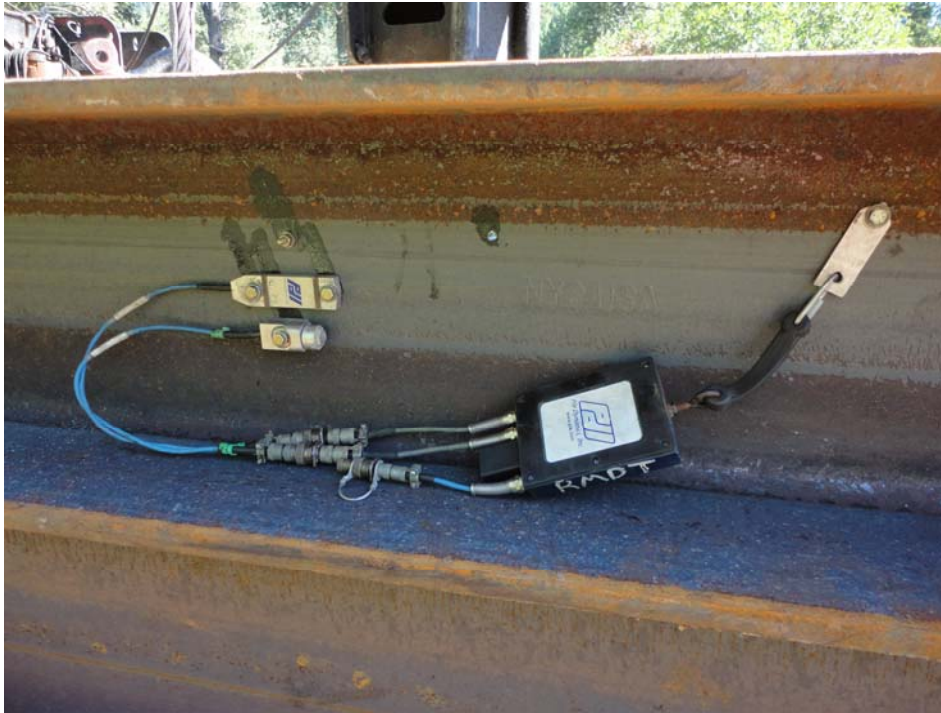


Photo 2: View of the pile driving sensors that wirelessly transmit data to the pile driving analyzer.



Photo 3: View of Pier 3 Pile 1 (left) and Pier 3 Pile 4 (right).



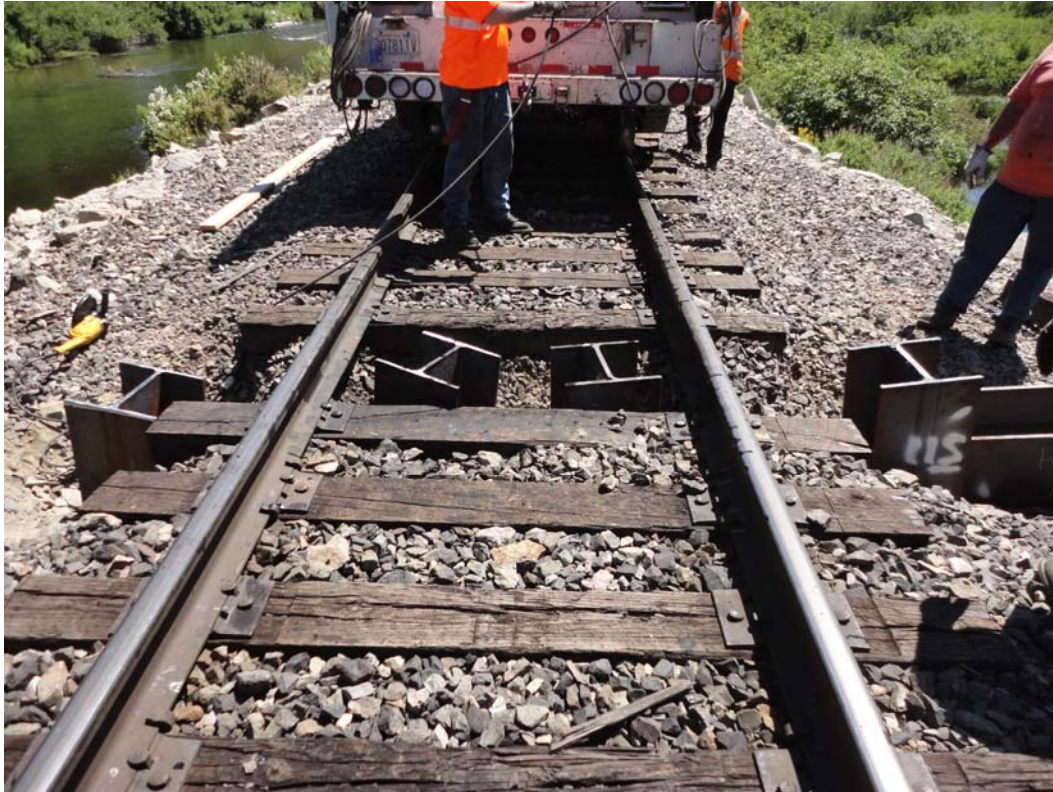


Photo 4: View of Pier 3 Piles 4, 3, 2, 1 (left to right).



Photo 5: View of weld on Pier 3 Pile 3.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Friday DATE: 7/5/2013 WORK PERIOD: 7:30 ☒ a.m. ☐ p.m. TO 3:00 ☐ a.m. ☒ p.m. REPORT: 5

WEATHER Sunny TEMP. MAX 80 °F MIN 80 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Jim Gunter - BNSF

Ryan Lawrence – CH2M HILL

Andrew Banas – RMDT, Inc.

(3) **MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE**

No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to life pile driving hammer		

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 7:30am.

Met with Jim and Andrew and discussed the objectives for the day. I worked on paperwork while we waited for a track window to open. We received access to the tracks from approximately 9:30am to 2:00pm. BNSF welded on a fourth segment (60 feet long) to Pier 3 Pile 4. BNSF then used their hammer to advance the pile while Andrew collected data using his pile driving analyzer. Restrike data was collected at the beginning of pile driving at approximately 160 feet. The pile was driven to a depth of approximately 215 feet before BNSF ran out of time and had to clear the tracks. They cut off the remaining 5 feet of pile. According to Andrew, the pile did not achieve the desired capacity during driving. The capacity during driving was around 250 kips, instead of the desired 470 kips. Andrew believes BNSF may be able to achieve capacity after allowing the pile to setup for a few days and then restriking it. However, Andrew believes the hammer is not adequate for achieving capacity during restrike because it is not currently capable of creating large enough hammer blows to displace the pile enough to mobilize all of the available soil resistance. Andrew believes BNSF needs to repair their hammer so that it can impart more energy or obtain a larger hammer that is capable of generating more energy. The stroke heights gradually decreased from around 7.5 feet to 6.5 feet, which is mostly due to the hammer heating up with use. BNSF hit the pile approximately 7,550 times today, which is a substantial amount of hammer blows. The hammer will likely not last the course of the project if it is subjected to that much continuous use. Even though the blows per foot were up to 180 at times, BNSF elected to continue driving to keep trying to get the pile into the ground.

We unloaded our equipment from the trucks at around 2:30pm. Andrew and I discussed the progress for the day with Josh Butler and went over some paperwork until 3:00pm. The BNSF crew was in the process of replacing the compression rings on the hammer as I was leaving and were planning on working on this for the rest of the day in an effort to improve the hammer's performance. I left the site at 3:00pm.

Andrew returned to the hotel room and performed some pile analyses over the next couple hours. We met at around 5:00pm and discussed his results with Josh. Basically, pile capacity was not achieved during driving, but may be possible to achieve during restrike after the pile has had time to setup, if BNSF is able to find a way to get a hammer that can generate enough energy to mobilize all of the soil resistance. Some options are: BNSF repairing their hammer, obtaining a more powerful hammer, or using alternate fuel blends to temporarily get a higher stroke height. It was decided that we would not have Andrew test tomorrow to give Pier 3 Pile 4 another day to setup and hopefully gain strength. We also want to see if BNSF changing the hammer's compression rings significantly improves the hammer performance.

The re-strike blows were as follows for Pier 3 Pile 4 at a depth of 160 feet:

- 14 blows for the first 1 inch.
- 26 blows for the first 2 inches
- 38 blows for the first 3 inches



52 blows for the first 4 inches  
64 blows for the first 5 inches  
76 blows for the first 6 inches  
89 blows for the first 7 inches  
100 blows for the first 8 inches  
111 blows for the first 9 inches  
122 blows fir the first 10 inches  
133 blows for the first 11 inches  
142 blows for the first 12 inches

See attached photos.

A total of 55 feet of pile was driven today (Pier 3 Pile 4 Segment 4).

Current pile totals are:

Pier 3 Pile 1: 55 feet  
Pier 3 Pile 2: 60 feet  
Pier 3 Pile 3: 120 feet  
Pier 3 Pile 4: 215 feet

(5)

Ryan Lawrence, P.E.

7/5/2013

OBSERVER'S SIGNATURE

DATE



Photo 1: View of the weld on Pier 3 Pile 4 at 160 feet, between segments 3 and 4.



Photo 2: View of the Pier 3 Pile 4 during pile driving.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Saturday DATE: 7/6/2013 WORK PERIOD: 7:30 ☒ a.m. ☐ p.m. TO 1:00 ☐ a.m. ☒ p.m. REPORT. 6

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Jim Gunter - BNSF  
\_\_\_\_\_  
Ryan Lawrence – CH2M HILL  
\_\_\_\_\_  
Martin Fisher - ICF  
\_\_\_\_\_

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to life pile driving hammer		

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 7:30am.

We had a track window from 7:30 to 9:30am, we went to work as soon as I arrived. BNSF welded the second segment to Pier 3 Pile 1. We measured the restrike blowcounts for each inch of the first foot. The pile driving began at 8:40am.

The re-strike blows were as follows for Pier 3 Pile 1 at a depth of 55 feet:

- 2 blows for the first 1 inch.
- 3 blows for the first 2 inches
- 5 blows for the first 3 inches
- 7 blows for the first 4 inches
- 8 blows for the first 5 inches
- 10 blows for the first 6 inches
- 12 blows for the first 7 inches
- 13 blows for the first 8 inches
- 15 blows for the first 9 inches
- 16 blows fir the first 10 inches
- 17 blows for the first 11 inches
- 19 blows for the first 12 inches

The pile advanced without any problems to a depth of 116 feet. Despite the BNSF crew replacing the compression rings in the hammer the day before, I did not observe significantly higher stroke heights than yesterday. Average stroke heights were a little over seven feet high, which is slightly better than yesterday, but not significantly. Jim believes the hammer is operating a little better, and thinks the low stroke heights are the result of softer soil. Pile driving was finished by 9:25am.

After a train went by, we had another track window from around 10:30am to 12:40pm. The BNSF crew advanced Pier 2 Pile 2 to a depth of 60 feet. The pile advanced without any problems. The stroke heights were around 6 feet. Pile driving was finished at 9:10am.

I saw Martin Fisher onsite observing the construction of the temporary access road and talked with him briefly. I explained the status of the pile driving work.

Jim did not think we would have enough of a window to drive any more pile today. If any short window opened up, he planned to use it to bring out more pile sections to the bridge site and unload them.

I left the site today at 1:00pm

See attached photos.

A total of 120 feet of pile was driven today (60 feet at Pier 3 Pile 1 Segment 4 and 60 feet at Pier 2 Pile 2 Segment 1).

Current pile totals are:

Pier 2 Pile 2: 60 feet  
Pier 3 Pile 1: 116 feet  
Pier 3 Pile 2: 60 feet  
Pier 3 Pile 3: 120 feet  
Pier 3 Pile 4: 215 feet

(5)

Ryan Lawrence, P.E.

7/6/2013

OBSERVER'S SIGNATURE

DATE



Photo 1: View of the weld on Pier 3 Pile 1 at 55 feet, between segments 1 and 2.





Photo 2: View of the Pier 3 Pile 1 at the start of pile driving.



Photo 3: View of the Pier 3 Pile 1 during pile driving. BNSF is picking up their follower to drive the piles below the track level.



Photo 4: View of the Pier 3 piles (Pile 1, 2, 3, 4, left to right).





Photo 5: View of the follower that BNSF uses to drive the piles below the track level. (Follower at the top of the photo, pile at the bottom of the photo)





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Sunday DATE: 7/7/2013 WORK PERIOD: 8:00 ☒ a.m. ☐ p.m. TO 2:15 ☐ a.m. ☒ p.m. REPORT: 7

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Jim Gunter - BNSF  
Ryan Lawrence – CH2M HILL  
Andrew Banas – RMDT, Inc.

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to life pile driving hammer		

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 8:00am.

Andrew Banas arrived at the site a few minutes after I did. I found out there had been a service interruption the night before, so there were a lot of trains backed up and it would be difficult to get track time today. Jim recommended that we wait and see if a window opened up around noon. A short track window opened up at 1:00pm. We mobilized to Pier 3 and performed restrikes on Pile 1, Pile 3, and Pile 4. All of the piles were advanced 12/16 to 1.0 inches using approximately 8 to 10 hammer blows. The BNSF crew did not follow Andrew's recommendation to use ether to create larger hammer blows, citing safety concerns with that approach. Andrew collected the data he needed and will evaluate the data later this afternoon. We got off the tracks at 2:00pm. The BNSF foreman said we would not get any track windows the rest of the day that would be long enough to drive piles, so everyone left the site.

I left the site today at 2:15pm.

See attached photos.

A total of 0 feet of pile was driven today.

Current pile totals are:

- Pier 2 Pile 2: 60 feet
- Pier 3 Pile 1: 116 feet
- Pier 3 Pile 2: 60 feet
- Pier 3 Pile 3: 120 feet
- Pier 3 Pile 4: 215 feet

(5)

Ryan Lawrence, P.E.	7/7/2013
OBSERVER'S SIGNATURE	DATE



Photo 1: View of the restrike marks that were made on the follower from Pier 3, piles 1, 3, and 4.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Monday DATE: 7/8/2013 WORK PERIOD: 8:00 ☒ a.m. ☐ p.m. TO 3:15 ☐ a.m. ☒ p.m. REPORT: 8

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Jim Gunter - BNSF  
Ryan Lawrence – CH2M HILL  
Martin Fisher - ICF

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 8:00am.

I met with Jim when I got to the site. BNSF received a track access window starting at 8:00am today. We mobilized to the jobsite and BNSF began advancing base sections. I asked Jim to advance either base section or second sections while we waited for the results of the pile driving analyses currently being performed by RMDT, Inc. BNSF started by advancing Pier 2 Pile 3 Segment 1 at approximately 9:00am. BNSF then began advancing Pier 2 Pile 4 Segment 1 at approximately 10:00am. BNSF had considerable difficulty advancing this pile because the pile was hitting boulders around 6 to 10 feet deep that was forcing the pile to twist out of alignment. Jim used a Deere 200D excavator to dig a hole approximately six feet deep at the Pile 4 location. During digging he excavated some boulder size rip-rap material that was up to around 2 feet in diameter. On the third try, BNSF was able to advance the pile. The final orientation of the pile is correct, but it is approximately 2 inches west from where BNSF would like it to be. BNSF then advanced Pier 4 Pile 4 Segment 1 at approximately 12:45pm. Other than what was already mentioned, no other difficulties were encountered during pile driving. BNSF spent approximately 20 minutes unloading more piles onto the ground. We were off the tracks by approximately 2:00pm.

I observed that Martin Fisher was onsite intermittently today. When he was onsite, he was observing the construction of the temporary access road that is next to the railroad embankment.

At approximately 3:00pm Jim informed me that BNSF would not be driving any more piles today because they would not be receiving sufficient track access.

I left the site today at 3:15pm.

See attached photos.

A total of 180 feet of pile was driven today (60 feet at Pier 2 Pile 3 Segment 1, 60 feet at Pier 2 Pile 4 Segment 1, 60 feet at Pier 4 Pile 4 Segment 1).

Current pile totals are:

- Pier 2 Pile 2: 60 feet
- Pier 2 Pile 3: 60 feet
- Pier 2 Pile 4: 60 feet
- Pier 3 Pile 1: 116 feet
- Pier 3 Pile 2: 60 feet
- Pier 3 Pile 3: 120 feet
- Pier 3 Pile 4: 215 feet
- Pier 4 Pile 4: 60 feet

(5) Ryan Lawrence, P.E. 7/8/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: View of the excavator digging a hole at Pier 2 Pile 4 to remove the obstruction that was rotating the pile.



Photo 2: View of the pile being started at Pier 4 Pile 4.





Photo 3: View of the piles that have been advanced so far at Pier 2 (Piles 4, 3, 2 – left to right).



Photo 4: View of the piles that have been advanced so far at Pier 2 (Piles 4, 3, 2 – top to bottom).



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Tuesday DATE: 7/9/2013 WORK PERIOD: 8:15 ☒ a.m. ☐ p.m. TO 2:15 ☐ a.m. ☒ p.m. REPORT. 9

WEATHER Sunny TEMP. MAX 90 °F MIN 90 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Jim Gunter - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 8:15am.

I met with Jim when I got to the site. We waited for track access until 9:30am. BNSF advanced a base pile section at Bent 4 Pile 3. No problems were encountered during pile advancement. Construction of the access road along the railroad embankment was taking place all day by other contractors. BNSF then got off the tracks at 11:00am. BNSF received another window of track access at 11:45am. BNSF advanced a base section at Bent 1 Pile 4. Jim used the excavator to dig a ~4 foot deep hole to get the pile started and get past any rip-rap. Jim also used the excavator to help the pile go in the ground without getting out of alignment. No problems were encountered during pile advancement. BNSF then advanced a base section at Bent 4 Pile 2. The initial batter was 2 inches per foot, instead of the specified 3 inches per foot. Jim wanted to start with a batter of 2 inches per foot because he felt it would naturally end up close to 3 inches per foot during the course of pile driving. No problems were encountered during pile advancement. We got off the tracks at approximately 2:00pm. Jim did not think we would get another window to drive piles today.

I left the site today at 2:15pm.

See attached photos.

A total of 180 feet of pile was driven today (60 feet at Bent 4 Pile 3 Segment 1, 60 feet at Bent 1 Pile 4 Segment 1, 60 feet at Bent 4 Pile 2 Segment 1).

Current pile totals are:

- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 2: 60 feet
- Bent 2 Pile 3: 60 feet
- Bent 2 Pile 4: 60 feet
- Bent 3 Pile 1: 116 feet
- Bent 3 Pile 2: 60 feet
- Bent 3 Pile 3: 120 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 60 feet
- Bent 4 Pile 4: 60 feet

(5) Ryan Lawrence, P.E. 7/9/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: View of the the installation of Bent 4 Pile 3. Crew is preparing to use the follower to further advance the pile.



Photo 2: View of the piles at Bent 4. Note the batter on Pile 3 (top of photo) compared to Pile 4 (bottom of photo).





Photo 3: View of progress so far. Bents 1 through 4 can be seen (Bent 1 at bottom of photo).





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Wednesday DATE: 7/10/2013 WORK PERIOD: 8:30 ☒ a.m. ☐ p.m. TO 4:00 ☐ a.m. ☒ p.m. REPORT. 10

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Jim Gunter - BNSF

Ryan Lawrence – CH2M HILL

(3) **MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE**

No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 8:30am.

I met with Jim when I got to the site. We waited for a track access window to open, which Jim expected to occur sometime later in the morning. BNSF crew performed maintenance on the hammer crane. Just before a window finally opened, a semi truck hit a railroad bridge in the area and all the area trains were stopped. Jim left the site to go inspect the bridge. We finally received access to the tracks at approximately 1:00pm. BNSF advanced a base pile section at Bent 2 Pile 1. No problems were encountered during pile advancement. BNSF then advanced a base pile section at Bent 4 Pile 1. No problems were encountered during pile advancement.

Construction of the access road along the railroad embankment was taking place all day by other contractors.

We got off the tracks at approximately 3:30pm. Jim did not think we would get another window to drive piles today.

I left the site today at 4:00pm.

See attached photos.

A total of 120 feet of pile was driven today (60 feet at Bent 2 Pile 1 Segment 1, 60 feet at Bent 4 Pile 1 Segment 1).

Current pile totals are:

Bent 1 Pile 4: 60 feet

Bent 2 Pile 1: 60 feet

Bent 2 Pile 2: 60 feet

Bent 2 Pile 3: 60 feet

Bent 2 Pile 4: 60 feet

Bent 3 Pile 1: 116 feet

Bent 3 Pile 2: 60 feet

Bent 3 Pile 3: 120 feet

Bent 3 Pile 4: 215 feet

Bent 4 Pile 1: 60 feet

Bent 4 Pile 2: 60 feet

Bent 4 Pile 3: 60 feet

Bent 4 Pile 4: 60 feet

(5)

Ryan Lawrence, P.E.  
OBSERVER'S SIGNATURE

7/10/2013  
DATE



Photo 1: View of the the installation of Bent 2 Pile 1.





Photo 2: View of the piles at Bent 2 (foreground), Bent 3, and Bent 4 (background).





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Thursday DATE: 7/11/2013 WORK PERIOD: 8:15 ☒ a.m. ☐ p.m. TO 2:45 ☐ a.m. ☒ p.m. REPORT. 11

WEATHER Sunny TEMP. MAX 80 °F MIN 80 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Jim Gunter - BNSF	Alan Schmidt – Chelan County
Ryan Lawrence – CH2M HILL	
Martin Fisher - ICF	

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 8:15am.

I met with Jim when I got to the site. We received track access at 8:30am. The two cranes and pile driving hammers that BNSF had onsite up to this point in the project were moved offsite last night to another job. A different crane and hammer were at the site today. The new hammer is still a Berminghammer B3505. BNSF setup to drive a pile at Bent 1 Pile 1, but they were unable to get the new hammer to start. We had to get off the tracks by 10:30am, so we left the tracks without advancing any of the pile. BNSF said the hammer hadn't been used in awhile, so they figured it was just a matter of getting it started the first time and then it would be fine. We waited from 10:30 to 11:00am for track access. We went back on the track at 11:00am. BNSF used their follower to restrike the pile at Bent 3 Pile 1 just to get the hammer to start. They were able to get the hammer to start and used it for about 10 blows on the pile. Then BNSF welded on Bent 2 Pile 2 Segment 2. BNSF used the hammer to advance the pile 1 foot before the hammer broke. Restrike data was collected for the 1 foot of driving. The hammer piston got stuck near the top of the hammer and wouldn't release and fall back down to the bottom of the stroke. Jim believed the problem was with the compression rings and planned to spend the rest of the day putting on new compression rings. We got off the tracks at 2:30pm.

Construction of the access road along the railroad embankment was taking place all day by other contractors. They spent the day installing geofoam blocks near the west end of the new bridge. Martin Fisher and Alan Schmidt were onsite for portions of the day to watch the geofoam installation.

I left the site today at 2:45pm.

See attached photos.

A total of 1 foot of pile was driven today (1 foot at Bent 2 Pile 2 Segment 2).

Current pile totals are:

- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 60 feet
- Bent 2 Pile 2: 61 feet
- Bent 2 Pile 3: 60 feet
- Bent 2 Pile 4: 60 feet
- Bent 3 Pile 1: 116 feet
- Bent 3 Pile 2: 60 feet
- Bent 3 Pile 3: 120 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 60 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 60 feet
- Bent 4 Pile 4: 60 feet

(5)

Ryan Lawrence, P.E.  
OBSERVER'S SIGNATURE

7/11/2013  
DATE



Photo 1: View of the the weld at Bent 2 Pile 2 at 60 feet.



Photo 2: View of Bent 2 Pile 2 in the foreground. Note the weld that is 1 foot below the top of the pile, due to the pile needing to be cut off after only 1 foot of driving.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Friday DATE: 7/12/2013 WORK PERIOD: 8:10 ☒ a.m. ☐ p.m. TO 5:30 ☐ a.m. ☒ p.m. REPORT: 12

WEATHER Sunny TEMP. MAX 80 °F MIN 80 °F PRECIPITATION Light afternoon shower

(2) KEY PERSONNEL ON SITE:

Jim Gunter - BNSF

Ryan Lawrence – CH2M HILL

(3) MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE

No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 8:10am.

I met with Jim when I got to the site. We received track access at 8:15am. The BNSF crew installed the base section of Bent 1 Pile 1. No problems were encountered during pile driving. The new hammer being used by BNSF seemed to operate better than the previous hammer. The new hammer was able to achieve a stroke height of over 8 feet, which is around a foot higher than the previous hammer. We got off the tracks at approximately 10:00am and then waited for another track window to open. We received another track window at 3:00pm. The BNSF crew installed the second segment of Bent 2 Pile 2, from 61 feet to 120 feet. No problems were encountered during pile driving. The following restrike data was collected at 61 feet.

6 blows for the first inch  
13 blows for the first two inches  
21 blows for the first three inches  
29 blows for the first 4 inches  
35 blows for the first 5 inches  
40 blows for the first 6 inches  
45 blows for the first 7 inches  
51 blows for the first 8 inches  
57 blows for the first 9 inches  
63 blows for the first 10 inches  
68 blows for the first 11 inches  
74 blows for the first 12 inches

We got off the tracks at 5:30pm.

Construction of the access road along the railroad embankment was taking place all day by other contractors. They spent the day finishing the installation of the geofoam blocks and spreading granular fill over the top of the geofoam blocks.

I left the site today at 5:30pm.

See attached photos.

A total of 119 feet of pile was driven today (60 feet at Bent 1 Pile 1; 59 feet at Bent 2 Pile 2 Segment 2).

Current pile totals are:

Bent 1 Pile 1: 60 feet  
Bent 1 Pile 4: 60 feet  
Bent 2 Pile 1: 60 feet  
Bent 2 Pile 2: 120 feet  
Bent 2 Pile 3: 60 feet  
Bent 2 Pile 4: 60 feet  
Bent 3 Pile 1: 116 feet  
Bent 3 Pile 2: 60 feet

Bent 3 Pile 3: 120 feet  
Bent 3 Pile 4: 215 feet  
Bent 4 Pile 1: 60 feet  
Bent 4 Pile 2: 60 feet  
Bent 4 Pile 3: 60 feet  
Bent 4 Pile 4: 60 feet

(5)

Ryan Lawrence, P.E.

7/12/2013

OBSERVER'S SIGNATURE

DATE



Photo 1: View of the installation of Bent 1 Pile 1. Note the levers being used to help the pile initially go in straight.





Photo 2: View of Bent 2 Pile 2. First and second segments are clamped together in preparation for welding.



Photo 3: View of Bent 2 Pile 2 after the first and second segments were welded together.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Saturday DATE: 7/13/2013 WORK PERIOD: N/A ☐ a.m. ☐ p.m. TO N/A ☐ a.m. ☐ p.m. REPORT. 13

WEATHER N/A TEMP. MAX N/A °F MIN N/A °F PRECIPITATION N/A

(2) KEY PERSONNEL ON SITE:

Jim Gunter - BNSF  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) WORK ACCOMPLISHED TODAY:

I spoke with Jim in the morning and found out that during the night grease was spilled on some nearby tracks, which was causing problems for trains and might result in us not getting a track window today. Per Jim's recommendation, I did not travel to the jobsite and checked in periodically by phone to see if we were going to get a track window. Jim called me at 11:00am and told me that we would not be getting a track window today and would try again tomorrow.

A total of 0 feet of pile was driven today.

Current pile totals are:

Bent 1 Pile 1: 60 feet  
Bent 1 Pile 4: 60 feet  
Bent 2 Pile 1: 60 feet  
Bent 2 Pile 2: 120 feet  
Bent 2 Pile 3: 60 feet  
Bent 2 Pile 4: 60 feet  
Bent 3 Pile 1: 116 feet  
Bent 3 Pile 2: 60 feet  
Bent 3 Pile 3: 120 feet  
Bent 3 Pile 4: 215 feet  
Bent 4 Pile 1: 60 feet  
Bent 4 Pile 2: 60 feet  
Bent 4 Pile 3: 60 feet  
Bent 4 Pile 4: 60 feet

(5) Ryan Lawrence, P.E. 7/13/2013  
OBSERVER'S SIGNATURE DATE



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Sunday DATE: 7/14/2013 WORK PERIOD: 8:45 ☒ a.m. ☐ p.m. TO 3:15 ☐ a.m. ☒ p.m. REPORT. 14

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Jim Gunter - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) WORK ACCOMPLISHED TODAY:

I checked in with Jim by phone at 7:30, and he told me to wait to come to the site until around 9:00am. I arrived onsite at 8:45am.

I met with Jim when I got to the site. We waited for track access until 12:45pm. Once we had track access, the BNSF crew advanced the second segment of pile at Bent 2 Pile 1. No problems were encountered during pile driving. Due to time constraints, the pile was cut off at 119 feet. We got off the tracks at approximately 3:00pm. The following restrike data was collected at 60 feet:

- 4 blows for the first inch
- 13 blows for the first two inches
- 19 blows for the first three inches
- 22 blows for the first 4 inches
- 26 blows for the first 5 inches
- 29 blows for the first 6 inches
- 32 blows for the first 7 inches
- 35 blows for the first 8 inches
- 38 blows for the first 9 inches
- 41 blows for the first 10 inches
- 44 blows for the first 11 inches
- 48 blows for the first 12 inches

I left the site today at 3:15pm.

See attached photos.

A total of 59 feet of pile was driven today (at Bent 2 Pile 1 Segment 2).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 119 feet
- Bent 2 Pile 2: 120 feet
- Bent 2 Pile 3: 60 feet
- Bent 2 Pile 4: 60 feet
- Bent 3 Pile 1: 116 feet
- Bent 3 Pile 2: 60 feet
- Bent 3 Pile 3: 120 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 60 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 60 feet
- Bent 4 Pile 4: 60 feet

(5)

Ryan Lawrence, P.E.  
OBSERVER'S SIGNATURE

7/14/2013  
DATE



Photo 1: View of the weld at Bent 2 Pile 1.

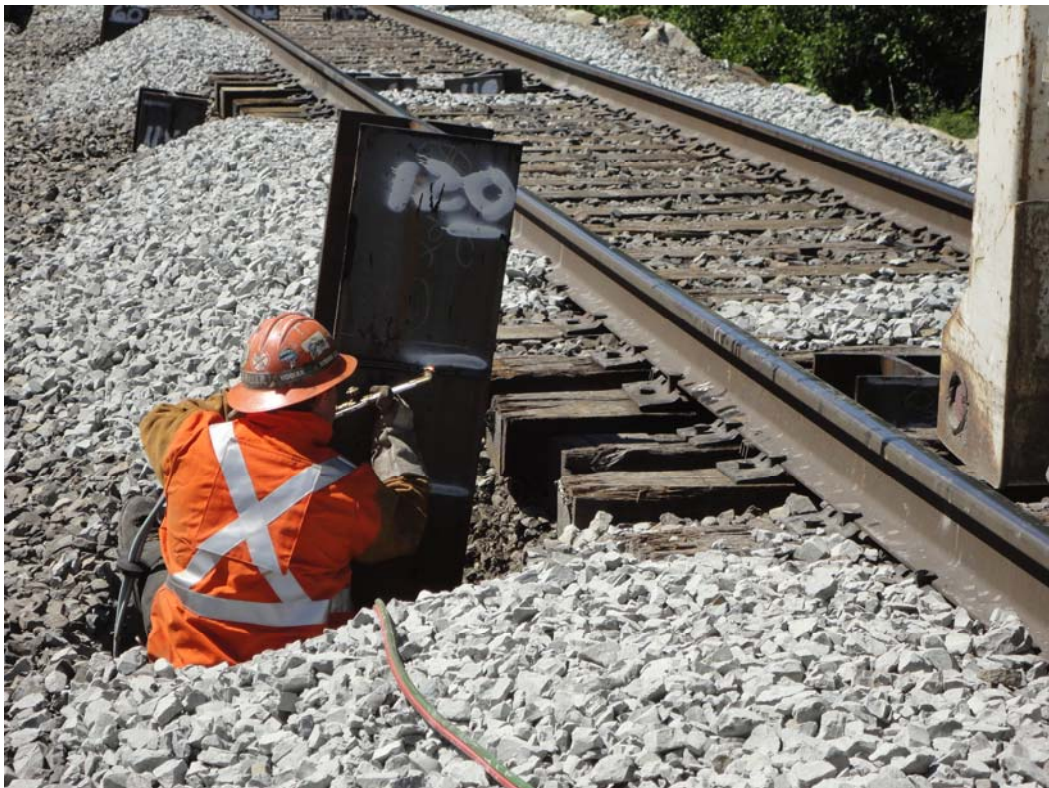


Photo 2: View of pile being cut off at 119 feet.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Monday DATE: 7/15/2013 WORK PERIOD: 8:30 ☒ a.m. ☐ p.m. TO 4:00 ☐ a.m. ☒ p.m. REPORT. 15

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		
1	Rail-mounted crane to lift pile driving hammer		
1	Deere 200D Excavator		

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 8:30am.

Todd Mains is the onsite BNSF foreman on the job now. Jim left to work on a different BNSF project. We received track access at 10:00am. Once we had track access, the BNSF crew advanced Bent 3 Pile 1 Segment 3 and Bent 3 Pile 2 Segment 2. No problems were encountered during pile driving. We left the tracks at 4:00pm.

I left the site today at 4:00pm.

See attached photos.

A total of 120 feet of pile was driven today (60 feet at Bent 3 Pile 1 Segment 3 and Bent 3 Pile 2 Segment 2).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 119 feet
- Bent 2 Pile 2: 120 feet
- Bent 2 Pile 3: 60 feet
- Bent 2 Pile 4: 60 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 120 feet
- Bent 3 Pile 3: 120 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 60 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 60 feet
- Bent 4 Pile 4: 60 feet

(5) Ryan Lawrence, P.E. 7/15/2013  
OBSERVER'S SIGNATURE DATE



Photo 1: View of Bent 3 Pile 1 being installed.



Photo 2: View of Bent 3 Piles 1 and 2 being installed.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Tuesday DATE: 7/16/2013 WORK PERIOD: 11:30 ☒ a.m. ☐ p.m. TO 6:30 ☐ a.m. ☒ p.m. REPORT. 16

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Todd Mains - BNSF	Mike Kane – Chelan County
Ryan Lawrence – CH2M HILL	
Alan Schmidt – Chelan County	

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) **WORK ACCOMPLISHED TODAY:**

I called Todd at 7:30am and he told me that he didn't know when we would get track access. We kept in touch throughout the morning and he told me at 11:00am that we would get track access soon. I arrived onsite at 11:30am.

We received track access at 11:45am. Once we had track access, the BNSF crew advanced Bent 4 Pile 1 Segment 2. No problems were encountered during pile driving. Alan and Mike from Chelan County were onsite and setup some survey points for us so that settlement readings could be taken in the vicinity of the pile driving operations. CH2M HILL had previously requested that this survey information be setup so that settlement resulting from the construction of the access road adjacent to the railroad embankment could be tracked. We left the tracks at 2:15pm.

Todd thought we might get another track access window, so he asked me to stay at the jobsite until he knew for sure what was available later in the day. We received track access again at 4:00pm and the BNSF crew advanced Bent 4 Pile 4 Segment 2. No problems were encountered during pile driving. We left the tracks at 6:30pm.

I left the site today at 6:30pm.

See attached photos.

A total of 120 feet of pile was driven today (60 feet at Bent 4 Pile 1 Segment 2 and 60 feet at Bent 4 Pile 4 Segment 2).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 119 feet
- Bent 2 Pile 2: 120 feet
- Bent 2 Pile 3: 60 feet
- Bent 2 Pile 4: 60 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 120 feet
- Bent 3 Pile 3: 120 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 60 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/16/2013  
OBSERVER'S SIGNATURE DATE



Photo 1: View of Bent 4 Pile 4 Segment 2 about to be attached to the pile driving hammer.



Photo 2: View of the follower being removed from Bent 4 Pile 4 Segment 2 after it has been used to advance the pile below the track elevation. The follower is typically used to advance the last 5 feet of each pile segment because there is not room for the hammer to drive the piles below the track elevation.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Wednesday DATE: 7/17/2013 WORK PERIOD: 7:30 ☒ a.m. ☐ p.m. TO 4:00 ☐ a.m. ☒ p.m. REPORT. 17

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL  
Bert Miner - RMDT

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 7:30am

I met with Todd when I arrived onsite. Bert Miner was onsite this morning to collect pile driving data. We received a track access window at 8:45am. Bert hooked up his pile driving analyzer equipment to BNSF's follower and we collected restrrike data from Bent 3 Pile 4 (215 feet), Bent 3 Pile 3 (120 feet), Bent 3 Pile 2 (120 feet), and Bent 3 Pile 1 (176 feet). After that the BNSF crew advanced Bent 2 Pile 4 Segment 2. Bert collected pile driving data from approximately 117 to 120 feet. No problems were encountered during pile driving. We got off the tracks at 12:00pm. Bert and I discussed some of his observations from the day and then Bert left the site at approximately 12:30pm. Bert was going to drive back to his office to perform some analyses with the data he collected today.

We received another track access window at 2:00pm. The BNSF crew advanced Bent 2 Pile 3 Segment 2. No problems were encountered during pile driving. We got off the tracks at 4:00pm. Throughout the afternoon, the contractors who constructed the access road adjacent to the railroad embankment were moving material to a staging area next to where we were driving piles.

I left the site today at 4:00pm.

See attached photos.

A total of 120 feet of pile was driven today (60 feet at Bent 2 Pile 4 Segment 2 and 60 feet at Bent 2 Pile 3 Segment 2).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 119 feet
- Bent 2 Pile 2: 120 feet
- Bent 2 Pile 3: 120 feet
- Bent 2 Pile 4: 120 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 120 feet
- Bent 3 Pile 3: 120 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 60 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E.  
7/17/2013  
OBSERVER'S SIGNATURE DATE  
(8.1) REV 10/95 FORM 21A





Photo 1: View of the pile driving analyzer equipment that was attached to BNSF's follower.



Photo 2: View of BNSF using the follower to collect restrike data from Bent 3 Pile 3. Note the blue wire going from the follower to the computer that Bert had setup.





Photo 3: View of the computer Bert had setup to collect pile driving data.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Thursday DATE: 7/18/2013 WORK PERIOD: 9:00 ☒ a.m. ☐ p.m. TO 3:30 ☐ a.m. ☒ p.m. REPORT. 18

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 9:00am

I met with Todd when I arrived onsite. He was expecting to get track access very soon, but then one of the engine cars failed on a nearby train and the railroad had to stop the train near the worksite so that a new engine car could be brought out. We waited onsite and eventually got a track access window at 12:00pm. The BNSF crew advanced Bent 3 Pile 2 Segment 3 from 120 to 180 feet deep. No problems were encountered during pile driving. Total pile driving time for the 60 foot pile was 135 minutes. We got off the tracks at 3:30pm. Todd said we would not get any more track time today, so I left the site.

I left the site today at 3:30pm.

See attached photos.

A total of 60 feet of pile was driven today (60 feet at Bent 3 Pile 2 Segment 3).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 119 feet
- Bent 2 Pile 2: 120 feet
- Bent 2 Pile 3: 120 feet
- Bent 2 Pile 4: 120 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 120 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 60 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/18/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: View of the crane picking up a pile segment and moving in into place at Bent 3 Pile 2.



Photo 2: View of Bent 3 Pile 2 Segments 2 and 3 being welded together.



Photo 3: View of the weld at Bent 3 Pile 2 between pile segments 2 and 3.





Photo 4: View of the follower being attached to the top of the pile to drive the final 4 feet of pile below the railroad track elevation.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Friday DATE: 7/19/2013 WORK PERIOD: 10:00 ☒ a.m. ☐ p.m. TO 5:00 ☐ a.m. ☒ p.m. REPORT. 19

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 10:00am

I met with Todd when I arrived onsite. He was expecting to get track access very soon, but we ended up needing to wait for a couple trains to pass. The BNSF crew unloaded another shipment of piles from a delivery truck while we waited. BNSF wanted to have extra piles ready in case CH2M HILL recommends that piles be advanced deeper than originally planned. We received track access at approximately 11:30am. The BNSF crew advanced Bent 3 Pile 3 Segment 3 and most of Bent 4 Pile 3 Segment 2. BNSF ran out of time to finish advancing Bent 4 Pile 3 Segment 2, so the pile was cut off at a depth of 105 feet. No problems were encountered during pile driving. We got off the tracks at 4:45pm.

I left the site today at 5:00pm.

See attached photos.

A total of 105 feet of pile was driven today (60 feet at Bent 3 Pile 3 Segment 3, 45 feet at Bent 4 Pile 3 Segment 2).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 119 feet
- Bent 2 Pile 2: 120 feet
- Bent 2 Pile 3: 120 feet
- Bent 2 Pile 4: 120 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 105 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/19/2013  
OBSERVER'S SIGNATURE DATE



Photo 1: View of Bent 3 Pile 3 Segments 2 and 3 being welded together.



Photo 2: View of Bent 3 Pile 3 Segments 3 being positioned for pile driving.





Photo 3: View of the pile group at Bent 3. Pile 4 is in the foreground, pile 1 is in the background. Note the rotation of Pile 3 that occurred during pile driving.



Photo 4: View of Bent 4 Pile 3 sticking above the ground. Note the inclination of the pile, which is intentional.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Saturday DATE: 7/20/2013 WORK PERIOD: 9:00 ☒ a.m. ☐ p.m. TO 4:00 ☐ a.m. ☒ p.m. REPORT. 20

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 9:00am

I met with Todd when I arrived onsite. The track access window he had been expecting had not opened up yet. We waited until 11:45am before getting track access. The BNSF crew advanced Bent 2 Pile 3 Segment 3. No problems were encountered during pile driving. After driving the pile, the BNSF crew placed additional crushed rock at the pile locations to fill the holes beneath the railroad ties that had developed during pile driving. We got off the tracks at 3:45pm.

I left the site today at 4:00pm.

See attached photos.

A total of 60 feet of pile was driven today (60 feet at Bent 2 Pile 3 Segment 3).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 119 feet
- Bent 2 Pile 2: 120 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 120 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 105 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/20/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: View of Bent 2 Pile 3 Segments 2 and 3 being welded together.



Photo 2: View of the finished weld on Bent 2 Pile 3 at a depth of 120.5 feet.





Photo 3: View of Bent 2 Pile 3 near the end of pile driving. The hammer has advanced the pile as far as it will go; BNSF is preparing to attach their follower to advance the pile below the track elevation.



Photo 4: View of additional crushed rock being deposited to fill the holes beneath the railroad ties that developed during pile driving.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Sunday DATE: 7/21/2013 WORK PERIOD: 9:00 ☒ a.m. ☐ p.m. TO 3:00 ☐ a.m. ☒ p.m. REPORT: 21

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 9:00am  
I met with Todd when I arrived onsite. We did not receive track access until 10:45am. The BNSF crew advanced Bent 2 Pile 4 Segment 3. No problems were encountered during pile driving. We got off the tracks at 2:45pm.  
I left the site today at 3:00pm.  
See attached photos.  
A total of 60 feet of pile was driven today (60 feet at Bent 2 Pile 4 Segment 3).  
Current pile totals are:  
Bent 1 Pile 1: 60 feet  
Bent 1 Pile 2: 0 feet  
Bent 1 Pile 3: 0 feet  
Bent 1 Pile 4: 60 feet  
Bent 2 Pile 1: 119 feet  
Bent 2 Pile 2: 120 feet  
Bent 2 Pile 3: 180 feet  
Bent 2 Pile 4: 180 feet  
Bent 3 Pile 1: 176 feet  
Bent 3 Pile 2: 180 feet  
Bent 3 Pile 3: 180 feet  
Bent 3 Pile 4: 215 feet  
Bent 4 Pile 1: 120 feet  
Bent 4 Pile 2: 60 feet  
Bent 4 Pile 3: 105 feet  
Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/21/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: View of Bent 2 Pile 4 being ground off at 120 feet in preparation for welding on another pile segment.



Photo 2: View of the finished weld on Bent 2 Pile 4 at a depth of 120.5 feet.





Photo 3: View of Bent 2 Pile 4. The third pile segment is being held in place by the crane as it is being welded together with the previous segment. Note the batter of the pile.



Photo 4: View of Bent 2 Pile 4 Segment 3 near the end of pile driving.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Monday DATE: 7/22/2013 WORK PERIOD: 7:30 ☒ a.m. ☐ p.m. TO 2:30 ☐ a.m. ☒ p.m. REPORT. 22

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 7:30am

I met with Todd when I arrived onsite. We received track access at 7:30am. The BNSF crew advanced Bent 2 Pile 2 Segment 3 from approximately 7:30 to 10:30am. The BNSF crew then advanced Bent 2 Pile 1 Segment 3 from approximately 10:30am to 1:30pm. No problems were encountered during pile driving. We got off the tracks at 1:45pm. I waited at the site while Todd checked in with the dispatcher to see if we could get another track access window. Todd was informed that we would not get another track window today.

I left the site today at 2:30pm.

See attached photos.

A total of 120 feet of pile was driven today (60 feet at Bent 2 Pile 2 Segment 3; 60 feet at Bent 2 Pile 1 Segment 3).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 179 feet
- Bent 2 Pile 2: 180 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 60 feet
- Bent 4 Pile 3: 105 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/22/2013  
OBSERVER'S SIGNATURE DATE



Photo 1: View of the rail mounted crane that was being used to drive the piles.



Photo 2: View of pile Segments 2 and 3 being welded together at Bent 2 Pile 1.



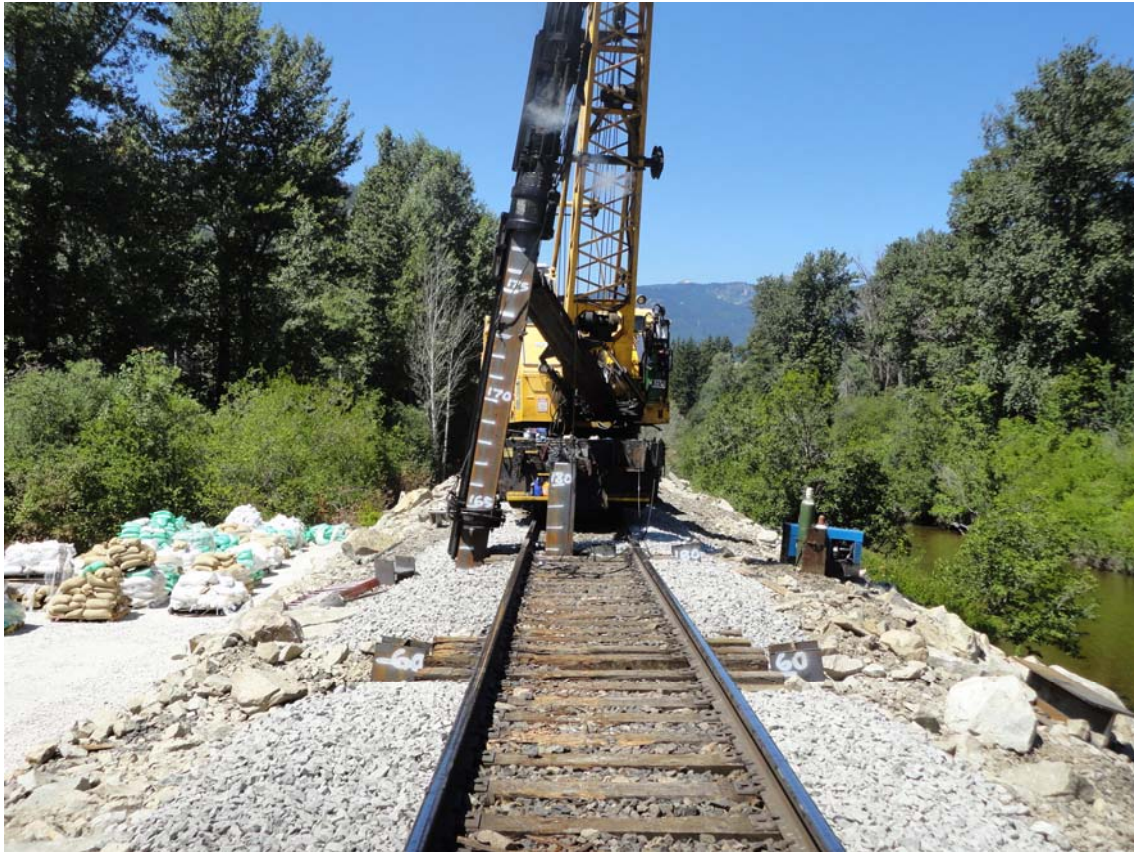


Photo 3: View of Bent 2 Pile 1 Segment 3 being advanced. The adjacent Bent 2 Pile 2 is still extending above the ground. BNSF used their follower to later finish advancing both piles.

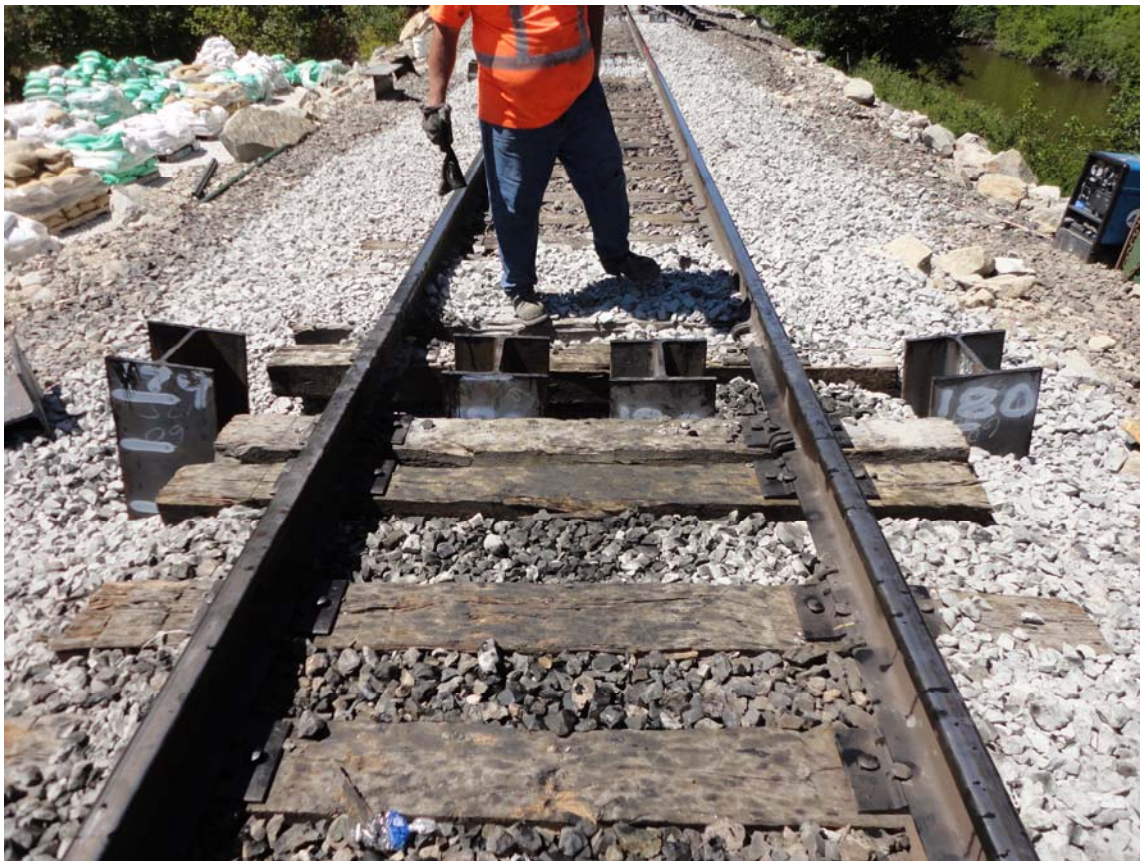


Photo 4: View of the Bent 2 piles.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Tuesday DATE: 7/23/2013 WORK PERIOD: 10:00 ☒ a.m. ☐ p.m. TO 3:00 ☐ a.m. ☒ p.m. REPORT: 23

WEATHER Sunny TEMP. MAX 95 °F MIN 95 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL  
Alan Schmidt – Chelan County

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 10:00am

I met with Todd when I arrived onsite. We received track access at 10:30am. The BNSF crew advanced Bent 4 Pile 2 Segment 2 from a depth of 60 to 120 feet. No problems were encountered during pile driving. We got off the tracks at 1:30pm. I waited at the site while Todd checked in with the dispatcher to see if we could get another track access window. Todd was informed that we would not get another track window today. I also had numerous conversations with CH2M HILL engineers today as we tried to determine our recommendations for the final pile lengths.

Alan was onsite today and was collecting survey measurements. I asked him to take survey measurements along the tracks at the points he setup previously so that we could see if any settlement has occurred along the bridge location. He said he would get those as soon as BNSF moved their equipment out of the way.

I left the site today at 3:00pm.

See attached photo.

A total of 60 feet of pile was driven today (60 feet at Bent 4 Pile 2 Segment 2).

Current pile totals are:

- Bent 1 Pile 1: 60 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 60 feet
- Bent 2 Pile 1: 179 feet
- Bent 2 Pile 2: 180 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 120 feet
- Bent 4 Pile 3: 105 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/23/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: View of Bent 4 Pile 2 near the end of pile driving. The hammer had advanced the pile as far as possible and BNSF was about to pick up their follower and use that to advance the pile below the track elevation.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Wednesday DATE: 7/24/2013 WORK PERIOD: 10:30 ☒ a.m. ☐ p.m. TO 11:00 ☐ a.m. ☒ p.m. REPORT. 24

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) **KEY PERSONNEL ON SITE:**

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		0
1	Rail-mounted crane to lift pile driving hammer		0
1	Deere 200D Excavator		0

(4) **WORK ACCOMPLISHED TODAY:**

I spoke with Todd on the telephone at 7:30am and he told me that he anticipated being ready to start driving piles at 10:30 to 11:00am. I arrived onsite at 10:30am, but was told that BNSF would be unable to drive any piles today because of mechanical difficulties with their crane. The BNSF crew was in the process of repairing the crane's engine and was bringing a mechanic to the site to help with repairs. BNSF was also using the downtime to do some maintenance on the hammer, including replacing the O-rings on the fuel pump and replacing the compression rings. Todd informed me that they would certainly not drive any piles today and he didn't know yet if they would have the repairs done to drive piles tomorrow.

I spoke with Jim Gunter with BNSF this morning on the telephone and informed him of CH2M HILL's new recommended pile lengths.

I left the site today at 11:00am.

A total of 0 feet of pile was driven today.

Current pile totals are:

Bent 1 Pile 1: 60 feet  
Bent 1 Pile 2: 0 feet  
Bent 1 Pile 3: 0 feet  
Bent 1 Pile 4: 60 feet  
Bent 2 Pile 1: 179 feet  
Bent 2 Pile 2: 180 feet  
Bent 2 Pile 3: 180 feet  
Bent 2 Pile 4: 180 feet  
Bent 3 Pile 1: 176 feet  
Bent 3 Pile 2: 180 feet  
Bent 3 Pile 3: 180 feet  
Bent 3 Pile 4: 215 feet  
Bent 4 Pile 1: 120 feet  
Bent 4 Pile 2: 120 feet  
Bent 4 Pile 3: 105 feet  
Bent 4 Pile 4: 120 feet

(5)

Ryan Lawrence, P.E.  
OBSERVER'S SIGNATURE

7/24/2013  
DATE





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Thursday DATE: 7/25/2013 WORK PERIOD: 10:00 ☒ a.m. ☐ p.m. TO 2:00 ☐ a.m. ☒ p.m. REPORT. 25

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
Ryan Lawrence – CH2M HILL  
Alan Schmidt – Chelan County

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		0
1	Rail-mounted crane to lift pile driving hammer		0
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I spoke with Todd on the telephone at 7:30am and he told me that he anticipated being ready to start driving piles sometime after 10:00am. I arrived onsite at 10:00am, but BNSF did not yet have track access. At approximately 11:00am BNSF decided to start their crane and make sure their repairs from yesterday were successful. They were unable to get their crane started. They determined that they need to order new parts for the crane and were unsure of when the parts will arrive or when the crane will be operational again. At approximately 12:30pm the BNSF crew mobilized to the jobsite to move some sandbags from one side of the tracks to the other using their boom truck. While they moved sandbags, I took measurements to determine the station locations of the Bents and the geofoam. We got off the tracks at approximately 1:30pm. BNSF was still unsure of when the crane would be operation again. Alan was onsite taking survey readings while the sandbags were being moved.

I left the site today at 2:00pm.

A total of 0 feet of pile was driven today.

Current pile totals are:

Bent 1 Pile 1: 60 feet  
Bent 1 Pile 2: 0 feet  
Bent 1 Pile 3: 0 feet  
Bent 1 Pile 4: 60 feet  
Bent 2 Pile 1: 179 feet  
Bent 2 Pile 2: 180 feet  
Bent 2 Pile 3: 180 feet  
Bent 2 Pile 4: 180 feet  
Bent 3 Pile 1: 176 feet  
Bent 3 Pile 2: 180 feet  
Bent 3 Pile 3: 180 feet  
Bent 3 Pile 4: 215 feet  
Bent 4 Pile 1: 120 feet  
Bent 4 Pile 2: 120 feet  
Bent 4 Pile 3: 105 feet  
Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/25/2013  
OBSERVER'S SIGNATURE DATE



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Friday DATE: 7/26/2013 WORK PERIOD: N/A ☐ a.m. ☐ p.m. TO N/A ☐ a.m. ☐ p.m. REPORT: 26  
WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains - BNSF  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		0
1	Rail-mounted crane to lift pile driving hammer		0
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I spoke with Todd on the telephone at 8:30am and he told me that BNSF would not be driving piles today. Their crane is still not working, but they are expecting a replacement part to arrive today and have a mechanic scheduled to install the part today. They are anticipating being able to drive piles tomorrow. I did not go to the jobsite today since no pile work was taking place.

A total of 0 feet of pile was driven today.

Current pile totals are:

Bent 1 Pile 1: 60 feet  
Bent 1 Pile 2: 0 feet  
Bent 1 Pile 3: 0 feet  
Bent 1 Pile 4: 60 feet  
Bent 2 Pile 1: 179 feet  
Bent 2 Pile 2: 180 feet  
Bent 2 Pile 3: 180 feet  
Bent 2 Pile 4: 180 feet  
Bent 3 Pile 1: 176 feet  
Bent 3 Pile 2: 180 feet  
Bent 3 Pile 3: 180 feet  
Bent 3 Pile 4: 215 feet  
Bent 4 Pile 1: 120 feet  
Bent 4 Pile 2: 120 feet  
Bent 4 Pile 3: 105 feet  
Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/26/2013  
OBSERVER'S SIGNATURE DATE





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Saturday DATE: 7/27/2013 WORK PERIOD: 9:30 ☒ a.m. ☐ p.m. TO 4:00 ☐ a.m. ☒ p.m. REPORT. 27

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Brick Wall – BNSF Foreman  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 9:30am.

I met the the BNSF foreman, Brick Wall, when I arrived onsite. The hammer and crane had been repaired and were operational again. We waited until 11:00am for a track access window. Once we received track access, the BNSF crew advanced Bent 1 Pile 1 Segment 2 and Bent 1 Pile 4 Segment 2. Both piles were advanced to a depth of approximately 117 feet. During the last few feet of pile driving, a problem with fuel pump on the hammer developed that prevented BNSF from driving the remainder of the piles with their follower. The upper several feet of both piles were cut off. We got off the tracks at 3:45pm. BNSF was able to repair the fuel pump after we got back to their maintenance yard.

I left the site at 4:00pm

See attached photos.

A total of 114 feet of pile was driven today (57 feet at Bent 1 Pile 1 Segment 2 and 57 feet at Bent 1 Pile 4 Segment 2).

Current pile totals are:

- Bent 1 Pile 1: 117 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 117 feet
- Bent 2 Pile 1: 179 feet
- Bent 2 Pile 2: 180 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 120 feet
- Bent 4 Pile 3: 105 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/27/2013  
OBSERVER'S SIGNATURE DATE



Photo 1: View of the top of Bent 1 Pile 1 being ground off in preparation for pile welding.



Photo 2: View of the Bent 1 Pile 1 weld at 60.4 feet.





Photo 3: View of Bent 1 Pile 1 (left) and Bent 1 Pile 4 (right) at the end of driving before they were cut off at around 117 feet.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Sunday DATE: 7/28/2013 WORK PERIOD: 9:30 ☒ a.m. ☐ p.m. TO 2:15 ☐ a.m. ☒ p.m. REPORT: 28

WEATHER Sunny TEMP. MAX 85 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Brick Wall – BNSF Foreman  
Ryan Lawrence – CH2M HILL  
Alan Schmidt – Chelan County

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 9:30am.

I met the the BNSF foreman, Brick Wall, when I arrived onsite. We waited until 11:00am for a track access window. While we waited, the BNSF crew worked to cut apart some of the unused piles into the lengths we needed to achieve the required depths. Once we received track access, the BNSF crew advanced Bent 1 Pile 4 Segment 3 to a depth of approximately 157 feet. No problems were encountered during pile driving. Alan Schmidt was onsite and collected some survey data along the railroad tracks that will be used to determine if settlement is taking place. We got off the tracks at 2:00pm.

I left the site at 2:15pm

See attached photos.

A total of 40 feet of pile was driven today (40 feet at Bent 1 Pile 4 Segment 3).

Current pile totals are:

- Bent 1 Pile 1: 117 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 157 feet
- Bent 2 Pile 1: 179 feet
- Bent 2 Pile 2: 180 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 120 feet
- Bent 4 Pile 3: 105 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/28/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: View of the top of Bent 1 Pile 4 being ground off in preparation for pile welding.



Photo 2: View of the Bent 1 Pile 4 weld at 117 feet. Yellow crayon marks used for collecting restrike data are visible on the pile.





Photo 3: View of Bent 1 Pile 4 (center of photo) at the end of pile driving.



Photo 4: View of the railroad tracks. Note the deflection in the railroad tracks that has been caused by pile driving.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Monday DATE: 7/29/2013 WORK PERIOD: 8:00 ☒ a.m. ☐ p.m. TO 4:00 ☐ a.m. ☒ p.m. REPORT. 29

WEATHER Sunny TEMP. MAX 90 °F MIN 90 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains – BNSF Foreman  
Ryan Lawrence – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane to lift pile driving hammer		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 8:00am.

I met the the BNSF foreman, Todd Mains, when I arrived onsite. We waited until 10:30am for a track access window. Once we received track access, the BNSF crew advanced Bent 1 Pile 1 Segment 3 to a depth of approximately 158 feet and advanced Bent 2 Pile 1 Segment 4 to a depth of approximately 200 feet. No problems were encountered during pile driving. At Bent 2 Pile 1, since the splice between pile segments was within 15 feet of the final ground surface elevation, BNSF welded on stiffener plates in addition to the welding that they would normally perform to splice pile segments together. This was the first time BNSF has used stiffener plates to splice piles together on this project. It took roughly an additional 1 hour to weld on the stiffener plates, for a total splice time of approximately 1.5 hours. We got off the tracks at 4:00pm.

I left the site at 4:00pm

See attached photos.

A total of 60 feet of pile was driven today (40 feet at Bent 1 Pile 1 Segment 3 and 20 feet at Bent 2 Pile 1 Segment 4).

Current pile totals are:

- Bent 1 Pile 1: 158 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 157 feet
- Bent 2 Pile 1: 200 feet
- Bent 2 Pile 2: 180 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 176 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 120 feet
- Bent 4 Pile 3: 105 feet
- Bent 4 Pile 4: 120 feet

(5) Ryan Lawrence, P.E. 7/29/2013  
OBSERVER'S SIGNATURE DATE



Photo 1: View of the weld at Bent 1 Pile 1 at a depth of 120 feet. Most of the splices on this project look similar to this.



Photo 2: View of the weld at Bent 2 Pile 1 at a depth of 179 feet. Note the diamond shaped stiffener plates that were added because this splice location will be within 15 feet of finish grade.





Photo 3: View of Bent 1 Pile 1 segment 3 at the beginning of pile driving.



Photo 4: View of Bent 2 Pile 1 Segment 4 at the beginning of pile driving. Note the splice stiffener plates at 179 feet.





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Tuesday DATE: 8/1/2013 WORK PERIOD: 9:00 ☒ a.m. ☐ p.m. TO 16:00 ☐ a.m. ☒ p.m. REPORT: 801

WEATHER Partly Cloudy TEMP. MAX 80 °F MIN 65 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains – BNSF Foreman  
Josh Butler – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane—Ohio X3550		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 9:00am.

I met the the BNSF foreman, Todd Mains, when I arrived onsite. We waited until 11:30am for a track access window, whereupon we mobilized from Merritt to the bridge work site. The BNSF crew advanced Bent 4 Pile 3 Segment 3 to a depth of approximately 167 feet. No problems were encountered during pile driving.

We mobilized back to Merritt at 15:45.

I left the site at 16:00.

A total of 60 feet of pile was driven today.

Current pile totals are:

- Bent 1 Pile 1: 158 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 157 feet
- Bent 2 Pile 1: 200 feet
- Bent 2 Pile 2: 201 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 197 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 120 feet
- Bent 4 Pile 3: 167 feet
- Bent 4 Pile 4: 120 feet

(5) 8/1/2013  

Josh Butler, P.E.  
OBSERVER'S SIGNATURE

DATE



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Tuesday DATE: 8/2/2013 WORK PERIOD: 8:00 ☒ a.m. ☐ p.m. TO 12:00 ☐ a.m. ☒ p.m. REPORT: 802

WEATHER Cloudy TEMP. MAX 65 °F MIN 55 °F PRECIPITATION Slight

(2) **KEY PERSONNEL ON SITE:**

Todd Mains – BNSF Foreman  
Josh Butler – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane—Ohio X3550		Varies
1	Deere 200D Excavator		0

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 8:00am.

I met the the BNSF foreman, Todd Mains, when I arrived onsite. We received a track access window at 8:30am, whereupon we mobilized from Merritt to the bridge work site. The BNSF crew advanced Bent 4 Pile 4 Segment 3 to a depth of approximately 160 feet. No problems were encountered during pile driving.

We mobilized back to Merritt at 11:45.

I left the site at 12:00.

A total of 40 feet of pile was driven today.

Current pile totals are:

- Bent 1 Pile 1: 158 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 157 feet
- Bent 2 Pile 1: 200 feet
- Bent 2 Pile 2: 201 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 197 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 120 feet
- Bent 4 Pile 2: 120 feet
- Bent 4 Pile 3: 167 feet
- Bent 4 Pile 4: 160 feet

(5) Josh Butler, P.E.  
8/1/2013  
OBSERVER'S SIGNATURE DATE





## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Saturday DATE: 8/3/2013 WORK PERIOD: 10:00 ☒ a.m. ☐ p.m. TO 15:00 ☐ a.m. ☒ p.m. REPORT: 803

WEATHER Partly Cloudy TEMP. MAX 85 °F MIN 60 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains – BNSF Foreman  
Josh Butler – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane—Ohio X3550		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 9:00am.

I met the the BNSF foreman, Todd Mains, when I arrived onsite. We received a track access window at 10:00am, whereupon we mobilized from Merritt to the bridge work site. The BNSF crew advanced Bent 4 Pile 4 Segment 3 to a depth of approximately 169 feet. No problems were encountered during pile driving.

Just prior to demobilizing, additional track time was granted. The BNSF crew then picked an additional pile, and advanced Bent 4, Pile 1 Segment 3 to a depth of approximately 156 feet. No problems were encountered during pile driving.

We mobilized back to Merritt at 15:00. I left the site at 15:20.

A total of 84 feet of pile was driven today.

Current pile totals are:

- Bent 1 Pile 1: 158 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 0 feet
- Bent 1 Pile 4: 157 feet
- Bent 2 Pile 1: 200 feet
- Bent 2 Pile 2: 201 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 197 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 156 feet
- Bent 4 Pile 2: 169 feet
- Bent 4 Pile 3: 167 feet
- Bent 4 Pile 4: 160 feet

(5) Josh Butler, P.E. 8/3/2013  
OBSERVER'S SIGNATURE DATE



Photo 1: Welding segment 3 at Bent 4 Pile 2 at a depth of 120 feet.





Photo 2: View of the site looking west. BNSF crew is welding segment 3 at Bent 4 Pile 1 at a depth of approximately 121 feet.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Sunday DATE: 8/4/2013 WORK PERIOD: 10:30 ☒ a.m. ☐ p.m. TO 14:15 ☐ a.m. ☒ p.m. REPORT: 804

WEATHER Partly Cloudy TEMP. MAX 90 °F MIN 70 °F PRECIPITATION Slight

(2) **KEY PERSONNEL ON SITE:**

Todd Mains – BNSF Foreman

Josh Butler – CH2M HILL

(3) **MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE**

No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane—Ohio X3550		Varies
1	Deere 200D Excavator		0

(4) **WORK ACCOMPLISHED TODAY:**

I arrived onsite at 9:00am.

I met the the BNSF foreman, Todd Mains, when I arrived onsite. We received a track access window at 10:30am, whereupon we mobilized from Merritt to the bridge work site. The BNSF crew advanced Bent 1 Pile 3 Segments 1 and 2 to a depth of approximately 120 feet. No problems were encountered during pile driving.

We mobilized back to Merritt at 14:15. After waiting for 2 trains, we returned to site. The BNSF crew replaced lost gravel in the holes beneath the rail. No additional pile driving was completed.

A total of 120 feet of pile was driven today.

Current pile totals are:

Bent 1 Pile 1: 158 feet  
Bent 1 Pile 2: 0 feet  
Bent 1 Pile 3: 120 feet  
Bent 1 Pile 4: 157 feet  
Bent 2 Pile 1: 200 feet  
Bent 2 Pile 2: 201 feet  
Bent 2 Pile 3: 180 feet  
Bent 2 Pile 4: 180 feet  
Bent 3 Pile 1: 197 feet  
Bent 3 Pile 2: 180 feet  
Bent 3 Pile 3: 180 feet  
Bent 3 Pile 4: 215 feet  
Bent 4 Pile 1: 156 feet  
Bent 4 Pile 2: 169 feet  
Bent 4 Pile 3: 167 feet  
Bent 4 Pile 4: 160 feet

(5)

Josh Butler, P.E.  
OBSERVER'S SIGNATURE

8/4/2013  
DATE





Photo 1: Preparing to set segment 2 of Pile 3, at Bent 1.



## DAILY OBSERVATION REPORT

PROJECT NO. 476670  
PROJECT NAME Nason Creek

(1) DAY: Monday DATE: 8/5/2013 WORK PERIOD: 14:30 ☐ a.m. ☒ p.m. TO 16:30 ☐ a.m. ☒ p.m. REPORT: 805

WEATHER Sunny TEMP. MAX 95 °F MIN 85 °F PRECIPITATION None

(2) KEY PERSONNEL ON SITE:

Todd Mains – BNSF Foreman  
Josh Butler – CH2M HILL

(3)

MAJOR EQUIPMENT ON PROJECT AND AMOUNT OF USE			
No.	Description	Size/Capacity	Hrs. Oper.
1	Pile driving hammer – Berminghammer B3505		Varies
1	Rail-mounted crane—Ohio X3550		Varies
1	Deere 200D Excavator		0

(4) WORK ACCOMPLISHED TODAY:

I arrived onsite at 10:00am.

I met the the BNSF foreman, Todd Mains, when I arrived onsite. We received a track access window at 14:30, at which time we mobilized from Merritt to the bridge work site. The BNSF crew advanced Bent 1 Pile 3 Segment 3 to a depth of approximately 161 feet. No problems were encountered during pile driving.

We mobilized back to Merritt at 16:30.

A total of 41 feet of pile was driven today.

Current pile totals are:

- Bent 1 Pile 1: 158 feet
- Bent 1 Pile 2: 0 feet
- Bent 1 Pile 3: 161 feet
- Bent 1 Pile 4: 157 feet
- Bent 2 Pile 1: 200 feet
- Bent 2 Pile 2: 201 feet
- Bent 2 Pile 3: 180 feet
- Bent 2 Pile 4: 180 feet
- Bent 3 Pile 1: 197 feet
- Bent 3 Pile 2: 180 feet
- Bent 3 Pile 3: 180 feet
- Bent 3 Pile 4: 215 feet
- Bent 4 Pile 1: 156 feet
- Bent 4 Pile 2: 169 feet
- Bent 4 Pile 3: 167 feet
- Bent 4 Pile 4: 160 feet

(5) Josh Butler, P.E. 8/5/2013  
OBSERVER'S SIGNATURE DATE





Photo 1: Preparing to advance segment 3 of Pile 3, at Bent 1.

# Pile Driving Record



Pile Type: HP 14x117	Size: 60 foot long sections	PROJECT: Nason Creek
Top Elev: _____	Basic Length: _____	PROJECT No: 476670
Cutoff El: _____	Penetration: _____	Pile Location: Bent No. _ 1
Ground El: _____	Cutoff Length: _____	Pile Number: 1
Tip Elev: _____	Pay Length: _____	Min. Penetration: _____
Hammer Type: OED	Model: Berminghammer B3505	Driving Completed: _____
Cap Typ: _____	Weight: 12,000lb + 4,000 piston	Driving Started: 7/12/2013 at 9:00am
Cushion: Steel striker plate	Thickness: 6"	Elapsed Time/Date: _____

DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks	DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks
1.0	BNSF hammer operator had difficulty getting the hammer to start and continue. Irregular blows until 14'				Setup	48.0	22		41	8.2	
2.0					Setup	49.0	19		41	8.2	
3.0					Setup	50.0	20		42	8.1	
4.0	2		N/A	N/A	Single blows	51.0	21		42	8	
5.0	8		N/A	N/A	Single blows	52.0	17		42	7.9	
6.0	8		N/A	N/A	Single blows	53.0	19		42	7.7	
7.0	6		51	5.5		54.0	15		43	7.5	
8.0	7		N/A	N/A	Single blows	55.0	16		44	7.2	
9.0	4		52	5		56.0	13		44	7	Pause
10.0	6		N/A	N/A	Single blows	57.0	12		43	7.5	Follower
11.0	5		55	4.6		58.0	11		44	7.3	Follower
12.0	4		N/A	N/A		59.0	13		44	7.3	Follower
13.0	5		N/A	N/A		60.0	13		44	7.1	Stop 7/12
14.0	5		51	5.2	Start of	61.0	51		44	5	Restrike 7/
15.0	9		48	6	consistent	62.0	38		49	5.6	
16.0	13		48	6	blows 14'	63.0	32		48	6.2	
17.0	12		47	6.1		64.0	25		45	6.9	
18.0	12		48	5.9		65.0	22		46	6.8	
19.0	14		48	6.1		66.0	25		46	6.9	
20.0	12		48	5.9		67.0	22		44	7.1	
21.0	14		N/A	N/A	Pause	68.0	22		45	7.3	
22.0	12		48	6.1		69.0	21		44	7.3	
23.0	16		49	5.8		70.0	22		44	7.3	
24.0	16		48	5.9		71.0	25		44	7.3	
25.0	11		50	5.6		72.0	23		44	7.1	
26.0	10		50	5.4		73.0	21		44	7.3	
27.0	11		50	5.4		74.0	20		43	7.4	
28.0	13		49	5.6		75.0	21		43	7.4	
29.0	16		49	5.8		76.0	22		44	7.4	
30.0	15		47	6.3		77.0	22		43	7.4	
31.0	16		45	6.9		78.0	21		44	7.4	
32.0	13		43	7.4		79.0	22		45	7	
33.0	14		43	7.5		80.0	22		43	7.5	
34.0	16		43	7.6		81.0	23		43	7.6	
35.0	15		43	7.7		82.0	24		47	6.8	
36.0	18		43	7.6		83.0	32		50	6.3	
37.0	16		43	7.6		84.0	24		44	7.5	
38.0	17		43	7.7		85.0	27		48	6.6	
39.0	18		43	7.7		86.0	28		47	7	
40.0	17		43	7.6		87.0	24		43	7.7	
41.0	19		43	7.6		88.0	24		43	7.6	
42.0	18		43	7.6		89.0	29		43	7.6	
43.0	30		46	6.5	Unbolt	90.0	25		43	7.6	
44.0	22		43	7.6		91.0	26		43	7.7	
45.0	19		42	7.9		92.0	26		43	7.7	
46.0	17		42	8.1		93.0	27		42	7.7	
47.0	21		41	8.2		94.0	23		43	7.7	

Inspector: Ryan Lawrence, P.E.



# Pile Driving Record



Pile Type: HP 14x117	Size: 60 foot long sections	PROJECT: Nason Creek
Top Elev: _____	Basic Length: _____	PROJECT No: 476670
Cutoff El: _____	Penetration: _____	Pile Location: Bent No. _ 1
Ground El: _____	Cutoff Length: _____	Pile Number: 1
Tip Elev: _____	Pay Length: _____	Min. Penetration: _____
Hammer Type: OED	Model: Berminghammer B3505	Driving Completed: _____
Cap Typ: _____	Weight: 12,000lb + 4,000 piston	Driving Started: 7/12/2013 at 9:00am
Cushion: Steel striker plate	Thickness: 6"	Elapsed Time/Date: _____

DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks	DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks
95.0	25		43	7.7		142.0	61		42	8	
96.0	24		43	7.7		143.0	60		41	8.2	
97.0	28		43	7.7		144.0	56		41	8.1	
98.0	29		43	7.7		145.0	58		41	8.1	
99.0	27		43	7.7		146.0	60		41	8.1	
100.0	26		43	7.7		147.0	56		42	8.1	
101.0	28		43	7.6		148.0	58		42	8.1	
102.0	30		43	7.6		149.0	56		42	8	
103.0	28		43	7.6		150.0	56		42	8	
104.0	27		43	7.7		151.0	57		42	8	
105.0	30		43	7.6		152.0	54		42	8.1	
106.0	32		43	7.6		153.0	61		42	8	
107.0	27		43	7.7		154.0	56		42	8.1	
108.0	32		43	7.7		155.0	59		42	8	Pause
109.0	31		43	7.7		156.0	70		41	8.3	Follower
110.0	32		43	7.6		157.0	65		41	8.2	Follower
111.0	35		43	7.6		158.0	51/10"		41	8.1	Stop 7/29
112.0	34		43	7.6		159.0					
113.0	37		43	7.5		160.0					
114.0	36		43	7.5		161.0	End of pile at 157.8 feet below top of railroad ties.				
115.0	43		43	7.4		162.0	Finished on 7/29/2013.				
116.0	35		43	7.4		163.0					
117.0	49		44	7.3	Cutoff 7/27	164.0					
118.0	67		40	9	Restrike 7/29	165.0					
119.0	58		39	9		166.0					
120.0	63		40	8.9		167.0					
121.0	61		40	8.8		168.0					
122.0	61		40	8.8		169.0					
123.0	61		40	8.8		170.0					
124.0	53		40	8.8		171.0					
125.0	52		40	8.8		172.0					
126.0	52		40	8.7		173.0					
127.0	51		40	8.8		174.0					
128.0	60		40	8.8		175.0					
129.0	63		40	8.6		176.0					
130.0	57		41	8.5		177.0					
131.0	59		40	8.7		178.0					
132.0	61		40	8.6		179.0					
133.0	59		41	8.5		180.0					
134.0	58		41	8.4		181.0					
135.0	56		40	8.5		182.0					
136.0	55		40	8.7		183.0					
137.0	57		40	8.6		184.0					
138.0	52		41	8.4		185.0					
139.0	55		41	8.4		186.0					
140.0	52		41	8.3		187.0					
141.0	59		41	8.2		188.0					

Inspector: Ryan Lawrence, P.E.

# Pile Driving Record



Pile Type: HP 14x117	Size: 60 foot long sections	PROJECT: Nason Creek
Top Elev: _____	Basic Length: _____	PROJECT No: 476670
Cutoff El: _____	Penetration: _____	Pile Location: Bent No. _3
Ground El: _____	Cutoff Length: _____	Pile Number: 1
Tip Elev: _____	Pay Length: _____	Min. Penetration: _____
Hammer Type: OED	Model: Berminghammer B3505	Driving Completed: _____
Cap Typ: _____	Weight: 12,000lb + 4,000 piston	Driving Started: 7/4/2013 at 9:15am
Cushion: Steel striker plate	Thickness: 6"	Elapsed Time/Date: _____

DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks	DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks
1.0					Setup	48.0	14		48	5.9	
2.0					Setup	49.0	15		49	5.8	
3.0					Setup	50.0	10		49	5.8	
4.0	11				Soft	51.0	12		49	5.8	
5.0	16			3.5	hammer	52.0	13		49	5.8	
6.0	15		62	3.5	blows	53.0	12		48	6.2	
7.0	18		62	3.5	were used	54.0	10		49	5.8	
8.0	18		62	3.5	to 33 feet	55.0	13		49	5.6	
9.0	19		63	3.4	to help	56.0	11		49	5.6	stop 7/4
10.0	17		63	3.4	get the	57.0	11				Restrike 7/
11.0	18		62	3.4	pile to go	58.0	12		Not Obsrv	Not Obsrv	
12.0	18		64	3.2	into the	59.0	16		46	6.6	
13.0	16		65	3.2	ground	60.0	22		46	6.5	
14.0	17		65	3.1	straight.	61.0	16		45	6.9	
15.0	18		65	3.2		62.0	17		46	6.6	
16.0	17		64	3.3		63.0	20		46	6.6	
17.0	18		64	3.2		64.0	18		46	6.6	
18.0	22		65	3.1		65.0	20		45	6.7	
19.0	16		66	3		66.0	19		46	6.7	
20.0	16		67	2.9		67.0	18		45	6.8	
21.0	15		66	3.1		68.0	19		45	6.8	
22.0	31		63	3.4		69.0	16		45	6.9	
23.0	36		62	3.5		70.0	17		45	6.9	
24.0	31		62	3.4		71.0	19		45	6.8	
25.0	29		64	3.2		72.0	17		45	6.8	
26.0	12		64	3.2		73.0	17		47	6.3	
27.0	22		63	3.3		74.0	19		45	6.9	
28.0	12		61	3.6		75.0	16		45	6.9	
29.0	14		60	3.7		76.0	20		44	7.3	
30.0	18		59	3.8		77.0	16		45	6.9	
31.0	18		58	4		78.0	21		45	6.9	
32.0	24		57	4.1		79.0	17		45	7	
33.0	17		53	5.1		80.0	19		45	7	
34.0	10		48	6.1		81.0	18		45	7	
35.0	13		48	6.1		82.0	19		45	7	
36.0	10		48	6.1		83.0	18		45	6.9	
37.0	10		48	6		84.0	19		45	7	
38.0	10		47	6.1		85.0	19		44	7	
39.0	13		47	6.2		86.0	21		45	7	
40.0	13		47	6.2		87.0	20		44	7	
41.0	13		47	6.4		88.0	20		44	7.1	
42.0	17		50	5.7	Unbolt	89.0	21		44	7.1	
43.0	23		54	4.7	Unbolt	90.0	20		44	7.1	
44.0	26		57	4.4	Unbolt	91.0	22		45	7	
45.0	13		48	6.1		92.0	20		44	7.1	
46.0	12		48	5.9		93.0	21		44	7	
47.0	11		49	6.1		94.0	21		44	7.1	

Inspector: Ryan Lawrence, P.E.



# Pile Driving Record



Pile Type: HP 14x117	Size: 60 foot long sections	PROJECT: Nason Creek
Top Elev: _____	Basic Length: _____	PROJECT No: 476670
Cutoff El: _____	Penetration: _____	Pile Location: Bent No. _ 3
Ground El: _____	Cutoff Length: _____	Pile Number: 1
Tip Elev: _____	Pay Length: _____	Min. Penetration: _____
Hammer Type: OED	Model: Berminghammer B3505	Driving Completed: _____
Cap Typ: _____	Weight: 12,000lb + 4,000 piston	Driving Started: 7/4/2013 at 9:15am
Cushion: Steel striker plate	Thickness: 6"	Elapsed Time/Date: _____

DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks	DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks
95.0	22		44	7.1		142.0	86		42	7.8	
96.0	23		44	7.1		143.0	94		42	7.8	
97.0	22		44	7		144.0	87		42	7.9	
98.0	26		44	7		145.0	85		42	7.8	
99.0	25		44	7.4		146.0	83		43	7.6	
100.0	25		44	7.1		147.0	97		43	7.6	
101.0	26		44	7.1		148.0	91		43	7.6	
102.0	29		44	7.1		149.0	97		43	7.5	
103.0	28		44	7.1		150.0	89		43	7.6	
104.0	29		44	7.1		151.0	87		43	7.6	
105.0	40		47	6.4		152.0	88		43	7.5	
106.0	38		46	6.7		153.0	89		43	7.5	
107.0	39		44	7.2		154.0	89		43	7.4	
108.0	37		44	7.2		155.0	96		43	7.4	
109.0	37		44	7.2		156.0	89		43	7.5	
110.0	30		44	7.1		157.0	91		43	7.5	
111.0	40		44	7.1		158.0	88		43	7.5	
112.0	33		44	7.3		159.0	90		43	7.4	
113.0	56		44	7.1	Follower	160.0	95		44	7.3	
114.0	68		45	6.8	Follower	161.0	100		44	7.4	
115.0	52		44	7	Follower	162.0	94		43	7.4	
116.0	53		44	7	Stop 7/6	163.0	100		44	7.2	
117.0	124		40	8.9	Restrike 7/15	164.0	101		43	7.4	
118.0	104		40	9		165.0	107		43	7.4	
119.0	95		40	8.8		166.0	111		44	7.2	
120.0	106		40	8.9		167.0	114		45	7	
121.0	91		40	8.9		168.0	110		45	6.9	
122.0	88		40	8.9		169.0	97		45	6.9	
123.0	82		40	8.9		170.0	103		45	6.8	
124.0	84		40	8.8		171.0	97		45	6.9	
125.0	79		40	8.7		172.0	88		45	7	
126.0	82		40	8.7		173.0	93		44	7.1	
127.0	81		40	8.7		174.0	100		44	7.1	Pause
128.0	80		40	8.7		175.0	104		43	7.4	Follower
129.0	81		41	8.5		176.0	108		44	7.3	Stop 7/15
130.0	85		41	8.3		177.0					
131.0	83		41	8.3		178.0					
132.0	78		41	8.4		179.0					
133.0	88		42	8		180.0					
134.0	85		42	8.1		181.0					
135.0	87		42	8		182.0					
136.0	72		42	8		183.0					
137.0	91		42	8		184.0					
138.0	87		42	7.9		185.0					
139.0	80		43	7.7		186.0					
140.0	98		42	7.8		187.0					
141.0	94		43	7.6		188.0					

Inspector: Ryan Lawrence, P.E.

# Pile Driving Record



Pile Type: HP 14x117	Size: 60 foot long sections	PROJECT: Nason Creek
Top Elev: _____	Basic Length: _____	PROJECT No: 476670
Cutoff El: _____	Penetration: _____	Pile Location: Bent No. _ 4
Ground El: _____	Cutoff Length: _____	Pile Number: 1
Tip Elev: _____	Pay Length: _____	Min. Penetration: _____
Hammer Type: OED	Model: Berminghammer B3505	Driving Completed: _____
Cap Typ: _____	Weight: 12,000lb + 4,000 piston	Driving Started: 7/10/2013 at 2:15pm
Cushion: Steel striker plate	Thickness: 6"	Elapsed Time/Date: _____

DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks	DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks
1.0					Setup	48.0	18		48	6.1	Unbolt
2.0					Setup	49.0	24		53	4.8	Unbolt
3.0	5		N/A	N/A	Single blows	50.0	30		55	4.5	Unbolt
4.0	5		N/A	N/A	Single blows	51.0	29		53	5.1	Unbolt
5.0	5		68	2.8	Soft	52.0	15		46	6.6	
6.0	3		Not obsrvd	Not obsrvd	hammer	53.0	15		46	6.6	
7.0	4		Not obsrvd	Not obsrvd	blows	54.0	15		46	6.6	
8.0	3		Not obsrvd	Not obsrvd	were used	55.0	18		46	6.5	
9.0	7		67	2.9	to 19 feet	56.0	15		46	6.5	
10.0	6		66	3	to help	57.0	14		46	6.5	Pause
11.0	6		67	3	get the	58.0	17		46	6.7	Follower
12.0	6		68	2.8	pile to go	59.0	13		47	6.5	Follower
13.0	5		Not obsrvd	Not obsrvd	into the	60.0	15		45	6.7	Stop 7/10
14.0	5		Not obsrvd	Not obsrvd	ground	61.0	29		46	6.7	Restrike 7/
15.0	5		67	3	straight.	62.0	18		42	8	
16.0	2		70	2.7		63.0	25		42	8.1	
17.0	12		60	3.8		64.0	22		42	8	
18.0	18		58	4		65.0	23		42	8	
19.0	15		53	4.9		66.0	21		42	7.9	
20.0	10		47	6.3		67.0	20		42	7.8	
21.0	8		47	6.4		68.0	25		43	7.7	
22.0	9		47	6.2		69.0	20		43	7.6	
23.0	9		47	6.2		70.0	22		43	7.6	
24.0	6		48	6		71.0	20		43	7.6	
25.0	7		49	5.7		72.0	24		43	7.5	
26.0	6		49	5.7		73.0	21		43	7.5	
27.0	6		49	5.8		74.0	24		43	7.5	
28.0	7		52	5.3		75.0	20		43	7.5	
29.0	10		50	5.8		76.0	23		43	7.5	
30.0	8		47	6.6		77.0	24		43	7.7	
31.0	7		47	6.2		78.0	23		43	7.7	
32.0	9		50	6.3		79.0	24		43	7.5	
33.0	9		47	6.2		80.0	23		43	7.4	
34.0	9		47	6.4		81.0	23		42	7.8	
35.0	11		47	6.4		82.0	22		42	7.9	
36.0	14		46	6.6		83.0	23		42	8	
37.0	12		46	6.5		84.0	23		42	7.9	
38.0	16		46	6.6		85.0	25		42	7.9	
39.0	12		46	6.7		86.0	23		42	7.9	
40.0	14		45	6.8		87.0	23		42	7.9	
41.0	15		45	6.8		88.0	25		42	7.9	
42.0	15		46	6.7		89.0	25		42	7.9	
43.0	17		45	6.7		90.0	24		42	7.8	
44.0	17		45	6.8		91.0	20		42	7.9	
45.0	14		46	6.7		92.0	23		42	7.8	
46.0	16		46	6.6		93.0	24		42	7.9	
47.0	14		46	6.6		94.0	21		42	7.9	

Inspector: Ryan Lawrence, P.E.



# Pile Driving Record



Pile Type: HP 14x117	Size: 60 foot long sections	PROJECT: Nason Creek
Top Elev: _____	Basic Length: _____	PROJECT No: 476670
Cutoff El: _____	Penetration: _____	Pile Location: Bent No. _ 4
Ground El: _____	Cutoff Length: _____	Pile Number: 1
Tip Elev: _____	Pay Length: _____	Min. Penetration: _____
Hammer Type: OED	Model: Berminghammer B3505	Driving Completed: _____
Cap Typ: _____	Weight: 12,000lb + 4,000 piston	Driving Started: 7/10/2013 at 2:15pm
Cushion: Steel striker plate	Thickness: 6"	Elapsed Time/Date: _____

DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks	DEPTH (feet)	Blows	Press. (psi)	Speed (Bl/min)	Stroke Height (ft)	Remarks
95.0	24		42	7.9		142.0					
96.0	24		42	7.8		143.0					
97.0	25		42	7.8		144.0					
98.0	30		42	8		145.0					
99.0	27		42	8		146.0					
100.0	28		42	8		147.0					
101.0	31		42	8		148.0					
102.0	30		42	7.9		149.0					
103.0	29		42	7.9		150.0					
104.0	31		42	7.9		151.0					
105.0	32		42	8		152.0					
106.0	31		42	7.9		153.0					
107.0	34		42	8		154.0					
108.0	31		42	8		155.0					
109.0	33		42	8		156.0					
110.0	30		42	8		157.0					
111.0	36		42	7.9		158.0					
112.0	35		42	7.9		159.0					
113.0	31		42	7.9		160.0					
114.0	37		42	8		161.0					
115.0	38		42	7.8		162.0					
116.0	40		42	7.8		163.0					
117.0	40		42	7.7		164.0					
118.0	53		42	8	Pause	165.0					
119.0	48		42	7.8	Follower	166.0					
120.0	59		42	7.8	Follower	167.0					
121.0	17/4"		42	7.8	Stop 7/16	168.0					
122.0						169.0					
123.0						170.0					
124.0						171.0					
125.0						172.0					
126.0						173.0					
127.0						174.0					
128.0						175.0					
129.0						176.0					
130.0						177.0					
131.0						178.0					
132.0						179.0					
133.0						180.0					
134.0						181.0					
135.0						182.0					
136.0						183.0					
137.0						184.0					
138.0						185.0					
139.0						186.0					
140.0						187.0					
141.0						188.0					

Inspector: Ryan Lawrence, P.E.