	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile #	Depth of Rock Socket (m)	APPROVED BY: QA Y	QA N	QC Y	QC N
4	686	1.128	✓		✓	
	690	1.021				
	662	1.131				
	658	0.930				
	654	1.568				
	650	1.064				
	646	1.138				
	592	1.690				
	560	1.365				
	564	1.346				

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/21
QC REPRESENTATIVE	Velina Guay		2018-11-21
QA REPRESENTATIVE	Muhammad Umar		2018-11-21
OWNER'S REPRESENTATIVE	Patrice Cayron		2018-11-21

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-22

DOCUMENT #: 20181122-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation – DEPTH OF ROCK SOCKET

LOCATION 514, 462, 738, 734, 726, 722, 718, 698, 702, 572, 568 **Piles #** _____ **ELEVATION:** ☐ varies _____ m	**PREVIOUS APPROVALS** 686, 690, 662, 658, 654, 650 **Last Pile approved #:** 646, 592, 560, 564. **Details:** 20181121-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # – Depth of rock socket (m)	APPROVED BY: QA Y	QA N	QC Y	QC N
4	514 – 1.356	✓			
	462 – 2.472				
	738 – 1.520				
	734 – 1.392				
	726 – 1.509				
	722 – 1.510				
	718 – 1.235				
	698 – 1.250				
	702 – 1,184				
	572 – 1,019				
	568 – 1.373				

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/22
QC REPRESENTATIVE	Cédrick Fillion Trembley		2018-11-22
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-22
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-22

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-23

DOCUMENT #: 20181123-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation – DEPTH OF ROCK SOCKET

LOCATION	**PREVIOUS APPROVALS**
Piles # 588, 750, 746, 742, 730, 694, 666, 682, 674, 644, 624, 628	**Last Pile approved #:** 514, 462, 738, 734, 726, 722, 718, 698, 702, 572, 568
ELEVATION: ☐ varies _____ m	**Details:** 20181122-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	PILE # – DEPTH OF ROCK SOCKET (M)	APPROVED BY: QA Y	QA N	QC Y	QC N
4	588 – 0,956	✓		✓	
	750 – 1,358				
	746 – 1,259				
	742 – 0,942				
	730 – 1,193				
	694 – 1.065				
	666 – 1.765				
	682 – 1.042				
	674 – 1.137				
	644 – 1,293				
	624 – 1.344				
	628 – 1.346				

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-11-23
QC REPRESENTATIVE	Cedrick Fillon Tremblay		2018-11-23
QA REPRESENTATIVE	Jonathan Leblanc		2018-11-23
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-23

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-23

DOCUMENT #: 20181123-NS-02 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation - Depth to bedrock

LOCATION	**PREVIOUS APPROVALS**
Piles # 972, 974, 970, 968	**Last Pile approved #:** 975, 973, 971, 969
	Details: 20181120-NS-01
ELEVATION: ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16. Bedrock surface Reached	✓		✓		
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
16	Approved and observed by QA/QC representatives	✓		✓	

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-11-23
QC REPRESENTATIVE	Cédrick Fillon Tremblay		2018-11-23
QA REPRESENTATIVE	Jonathan Leblanc		2018-11-23
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-22

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-24

DOCUMENT #: 20181124-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☐ Other: Secant Pile Installation - DEPTH OF ROCK SOCKET

LOCATION

Piles # 580, 584, 576, 596, 600, 714, 710, 706

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS

Last Pile approved #: 588, 750, 746, 742, 730, 694, 666, 682, 674, 644, 624, 628

Details: 20181123-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	PILE # – DEPTH OF ROCK SOCKET (m)	APPROVED BY: QA Y	QA N	QC Y	QC N
4	580 – 1.193	✓		✓	
	584 – 1.223				
	576 – 1.396				
	596 – 1.111				
	600 – 1.169				
	714 – 1.392				
	710 – 1.205				
	706 – 1.171				

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/24
QC REPRESENTATIVE	Patrice Gagnon		2018-11-24
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-24
OWNER'S REPRESENTATIVE	Cédrick Pillon Tremblay		2018-11-24

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309

DATE: 2018-11-25

DOCUMENT #: 20181125-NS-01
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

TIME: 5:30
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation - Depth of rock socket

LOCATION

Piles # 762, 552, 556, 548, 608, 604, 692, 688, 620, 612, 632, 636, 640, 917

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS

Last Pile approved #: _____

Details: _____

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # - RS Depth (m)	APPROVED BY: QA Y	QA N	QC Y	QC N
4	762 - 0.996	✓			
	552 - 1.143				
	556 - 1.011				
	548 - 0.906				
	608 - 1.487				
	604 - 0.977				
	692 - 1.107				
	688 - 1.034				
	620 - 1.405				
	612 - 1.296				
	632 - 1.453				
	636 - 1.219				
	640 - 1.361				
	917 - 1.103				

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		
QC REPRESENTATIVE	Cédrick Fillon Tremblay		2018-11-25
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-25
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-25

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309

DATE: 2018-11-26

DOCUMENT #: 20181126-NS-01
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

TIME: 5:30
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation DEPTH OF ROCK SOCKET

LOCATION

Piles # 610, 754, 909, 913, 616, 758, 648, 652, 656, 881, 873, 869, 861, 838, 877

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS

Last Pile approved #: _____

Details: _____

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # - R.S. Depth	APPROVED BY: QA Y	QA N	QC Y	QC N
4	610 - 1.430 877 - 2.326	✓		✓	
	754 - 1.202				
	909 - 1.157				
	913 - 1.124				
	616 - 1.519				
	758 - 1.434				
	648 - 1.578				
	652 - 0.984				
	656 - 1.580				
	881 - 2.239				
	873 - 2.161				
	869 - 2.107				
	861 - 2.146				
	838 - 1.681				

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/26.
QC REPRESENTATIVE	Cédrick Fillon Tremblay		2018-11-26
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-26
OWNER'S REPRESENTATIVE	Patrice Guyon		2018-11-26

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APPROVAL FORM

PROJECT : WTD Construction

PROJECT #: 658309

DATE: 2018-11-27

DOCUMENT #: 20181127-NS-01
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

TIME: 5:30
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation – ROCK SOCKET DEPTH

LOCATION 724, 728, 684, 660, 704, 905, 865, 897, 834, 901, 744, 748, 740, 736, 732

Piles #

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS 610, 754, 909, 913, 616, 758, 648, 652, 656, 881, 873, 869, 861, 838, 877.

Last Pile approved #:

Details: 20181126-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:
(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # - R.S. Depth (m)	APPROVED BY: QA Y	QA N	QC Y	QC N
4	724 - 1.434 m 732 - 1.048 m	✓		✓	
	728 - 0.948 m				
	684 - 1.234 m				
	660 - 1.082 m				
	704 - 1.313 m				
	905* - 1.034 m				
	865 - 2.330 m				
	897 - 2.597 m				
	834 - 1.459 m				
	901 - 1.282 m				
	744 - 1.402 m				
	748 - 1.278 m				
	740 - 1.249 m				
	736 - 1.215 m				

* Based on HD encountered bedrock between stations 0+775 to 0+825.

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-11-27
QC REPRESENTATIVE	Cédrick Fillon Tremblay		2018-11-27
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-27
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-27

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-28

DOCUMENT #: 20181128-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation - ROCK SOCKET DEPTH

LOCATION	**PREVIOUS APPROVALS**
Piles # 929, 925, 921, 893, 889, 664, 696, 770, 766, 933, 915, 911, 885, 879, 774, 778, 786, 790, 700, 672, 678, 668	**Last Pile approved #:** _____
	Details: _____
ELEVATION: ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile# - R.S depth (m)		APPROVED BY: QA Y	QA N	QC Y	QC N
	929 - 2.228	790- 1.138	✓		✓	
	925 - 1.855	786- 1.261				
	921 - ... 1.570	778- 1.158				
	893 - 2.018*	774- 1.229				
	889 - 2.044*	700- 1.265				
	664 - 1.663	672- 1.455				
	696 - 1.188	678 - 1.363				
	770 - 1.673	668 - 1.069				
	766 - 1.260					
	933- 1.224	*2.0m rock socket required.				
	915- 1.465					
	911- 1.376					
	885- 2.084*					
	879- 2.255.*					

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-11-28
QC REPRESENTATIVE	Melina Gauvy		2018-11-28
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-28
OWNER'S REPRESENTATIVE	Pier-Eric McDonald		2018-11-28

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-29

DOCUMENT #: 20181129-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation – ROCK SOCKET DEPTH

LOCATION 937-941-871-867-863
Piles # 859-814-782-752-716-907-931-708-712-720 756-760-772

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS 929-925-921-893-889-664 696-770-766-933-915-911
Last Pile approved #: 885-879-774-778-786-790-700 672-678-668
Details: 20181128-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Dile# – depth of rock socket (m)		APPROVED BY: QA Y	QA N	QC Y	QC N
4	937 – 1.141	720 – 3.588	✓		✓	
	941 – 1.230	756 – 1.244				
	871 – 2.261 *	760 – 1.374				
	867 – 2.151 *	772 – 1.124				
	863 – 2.304 *					
	859 – 2.152 *					
	814 – 1.851					
	782 – 1.496					
	752 – 1.019	* 2.0 m of rock socket required.				
	716 – 1.154					
	907 – 0.968					
	931 – 1.993					
	708 – 2.955					
	712 – 2.539					

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-11-29
QC REPRESENTATIVE	Cédrick Fillon Tremblay		2018-11-29
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-29
OWNER'S REPRESENTATIVE	Pierre Eric McDonald		2018-11-29

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309

DATE: 2018-11-30

DOCUMENT #: 20181130 - NS - 01
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

TIME: 5:30
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation : Rock socket depth

LOCATION
Piles # 949, 945, 927, 903, 899, 826, 830, 891, 822, 818, 776, 788, 768, 764, 923, 919, 953, 957, 961 965, 806, 810, 802, 794, 784, 780, 883 887

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS
Last Pile approved #: 937, 941, 871, 867, 863 859, 814, 782, 752, 716, 907 931, 708, 712, 720, 756, 760, 772

Details: 20181129 - NS - 01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:
(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # – RS. Depth (m)		APPROVED BY: QA Y	QA N	QC Y	QC N
4	949 - 2.094	923 - 1.263	✓		✓	
	945 - 1.771	919 - 1.027				
	927 - 1.356	953 - 1.731				
	903 - 1.121	957 - 1.610				
	899 - 2.176*	961 - 1.397				
	826 - 1.261	965 - 1.716				
	830 - 1.590	806 - 1.238				
	891 - 2.474*	810 - 1.317				
	822 - 1.373	802 - 1.274				
	818 - 1.444	794 - 1.336				
	776 - 1.533	784 - 1.322				
	788 - 1.231	780 - 1.265				
	768 - 1.258	* 883 - 2.140				
	764 - 1.293	* 887 - 2.327				

* 2m rock socket required for approval.

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-11-30
QC REPRESENTATIVE	Cédrick Fillon Tremblay		2018-11-30
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-30
OWNER'S REPRESENTATIVE	Pierre-Eric McDonald		2018-11-30

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-12-01

DOCUMENT #: 20181201-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation : ROCK SOCKET DEPTH

LOCATION Piles # 935, 943, 842, 850, 939, 947, 836, 846, 798, 824, 680, 875, 854, 676, 951, 668B, 963, 959, 955, 816, 820, 828, 832, 870, 866, 858	**PREVIOUS APPROVALS** 949-945-927-903-899-826-830-891-802-818-776-788-768-764-923-919-953-957-961-965-806-810-802-794-784-780-883-887
	Last Pile approved #:
	Details: 20181130-NS-01
ELEVATION: ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # - Rocksocket depth (m)		APPROVED BY: QA Y	QA N	QC Y	QC N
4	935 - 1.298	951 - 1.195	✓		✓	
	943 - 1.007	668B - 2.805				
	842 - 1.192	963 - 1.316				
	850 - 1.088	959 - 1.192				
	939 - 1.397	955 - 1.391				
	947 - 1.492	816 - 2.582				
	836 - 1.034	820 - 2.035				
	846 - 1.129	828 - 1.586				
	798 - 1.277	832 - 1.460				
	824 - 1.164	*870 - 2.614				
	680 - 1.072	*866 - 2.628				
	*875 - 2.273	858 - 1.500				
	854 - 1.132					
	676 - 1.081					

* 2m rock socket required for approval.

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Pier-Eric McDonald		2018-12-01
QC REPRESENTATIVE	Cedrick Fillon Tremblay		2018-12-01
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-12-01
OWNER'S REPRESENTATIVE	AUDREY BILODEAU		2018-12-01

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-12-02

DOCUMENT #: 20181202-NS-01 **TIME:** 5:3

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation ROCK SOCKET DEPTH

LOCATION
Piles # E95, 914, E78, 910, E08, E12, 906, 922, 926, E40, E44, E48, E52, 678b, 680, 804, 792, 918, 902, 898, 890

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS

Last Pile approved #: _____

Details: 20181201-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # – Rock socket depth (m)		APPROVED BY: QA Y	QA N	QC Y	QC N
4	*895 - 2.127	680 - 0.995				
	914 - 0.796 (1)	804 - 1.424				
	*878 - 2.272	792 - 1.392				
	910 - 0.909	918 - 1.184				
	808 - 1.253	902 - 1.479				
	812 - 1.429	*898 - 2.414				
	906 - 1.144	*890 - 2.213				
	922 - 1.277					
	926 - 1.042	* 2.0 m rock socket depth				
	840 - 1.371	required.				
	844 - 1.516	(1): calculation error. It was				
	848 - 1.368	realised when the pile was				
	852 - 1.150	already poured with CB.				
	678B - 0.986					

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-12-02
QC REPRESENTATIVE	Melina Guay		2018-12-02
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-12-02
OWNER'S REPRESENTATIVE	Pier-Eric McDonald		2018-12-02

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-12-03

DOCUMENT #: 20181203-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation : ROCK SOCKET DEPTH

LOCATION
Piles # 796, 800, 924, 874, 856, 950, 946, 934, 942, 938, 930, 908, 912, 860, 864, 868, 966, 962, 954, 958, 904, 920, 916

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS
Last Pile approved #: 895-914-878-910-808-812-906-922-926-840-844-848-852-676-680-804-792-918-902-898-890

Details: 20181202-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:
(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # – Rock socket depth (m)		APPROVED BY: QA Y	QA N	QC Y	QC N
	796 – 1.058	*864 – 2.297	✓		✓	
	800 – 1.038	*860 – 2.420				
	924 – 1.309	966 – 1.229				
	*874 – 2.254	962 – 1.182				
	856 – 1.031	954 – 0.922				
	950 – 1.005	958 – 0.992				
	946 – 1.127	904 – 1.884				
	934 – 1.295	920 – 1.173				
	942 – 1.256	916 – 1.249				
	938 – 1.214					
	930 – 1.077					
	908 – 1.093					
	912 – 1.350					
	*868 – 2.429					

* 2m rock socket required for approval.

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		2018-12-03
QC REPRESENTATIVE	Cédrick Fillon Tremblay		2018-12-03
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-12-03
OWNER'S REPRESENTATIVE	Pier-Eric McDonald		2018-12-03

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-12-04

DOCUMENT #: 20181204-NS-01 **TIME:** 5:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation Rock socket depth.

LOCATION Piles # 894-900-884-876-872 862-888-880-928-932-936 940-948, 952-944-892-960-956

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS Last Pile approved #: 796-800-924-874-856-950 946-934-942-938-930-908 912-860-864-868-966-962-954-958-904-920-916.

Details: 20181203-NS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)	✓		✓		
2. Initial pile location surveyed	✓		✓		
3. Casing shoe seat entirely on bedrock	✓		✓		
4. Depth of rock socket > 1 m	✓		✓		
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)	✓		✓		
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom	✓		✓		
10. Free of ice/snow	✓		✓		
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa					✓
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM	Pile # – Rock socket depth (m)		APPROVED BY: QA Y	QA N	QC Y	QC N
4	*894 – 2.444	944 – 1,602	✓		✓	
	*900 – 2.081	892 – 1,962				
	*884 – 2.636	960 – 1,437				
	*876 – 2.170	956 – 1,468				
	*872 – 2,373					
	*862 – 2.261					
	*888 – 2.251					
	*880 – 2.522					
	928 – 2.169					
	932 – 1,345					
	936 – 1.331					
	940 – 1.398					
	948 – 1.365					
	952 – 1.611					

* 2m rock socket required for approval.

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Pierre-Eric McDonald		2018-12-04
QC REPRESENTATIVE	Denis J. Couturier		2018-12-04
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-12-04
OWNER'S REPRESENTATIVE	AUDREY BILODEAU		2018-12-04

Appendix H-7

Secant piles – Approval to Drill Tertiaries

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APPROVAL FORM

PROJECT : WTD construction

PROJECT #: 658309 **DATE:** 03/10/2018

DOCUMENT #: 20181003-DS-01 **TIME:** 16:07

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☒ CB cutoff wall approval
- ☒ Other: Primaries and secondaries approval to drill tertiaries

LOCATION	Primary: 9 to 133
Station/pile:	Secondary: 11 to 131
~~**Inclination:**~~	(st. 0+095 to 0+194)
ELEVATION :	☐ varies _____ m

PREVIOUS APPROVALS	
Station:	
Details:	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY:				
	QA		**QC**		**N/A**
	Y	**N**	**Y**	**N**	
1. Lines and grades	✓		✓		
2. Free of ice/snow/water					✓
3. Cleaning of trench and/or pile bottom					✓
4. Gradation (visual)					✓
5. Placement (lift thickness, segregation, etc.)					✓
6. Compaction					✓
7. Foundation on bedrock					✓
8. Key-in depth into bedrock					✓
9. Water quality					✓
10. CB slurry viscosity and density and bleeding	✓		✓		
11. Elevation of CB Piles	✓		✓		
12. Primary piles strength (Minimum of 50 kPa UCS) and secondary	✓		✓		
13. Keying between primary and secondary					✓
14. Cracks on top of cutoff wall	✓		✓		

	QA		QC		N/A
	Y	N	Y	N	
15. CB mix/slurry tested (UCS, permeability, and pinhole tests) *	✓		✓		
16. As built survey completed	✓		✓		
17. Continuity of slurry wall for installation of tertiaries	✓		✓		
18. Placement of slurry (slurry dilution, etc.)	✓		✓		
19. Top ups with slurry (approx. volume)	✓		✓		
20.					
21.					
22.					
23.					
24.					
25.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
15	*Permeability tests have not been done yet. Molds	✓		✓	
	have been sent on the 2rd of Oct, 2018.				
All	See attached lab and site results	✓		✓	

APPROVED BY:	NAME	SIGNATURE	DATE
QA REPRESENTATIVE	Angie Arbaiza	Angie A	03/10/2018
QC REPRESENTATIVE	Melina Guay	[illegible]	03/10/2018
OWNER'S REPRESENTATIVE	Frédérick L. Bolduc	Frédérick L. Bolduc	03/10/2018
CONTRACTOR'S REPRESENTATIVE	FREDERIC TREMBLAY	[illegible]	03/10/2018

PILE NUMBER	PILE TYPE	Station	Anchoring date	Date of verification	Pooring date	Internal TEMPERATURE top of S.P (T°C)	Date of tempeature mesurment	Vane test (Kpa)	Depth (m)	Date of the Vane Test	GROUT BATCH	SAMPLING	TYPE OF SAMPLING
9	Primary	0+095.15	2018-09-06	2018-09-08	2018-09-17						014-015		Pin Hole
11	Secondary	0+096.75	2018-09-19	2018-09-19	2018-09-25								
13	Primary	0+098.35	2018-09-06	2018-09-08	2018-09-17						013-014	CB-WTD-009	UCS and bleeding
15	Secondary	0+099.95	2018-09-19	2018-09-19	2018-09-25								
17	Primary	0+101.55	2018-07-09	2018-08-09	2018-09-17						13		
19	Secondary	0+103.15	2018-09-19	2018-09-25	2018-09-25							CB-WTD-018	UCS
21	Primary	0+104.75	2018-07-09	2018-08-09	2018-09-17	18.7	2018-09-19	> 160	0.50	2018-09-19	012-013		Vane
23	Secondary	0+106.35	2018-09-24	2018-09-25	2018-09-26						120-122		
25	Primary	0+107.95	2018-09-07	2018-09-08	2018-09-17						011-012		
27	Secondary	0+109.55	2018-09-25	2018-09-25	2018-09-26						120-122		
29	Primary	0+111.15	2018-09-06	2018-09-08	2018-09-17						010-011	CB-WTD-008	UCS
31	Secondary	0+112.75	2018-09-25	2018-09-25	2018-09-26						120-122		
33	Primary	0+114.35	2018-09-06	2018-09-08	2018-09-17						009-010		
35	Secondary	0+115.95	2018-09-25	2018-09-25	2018-09-26						124-126	CB-WTD-019	
37	Primary	0+117.55	2018-09-06	2018-09-08	2018-09-17						008-009		
39	Secondary	0+119.15	2018-09-25	2018-09-26	2018-09-26						124-126	CB-WTD-019	UCS
41	Primary	0+120.75	2018-09-06	2018-09-08	2018-09-16						006-008	CB-WTD-007	UCS and bleeding
43	Secondary	0+122.35	2018-09-25	2018-09-26	2018-09-26						124-126	CB-WTD-039	
45	Primary	0+123.95	2018-09-06	2018-09-08	2018-09-16						005-006		
47	Secondary	0+125.55	2018-09-25	2018-09-26	2018-09-26						128-130		
49	Primary	0+127.15	2018-09-06	2018-09-08	2018-09-16						004-005		
51	Secondary	0+128.75	2018-09-25	2018-09-26	2018-09-26						128-130		
53	Primary	0+130.35	2018-09-06	2018-09-08	2018-09-16						4		
55	Secondary	0+131.95	2018-09-25	2018-09-26	2018-09-26						128-130-132-134		
57	Primary	0+133.55	2018-09-06	2018-09-08	2018-09-16							CB-WTD-006	UCS
59	Secondary	0+135.15	2018-09-25	2018-09-26	2018-09-26						132-134		
61	Primary	0+136.75	2018-09-06	2018-09-08	2018-09-16						002-003		
63	Secondary	0+138.35	2018-09-25	2018-09-26	2018-09-26						132-134-136-138	CB-WTD-020	UCS
65	Primary	0+139.95	2018-09-06	2018-09-08	2018-09-16						001-003	CB-WTD-005	UCS and bleeding
67	Secondary	0+141.55	2018-09-26	2018-09-26	2018-09-26						136-138	CB-WTD-020	UCS
69	Primary	0+143.15	2018-09-17	2018-09-17	2018-09-18						20	CB-WTD-011	UCS
71	Secondary	0+144.75	2018-09-26	2018-09-26	2018-09-26						136-138	CB-WTD-020	UCS
73	Primary	0+146.35	2018-09-17	2018-09-17	2018-09-18						22		
75	Secondary	0+147.95	2018-09-26	2018-09-26	2018-09-26								
77	Primary	0+149.55	2018-09-17	2018-09-17	2018-09-18						021-022	CB-WTD-012	UCS
79	Secondary	0+151.15	2018-09-26	2018-09-26	2018-09-26							CB-WTD-021	UCS
81	Primary	0+152.75	2018-09-17	2018-09-17	2018-09-18						021-023		
83	Secondary	0+154.35	2018-09-26	2018-09-26	2018-09-26								
85	Primary	0+155.95	2018-09-17	2018-09-17	2018-09-18						24		
87	Secondary	0+157.55	2018-09-26	2018-09-26	2018-09-26								
89	Primary	0+159.15	2018-09-17	2018-09-17	2018-09-18	24.7	2018-09-19	> 160	/ 1.00 / 2	2018-09-19	024-025		Vane
91	Secondary	0+160.75	2018-09-27	2018-09-26	2018-09-27						152-156-158	CB-WTD-022	UCS
93	Primary	0+162.35	2018-09-17	2018-09-17	2018-09-18						025-026	CB-WTD-013	UCS and bleeding
95	Secondary	0+163.95	2018-09-27	2018-09-27	2018-09-27						156-158		
97	Primary	0+165.55	2018-09-17	2018-09-17	2018-09-18	25.4	2018-09-19	>160	0.50	2018-09-19	026-027		Vane
99	Secondary	0+167.15	2018-09-27	2018-09-27	2018-09-27						156-158-160-162	CB-WTD-023	UCS
101	Primary	0+168.75	2018-09-17	2018-09-18	2018-09-24	16.6	2018-09-24				027-086-088	CB-WTD-015	UCS

PILE NUMBER	PILE TYPE	Station	Anchoring date	Date of verification	Pooring date	Internal TEMPERATURE top of S.P (T°C)	Date of tempeature mesurment	Vane test (Kpa)	Depth (m)	Date of the Vane Test	GROUT BATCH	SAMPLING	TYPE OF SAMPLING
103	Secondary	0+170.35	2018-09-27	2018-09-27	2018-09-27						160-162	CB-WTD-023	UCS
105	Primary	0+171.95	2018-09-17	2018-09-17	2018-09-24	16.4	2018-09-24				086-088-090-092		
107	Secondary	0+173.55	2018-09-27	2018-09-27	2018-09-27						160-162-164-166	CB-WTD-023	UCS
109	Primary	0+175.15	2018-09-17	2018-09-17	2018-09-24	16.8	2018-09-24				090-092-094-096		
111	Secondary	0+176.75	2018-09-27	2018-09-27	2018-09-27						166-164		
113	Primary	0+178.35	2018-09-17	2018-09-18	2018-09-25	16.5	2018-09-24				094-096-098-100		
115	Secondary	0+179.95	2018-09-27	2018-09-28	2018-09-28						186-188		
117	Primary	0+181.55	2018-09-18	2018-09-18	2018-09-25						098-100-102-104		
119	Secondary	0+183.15	2018-09-27	2018-09-28	2018-09-28						178-180		
121	Primary	0+184.75	2018-09-18	2018-09-18	2018-09-25						102-104-106-108		
123	Secondary	0+186.35	2018-09-27	2018-09-27	2018-09-28						182-184		
125	Primary	0+187.95	2018-09-18	2018-09-18	2018-09-25						…	CB-WTD-016	UCS
127	Secondary	0+189.55	2018-09-27	2018-09-27	2018-09-28						178-180		
129	Primary	0+191.05	2018-09-18	2018-09-18	2018-09-25						…	CB-WTD-016	UCS
131	Secondary	0+192.55	2018-09-28	2018-09-29	2018-09-29						214	CB-WTD-026	
133	Primary	0+194.05	2018-09-19	2018-09-19	2018-09-25						…	CB-WTD-016	UCS

DATE	NUMBER BACTH PLAN	BETONITE HYDRATATION				CIMENT BETONITE MIX						WATER QUALITY (ONCE PER SHIFT)			sampling time	SAMPLE NUMBER	Notes
		DENSITY (MUD BALANCE)	VISCOSITY (MARSH CONE)	pH	TEMP. ($T^{O}C$)	DENSITY (MUD BALANCE)	VISCOSITY (MARSH CONE)	pH	TEMP. ($T^{O}C$)	batch plan T°C	Outdoor T°C	CLEANLINESS (C or NC)	TEMP. ($T^{O}C$)	pH			
2018-09-16 day	1	1.025	>197	-	11.0	1.255	>180	-	17.8	22.0	-1.0	clear	6.0	-		CB-WTD-005	
	3	1.040	205	-	15.1	1.255	>180	-	16.5	22.0	-	clear	12.0	-		CB-WTD-006	
	4	1.035	190	-	15.5	1.265	>180	-	19.0	22.0	-	clear	12.0	-			
	5	1.035	216	-	15.3	1.250	>180	-	15.3	21.0	-	clear	12.5	-			
2018-09-16 night	6	1.025	>180	-	15.1	1.260	>180	-	17.8	17.8	-1.0	clear	11.2	-	19h40		
	8	1.030	>180	-	16.9	1.270	>180	-	-	16.4	-1.0	clear	12.3	-	23h38	CB-WTD-007	
	9	1.030	>180	-	18.1	1.265	>180	-	17.8	17.0	-2.0	clear	12.1	-	00h30		
	10	1.025	>180	-	17.1	1.260	>180	-	18.5	20.4	-2.0	clear	11.2	-	1h15		
	11	1.025	>180	-	15.1	1.250	>180	-	16.5	19.5	-3.0	clear	11.0	-	2h45	CB-WTD-008	
	12	1.030	>180	-	16.7	1.255	>180	-	18.1	22.1	-3.0	clear	10.8	-	3h55		
	13	1.030	>180	-	17.6	1.255	>180	-	19.0	22.0	-3.0	clear	10.8	-	4h50		
2018-09-17 night	14	1.025	>180	-	16.5	1.240	>180	-	20.0	18.0	-1.0	clear	11.0	-	6h38	CB-WTD-009	
	15	1.025	>180	-	25.0	1.265	>180	-	25.0	13.0	-1.5	clear	8.6	-	9h15		
	20	1.030	>180	-	19.4	1.265	>180	-	21.7	25.3	0.0	clear	12.3	-	21h08	CB-WTD-011	
	21	1.025	>180	-	18.7	1.265	>180	-	19.1	19.1	0.0	clear	12.4	-	22h50	CB-WTD-012	
	22	1.030	>180	-	15.1	1.255	>180	-	18.5	19.4	-1.0	clear	12.0	-	23h42		
	23	1.030	>180	-	14.7	1.250	>180	-	20.3	18.0	-3.0	clear	11.2	-	2h34		
	24	1.025	>180	-	15.2	1.260	>180	-	19.5	15.8	-3.0	clear	11.3	-	4h21		
	25	1.030	>180	-	14.9	1.255	>180	-	13.1	13.8	-3.0	clear	11.7	-	5h53		
9/24/2018 ⅊ 2018-09-18	26	1.030	>180	-	17.2	1.260	>180	-	18.2	12.5	-5.5	clear	10.5	-	9h19	CB-WTD-013	
	27	1.030	>180	-	18.2	1.270	>180	-	18.6	11.3	-5.5	clear	11.3	-	11h10		
	86	1.035	88		17.8	1.240	49		18.6	22.4		CLEAR	10.6		9:21	CB-WTD-015	
	88	1.030	140		15.6	1.200	45		18.5	23.9		CLEAR	10.6				
	120	1.030	55		12.1	1.245	-		16.0	26.3			-				
	122	1.030	53		12.1	1.240	-		18.2	28.3			-				
	124	1.025	51		11.2	1.250	61		17.4	19.2			8.0			CB-WTD-019	
DAY	126	1.025	58		11.6	1.250	55		17.6	24.1			9.0				

DATE	NUMBER BACTH PLAN	BETONITE HYDRATATION				CIMENT BETONITE MIX						WATER QUALITY (ONCE PER SHIFT)			sampling time	SAMPLE NUMBER	Notes
		DENSITY (MUD BALANCE)	VISCOSITY (MARSH CONE)	pH	TEMP. ($T^{O}C$)	DENSITY (MUD BALANCE)	VISCOSITY (MARSH CONE)	pH	TEMP. ($T^{O}C$)	batch plan T°C	Outdoor T°C	CLEANLINESS (C or NC)	TEMP. ($T^{O}C$)	pH			
9/26/2018	128	1.025	51		12.4	1.245	53		14.2	14.8			8.7				
	130	1.030			12.8	1.250	57		15.5	16.1			9.4				
	132	1.030			15.1	1.245	54		19.0	23.4			9.6				
	134	1.030	53		13.4	1.235	54		15.6	24.1			8.1				
	136	1.025	53		14.2	1.260			14.5	13.8					16:30	CB-WTD-020	
2018-09-26	138	1.025	51		14.2	1.240	48		15.5	16.0							
	152	1.030	81		20.5	1.250	61		21.8							CB-WTD-021	
9/26/2018 DAY	156	1.030	49		17.5	1.280	70		15.4	18.1							Density higher than normal because of loss of some bentonite on the ground
	158	1.030			18.4	1.250	59		19.6								
	160	1.030	53		18.2	1.235	54		17.8							CB-WTD-022	
	162	1.030			18.1	1.245	64		18.3								

															PIN HOLE TEST		Expansion and Bleeding			
SAMPLING NUMBER	SAMPLING DATE	PILE NUMBER	Average Diamater (m)	Strength (KN)	Warm Cure (Kpa)	CURING DAYS	Average Diamater (m)2	Strength (KN)2	Warm Cure (Kpa)	CURING DAYS*	Average Diamater (m)*	Strength (KN)*	Cold cure	CURING DAYS**	DATE	Results	TIME of the test	Final Bleeding, %	Expension, %	RESULTS NOTES
CB-WTD-005	2018-09-16	65	0.0520	0.67	316.09	7	0.0518	0.78	369.55	7	0.05188	0.52	245.99	7	2018-09-19	Non-dispersive (ND1)	1475 minutes	0	-1.23	Pine hole test done with a specimen cured in cold condition (2.5°C ± 2.0°C)
CB-WTD-006	2018-09-16	57	0.0517	0.70	333.32	7	0.0519		0.00	7										
CB-WTD-007	2018-09-16	41	0.0521	0.72	337.99	7	0.0520	0.73	343.60	7	0.05197	0.37	174.42	7			840 minutes	0	-1.25	
CB-WTD-008	2018-09-17	29	0.0522	0.53	247.75	7				7										
CB-WTD-009	2018-09-17	13	0.0517	0.63	299.87	8	0.0520	0.89	418.59	8							1405 minutes	0	0	
CB-WTD-011	2018-09-17	69	0.0519	1.08	510.70	8	0.0520	1.16	546.84	8										
CB-WTD-012	2018-09-18	77	0.0518	0.87	412.51	8	0.0518	0.82	388.50	8										
CB-WTD-013	2018-09-18	93	0.0518	0.62	293.97	8	0.0519	0.69	326.03	8							445 minutes	0	-1.23	
CB-WTD-015	2018-09-24	101	0.0519	0.72	340.86	7	0.0518	0.79	375.45	8	0.05156	0.54	258.63	8	2018-09-28	Non-dispersive (ND1)				Pine hole test done with a specimen cured in cold condition (2.5°C ± 2.0°C)
CB-WTD-016	2018-09-25	133	0.0515	0.40	191.73	8	0.0514	0.37	178.66	8										UCS first break at 8 days
CB-WTD-018	2018-09-26	19	0.0516	0.99	473.42	7														
CB-WTD-023	2018-09-27	99 & 103	0.0519	0.39	184.04	8														UCS tests done at 4 days curing.
CB-WTD-026	2018-09-29	131	0.0519	0.90	425.09	2														

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	9/19/2018
Project:	Whale Tail Dike	**Shift:**	Day
Location:	Amaruq	**QC rep.:**	Max C

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL		
Paddle used:	Small one	**Ground surface elevation:**	157

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Temp. (Top) : **(°C)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**						
21	9/17/2018 4:50	9/19/2018 15:00	18.7	0.500	157 to 156.50	58.2	>160
89	9/18/2018 5:53	9/19/2018 14:30	24.7	0.500	157 to 156.50	32.6	>160
89	9/18/2018 5:53	9/19/2018 15:30	-	1.000	156.5 to 156.00	33.6	>160
89	9/18/2018 5:53	9/19/2018 16:00		2.000	156 to 155.00	34.1	>160
97	9/18/2018 11:10	9/19/2018 16:30	25.4	0.500	157 to 156.50	29.3	>160

Remarks / Resisting to driving :

Performed by :	Maxime Côté	Verified by :	Denis-Jacques Coulombe
Date :	9/19/2018	Date :	9/19/2018

SNC·LAVALIN

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Mining & Metallurgy
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APPROVAL FORM

PROJECT : WTD Construction

PROJECT #: 658309

DOCUMENT #: 20181010 - NS - 02
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

DATE: 10/10/2018

TIME: 00:30
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☒ CB cutoff wall approval
- ☒ Other: primary and secondary pile approval to drill tertiaries

LOCATION Primary: 133 to 245 **	**PREVIOUS APPROVALS** Primary 9 to 133
Station /Pile Secondary: 135 to 243	**Station:** Secondary: 11 to 131
Inclination: (st. 0+194 to 0+279)	**Details:** 20181003 - DS - 01
ELEVATION : ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY:				
	QA		QC		N/A
	Y	N	Y	N	
1. Lines and grades	✓		✓		
2. Free of ice/snow/water					✓
3. Cleaning of trench and/or pile bottom					✓
4. Gradation (visual)					✓
5. Placement (lift thickness, segregation, etc.)					✓
6. Compaction					✓
7. Foundation on bedrock					✓
8. Key-in depth into bedrock					✓
9. Water quality					✓
10. CB slurry viscosity and density and bleeding	✓		✓		
11. Elevation of CB Piles	✓		✓		
12. Primary piles strength (Minimum of 50 kPa UCS) and secondary	✓		✓		
13. Keying between primary and secondary					✓
14. Cracks on top of cutoff wall	✓		✓		

	QA		QC		N/A
	Y	N	Y	N	
15. CB mix/slurry tested (UCS, permeability, and pinhole tests) *	✓		✓		
16. As built survey completed	✓		✓		
17. Continuity of slurry wall for installation of tertiaries	✓		✓		
18. Placement of slurry (slurry dilution, etc.)	✓		✓		
19. Top-ups with slurry (approx. volume)	✓		✓		
20.					
21.					
22.					
23.					
24.					
25.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
15	* Permeability tests have not been done yet.	✓		✓	
	Molds have been sent on the 2nd of Oct.				
	2018.				
All	See attached lab and site results	✓		✓	
	** Tertiary piles 214 and 216 cannot be				
	drilled since secondary pile 215 was				
	poured on the 9th of October 2018.				

APPROVED BY:	NAME	SIGNATURE	DATE
QA REPRESENTATIVE	Jonathan Leblanc	Jonathan Leblanc	10-10-2018
QC REPRESENTATIVE	Maxime Côté		2018-10-10
OWNER'S REPRESENTATIVE	Pier-Eric McDonald		2018-10-10
CONTRACTOR'S REPRESENTATIVE	Jeannot Gagnon		2018-10-10

PILE NUMBER	PILE TYPE	STATION	ANCHORING DATE	VERIFICATION DATE	POURING DATE	Top elevation S.P casing(m)	BEDROCK mesurement (Top casing to bottom socket)	Bottom elevation (m)	Drilling elevation expected (m)	Δ Rock Socket (m)	Ground elevation (m)	Total lenght of pile (m)	Max. Deviation (%)	Offset (mm)	Vane test (Kpa)	Depth (m)	Date of the Vane Test	GROUT BATCH	SAMPLING	TYPE OF TESTS
133	Primary	0+194.05	2018-09-19	2018-09-19	2018-09-25	158.056	9.42	148.636	148.979	-0.343	157.081	8.445	-0.200	33				100-102	CB-WTD-016	UCS
135	Secondary	0+195.55	2018-10-02	2018-10-02	2018-10-02	158.698	10.11	148.588	148.808	-0.220	157.305	8.717	0.501	48				358-360		
137	Primary	0+197.05	2018-09-19	2018-09-19	2018-09-27	158.132	9.46	148.672	148.652	0.020	157.126	8.454	-0.301	25				166-168		
139	Secondary	0+198.55	2018-10-02	2018-10-02	2018-10-03	158.519	9.99	148.529	148.612	-0.083	157.383	8.854	-0.503	25				362-364-378-380	CB-WTD-036	UCS
141	Primary	0+200.05	2018-09-19	2018-09-19	2018-09-27	158.109	9.62	148.489	148.576	-0.087	157.123	8.634	0.201	36				170-172	CB-WTD-024	UCS
143	Secondary	0+201.55	2018-10-02	2018-10-02	2018-10-03	158.148	10	148.148	148.414	-0.266	157.292	9.144	-0.201	30				362-364-366-368	CB-WTD-036	UCS
145	Primary	0+203.05	2018-09-19	2018-09-19	2018-09-28	158.147	9.77	148.377	148.360	0.017	157.029	8.652	-0.201	27	65	0.5	2018-09-28	174-176		
147	Secondary	0+204.55	2018-10-03	2018-10-03	2018-10-03	158.305	10.21	148.095	148.227	-0.132	157.188	9.093	-0.501	36				374-376		
149	Primary	0+206.05	2018-09-27	2018-09-28	2018-09-28	158.387	10.38	148.007	148.269	-0.262	157.011	9.004	-0.101	17				194-196		
151	Secondary	0+207.55	2018-10-02	2018-10-03	2018-10-04	158.347	10.33	148.017	148.398	-0.381	157.245	9.228	0.403	6				410-412		Bleeding
153	Primary	0+209.05	2018-09-27	2018-09-28	2018-09-28	158.379	9.9	148.479	148.634	-0.155	157.015	8.536	-0.101	33				202-204	CB-WTD-024	UCS
155	Secondary	0+210.55	2018-10-04	2018-10-04	2018-10-04	158.118	10.19	147.928	148.589	-0.661	157.255	9.327	-0.803	19				458-460-462-464	CB-WTD-040	UCS
157	Primary	0+212.05	2018-09-27	2018-09-28	2018-09-28	158.369	9.96	148.409	148.528	-0.119	157.044	8.635	0.302	13				198-200		
159	Secondary	0+213.55	2018-10-07	2018-10-08	2018-10-08	159.284	10.77	148.514	148.494	0.020	157.186	8.672	0.300	42						
161	Primary	0+215.05	2018-09-28	2018-09-30	2018-10-01	158.222	9.81	148.412	148.526	-0.114	157.027	8.615	-0.302	52				276-278-280-282	CB-WTD-031	UCS
163	Secondary	0+216.55	2018-10-04	2018-10-04	2018-10-04	158.451	10.12	148.331	148.647	-0.316	157.325	8.994	-0.301	24				454-456		
165	Primary	0+218.05	2018-09-29	2018-09-30	2018-10-01	158.291	10.73	147.561	148.267	-0.706	157.080	9.519	-0.201	19				280-282	CB-WTD-031	UCS
167	Secondary	0+219.55	2018-10-03	2018-10-03	2018-10-03	157.879	9.53	148.349	148.586	-0.237	157.382	9.033	-0.302	27				382-384		
169	Primary	0+221.05	2018-09-29	2018-09-29	2018-09-29	158.424	10.46	147.964	148.265	-0.301	157.052	9.088	-0.502	39				222-224	CB-WTD-027	UCS
171	Secondary	0+222.55	2018-10-03	2018-10-03	2018-10-04	158.692	10.33	148.362	148.726	-0.364	157.236	8.874	0.502	35				414-416		
173	Primary	0+224.05	2018-09-29	2018-09-28	2018-09-29	158.127	9.5	148.627	149.115	-0.488	157.069	8.442	-0.403	23				218-220-226-228		
175	Secondary	0+225.55	2018-10-03	2018-10-03	2018-10-04	159.391	10.4	148.991	149.302	-0.311	157.242	8.251	0.402	52				414-416-418-420	CB-WTD-038	UCS
177	Primary	0+227.05	2018-09-30	2018-09-30	2018-10-01	158.867	9.86	149.007	149.126	-0.119	157.087	8.080	-0.302	13				268-270-272-274		
179	Secondary	0+228.55	2018-10-03	2018-10-03	2018-10-03	158.952	10.1	148.852	149.037	-0.185	157.191	8.339	0.504	16				406-408		
181	Primary	0+230.05	2018-09-30	2018-09-30	2018-10-01	157.843	8.89	148.953	149.020	-0.067	157.011	8.058	0.603	14				266-268-270		
183	Secondary	0+231.55	2018-10-03	2018-10-04	2018-10-04	159.661	10.92	148.741	148.994	-0.253	157.175	8.434	0.301	8				418-420-422-424	CB-WTD-038	UCS
185	Primary	0+233.05	2018-09-30	2018-09-30	2018-09-30	157.877	8.77	149.107	149.218	-0.111	157.062	7.955	0.502	29				250-252		
187	Secondary	0+234.55	2018-10-04	2018-10-04	2018-10-04	158.882	9.69	149.192	149.340	-0.148	157.175	7.983	0.401	28				454-456		
189	Primary	0+236.05	2018-09-28	2018-09-28	2018-09-29	158.364	8.92	149.444	149.575	-0.131	157.096	7.652	-0.400	10				202-204-206-208		
191	Secondary	0+237.55	2018-10-03	2018-10-03	2018-10-03	158.406	8.98	149.426	149.604	-0.178	157.129	7.703	-0.201	24				406-408		
193	Primary	0+239.05	2018-09-28	2018-09-28	2018-09-29	158.245	8.83	149.415	149.585	-0.170	157.036	7.621	-0.101	12				206-208		
195	Secondary	0+240.55	2018-10-03	2018-10-03	2018-10-03	157.738	8.08	149.658	149.813	-0.155	157.086	7.428	-0.401	46				402-404-406-408		
197	Primary	0+242.05	2018-09-28	2018-09-29	2018-09-29	158.700	9.14	149.560	149.843	-0.283	157.049	7.489	-0.201	28				206-208-210-212	CB-WTD-025	UCS
199	Secondary	0+243.55	2018-10-03	2018-10-03	2018-10-03	159.362	9.81	149.552	149.667	-0.115	157.096	7.544	-0.403	18				398-400-402-404		
201	Primary	0+245.05	2018-09-28	2018-09-29	2018-09-29	158.222	8.76	149.462	149.475	-0.013	157.079	7.617	-0.201	33	30 to 77.5	7.2	2018-09-30	210-212	CB-WTD-025	UCS
203	Secondary	0+246.55	2018-10-04	2018-10-04	2018-10-04	159.912	10.81	149.102	149.537	-0.435	157.132	8.030	-0.502	35				462-464	CB-WTD-040	UCS
205	Primary	0+248.05	2018-09-28	2018-09-30	2018-09-30	158.346	9.65	148.696	149.253	-0.557	157.100	8.404	-0.503	13				250-252		
207	Secondary	0+249.55	2018-10-05	2018-10-05	2018-10-07	158.794	9.72	149.074	149.201	-0.127	157.125	8.051	0.603	39				514-516-518-520		
209	Primary	0+251.05	2018-09-28	2018-09-30	2018-09-30	158.261	9.02	149.241	149.409	-0.168	157.017	7.776	-0.302	25				246-248-250-252		
211	Secondary	0+252.55	2018-10-05	2018-10-05	2018-10-07	158.389	9.14	149.249	149.538	-0.289	157.100	7.851	-0.101	40				510-512-514-516	CB-WTD-043	UCS
213	Primary	0+254.05	2018-09-29	2018-09-30	2018-09-30	158.360	8.89	149.470	149.615	-0.145	156.998	7.528	0.805	44				242-244-246-248	CB-WTD-029	UCS
215	Secondary	0+255.55	2018-10-09	2018-10-09	2018-10-09	158.108	8.7	149.408	149.613	-0.205	157.004	7.596	-0.202	22					CB-WTD-048	
217	Primary	0+257.05	2018-09-29	2018-09-30	2018-09-30	158.155	8.85	149.305	149.511	-0.206	156.960	7.655	-0.402	55	135 to >160	5.26	2018-09-30	242-244	CB-WTD-029	UCS
219	Secondary	0+258.55	2018-10-05	2018-10-05	2018-10-06	157.789	8.83	148.959	149.478	-0.519	156.980	8.021	-0.905	42				502-504-510-512		
221	Primary	0+260.05	2018-09-29	2018-09-30	2018-09-30	157.740	8.89	148.850	149.409	-0.559	156.903	8.053	-0.505	10				234-236		
223	Secondary	0+261.66	2018-10-04	2018-10-04	2018-10-04	159.058	10.21	148.848	149.323	-0.475	156.979	8.131	-0.503	34				442-444	CB-WTD-039	UCS
225	Primary	0+263.26	2018-09-29	2018-09-30	2018-09-30	158.173	8.84	149.333	149.463	-0.130	156.885	7.552	0.101	30				230-232		
227	Secondary	0+264.86	2018-10-04	2018-10-04	2018-10-06	159.199	9.88	149.319	149.426	-0.107	156.976	7.657	-0.502	50						
229	Primary	0+266.46	2018-09-29	2018-09-30	2018-09-30	158.175	9.53	148.645	149.434	-0.789	156.940	8.295	-0.403	37				230-232-234-236		
231	Secondary	0+268.06	2018-10-04	2018-10-04	2018-10-06	157.994	8.53	149.464	149.575	-0.111	156.970	7.506	0.704	70						
233	Primary	0+269.66	2018-09-29	2018-09-30	2018-09-30	158.910	9.16	149.750	149.971	-0.221	156.915	7.165	0.704	40				234-236	CB-WTD-028	
235	Secondary	0+271.26	2018-10-04	2018-10-04	2018-10-04	158.376	8.45	149.926	150.218	-0.292	156.965	7.039	-0.501	33				462-464	CB-WTD-039	UCS
237	Primary	0+272.86	2018-09-30	2018-10-01	2018-10-01	158.390	8.88	149.510	149.784	-0.274	156.938	7.428	-0.201	52				292-294		
239	Secondary	0+274.46	2018-10-04	2018-10-04	2018-10-04	158.583	9.3	149.283	149.719	-0.436	156.993	7.710	-0.201	14						
241	Primary	0+276.06	2018-09-30	2018-10-01	2018-10-01	157.870	8.49	149.380	149.668	-0.288	156.933	7.553	-0.202	29				292-294		
243	Secondary	0+277.66	2018-10-04	2018-10-04	2018-10-04	158.442	9.34	149.102	149.608	-0.506	156.988	7.886	-0.501	33						

DATE	NUMBER BACTH PLAN	BETONITE HYDRATATION				CIMENT BETONITE MIX							WATER QUALITY (ONCE PER SHIFT)			BLEEDING TESTS			sampling time	SAMPLE NUMBER	Notes
		Time of test	DENSITY (MUD BALANCE)	VISCOSITY (MARSH CONE)	TEMP. (T^oC)	Top or bot (PAT)	Time of test	DENSITY (MUD BALANCE)	VISCOSITY (MARSH CONE)	TEMP. (T^oC)	batch plan T°C	Outdoor T°C	CLEANLINESS (C or NC)	TEMP. (T^oC)	pH	TIME of the test (min)	Expansion (%)	Final Bleeding (%)			
9/25/2018 NIGHT	96	12h00	1.030	180	12.6	Bottom	12h34	1.245	63	17.6	20.6	-	CLEAR	10.6							
	98	1h00	1.030	97	13.4	Bottom	2h17	1.250	57	17.5	20.3	-	CLEAR	10.6							
	100	1h49	1.035	151	12.8	Bottom	2h20	1.240	62	16.9	22.3	-	CLEAR	10.6							
	102	2h35	1.033	>180	12.3	Bottom	3h43	1.240	55	18.2	24.0	-	CLEAR	10.6					03:43	CB-WTD-016	
	104	3h25	1.030	130	12.4	Bottom	3h50	1.245	53	17.6	21.2	-	CLEAR	10.6							
	106	4h06	1.030	150	11.8	Bottom	5h40	1.245	48	16.8	22.6	-	CLEAR	10.6							
	108	5h30	1.032	50=?	12.6	Bottom	6h00	1.230	54	18.3	24.3	-	CLEAR	10.6							
9/25/2018 DAY	110	13h18	1.020	54	12.9	Bottom	13h50	1.220	42	19.6	23.0	-									
	112	14h10	1.030	55	14.2	Bottom	14h30	1.250	147	21.6	23.0	-									
	114	16h20	1.030	57	15.3	Bottom	17h30	1.250	118	16.4	23.0	-									
9/25/2018 N	116	3h45	1.030	>180	21.0	Bottom	5h02	1.265	122	22.1	24.1	-		11.7						CB-WTD-018	
	118	4h45	1.030	140	18.6	Bottom	5h10	1.240	55	17.5	26.8	-		-							
9/26/2018 DAY	120	6h30	1.030	55	12.1	Bottom	6h35	1.245	-	16.0	26.3	-		-							
	122	6h20	1.030	53	12.1	Bottom	6h30	1.240	-	18.2	28.3	-		-							
	124	7h40	1.025	51	11.2	Bottom	9h15	1.250	61	17.4	19.2	-		8.0						CB-WTD-019	
	126	9h30	1.025	58	11.6	Bottom	9h56	1.250	55	17.6	24.1	-		9.0							
	128	10h20	1.025	51	12.4	Bottom	10h50	1.245	53	14.2	14.8	-		8.7							
	130	11h10	1.030		12.8	Bottom	11h40	1.250	57	15.5	16.1	-		9.4							
	132	11h50	1.030		15.1	Bottom	13h20	1.245	54	19.0	23.4	-		9.6							
	134	13h30	1.030	53	13.4	Bottom	13h35	1.235	54	15.6	24.1	-		8.1							
	136	14h00	1.025	53	14.2	Bottom	15h05	1.260		14.5	13.8	-							16:30	CB-WTD-020	
2018-09-26 Night	138	15h45	1.025	51	14.2	Bottom	16h10	1.240	48	15.5	16.0	-									
	140	16h50	1.025	49	14.4	Bottom	17h20	1.245	53	16.2	13.1	-									
	142	18h20	1.030	40	15.8	Bottom	19h10	1.250	56	18.6	23.1	-									
	144	19h34	1.030	51	16.3	Bottom	20h55	1.240	52	19.1	27.1	-									
	146	20h13	1.030	45	15.0	Bottom	20h37	1.250	52	16.8	18.1	-									
	148	20h10	1.030	47	15.5	Bottom	10h40	1.260	64	21.6	25.0	-									
	150	10h38		45	23.6	Bottom	12h40	1.275	stuck in cone/argo no effect	32.0	12.3	-		10.3							Rejected batch cause of temperature and arbo does not have effect
	152	2h20	1.030	81	20.5	Bottom	4h03	1.250	61	21.8		-								CB-WTD-021	
	154	5h06	1.025	52	19.6	Bottom	-	1.250	>180	20.1		-									
/2018 DAY	156	7h35	1.030	49	17.5	Bottom	8h45	1.280	70	15.4	18.1	-									Density higher than normal bc of lost of some bentonite on the ground
	158	9h30	1.030		18.4	Bottom	11h35	1.250	59	19.6		-									
	160	11h30	1.030	53	18.2	Bottom	12h05	1.235	54	17.8		-								CB-WTD-022	
	162	14h20	1.030		18.1	Bottom	14h50	1.245	64	18.3		-									

9/26	164	15h10	1.030	55	16.1	Bottom	15h35	1.235	57	18.5	18.6	-		7.8								
	166	16h10	1.030		16.8	Bottom	-	1.250		21.2	17.9	-										
	168	16h45	1.030		16.6	Bottom	16h50	1.250		18.1		-										
9/27/2018 NIGHT	170	19h28	1.035	48	16.5	Bottom	20h12	1.255	88	20.4		-									CB-WTD-023	
	172	-	1.030	47	16.3	Bottom	20h25	1.252	81	19.2	27.6	-										
	174	20h43	1.035	51	15.6	Bottom	21h51	1.250	75	18.6	27.2	-										
	176	9h21	1.030	46	14.7	Bottom	9h55	1.260	77	20.5	26.2	-										
	178	10h47	1.030	50	14.8	Bottom	11h42	1.255	67	18.5	31.0	-										
	180	11h26	1.035	61	16.5	Bottom	11h48	1.250	70	19.5	28.3	-										
	182	12h20	1.030	60	16.3	Bottom	1h37	1.255	66	-	35.0	-										
	184	1h06	1.030	57	16.6	Bottom	1h32	1.250	62	21.7	29.3	-										
	186	2h22	1.030	60	15.8	Bottom	3h05	1.250	66	20.4	34.0	-										
	188	2h47	1.030	48	15.5	Bottom	3h09	1.255	58	20.3	34.3	-										
	190	3h33	1.035	51	15.4	Bottom	-	1.250	N-A	21.0	18.0											
	192	3h48	1.025	49	14.8	Bottom	-	-	-	-	31.6											Batch plan problem, no cb made with
9/28/2018 NIGHT	194	-	-	-	-	Bottom	9h29	1.245	57	19.3	-		clear	13.9								QC was in lab for the bentonite batch
	196	9h20	1.030	68	15.6	Bottom	9h41	1.000	51	18.8	27.0											
	198	9h55	1.030	64	15.8	Bottom	11h00	1.265	69	21.0	31.1											
	200	-	1.030	146	15.8	Bottom	11h04	1.265	61	20.1	31.5											
	202	11h36	1.032	92	15.5	Bottom	12h56	1.255	88	24.1	-											
	204	12h34	1.035	77	16.3	Bottom	12h45	1.275	75	19.5	32.0									12:58	CB-WTD-024	
	206	1h20	1.035	80	16.1	Bottom	2h39	1.270	60	20.8	26.6											
	208	2h08	1.030	68	16.4	Bottom	2h44	1.265	52	19.0	25.9											
	210	3h24	1.035	70	17.1	Bottom	4h29	1.265	64	21.6	28.1										CB-WTD-025	
	212	4h22	1.030	74	16.5	Bottom	4h32	1.250	57.000	19.0	28.7											
9/29/2018 DAY	214	5h00				Bottom	6h40	1.230	N-A	20.0	14.0									08:20	CB-WTD-026	
	216	7h25				Bottom	9h45															Dumped problem with batch plan
	218	17h10	1.025	137	17.1	Bottom	17h40	1.250	46	19.2	14.8											
2018-09-29 NIGHT	220	6h33	1.03	80	17.6	Bottom	6h55	1.280	51	20.3	17.1											
	222	8h32	1.03	n-a	24.2	Bottom	10h22	1.250	46	22.8	21.2									10:22	CB-WTD-027	
	224	10h11	1.030	102	17.3	Bottom	10h25	1.255	58	19.6	29.8											
	226	11h02	1.030	123	15.8	Bottom	11h44	1.255	51	20.4	23.0		9.2	clear								
	228	11h38	1.040	97	15.0	Bottom	11h48	1.250	48	17.8	31.2											
	230	12h21	1.035	96	15.1	Bottom	1h33	1.250	55	19.3	30.5											
	232	1h26	1.030	109	15.0	Bottom	1h38	1.255	49	17.7	23.0											
	234	2h13	1.035	90	14.4	Bottom	3h10	1.245	61	19.5	30.8											

	236	2h50	1.030	106	14.1	Bottom	3h05	1.260	53	18.6	31.8								03:05	CB-WTD-028	
	238	4h05	1.030	90	16.3	Bottom	5h00	1.250	47	21.0	27.5										
	240	-	1.030	112	16.8	Bottom	5h07	1.255	51	19.2	29.1										
2018-09-30 DAY	242	-	-	-	-	Bottom	7h35	1.245	58	20.5	10.3								08:00	CB-WTD-029	
	244	-	1.030	-	16.4	Bottom	8h00	1.250	57	18.9	11.2										
	246	8h30	1.030	61	17.1	Bottom	9h20	1.260	53	19.5	10.5			10.5							
	248	10h00	1.030	58	15.8	Bottom	10h20	1.255	48	19.1	12.4										
	250	10h48	1.025	50	16.3	Bottom	11h10	1.250	49	20.2	13.4										
	252	11h50	1.030	52	15.3	Bottom	13h00	1.250	54	19.7	15.2										
	254	-	-	-	-	Bottom	14h20	1.250	49	18.9	11.2										
	256	13h55	1.025	65	19.4	Bottom	14h10	1.250	58	19.4	12.4										
	258	14h50	1.025	57	16.3	Bottom	19h05	1.255	>180	22.9	13.3										Arbo mis trop tot , rejeté 1/2 du camion (#258,260)
	260	15h45	1.030	51	15.8	Bottom	19h10	1.260	>180	24.0	14.4								19:10	CB-WTD-030	Arbo mis trop tot, rejeté 1/2 du camion (#258,260)

			UCS WARM #1				UCS WARM #2				UCS COLD #1			
SAMPLING NUMBER	SAMPLING DATE	PILE NUMBER	Average Diamater W1 (m^2)	Strength W1 (KN)	Warm Cure 1 (Kpa)	CURING DAYS W1	Average Diamater W2 (m^2)	Strength W2 (KN)	Warm Cure 2 (Kpa)	CURING DAYS W2	Average Diamater C1 (m^2)	Strength C1 (KN)	Cold cure 1 (Kpa)	CURING DAYS C1
CB-WTD-016	2018-09-25	133	0.05154	0.4	191.73	8	0.05135	0.37	178.66	8				
CB-WTD-024	2018-09-28	141	0.05218	0.79	369.43	4	0.05143	0.8	385.09	8				
CB-WTD-025	2018-09-28	197-201	0.051797	0.71	336.95	2	0.05175	1.42	675.11	7	0.05174	0.93	442.32	7
CB-WTD-027	2018-09-29	169	0.05209	1.27	595.94	7								
CB-WTD-028	2018-09-30	229												
CB-WTD-029	2018-09-30	217-213												
CB-WTD-030	2018-09-30	245												
CB-WTD-031	2018-10-01	161-165	0.05209	0.36	168.93	3	0.05187	0.54	255.55	7				
CB-WTD-032	2018-10-01	241-237	0.05175	0.88	418.38	7								
CB-WTD-036	2018-10-03	139-143	0.05206	0.66	310.06	2								
CB-WTD-038	2018-10-04	175-183	0.05174	0.25	118.90	2								
CB-WTD-039	2018-10-04	223-235	0.05212	0.9	421.84	5	0.05171	0.84	399.98	5				
CB-WTD-040	2018-10-04	155	0.05178	0.26	123.47	2								
CB-WTD-042	2018-10-06	231-227												
CB-WTD-043	2018-10-07	211-273-277-	0.0519	1.06	501.05	2	0.05191	0.99	467.78	2				

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	10/1/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	276-278
Paddle used:	Medium one	**Ground surface elevation (m):**	157

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
161	10/1/2018 2:35	10/1/2018 23:05	1.00	156.00	20.5	62.5
161	10/1/2018 2:35	10/1/2018 23:10	1.50	155.50	20.6	95
161	10/1/2018 2:35	10/1/2018 23:15	2.00	155.00	20.7	130
161	10/1/2018 2:35	10/1/2018 23:20	2.50	154.50	20.7	125
161	10/1/2018 2:35	10/1/2018 23:25	3.00	154.00	20.8	157
161	10/1/2018 2:35	10/1/2018 23:30	3.50	153.50	20.9	180
161	10/1/2018 2:35	10/1/2018 23:35	4.00	153.00	21.0	160
161	10/1/2018 2:35	10/1/2018 23:40	5.00	152.00	21.1	142
161	10/1/2018 2:35	10/1/2018 23:45	5.50	151.50	21.2	160
161	10/1/2018 2:35	10/1/2018 23:50	6.00	151.00	21.2	>160
161	10/1/2018 2:35	10/1/2018 23:55	7.00	150.00	21.3	135
161	10/1/2018 2:35	10/2/2018 0:00	7.50	149.50	21.4	145
161	10/1/2018 2:35	10/2/2018 0:05	8.00	149.00	21.5	147
161	10/1/2018 2:35	10/2/2018 0:10	8.50	148.50	21.6	60

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 161 = 148.412 m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	10/1/2018	Date :	10/3/2018

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	9/29/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	210-212
Paddle used:	Medium one	**Ground surface elevation (m):**	157.3

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
201	9/29/2018 6:00	9/29/2018 19:30	2.22	155.08	13.5	40
201	9/29/2018 6:00	9/29/2018 19:45	3.22	154.08	13.7	30
201	9/29/2018 6:00	9/29/2018 20:00	4.22	153.08	14.0	47.5
201	9/29/2018 6:00	9/29/2018 20:15	5.22	152.08	14.3	53.5
201	9/29/2018 6:00	9/29/2018 20:30	6.22	151.08	14.5	71
201	9/29/2018 6:00	9/29/2018 20:45	7.22	150.08	14.8	77.5

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 201 = 149.475m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	9/29/2018	Date :	9/29/2018

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	10/1/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	242-244
Paddle used:	Medium one	**Ground surface elevation (m):**	157.2

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
217	9/30/2018 20:00	10/1/2018 19:00	2.31	154.89	23.0	160
217	9/30/2018 20:00	10/1/2018 19:10	3.26	153.94	23.2	135
217	9/30/2018 20:00	10/1/2018 19:20	3.76	153.44	23.3	157
217	9/30/2018 20:00	10/1/2018 19:30	4.26	152.94	23.5	160
217	9/30/2018 20:00	10/1/2018 19:40	4.76	152.44	23.7	160
217	9/29/2018 6:00	10/1/2018 19:50	5.26	151.94	61.8	160

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 217 = 149.511m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	10/1/2018	Date :	10/3/2018

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309

DATE: October 18, 2018

DOCUMENT #: 20181018-DS-02
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

TIME: 7:45
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☐ Other: Secant Pile Installation – Approval to drill tertiary piles between primary & secondary piles

LOCATION

Piles # Tertiary piles between pile 245 and 297

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS

Last Pile approved #: between pile 133 and 245

Details:

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial Pile Location Surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical Deviation < 0.75%					✓
7. Pile spacing					✓
8. Continuity of slurry wall for installation of tertiaries (no gaps)					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary and secondary slurry strength for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	FREDERIC TREMBLAY		18-10-20
QC REPRESENTATIVE	Maxime Côté		18-10-18
QA REPRESENTATIVE	Tezara Azmatch		18-10-18
OWNER'S REPRESENTATIVE	Patrice Cayen		18-10-20

Table 1: Laboratory Test Results for Early-Strength of Slurry

Sample Information			UCS #1 (warm cure) (2 to 7 days old and more)		UCS #2 (warm cure) (2 to 7 days old and more)		UCS #3 (warm cure) (2 to 7 days old and more)		UCS #7 (cold cure)		UCS #8 (cold cure)	
SAMPLING NUMBER	SAMPLING DATE	Slurry Placed into PILE NUMBER	Warm Cure Strenght 1 (Kpa)	CURING DAYS W1	Warm Cure Strenght 2 (Kpa)	CURING DAYS W2	Warm Cure Strenght 3 (Kpa)	CURING DAYS W3	Cold cure Strenght 1 (Kpa)	CURING DAYS C1	Cold cure Strenght 2 (Kpa)	CURING DAYS C2
CB-WTD-005	2018-09-16	65	316.09	7	369.55	7			245.99	7	416.68	33
CB-WTD-007	2018-09-16	41	337.99	7	343.60	7			174.42	7		
CB-WTD-008	2018-09-17	29	247.75	7								
CB-WTD-015	2018-09-24	101	340.86	7	375.45	8			258.63	8		
CB-WTD-018	2018-09-26	19	473.42	7	388.87	9						
CB-WTD-023	2018-09-27	99 & 103	184.04	4	217.69	8						
CB-WTD-024	2018-09-28	141	369.43	4	385.09	8						
CB-WTD-025	2018-09-28	197-201	336.95	2	675.11	7			442.32	7		
CB-WTD-026	2018-09-29	131	425.09	2	256.54	7						
CB-WTD-031	2018-10-01	161-165	168.93	3	255.55	7						
CB-WTD-032	2018-10-01	241-237	418.38	7	559.50	11						
CB-WTD-033	2018-10-01	24-28-32	344.13	7	403.18	11						
CB-WTD-036	2018-10-03	139-143	310.06	2	459.22	9						
CB-WTD-038	2018-10-04	175-183	118.90	2	329.70	11	330.15	11				
CB-WTD-039	2018-10-04	223-235	421.84	5	399.98	5	516.42	10				
CB-WTD-040	2018-10-04	155	123.47	2	334.87	8	373.58	10				
CB-WTD-041	2018-10-05	273-277	452.54	7	393.70	7	436.69	9				
CB-WTD-042	2018-10-06	231-227	473.24	7	441.81	7	503.96	7				
CB-WTD-043	2018-10-07	211-273-277-	501.05	2	788.73	7	826.89	7				
CB-WTD-047	2018-10-09	136-152 (top132-128)	286.92	2	250.91	2	484.66	8				
CB-WTD-048	2018-10-09	215-255	282.85	2	493.88	8	561.42	8				
CB-WTD-049	2018-10-10	166-162	313.79	2	472.32	7	439.94	7				
CB-WTD-050	2018-10-10	198 - 329 - 333	494.07	7	490.27	7	504.42	7				
CB-WTD-051	2018-10-12	349-361-242	348.28	5	401.22	7	379.80	7				
CB-WTD-052	2018-10-13	311-214-315	128.61	4					29.13	3	42.79	4
CB-WTD-053	2018-10-15	369 & 373	126.99	2								

Table 2: Field Vane Shear Test Results for Early-Strength of Slurry in Piles

Depth (m)	1	2	3	4	4.5	5	6	7	8	9
Cu (kPa)	0	10	22	> 80	120	120	>120	>120	>120	> 120
Curing age	less than 1 day of curing			Approximately 2 days of curing						

Note: The field vane shear test was carried out on Pile 381. The date of testing was October 18 from about 9 AM to 11:30 AM. Slurry was initially placed in this pile on October 16, 2018. A topping-up of approximately 3 m was done on October 17, 2018 at about 9 PM.

Table 3 – List of Piles with Date of Drilling and Slurry Placement for Primary and Secondary Piles

Pile Number	Pile Type	Station	Anchoring Date	Verification Date	Slurry Placement Date
245	Primary	0+279.26	2018-09-30	2018-09-30	2018-10-01
246	Tertiary	0+280.06			
247	Secondary	0+280.86		2018-10-13	2018-10-13
248	Tertiary	0+281.66			
249	Primary	0+282.46	2018-10-04	2018-10-04	2018-10-05
250	Tertiary	0+283.26	2018-10-16	2018-10-16	
251	Secondary	0+284.06	2018-10-10	2018-10-10	2018-10-11
252	Tertiary	0+284.86			
253	Primary	0+285.66	2018-10-04	2018-10-04	2018-10-05
254	Tertiary	0+286.46			
255	Secondary	0+287.26	2018-10-09	2018-10-09	2018-10-09
256	Tertiary	0+288.06			
257	Primary	0+288.86	2018-10-03	2018-10-03	2018-10-03
258	Tertiary	0+289.66	2018-10-15	2018-10-16	2018-10-16
259	Secondary	0+290.46	2018-10-10	2018-10-11	2018-10-11
260	Tertiary	0+291.26			
261	Primary	0+292.06	2018-10-03	2018-10-03	2018-10-03
262	Tertiary	0+292.86	2018-10-15	2018-10-16	2018-10-16
263	Secondary	0+293.66	2018-10-08	2018-10-08	2018-10-08
264	Tertiary	0+294.46			
265	Primary	0+295.26	2018-10-03	2018-10-03	2018-10-03
266	Tertiary	0+296.06	2018-10-16	2018-10-16	
267	Secondary	0+296.86	2018-10-08	2018-10-08	2018-10-08
268	Tertiary	0+297.66			
269	Primary	0+298.46	2018-10-07	2018-10-07	2018-10-07
270	Tertiary	0+299.26	2018-10-16		
271	Secondary	0+300.06	2018-10-09	2018-10-09	2018-10-09
272	Tertiary	0+300.86			
273	Primary	0+301.66	2018-10-05	2018-10-05	2018-10-05
274	Tertiary	0+302.46			
275	Secondary	0+303.26	2018-10-10	2018-10-10	2018-10-10
276	Tertiary	0+304.06			
277	Primary	0+304.86	2018-10-05	2018-10-05	2018-10-05
278	Tertiary	0+305.66			
279	Secondary	0+306.46	2018-10-10	2018-10-10	2018-10-10
280	Tertiary	0+307.26			
281	Primary	0+308.06	2018-10-07	2018-10-07	2018-10-07
282	Tertiary	0+308.86	2018-10-16		
283	Secondary	0+309.66	2018-10-10	2018-10-10	2018-10-10
284	Tertiary	0+310.46			

Pile Number	Pile Type	Station	Anchoring Date	Verification Date	Slurry Placement Date
285	Primary	0+311.21	2018-10-07	2018-10-07	2018-10-07
286	Tertiary	0+311.96			
287	Secondary	0+312.71	2018-10-11	2018-10-11	2018-10-11
288	Tertiary	0+313.46	2018-10-16	2018-10-17	
289	Primary	0+314.21	2018-10-07	2018-10-07	2018-10-07
290	Tertiary	0+314.96			
291	Secondary	0+315.71	2018-10-11	2018-10-11	2018-10-11
292	Tertiary	0+316.46	2018-10-16	2018-10-16	
293	Primary	0+317.21	2018-10-07	2018-10-07	2018-10-08
294	Tertiary	0+317.96			
295	Secondary	0+318.71	2018-10-11	2018-10-11	2018-10-11
296	Tertiary	0+319.46			
297	Primary	0+320.21	2018-10-07	2018-10-07	2018-10-07

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	10/1/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	276-278
Paddle used:	Medium one	**Ground surface elevation (m):**	157

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
161	10/1/2018 2:35	10/1/2018 23:05	1.00	156.00	20.5	62.5
161	10/1/2018 2:35	10/1/2018 23:10	1.50	155.50	20.6	95
161	10/1/2018 2:35	10/1/2018 23:15	2.00	155.00	20.7	130
161	10/1/2018 2:35	10/1/2018 23:20	2.50	154.50	20.7	125
161	10/1/2018 2:35	10/1/2018 23:25	3.00	154.00	20.8	157
161	10/1/2018 2:35	10/1/2018 23:30	3.50	153.50	20.9	180
161	10/1/2018 2:35	10/1/2018 23:35	4.00	153.00	21.0	160
161	10/1/2018 2:35	10/1/2018 23:40	5.00	152.00	21.1	142
161	10/1/2018 2:35	10/1/2018 23:45	5.50	151.50	21.2	160
161	10/1/2018 2:35	10/1/2018 23:50	6.00	151.00	21.2	>160
161	10/1/2018 2:35	10/1/2018 23:55	7.00	150.00	21.3	135
161	10/1/2018 2:35	10/2/2018 0:00	7.50	149.50	21.4	145
161	10/1/2018 2:35	10/2/2018 0:05	8.00	149.00	21.5	147
161	10/1/2018 2:35	10/2/2018 0:10	8.50	148.50	21.6	60

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 161 = 148.412 m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	10/1/2018	Date :	10/3/2018

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	9/29/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	210-212
Paddle used:	Medium one	**Ground surface elevation (m):**	157.3

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
201	9/29/2018 6:00	9/29/2018 19:30	2.22	155.08	13.5	40
201	9/29/2018 6:00	9/29/2018 19:45	3.22	154.08	13.7	30
201	9/29/2018 6:00	9/29/2018 20:00	4.22	153.08	14.0	47.5
201	9/29/2018 6:00	9/29/2018 20:15	5.22	152.08	14.3	53.5
201	9/29/2018 6:00	9/29/2018 20:30	6.22	151.08	14.5	71
201	9/29/2018 6:00	9/29/2018 20:45	7.22	150.08	14.8	77.5

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 201 = 149.475m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	9/29/2018	Date :	9/29/2018

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	10/1/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	242-244
Paddle used:	Medium one	**Ground surface elevation (m):**	157.2

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
217	9/30/2018 20:00	10/1/2018 19:00	2.31	154.89	23.0	160
217	9/30/2018 20:00	10/1/2018 19:10	3.26	153.94	23.2	135
217	9/30/2018 20:00	10/1/2018 19:20	3.76	153.44	23.3	157
217	9/30/2018 20:00	10/1/2018 19:30	4.26	152.94	23.5	160
217	9/30/2018 20:00	10/1/2018 19:40	4.76	152.44	23.7	160
217	9/29/2018 6:00	10/1/2018 19:50	5.26	151.94	61.8	160

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 217 = 149.511m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	10/1/2018	Date :	10/3/2018

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APPROVAL FORM

PROJECT : WTD Construction

PROJECT #: 658309

DATE: October 19-2018

DOCUMENT #: 20181019-DS-01
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

TIME: 7:00
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☐ Other: Secant Pile Installation – Approval to drill tertiary piles between primary and secondary piles

LOCATION Tertiary piles between

Piles #
- pile 301 and 321
- pile 329 and 335
- ~~pile 341 and 349~~

ELEVATION: ☐ varies _____ m

PREVIOUS APPROVALS

Last Pile approved #: tertiary piles between pile 245 and 297

Details: _____

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial Pile Location Surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical Deviation < 0.75%					✓
7. Pile spacing					✓
8. Continuity of slurry wall for installation of tertiaries (no gaps)					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary and secondary slurry strength for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Frederic Tremblay		2018-10-20
QC REPRESENTATIVE	Maxime Côté		2018-10-19
QA REPRESENTATIVE	Tezcan Azmata		2018-10-19
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-10-20

Table 1: Laboratory Test Results for Early-Strength of Slurry

Sample Information			UCS #1 (warm cure) (2 to 7 days old and more)		UCS #2 (warm cure) (2 to 7 days old and more)		UCS #3 (warm cure) (2 to 7 days old and more)		UCS #7 (cold cure)		UCS #8 (cold cure)	
SAMPLING NUMBER	SAMPLING DATE	Slurry Placed into PILE NUMBER	Warm Cure Strenght 1 (Kpa)	CURING DAYS W1	Warm Cure Strenght 2 (Kpa)	CURING DAYS W2	Warm Cure Strenght 3 (Kpa)	CURING DAYS W3	Cold cure Strenght 1 (Kpa)	CURING DAYS C1	Cold cure Strenght 2 (Kpa)	CURING DAYS C2
CB-WTD-005	2018-09-16	65	316.09	7	369.55	7			245.99	7	416.68	33
CB-WTD-007	2018-09-16	41	337.99	7	343.60	7			174.42	7		
CB-WTD-008	2018-09-17	29	247.75	7								
CB-WTD-015	2018-09-24	101	340.86	7	375.45	8			258.63	8		
CB-WTD-018	2018-09-26	19	473.42	7	388.87	9						
CB-WTD-023	2018-09-27	99 & 103	184.04	4	217.69	8						
CB-WTD-024	2018-09-28	141	369.43	4	385.09	8						
CB-WTD-025	2018-09-28	197-201	336.95	2	675.11	7			442.32	7		
CB-WTD-026	2018-09-29	131	425.09	2	256.54	7						
CB-WTD-031	2018-10-01	161-165	168.93	3	255.55	7						
CB-WTD-032	2018-10-01	241-237	418.38	7	559.50	11						
CB-WTD-033	2018-10-01	24-28-32	344.13	7	403.18	11						
CB-WTD-036	2018-10-03	139-143	310.06	2	459.22	9						
CB-WTD-038	2018-10-04	175-183	118.90	2	329.70	11	330.15	11				
CB-WTD-039	2018-10-04	223-235	421.84	5	399.98	5	516.42	10				
CB-WTD-040	2018-10-04	155	123.47	2	334.87	8	373.58	10				
CB-WTD-041	2018-10-05	273-277	452.54	7	393.70	7	436.69	9				
CB-WTD-042	2018-10-06	231-227	473.24	7	441.81	7	503.96	7				
CB-WTD-043	2018-10-07	211-273-277-	501.05	2	788.73	7	826.89	7				
CB-WTD-047	2018-10-09	136-152 (top132-128)	286.92	2	250.91	2	484.66	8				
CB-WTD-048	2018-10-09	215-255	282.85	2	493.88	8	561.42	8				
CB-WTD-049	2018-10-10	166-162	313.79	2	472.32	7	439.94	7				
CB-WTD-050	2018-10-10	198 - 329 - 333	494.07	7	490.27	7	504.42	7				
CB-WTD-051	2018-10-12	349-361-242	348.28	5	401.22	7	379.80	7				
CB-WTD-052	2018-10-13	311-214-315	128.61	4					29.13	3	42.79	4
CB-WTD-053	2018-10-15	369 & 373	126.99	2								

Table 2: Field Vane Shear Test Results for Early-Strength of Slurry in Piles

Depth (m)	1	2	3	4	4.5	5	6	7	8	9
Cu (kPa)	0	10	22	> 80	120	120	>120	>120	>120	> 120
Curing age	less than 1 day of curing			Approximately 2 days of curing						

Note: The field vane shear test was carried out on Pile 381. The date of testing was October 18 from about 9 AM to 11:30 AM. Slurry was initially placed in this pile on October 16, 2018. A topping-up of approximately 3 m was done on October 17, 2018 at about 9 PM.

Table 3 – List of Piles with Date of Drilling and Slurry Placement for Primary and Secondary Piles

Pile Number	Pile Type	Station	Anchoring Date	Verification Date	Slurry Placement Date
301	Primary	0+323.21	2018-10-07	2018-10-07	2018-10-07
302	Tertiary	0+323.96			
303	Secondary	0+324.71	2018-10-13	2018-10-13	2018-10-13
304	Tertiary	0+325.46			
305	Primary	0+326.21	2018-10-07	2018-10-08	2018-10-08
306	Tertiary	0+326.96			
307	Secondary	0+327.71	2018-10-13	2018-10-13	2018-10-13
308	Tertiary	0+328.46			
309	Primary	0+329.21	2018-10-08	2018-10-08	2018-10-09
310	Tertiary	0+329.96			
311	Secondary	0+330.71	2018-10-13	2018-10-13	2018-10-13
312	Tertiary	0+331.46			
313	Primary	0+332.21	2018-10-08	2018-10-08	2018-10-09
314	Tertiary	0+332.96			
315	Secondary	0+333.71	2018-10-13	2018-10-13	2018-10-13
316	Tertiary	0+334.46			
317	Primary	0+335.21	2018-10-09	2018-10-09	2018-10-09
318	Tertiary	0+335.96			
319	Secondary	0+336.71	2018-10-13	2018-10-14	2018-10-14
320	Tertiary	0+337.46			
321	Primary	0+338.21	2018-10-08	2018-10-08	2018-10-09
329	Primary	0+344.21	2018-10-10	2018-10-10	2018-10-10
330	Tertiary	0+344.96			
331	Secondary	0+345.71	2018-10-13	2018-10-14	2018-10-14
332	Tertiary	0+346.46			
333	Primary	0+347.21	2018-10-10	2018-10-10	2018-10-10
334	Tertiary	0+347.96			
335	Secondary	0+348.71	2018-10-14	2018-10-14	2018-10-14
341	Primary	0+353.21	2018-10-10	2018-10-10	2018-10-10
342	Tertiary	0+353.96			
343	Secondary	0+354.71	2018-10-14	2018-10-14	2018-10-14
344	Tertiary	0+355.46			
345	Primary	0+356.21	2018-10-10	2018-10-10	2018-10-11
346	Tertiary	0+356.96			
347	Secondary	0+357.71	2018-10-14	2018-10-14	2018-10-14
348	Tertiary	0+358.46			
349	Primary	0+359.21	2018-10-11	2018-10-11	2018-10-12

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	10/1/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	276-278
Paddle used:	Medium one	**Ground surface elevation (m):**	157

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
161	10/1/2018 2:35	10/1/2018 23:05	1.00	156.00	20.5	62.5
161	10/1/2018 2:35	10/1/2018 23:10	1.50	155.50	20.6	95
161	10/1/2018 2:35	10/1/2018 23:15	2.00	155.00	20.7	130
161	10/1/2018 2:35	10/1/2018 23:20	2.50	154.50	20.7	125
161	10/1/2018 2:35	10/1/2018 23:25	3.00	154.00	20.8	157
161	10/1/2018 2:35	10/1/2018 23:30	3.50	153.50	20.9	180
161	10/1/2018 2:35	10/1/2018 23:35	4.00	153.00	21.0	160
161	10/1/2018 2:35	10/1/2018 23:40	5.00	152.00	21.1	142
161	10/1/2018 2:35	10/1/2018 23:45	5.50	151.50	21.2	160
161	10/1/2018 2:35	10/1/2018 23:50	6.00	151.00	21.2	>160
161	10/1/2018 2:35	10/1/2018 23:55	7.00	150.00	21.3	135
161	10/1/2018 2:35	10/2/2018 0:00	7.50	149.50	21.4	145
161	10/1/2018 2:35	10/2/2018 0:05	8.00	149.00	21.5	147
161	10/1/2018 2:35	10/2/2018 0:10	8.50	148.50	21.6	60

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 161 = 148.412 m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	10/1/2018	Date :	10/3/2018

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	9/29/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	210-212
Paddle used:	Medium one	**Ground surface elevation (m):**	157.3

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
201	9/29/2018 6:00	9/29/2018 19:30	2.22	155.08	13.5	40
201	9/29/2018 6:00	9/29/2018 19:45	3.22	154.08	13.7	30
201	9/29/2018 6:00	9/29/2018 20:00	4.22	153.08	14.0	47.5
201	9/29/2018 6:00	9/29/2018 20:15	5.22	152.08	14.3	53.5
201	9/29/2018 6:00	9/29/2018 20:30	6.22	151.08	14.5	71
201	9/29/2018 6:00	9/29/2018 20:45	7.22	150.08	14.8	77.5

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 201 = 149.475m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	9/29/2018	Date :	9/29/2018

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	10/1/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	242-244
Paddle used:	Medium one	**Ground surface elevation (m):**	157.2

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
217	9/30/2018 20:00	10/1/2018 19:00	2.31	154.89	23.0	160
217	9/30/2018 20:00	10/1/2018 19:10	3.26	153.94	23.2	135
217	9/30/2018 20:00	10/1/2018 19:20	3.76	153.44	23.3	157
217	9/30/2018 20:00	10/1/2018 19:30	4.26	152.94	23.5	160
217	9/30/2018 20:00	10/1/2018 19:40	4.76	152.44	23.7	160
217	9/29/2018 6:00	10/1/2018 19:50	5.26	151.94	61.8	160

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 217 = 149.511m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	10/1/2018	Date :	10/3/2018

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APPROVAL FORM

PROJECT : WTD Construction

PROJECT #: 658309

DOCUMENT #: 20181031- NS-02
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

DATE: 2018-10-31

TIME: 04:00
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation - Approval to drill tertiary piles

LOCATION	**PREVIOUS APPROVALS**
Piles # Tertiary piles between: - 321 to 329 - 335 to 341 - 349 to 393	Last Pile approved #: Tertiary piles between: - 301 to 321 - 329 to 335 - 341 to 349
ELEVATION: ☐ varies _____ m	Details: 20181019- DS-01

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:
(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial Pile Location Surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical Deviation < 0.75%					✓
7. Pile spacing					✓
8. Continuity of slurry wall for installation of tertiaries (no gaps)					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary and secondary slurry strength for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Jeannot Gagnon		2018-10-31
QC REPRESENTATIVE	Cedrick Fillon Tremblay		
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-10-31
OWNER'S REPRESENTATIVE	Pierre-Eric McDonald		2018-10-31

PILE NUMBER	PILE TYPE	STATION	ANCHORING DATE	VERIFICATION DATE	POURING DATE	Vane test (Kpa)	Depth (m)	Date of the Vane Test	SAMPLING	TYPE OF TESTS
321	Primary	0+338.21	2018-10-08	2018-10-08	2018-10-09					
322	Tertiary	0+338.96								
323	Secondary	0+339.71	2018-10-15	2018-10-16	2018-10-16					
324	Tertiary	0+340.46								
325	Primary	0+341.21	2018-10-09	2018-10-09	2018-10-09					
326	Tertiary	0+341.96	2018-10-28	2018-10-28	2018-10-29					
327	Secondary	0+342.71	2018-10-14	2018-10-15	2018-10-15					
328	Tertiary	0+343.46								
329	Primary	0+344.21	2018-10-10	2018-10-10	2018-10-10				CB-WTD-050	UCS
335	Secondary	0+348.71	2018-10-14	2018-10-14	2018-10-14					
336	Tertiary	0+349.46	2018-10-28	2018-10-28	2018-10-29					
337	Primary	0+350.21	2018-10-10	2018-10-10	2018-10-10					
338	Tertiary	0+350.96								
339	Secondary	0+351.71	2018-10-16	2018-10-18	2018-10-18					
340	Tertiary	0+352.46	2018-10-29	2018-10-29						
341	Primary	0+353.21	2018-10-10	2018-10-10	2018-10-10					
349	Primary	0+359.21	2018-10-11	2018-10-11	2018-10-12				CB-WTD-051	UCS
350	Tertiary	0+359.96	2018-10-27	2018-10-27	2018-10-28					
351	Secondary	0+360.71	2018-10-15	2018-10-15	2018-10-15					
352	Tertiary	0+361.46								
353	Primary	0+362.21	2018-10-09	2018-10-09	2018-10-09					
354	Tertiary	0+362.96								
355	Secondary	0+363.71	2018-10-15	2018-10-15	2018-10-18					
356	Tertiary	0+364.46	2018-10-28	2018-10-28	2018-10-29					
357	Primary	0+365.21	2018-10-11	2018-10-11	2018-10-11					
358	Tertiary	0+365.96								
359	Secondary	0+366.71	2018-10-16	2018-10-16	2018-10-16					
360	Tertiary	0+367.46	2018-10-28	2018-10-28	2018-10-29				CB-WTD-060	
361	Primary	0+368.21	2018-10-11	2018-10-11	2018-10-11				CB-WTD-051	UCS
362	Tertiary	0+368.96								
363	Secondary	0+369.71	2018-10-19	2018-10-20	2018-10-27					
364	Tertiary	0+370.46	2018-10-27							
365	Primary	0+371.21	2018-10-15	2018-10-16	2018-10-16					
366	Tertiary	0+371.96								
367	Secondary	0+372.71	2018-10-19	2018-10-20	2018-10-20					
368	Tertiary	0+373.46	2018-10-29	2018-10-29	2018-10-29					
369	Primary	0+374.21	2018-10-15	2018-10-15	2018-10-15				CB-WTD-053	UCS
370	Tertiary	0+374.96								
371	Secondary	0+375.71	2018-10-19	2018-10-20	2018-10-20					
372	Tertiary	0+376.46	2018-10-29	2018-10-29	2018-10-29				CB-WTD-060	
373	Primary	0+377.21	2018-10-15	2018-10-15	2018-10-15				CB-WTD-053	UCS
374	Tertiary	0+377.96								
375	Secondary	0+378.71	2018-10-20	2018-10-20	2018-10-27					

376	Tertiary	0+379.46								
377	Primary	0+380.21	2018-10-15	2018-10-16	2018-10-16					
378	Tertiary	0+380.96								
379	Secondary	0+381.71	2018-10-21	2018-10-21	2018-10-27				CB-WTD-057	UCS
380	Tertiary	0+382.46								
381	Primary	0+383.21	2018-10-16	2018-10-16	2018-10-18	average > 115.6	3 to 9	2018-10-19		
382	Tertiary	0+383.96								
383	Secondary	0+384.71	2018-10-21	2018-10-21	2018-10-28					
384	Tertiary	0+385.46								
385	Primary	0+386.21	2018-10-17	2018-10-18	2018-10-18					
386	Tertiary	0+386.96								
387	Secondary	0+387.71	2018-10-20	2018-10-24	2018-10-27					
388	Tertiary	0+388.46								
389	Primary	0+389.21	2018-10-17	2018-10-18	2018-10-18					
390	Tertiary	0+389.96								
391	Secondary	0+390.71	2018-10-28	2018-10-28	2018-10-18					
392	Tertiary	0+391.46								
393	Primary	0+392.21	2018-10-17	2018-10-18	2018-10-19					

			UCS #1 (warm cure) (2 to 7 days old and more)				UCS #2 (warm cure) (2 to 7 days old and more)				UCS #3 (warm cure) (2 to 7 days old and more)				UCS #4 (warm cure) (28 days old and more)			
SAMPLING NUMBER	**SAMPLING DATE**	**PILE NUMBER**	**Average Diamater W1 (m)**	**Load W1 (KN)**	**Warm Cure Strenght 1 (Kpa)**	**CURING DAYS W1**	**Average Diamater W2 (m)**	**Load W2 (KN)**	**Warm Cure Strenght 2 (Kpa)**	**CURING DAYS W2**	**Average Diamater W3 (m)**	**Load W3 (KN)**	**Warm Cure Strenght 3 (Kpa)**	**CURING DAYS W3**	**Average Diamater W4 (m)**	**Load W4 (KN)**	**Warm Cure Strenght 4 (Kpa)**	**CURING DAYS W4**
CB-WTD-050	2018-10-10	198 - 329 - 333	0.05177	1.04	494.07	7	0.05197	1.04	490.27	7	0.05197	1.070	504.42	7.0				
CB-WTD-051	2018-10-12	349-361-242	0.05166	0.73	348.28	5	0.05163	0.84	401.22	7	0.05211	0.810	379.80	7.0				
CB-WTD-053	2018-10-15	369 & 373	0.05203	0.27	126.99	2	0.05187	0.55	260.28	7	0.05157	0.470	225.02	7.0	0.05184	1	270.06	7
CB-WTD-057	2018-10-27	367-379	0.05150	0.13	62.41	2												
CB-WTD-060	2018-10-29	372-360																

VANE SHEAR TEST (FIELD)

Client: AEM
Project: Whale Tail Dike
Location: Amaruq

Date: 2018/10/18
Shift: day
QC rep.: Maxime Côté

Aparratus # 0EP016730
Apparatus Model: BDS160-SPL
Paddle used: Medium and big

Grout indentification: Cement bentonite
Grout batch: 966-968
Ground surface elevation (m): 157

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
381	10/17/2018 21:35	10/18/2018 9:30	1.00	156.00	11.9	0
381	10/17/2018 21:35	10/18/2018 9:45	2.00	155.00	12.2	10
381	10/17/2018 21:35	10/18/2018 10:00	3.00	154.00	12.4	22
381	10/16/2018 16:15	10/18/2018 10:15	4.00	153.00	42.0	>75
381	10/16/2018 16:15	10/18/2018 10:30	4.50	152.50	42.2	>120
381	10/16/2018 16:15	10/18/2018 10:45	5.00	152.00	42.5	>120
381	10/16/2018 16:15	10/18/2018 11:00	6.00	151.00	42.7	>130
381	10/16/2018 16:15	10/18/2018 11:15	7.00	150.00	43.0	>124.5
381	10/16/2018 16:15	10/18/2018 11:30	8.00	149.00	43.2	>115
381	10/16/2018 16:15	10/18/2018 11:45	9.000	148.00	43.5	>125

Remarks / Resisting to driving : s higher than the maximum of the gauge (160 Kpa). The results are the ga

Performed by : Maxime Côté
Date : 10/18/2018

Verified by : Maxime Côté
Date : 10/19/2018

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APPROVAL FORM

PROJECT : WTD Construction

PROJECT #: 658309

DOCUMENT #: 20181106-DS-01
(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift

DATE: 06/11/2018

TIME: 11:30
(24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation – Approval to drill tertiary piles

LOCATION Tertiary piles between	**PREVIOUS APPROVALS** Tertiary piles between:
Piles # 393 to 537	Last Pile approved #: 321 to 329, 335 to 341, 349 to 393
ELEVATION: ☐ varies _____ m	Details: 20181031-NS-02

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:
(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial Pile Location Surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical Deviation < 0.75%					✓
7. Pile spacing					✓
8. Continuity of slurry wall for installation of tertiaries (no gaps)					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary and secondary slurry strength for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
12	See tables attached.	✓		✓	

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	DAMIEN GAGNON		2018/11/06
QC REPRESENTATIVE	Maxime Côté		2018-11-06
QA REPRESENTATIVE	Angie Albaiza		06/11/2018
OWNER'S REPRESENTATIVE	Pier-Eric McDonald		2018/11/06

PILE NUMBER	PILE TYPE	STATION	ANCHORING DATE	VERIFICATION DATE	POURING DATE	GROUT BATCH	SAMPLING	TYPE OF TESTS
393	Primary	0+392.21	2018-10-17	2018-10-18	2018-10-19			
395	Secondary	0+393.71	2018-10-27	2018-10-28	2018-10-28	1230-1232		
397	Primary	0+395.21	2018-10-17	2018-10-18	2018-10-18			
399	Secondary	0+396.71	2018-10-28	2018-10-28	2018-10-28	1230-1232-1234-1236		
401	Primary	0+398.21	2018-10-17	2018-10-18	2018-10-19			
403	Secondary	0+399.71	2018-10-29	2018-10-29	2018-10-29	1322 to 1328-1350-1352	CB-WTD-061	UCS
405	Primary	0+401.21	2018-10-20	2018-10-24	2018-10-27	1180-1182-1184-1186		
407	Secondary	0+402.71	2018-10-29	2018-10-29	2018-10-29	1330-1332	CB-WTD-061	UCS
409	Primary	0+404.21	2018-10-17	2018-10-18	2018-10-19			
411	Secondary	0+405.71	2018-10-28	2018-10-28	2018-10-28	1246-1248		
413	Primary	0+407.21	2018-10-18	2018-10-18	2018-10-20	1098-1100	CB-WTD-055	Pin Hole, UCS
415	Secondary	0+408.71	2018-10-28	2018-10-28	2018-10-28	1238 to 1244, 1258-1260	CB-WTD-058, 059	UCS, bleeding
417	Primary	0+410.21	2018-10-18	2018-10-18	2018-10-20			
419	Secondary	0+411.71	2018-10-28	2018-10-28	2018-10-28	1242-1244-1246-1248		
421	Primary	0+413.21	2018-10-16	2018-10-16	2018-10-20			
423	Secondary	0+414.71	2018-10-31	2018-10-31	2018-10-31	1458-1460-1462-1464		Bleeding
425	Primary	0+416.21	2018-10-28	2018-10-28	2018-10-28	1246 to 1254		
427	Secondary	0+417.71	2018-10-31	2018-10-31	2018-10-31	1454-1456-1458-1460	CB-WTD-063	UCS, bleeding
429	Primary	0+419.21	2018-10-28	2018-10-28	2018-10-28	1254-1256-1258-1260	CB-WTD-059	UCS
431	Secondary	0+420.71	2018-11-01	2018-11-01	2018-11-01	1534-1536-1538-1540		
433	Primary	0+422.21	2018-10-29	2018-10-29	2018-10-30	1334-1336		
435	Secondary	0+423.71	2018-11-01	2018-11-01	2018-11-01	1578-1580-1586-1588		
437	Primary	0+425.21	2018-10-29	2018-10-30	2018-10-30	1362-1364-1366-1368		
439	Secondary	0+426.71	2018-11-01	2018-11-01	2018-11-01	1574-1576-1578-1580		
441	Primary	0+428.21	2018-10-29	2018-10-30	2018-10-30	1362-1364		
443	Secondary	0+429.71	2018-10-31	2018-11-01	2018-11-01	1530-1532		
445	Primary	0+431.21	2018-10-29	2018-10-30	2018-10-30	1358-1360	CB-WTD-062	UCS
447	Secondary	0+432.71	2018-11-02	2018-11-02	2018-11-03	1656-1658-1660-1662		
449	Primary	0+434.21	2018-10-31	2018-10-31	2018-10-31	1450-1452-1454-1456	CB-WTD-063	UCS
451	Secondary	0+435.71	2018-11-03	2018-11-03	2018-11-03	1702-1704		
453	Primary	0+437.21	2018-10-31	2018-10-31	2018-10-31	1446-1448-1450-1452		
455	Secondary	0+438.71	2018-11-02	2018-11-02	2018-11-03	1656-1658		
457	Primary	0+440.21	2018-10-31	2018-10-31	2018-10-31	1442-1444-1446-1448		
459	Secondary	0+441.71	2018-11-02	2018-11-02	2018-11-02	1652-1654-1656-1658		
461	Primary	0+443.21	2018-10-29	2018-10-29	2018-10-30	1334 to 1340-1346-1348		Bleeding
463	Secondary	0+444.71	2018-10-31	2018-11-01	2018-11-01	1526-1528		
465	Primary	0+446.21	2018-10-29	2018-10-29	2018-10-30	1338 to 1348		
467	Secondary	0+447.71	2018-10-31	2018-11-01	2018-11-01	1526-1528		
469	Primary	0+449.21	2018-10-29	2018-10-29	2018-10-30	1342-1344-1346-1348		
471	Secondary	0+450.71	2018-11-01	2018-11-01	2018-11-01	1554-1556-1566-1568		
473	Primary	0+452.21	2018-10-30	2018-10-30	2018-10-30	1390-1392-1394-1396		
475	Secondary	0+453.71	2018-11-01	2018-11-01	2018-11-01	1566-1568-		
477	Primary	0+455.21	2018-10-30	2018-10-30	2018-10-30	1394-1396-1398-1400		
479	Secondary	0+456.71	2018-11-01	2018-11-01	2018-11-01	1570-1572		
481	Primary	0+458.21	2018-10-30	2018-10-30	2018-10-30	1398-1400-1402-1404		
483	Secondary	0+459.71	2018-11-02	2018-11-02	2018-11-02	1648-1650-1652-1654		
485	Primary	0+461.21	2018-10-31	2018-10-31	2018-10-31	1474-1476		
487	Secondary	0+462.71	2018-11-02	2018-11-02	2018-11-02	1648-1650		
489	Primary	0+464.21	2018-10-30	2018-10-30	2018-10-30	1402-1404		
491	Secondary	0+465.71	2018-11-01	2018-11-01	2018-11-01	1570-1572-1574-1576		
493	Primary	0+467.21	2018-10-30	2018-10-30	2018-10-30	1402-1404-1406-1408		
495	Secondary	0+468.71	2018-11-03	2018-11-03	2018-11-03	1698-16700-16702-16704		
497	Primary	0+470.21	2018-10-31	2018-10-31	2018-10-31	1478-1480-1482-1484		
499	Secondary	0+471.71	2018-11-02	2018-11-02	2018-11-02	1644-1646-1648-1650		
501	Primary	0+473.21	2018-10-31	2018-10-31	2018-10-31	1482-1484-1486-1488	CB-WTD-064	
503	Secondary	0+474.71	2018-11-02	2018-11-02	2018-11-02	1612-1614		
505	Primary	0+476.21	2018-10-31	2018-10-31	2018-10-31	1486-1488-1490-1492	CB-WTD-064	
507	Secondary	0+477.71	2018-11-03	2018-11-03	2018-11-03	1694-1696-1698-1700		
509	Primary	0+479.21	2018-10-31	2018-10-31	2018-11-01	1518-1520-1522-1524		
511	Secondary	0+480.71	2018-11-03	2018-11-03	2018-11-03	1690-1692-1694-1696		
513	Primary	0+482.21	2018-10-31	2018-10-31	2018-11-01	1514-1516-1518-1520	CB-WTD-065	UCS
515	Secondary	0+483.71	2018-11-03	2018-11-03	2018-11-03	1690-1692		
517	Primary	0+485.21	2018-10-31	2018-10-31	2018-10-31	1512-1514-1514-1516	CB-WTD-065	UCS
519	Secondary	0+486.71	2018-11-03	2018-11-03	2018-11-03	1686-1688-1690-1692	CB-WTD-073	
521	Primary	0+488.21	2018-10-30	2018-10-31	2018-10-31	1434-1436		Vane
523	Secondary	0+489.71	2018-11-03	2018-11-03	2018-11-03	1682-1684-1686-1688	CB-WTD-073	
525	Primary	0+491.21	2018-10-30	2018-10-31	2018-10-31	1434-1436-1438-1440		
527	Secondary	0+492.71	2018-11-01	2018-11-01	2018-11-01			
529	Primary	0+494.21	2018-10-30	2018-10-31	2018-10-31	1438-1440		
531	Secondary	0+495.71	2018-11-03	2018-11-03	2018-11-03	1678-1680-1682-1684		
533	Primary	0+497.21	2018-10-31	2018-10-31	2018-10-31	1490-1492		
535	Secondary	0+498.71	2018-11-03	2018-11-03	2018-11-03	1672-1674-1676-1678		

Sampling #	Sampling date	Pile Number	Cure	UCS test #	Average Diamater (m)	Load W (kN)	Strength (kPa)	Curing days
CB-WTD-055	20/10/2018	413	Warm	1	0.05142	0.25	120.39	2
CB-WTD-055	20/10/2018	413	Warm	2	0.05185	0.71	336.26	7
CB-WTD-055	20/10/2018	413	Warm	3	0.05185	0.68	322.05	7
CB-WTD-058	28/10/2018	415	Warm	1	0.05183	0.42	199.07	2
CB-WTD-058	28/10/2018	415	Warm	2	0.05507	0.3	125.95	2
CB-WTD-058	28/10/2018	415	Warm	3	0.05213	1.08	506.01	7
CB-WTD-059	29/10/2018	415-429	Warm	1	0.05131	0.61	295.01	8
CB-WTD-059	29/10/2018	415-429	Warm	2	0.05165	0.62	295.91	8
CB-WTD-059	29/10/2018	415-429	Warm	3	0.05179	0.63	299.06	8
CB-WTD-061	29/10/2018	403-407	Warm	1	0.05189	0.18	85.12	2
CB-WTD-062	30/10/2018	380-445	Warm	1	0.05191	0.27	127.58	2
CB-WTD-063	31/10/2018	449-427	Warm	1	0.0514	0.24	115.66	2
CB-WTD-065	01/11/2018	517-513	Warm	1	0.05191	0.23	108.68	2

VANE SHEAR TEST (FIELD)

Client:	AEM	**Date:**	10/31/2018
Project:	Whale Tail Dike	**Shift:**	Night
Location:	Amaruq	**QC rep.:**	Cédrick F.T.

Aparratus #	0EP016730	**Grout indentification:**	Cement bentonite
Apparatus Model:	BDS160-SPL	**Grout batch:**	1434-1436
Paddle used:	Small one	**Ground surface elevation (m):**	157

Vane shear test

Secant Pile		Test hour **(mm/dd/yyyy hh:mm)**	Depth **(m)**	Elevation **(m)**	Curing time **(h)**	Shear Resistance **(kPa)**
#SP/Stations	Last batch hour **(mm/dd/yyyy hh:mm)**					
521	10/31/2018 2:30	10/31/2018 21:00	2.50	154.50	18.5	55
521	10/31/2018 2:30	10/31/2018 21:05	3.50	153.50	18.6	92
521	10/31/2018 2:30	10/31/2018 21:10	4.50	152.50	18.7	127
521	10/31/2018 2:30	10/31/2018 21:15	5.50	151.50	18.8	110
521	10/31/2018 2:30	10/31/2018 21:20	6.50	150.50	18.8	110
521	10/31/2018 2:30	10/31/2018 21:25	7.50	149.50	18.9	90
521	10/31/2018 2:30	10/31/2018 21:30	8.50	148.50	19.0	90

Remarks / Resisting to driving : Maximum Depth bedrock S.P # 521 = 148.321 m

Performed by :	Cédrick Fillon Tremblay	Verified by :	Cédrick Fillon Tremblay
Date :	10/31/2018	Date :	11/1/2018

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-17

DOCUMENT #: 20181117-DS-01 **TIME:** 7:05

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation - APPROVAL TO DRILL TERTIARY PILES

LOCATION	**PREVIOUS APPROVALS**
Piles # TERTIARY PILES BETWEEN #537 TO 661	**Last Pile approved #:** 393 TO 537
	Details: 20181106-DS-01
ELEVATION: ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial pile location surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
12	SEE TABLES ATTACHED.	✓		✓	

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/17
QC REPRESENTATIVE	Maxime Côté		18-11-17
QA REPRESENTATIVE	MATHIEU JÉZÉQUEL		2018-11-17
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-17

Pile #	Pile Type	Pouring date	Grout batch	Sampling	Type of test
537	Primary	2018-10-31	1494-1496		
539	Secondary	2018-11-04	1758-1760		
541	Primary	2018-10-31	1510-1512		
543	Secondary	2018-11-05			
545	Primary	2018-11-02	1640-1642-1644-1648		
547	Secondary	2018-11-05	1874-1876	CB-WTD-078	UCS
549	Primary	2018-11-02	1636-1638-1640-1642		
551	Secondary	2018-11-04	1778-1780		
553	Primary	2018-11-02	1628 to 1642		
555	Secondary	2018-11-05	1802 to 1812 and 1830-1832-1834-1836		
557	Primary	2018-11-02	1624-1626-1628-1630		
559	Secondary	2018-11-05	1802 to 1812		
561	Primary	2018-11-02	1620-1622-1624-1626	CB-WTD-071	UCS
563	Secondary	2018-11-05	1798-1800-1802-1804		
565	Primary	2018-11-02	1616-1618-1620-1622	CB-WTD-071	UCS
567	Secondary	2018-11-08	2064-2066		
569	Primary	2018-11-05	1790 to 1800		
571	Secondary	2018-11-08	2060-2062-2064-2066		
573	Primary	2018-11-04	1786-1788-1790-1792		
575	Secondary	2018-11-08	2060-2062		
577	Primary	2018-11-04	1782-1784-1786-1788		
579	Secondary	2018-11-11	2156-2158	CB-WTD-088	
581	Primary	2018-11-05	1870-1872-1874-1876		
583	Secondary	2018-11-11	2152-2154-2156-2158	CB-WTD-088	
585	Primary	2018-11-05	1838-1840-1842-1844	CB-WTD-077	Pin Hole, UCS
587	Secondary	2018-11-11	2148-2150		
589	Primary	2018-11-05	1846-1848	CB-WTD-078	UCS
591	Secondary	2018-11-11	2144-2146-2148-2150		
593	Primary	2018-11-04	1750-1752-1754-1756		
595	Secondary	2018-11-08	2056-2058		
597	Primary	2018-11-04	1742-1744-1746-1748		
599	Secondary	2018-11-08	2052-2054-2056-2058		
601	Primary	2018-11-04	1742-1744		
603	Secondary	2018-11-11	2136-2138-2144-2146	CB-WTD-087	
605	Primary	2018-11-07	1960-1962-1964-1968-1968-1970		
607	Secondary	2018-11-11	2132-2134-2136-2138		
609	Primary	2018-11-05	1854-1856-1862-1864		
611	Secondary	2018-11-13	2236-2238-2240-2242		
613	Primary	2018-11-05	1858-1860-1866-1868	CB-WTD-078	UCS
615	Secondary	2018-11-11	2128-2130-2132-2134		
617	Primary	2018-11-06	1942-1944	CB-WTD-080	UCS
619	Secondary	2018-11-11	2124-2126-2128-2130		
621	Primary	2018-11-05	1858-1860-1862-1864	CB-WTD-078	UCS
623	Secondary	2018-11-11	2124-2126		
625	Primary	2018-11-05	1862-18641866-1868	CB-WTD-078	UCS
627	Secondary	2018-11-11	2120-2122-2124-2126		
629	Primary	2018-11-04	1738-1740		
631	Secondary	2018-11-10	2102-2104	CB-WTD-084	
633	Primary	2018-11-04	1730-1732-1734-1736		
635	Secondary	2018-11-10	2098-2100		
637	Primary	2018-11-04	1730-1732		
639	Secondary	2018-11-12			
641	Primary	2018-11-06	1914-1916		
643	Secondary	2018-11-12	2176-2178-2180-2182		
645	Primary	2018-11-06	1910-1912-1914-1916		
647	Secondary	2018-11-11	2168-2170-2176-2178		
649	Primary	2018-11-06	1906-1908-1910-1912		
651	Secondary	2018-11-14	2354-2356-2358-2360		
653	Primary	2018-11-11	2160-2162		
655	Secondary	2018-11-14	2354-2356		
657	Primary	2018-11-11	2160-2162-2164-2166		
659	Secondary	2018-11-14	2350-2352	CB-WTD-093	
661	Primary	2018-11-11	2164-2166		

SAMPLING NUMBER	Sampling date	Pile Number	Cure	UCS test #	Strength (kPa)	Curing days
CB-WTD-071	2018-11-02	561-557	Warm	1	291	7
CB-WTD-071	2018-11-02	561-557	Warm	2	290	7
CB-WTD-071	2018-11-02	561-557	Warm	3	245	7
CB-WTD-077	2018-11-05	585	Warm	1	378	8
CB-WTD-077	2018-11-05	585	Warm	2	369	8
CB-WTD-077	2018-11-05	585	Warm	3	365	8
CB-WTD-078	2018-11-06	547 Top #585-589-609-621-625-472	Warm	1	189	2
CB-WTD-078	2018-11-06	547 Top #585-589-609-621-625-472	Warm	2	284	4
CB-WTD-078	2018-11-06	547 Top #585-589-609-621-625-472	Warm	3	436	8
CB-WTD-078	2018-11-06	547 Top #585-589-609-621-625-472	Warm	4	378	8
CB-WTD-078	2018-11-06	547 Top #585-589-609-621-625-472	Warm	5	437	8
CB-WTD-080	2018-11-06	617 and top #418,422,436	Warm	1	167	4
CB-WTD-080	2018-11-06	617 and top #418,422,436	Warm	2	292	8
CB-WTD-080	2018-11-06	617 and top #418,422,436	Warm	3	344	8
CB-WTD-080	2018-11-06	617 and top #418,422,436	Warm	4	297	8
CB-WTD-084	2018-11-10	631 top # 470,466,456,520,474	Warm	1	299	7
CB-WTD-084	2018-11-10	631 top # 470,466,456,520,474	Warm	2	276	7
CB-WTD-084	2018-11-10	631 top # 470,466,456,520,474	Warm	3	272	7
CB-WTD-087	2018-11-11	603-607 & top. 721-725	Warm	1	276	6
CB-WTD-088	2018-11-11	582-579	Warm	1	182	6
CB-WTD-093	2018-11-14		Warm	1	162	3

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-20

DOCUMENT #: 20181120-DS-01 **TIME:** 14:20

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation - APPROVAL TO DRILL TERTIARY PILES

LOCATION	PREVIOUS APPROVALS
Piles # TERTIARY PILES BETWEEN #661 AND 701	**Last Pile approved #:** 537 TO 661
	Details: 20181117-DS-01
ELEVATION: ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial pile location surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
12	SEE TABLES ATTACHED.	✓		✓	

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/20.
QC REPRESENTATIVE	Jean-Philippe Lessard		2018-11-20
QA REPRESENTATIVE	MATHIEU SÉZÉQUEL		2018-11-20
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-20

Pile #	Pile Type	Pouring date	Grout batch	Sampling	Type of test
661	Primary	2018-11-11	2164-2166		
663	Secondary	2018-11-16	2450-2452		
665	Primary	2018-11-13	2240-2242		
667	Secondary	2018-11-14	2342-2344-2346-2348-2350-2352	CB-WTD-093	UCS
669	Primary	2018-11-13	2240-2242-2244-2246		
671	Secondary	2018-11-14	2338-2340-2342-2344		
673	Primary	2018-11-12	2208-2210		
675	Secondary	2018-11-15	2402-2404-2406-2408		
677	Primary	2018-11-12	2200-2202-2208-2210		
679	Secondary	2018-11-15	2398-2400	CB-WTD-095	UCS
681	Primary	2018-11-07			
683	Secondary	2018-11-14	2338-2340		
685	Primary	2018-11-07	1952-1954-1956-1958-1960-1962		
687	Secondary	2018-11-13	2304-2306-2308-2310		
689	Primary	2018-11-07	1952-1954		
691	Secondary	2018-11-15	2398-2400	CB-WTD-095	UCS
693	Primary	2018-11-12	2196-2198-2200-2202		
695	Secondary	2018-11-15	2390-2392-2398-2400	CB-WTD-095	UCS
697	Primary	2018-11-12	2196-2198		
699	Secondary	2018-11-17	2554-2556		
701	Primary	2018-11-13	2268-2270-2272-2274		

SAMPLING NUMBER	Sampling date	Cure	Pile Number	UCS test #	Strength (kPa)	Curing days
CB-WTD-093	2018-11-14	Warm	667 & 659	1	162	3
CB-WTD-093	2018-11-14	Warm	667 & 659	2	228	6
CB-WTD-095	2018-11-15	Warm	695, 691 & 679	1	255	5

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-22

DOCUMENT #: 20181122-NS-02 **TIME:** 20:00

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation - APPROVAL TO DRILL TERTIARY PILES

LOCATION	**PREVIOUS APPROVALS**
Piles # TERTIARY PILES BETWEEN # 967 AND 975	**Last Pile approved #:** 661 TO 701
	Details: 20181120-DS-01
ELEVATION: ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial pile location surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
12	SEE TABLES ATTACHED	✓			

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/22.
QC REPRESENTATIVE	Eudrick Fillion Tremblay		2018-11-22
QA REPRESENTATIVE	JONATHAN LEBLANC	Jonathan Leblanc	2018-11-22
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-22

Pile #	*Pile type*	*Pouring date*	*Grout batch*	*Sampling*	*Type of test*
967	Secondary	2018-11-19	2690-2692	CB-WTD-105	UCS
969	Primary	2018-11-19	2690-2692	CB-WTD-105	UCS
971	Secondary	2018-11-19	2686-2688-2690-2692	CB-WTD-104 & 105	UCS
973	Primary	2018-11-19	2686-2688	CB-WTD-104	UCS
975	Secondary	2018-11-19	2686-2688	CB-WTD-104	UCS

SAMPLING NUMBER	Sampling date	Pile Number	Cure	UCS test #	Strength (kPa)	Curing days
CB-WTD-104	2018-11-19	975-973-971	Warm	1	123.90	2
CB-WTD-105	2018-11-19	971-969-967	Warm	1	104.80	2

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 2018-11-22

DOCUMENT #: 2018 11 22 - NS - 03 **TIME:** 01:30

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation APPROVAL TO DRILL TERTIARY PILE

LOCATION	**PREVIOUS APPROVALS**
Piles # TERTIARY PILES BETWEEN # 701 to 857.	**Last Pile approved #:** 967 TO 975
	Details: 2018 11 22 - NS - 03
ELEVATION: ☐ varies _____ m	

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial pile location surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
12	SEE TABLES ATTACHED	✓			

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Christopher Gilbert		2018/11/22
QC REPRESENTATIVE	Cédrick Fillion Tremblay		2018-11-22
QA REPRESENTATIVE	JONATHAN LEBLANC		2018-11-22
OWNER'S REPRESENTATIVE	Patrice Gagnon		2018-11-22

Pile #	*Pile type*	*Pouring date*	*Grout batch*	*Sampling*	*Type of test*
701	Primary	2018-11-13	2268-2270-2272-2274		
703	Secondary	2018-11-18	2558-2560		
705	Primary	2018-11-13	2244-2246-2248-2250		
707	Secondary	2018-11-16	2502-2504-2506-2508		
709	Primary	2018-11-13	2248-2250		
711	Secondary	2018-11-16	2494-2496-2498-2500-2502-2504		
713	Primary	2018-11-13	2256-2258-2264-2266		
715	Secondary	2018-11-16	2446-2448-2450-2452		
717	Primary	2018-11-12	2192-2194		
719	Secondary	2018-11-15	2390-2392		
721	Primary	2018-11-11	2116-2118	CB-WTD-086	UCS
723	Secondary	2018-11-16	2494-2496		
725	Primary	2018-11-11	2112-2114-2116-2118	CB-WTD-086 & CB-WTD-087	UCS
727	Secondary	2018-11-16	2490-2492-2494-2496		
729	Primary	2018-11-13	2300-2302-2304-2306		
731	Secondary	2018-11-16	2442-2444-2446-2448		
733	Primary	2018-11-12	2264-2266		
735	Secondary	2018-11-16	2442-2444		
737	Primary	2018-11-12	2192-2194		
739	Secondary	2018-11-17	2538-2540-2542-2544		
741	Primary	2018-11-13	2296-2298-2300-2302		
743	Secondary	2018-11-17	2542-2544-2546-2548	CB-WTD-099	
745	Primary	?			
747	Secondary	2018-11-18	2558-2560-2562-2564		
749	Primary	2018-11-13	2296-2298		
751	Secondary	2018-11-17	2546-2548	CB-WTD-099	
753	Primary	2018-11-13	2288-2290-2292-2294		
755	Secondary	2018-11-16	2486-2488-2490-2492		
757	Primary	2018-11-12	2184-2186		
759	Secondary	2018-11-15	2382-2384		
761	Primary	2018-11-13	2232-2234-2236-2238		
763	Secondary	2018-11-15	2378-2380-2382-2384	CB-WTD-094	UCS
765	Primary	2018-11-12	2228-2230-2232-2234		
767	Secondary	2018-11-15	2226-2228		
769	Primary	2018-11-12	2180-2182-2184-2186		
771	Secondary	2018-11-15	2226-2228-2230-2232		
773	Primary	2018-11-12	2180-2182		
775	Secondary	2018-11-15	2230-2232-2234-2236	CB-WTD-096	UCS
777	Primary	2018-11-13	2272-2274-2276-2278		
779	Secondary	2018-11-16	2486-2488		
781	Primary	2018-11-13	2280-2282-2276-2278		
783	Secondary	2018-11-16	2234-2236-2238-2240	CB-WTD-096	UCS
785	Primary	2018-11-13			
787	Secondary	2018-11-16	2478-2480	CB-WTD-097	UCS

789	Primary	2018-11-14	2330-2332		
791	Secondary	2018-11-16	2478-2480	CB-WTD-097	UCS
793	Primary	2018-11-14	2330-2332		
795	Secondary	2018-11-18	2470-2472-2474-2476-2478-2480	CB-WTD-097	UCS
797	Primary	2018-11-14	2324-2330-2332		
799	Secondary	2018-11-16	2466-2468-2470-2472		
801	Primary	2018-11-12	2224-2226-2228-2230		
803	Secondary	2018-11-15	2374-2376		
805	Primary	2018-11-12	2220-2222		
807	Secondary	2018-11-15	2370-2372-2374-2376		
809	Primary	2018-11-12	2216-2218-2220-2222	CB-WTD-089	UCS
811	Secondary	2018-11-16	2462-2464-2466-2268		
813	Primary	2018-11-14	2320-2322-2324		
815	Secondary	2018-11-16	2458-2460-2462-2464		
817	Primary	2018-11-13	2288-2290		
819	Secondary	2018-11-16	2458-2460		
821	Primary	2018-11-13	2284-2286-2288-2290	CB-WTD-091	UCS
823	Secondary	2018-11-17			
825	Primary	2018-11-14	2366-2368-2370-2372		
827	Secondary	2018-11-17	2514-2516-2522-2524	CB-WTD-098	
829	Primary	2018-11-14	2362-2364-2366-2368		
831	Secondary	2018-11-17	2514-2516	CB-WTD-098	
833	Primary	2018-11-14	2362-2364		
835	Secondary	2018-11-17	2538-2540		
837	Primary	2018-11-15	2414-2416		
839	Secondary	2018-11-17	2530-2532		
841	Primary	2018-11-15	2410-2412-2414-2416		
843	Secondary	2018-11-17	2526-2528		
845	Primary	2018-11-15	2410-2412		
847	Secondary	2018-11-17	2526-2528-2530-2532		
849	Primary	2018-11-14	2316-2318-2320-2322		
851	Secondary	2018-11-17	2510-2512		
853	Primary	2018-11-14	2316-2318	CB-WTD092	UCS
855	Secondary	2018-11-17	2506-2508-2510-2512		
857	Primary	2018-11-14	2312-2314-2316-2318	CB-WTD092	UCS

SAMPLING NUMBER	Sampling date	Pile Number	Cure	UCS test #	Strength (kPa)	Curing days
CB-WTD-086	2018-11-11	725-721	Warm	1	104.64	2
CB-WTD-086	2018-11-11	725-721	Warm	2	100.23	2
CB-WTD-086	2018-11-11	725-721	Warm	3	190.61	7
CB-WTD-086	2018-11-11	725-721	Warm	4	211.64	7
CB-WTD-086	2018-11-11	725-721	Warm	5	190.76	7
CB-WTD-087	2018-11-11	603-607 & top. 721-725	Warm	1	275.64	6
CB-WTD-087	2018-11-11	603-607 & top. 721-725	Warm	2	287.70	7
CB-WTD-087	2018-11-11	603-607 & top. 721-725	Warm	3	292.38	7
CB-WTD-087	2018-11-11	603-607 & top. 721-725	Warm	4	262.60	7
CB-WTD-089	2018-11-12	809 & top 757-769-773	warm	1	563.19	8
CB-WTD-089	2018-11-12	809 & top 757-769-773	warm	2	556.91	8
CB-WTD-089	2018-11-12	809 & top 757-769-773	Warm	3	556.27	8
CB-WTD-091	2018-11-13	821	Warm	1	96.61	2
CB-WTD-091	2018-11-13	821	Warm	2	236.15	7
CB-WTD-091	2018-11-13	821	Warm	3	231.80	7
CB-WTD-091	2018-11-13	821	Warm	4	204.12	7
CB-WTD-092	2018-11-14	857, 853 & 849	Warm	1	213.53	7
CB-WTD-092	2018-11-14	857, 853 & 849	Warm	2	208.46	7
CB-WTD-092	2018-11-14	857, 853 & 849	Warm	3	185.35	7
CB-WTD-094	2018-11-15	763	Warm	1	100.85	1
CB-WTD-096	2018-11-16	775 & 783	Warm	1	229.44	2
CB-WTD-096	2018-11-16	775 & 783	Warm	2	208.87	2
CB-WTD-096	2018-11-16	775 & 783	Warm	3	220.91	2
CB-WTD-097	2018-11-16	795, 791 & 787	Warm	1	137.98	2
CB-WTD-097	2018-11-16	795, 791 & 787	Warm	2	139.33	2
CB-WTD-097	2018-11-16	795, 791 & 787	Warm	3	148.30	2

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APPROVAL FORM

PROJECT : **WTD Construction**

PROJECT #: 658309 **DATE:** 03/12/2018

DOCUMENT #: 20181203-DS-01 **TIME:** 10:10

(YYYYMMDD-DS/NS-01) DS/NS = Day/Night shift (24 hour clock)

APPROVAL FOR :

- ☐ Foundation approval (footprint)
- ☐ Foundation approval (key trench)
- ☐ Fill placement: _____
- ☐ CB cut-off wall approval
- ☒ Other: Secant Pile Installation : Approval to drill tertiary piles

LOCATION	Tertiary piles between 857 and 967	**PREVIOUS APPROVALS**	Tertiary piles between
Piles #		**Last Pile approved #:**	967 to 975
		Details:	20181122-NS-03
ELEVATION:	☐ varies _____ m		

COMPLIANCE WITH TECHNICAL SPECIFICATIONS:

(Add additional items if needed)

	VERIFICATIONS DONE BY: QA Y	QA N	QC Y	QC N	N/A
1. Lines and Grades (Elevation)					✓
2. Initial pile location surveyed					✓
3. Casing shoe seat entirely on bedrock					✓
4. Depth of rock socket > 1 m					✓
5. Offset < 50 mm					✓
6. Vertical deviation < 0.75%					✓
7. Pile spacing (0.80 m, 0.75 m)					✓
8. Continuity of slurry wall (no gaps) with adjacent piles					✓
9. Cleaning (re-cleaning) of pile bottom					✓
10. Free of ice/snow					✓
11. CB slurry field testing (density, viscosity, bleeding)					✓
12. Primary/secondary slurry UCS for installation of tertiaries > 50 kPa	✓		✓		
13. Placement of slurry (slurry dilution, etc.)					✓

	QA		QC		N/A
	Y	N	Y	N	
14. Top-ups with slurry (approx. volume)					✓
15. UCS and permeability of set slurry					✓
16.					
17.					
18.					
19.					
20.					

DETAILS

(Refer to list above for item #)

ITEM		APPROVED BY: QA Y	QA N	QC Y	QC N
12	see tables attached	✓		✓	

APPROVED BY:	NAME	SIGNATURE	DATE
CONTRACTOR REPRESENTATIVE	Frederic Tremblay		03/12/2018
QC REPRESENTATIVE	Angie Arbaiza		03/12/2018
QA REPRESENTATIVE	Dominic Fournelle		03/12/2018
OWNER'S REPRESENTATIVE	Pier-Eric McDonald		2018/12/03

PILE NUMBER	PILE TYPE	POURING DATE	GROUT BATCH	SAMPLING	TYPE OF TESTS
857	Primary	2018-11-14	2312-2314-2316-2318	CB-WTD-092	UCS
859	Secondary	2018-11-28	3204-3206		
861	Primary	2018-11-26	3040-3042-3044-3046		
863	Secondary	2018-11-28	3196-3198-3204-3206		
865	Primary	2018-11-26	3080-3082-3084-3086		
867	Secondary	2018-11-28	3196-3198		
869	Primary	2018-11-26	3032-3034		
871	Secondary	2018-11-28	3192-3194	CB-WTD-121	UCS
873	Primary	2018-11-25	3028-3030-3032-3034		
875	Secondary	2018-12-01			
877	Primary	2018-11-26	3044-3046		
879	Secondary	2018-11-28	3152-3154-3156-3158-3160-3162	CB-WTD-120	
881	Primary	2018-11-25	3024-3026-3028-3030	CB-WTD-116	UCS
883	Secondary	2018-11-30	3336-3338-3340-3342		
885	Primary	2018-11-28	3148-3150-3152-3154		
887	Secondary	2018-11-30	3336-3338		
889	Primary	2018-11-27	3116-3118		
891	Secondary	2018-11-29	3268-3270-3272-3274	CB-WTD-123	UCS
893	Primary	2018-11-27	3108-3110-3112-3114		
895	Secondary	2018-12-01	3428-3430-3432-3434		
897	Primary	2018-11-26			
899	Secondary	2018-11-29	3268-3270		
901	Primary	2018-11-26	3076-3078-3080-3082		
903	Secondary	2018-11-29	3264-3266		
905	Primary	2018-11-26	3072-3074-3076-3078		
907	Secondary	2018-11-28	3224-3226-3228-3230	CB-WTD-122	
909	Primary	2018-11-25	2996-2998		
911	Secondary	2018-11-27	3144-3146-3148-3150		
913	Primary	2018-11-25	2992-2994-2996-2998		
915	Secondary	2018-11-27	3144-3146		
917	Primary	2018-11-25	2992-2994		
919	Secondary	2018-11-29	3300-3302-3304-3306		
921	Primary	2018-11-27	3104-3106		
923	Secondary	2018-11-29	3300-3302		
925	Primary	2018-11-27	3104-3106-3108-3110		
927	Secondary	2018-11-29	3260-3262-3264-3266		
929	Primary	2018-11-27	3108-3110		
931	Secondary	2018-11-29	3228-3230	CB-WTD-122	
933	Primary	2018-11-27	3140-3142-3144-3146		
935	Secondary	2018-11-30	3348-3350-3352-3354		
937	Primary	2018-11-28	3188-3190-3192-3194	CB-WTD-121	UCS
939	Secondary	2018-11-30	3348-3350		
941	Primary	2018-11-28	3188-3190		
943	Secondary	2018-11-30	3348-3350		
945	Primary	2018-11-29	3256-3258		
947	Secondary	2018-11-30	3344-3346	CB-WTD-125	UCS
949	Primary	2018-11-29	3256-3258		
951	Secondary	2018-11-30	3376-3378		
953	Primary	2018-11-30	3308-3310		
955	Secondary	2018-12-01	3392-3394		

PILE NUMBER	*PILE TYPE*	*POURING DATE*	GROUT BATCH	SAMPLING	TYPE OF TESTS
957	Primary	2018-11-30	3308-3310		
959	Secondary	2018-12-01	3392-3394		
961	Primary	2018-11-30	3304-3306		
963	Secondary	2018-12-01	3388-3390-3392-3394		
965	Primary	2018-11-30	3304-3306		
967	Secondary	2018-11-19	2690-2692	CB-WTD-105	UCS

SAMPLING NUMBER	Sampling date	Pile Number	Cure	UCS test #	Strength (kPa)	Curing days	Type of mix
CB-WTD-092	2018-11-14	857, 853 & 849	Warm	1	213.5	7	MIX C (GU) half Arbo
CB-WTD-092	2018-11-14	857, 853 & 849	Warm	2	208.5	7	MIX C (GU) half Arbo
CB-WTD-092	2018-11-14	857, 853 & 849	Warm	3	185.3	7	MIX C (GU) half Arbo
CB-WTD-105	2018-11-19	971-969-967	Warm	1	104.8	2	MIX C (GU) half Arbo
CB-WTD-105	2018-11-19	971-969-967	Warm	2	279.9	11	MIX C (GU) half Arbo
CB-WTD-105	2018-11-19	971-969-967	Warm	3	274.7	11	MIX C (GU) half Arbo
CB-WTD-106	2018-11-20	618-510-506	Warm	1	133.9	2	MIX C (GU) half Arbo
CB-WTD-106	2018-11-20	618-510-506	Warm	2	227.5	7	MIX C (GU) half Arbo
CB-WTD-106	2018-11-20	618-510-506	Warm	3	212.3	7	MIX C (GU) half Arbo
CB-WTD-106	2018-11-20	618-510-506	Warm	4	244.6	7	MIX C (GU) half Arbo
CB-WTD-116	2018-11-25	881	Warm	1	311.4	7	MIX C (GU) half Arbo
CB-WTD-116	2018-11-25	881	Warm	2	276.4	7	MIX C (GU) half Arbo
CB-WTD-116	2018-11-25	881	Warm	3	305.1	7	MIX C (GU) half Arbo
CB-WTD-121	2018-11-28	937-871	Warm	1	152.6	2	MIX C (GU) half Arbo
CB-WTD-121	2018-11-28	937-871	Warm	2	164.4	2	MIX C (GU) half Arbo
CB-WTD-123	2018-11-29	891-830	Warm	1	150.9	2	MIX C (GU) half Arbo
CB-WTD-126	2018-12-01	668B-816	Warm	1	142.4	1	Transition GU/HE
CB-WTD-127	2018-12-01	816-820	Warm	1	150.2	1	Mix HE half arbo
CB-WTD-128	2018-12-01	910-906-922	Warm	1	128.8	1	Mix HE half arbo

Appendix H-8

Letter for Henry Drilling Demobilization

SNC-LAVALIN INC.
5500 des Galeries Blvd., Suite 200
Quebec (Qc)
Canada G2K 2E2
Tel: (418) 621-5500
Fax: (418) 621-8887

CONFIDENTIAL

Quebec, December 4th, 2018

Ms. Julie Bélanger
Project Superintendent – Amaruq
Agnico Eagle Mines Limited | Meadowbank Division
Suite 540, Baker Lake
Nunavut (Canada) X0C 0A0

By e-mail: *julie.belanger@agnicoeagle.com*

Subject: Demobilization of Henry Drilling | Secant Pile Cutoff Wall Contractor

---

Dear Ms. Bélanger,

The aim of this letter is to express the opinion of SNC-Lavalin on demobilization stage by Henry Drilling (HD), the Contractor selected by AEM for the construction of the secant pile cut-off wall at Whale Tail Dike.

The key element in SNC-Lavalin decision is the continuity of the wall, i.e. the presence of no gaps[i] between the adjacent piles. We understand from the data received by Surveyor (KCG) and QC (GHD) that all the secant piles have been installed from Station 0+088 to Station 0+832 as planned. The Surveyor and QC have not reported any existing gaps between the adjacent secant piles in the cut-off wall from top of fine filter materials to bedrock surface.

As per design point of view, based on the above, SNC-Lavalin does not see other elements that may require to drill extra piles. In addition, for the Quality Assurance of the Work, the deficiencies that were observed by QA on Cement-Bentonite slurry production and subsequent processes were reported to AEM. As such, AEM can proceed with demobilization of Henry Drilling.

We wish that this letter answer your questions.

Sincerely,

SNC-LAVALIN INC.

Yohan Jalbert, Project Manager
Mining and Metallurgy, SNC-Lavalin Inc.

cc. Dominic Tremblay
Ali Ameli

---

[i] The term "Gap" is defined here as the potential opening between the adjacent piles, which was to be remedied by HD with installation of an additional (fourth) pile near the opening location, as practiced in Piles # 374B and 678B.

Appendix I

Reports

Appendix I-1

Quality Assurance - Shift reports

SNC·LAVALIN

SITE REPORT
(Detailed)

Document number

Visit date	Time (Start/End)	Project No.	Prepared by
July 27, 2018	6:00AM/6:00PM		TEZERA FIREW AZMACH

Project	Client
Construction of WTD	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☑ Sunny ☑ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☑ Light ☐ Moderate ☐ Strong, gusts

Temperature : 15 °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☑ Yes ☐ No Inspection report or other :

↳ placed in project report

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Supervision of ~~one~~ excavation in the east abutment area which is still underway

→ Visual observation of stockpile of the fill materials (fine and coarse): the stockpile for the coarse fill material seems to have considerable fine fraction. Test results need to be carefully looked into.

→ Visual observation of North access road construction (check videos in project folder)

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

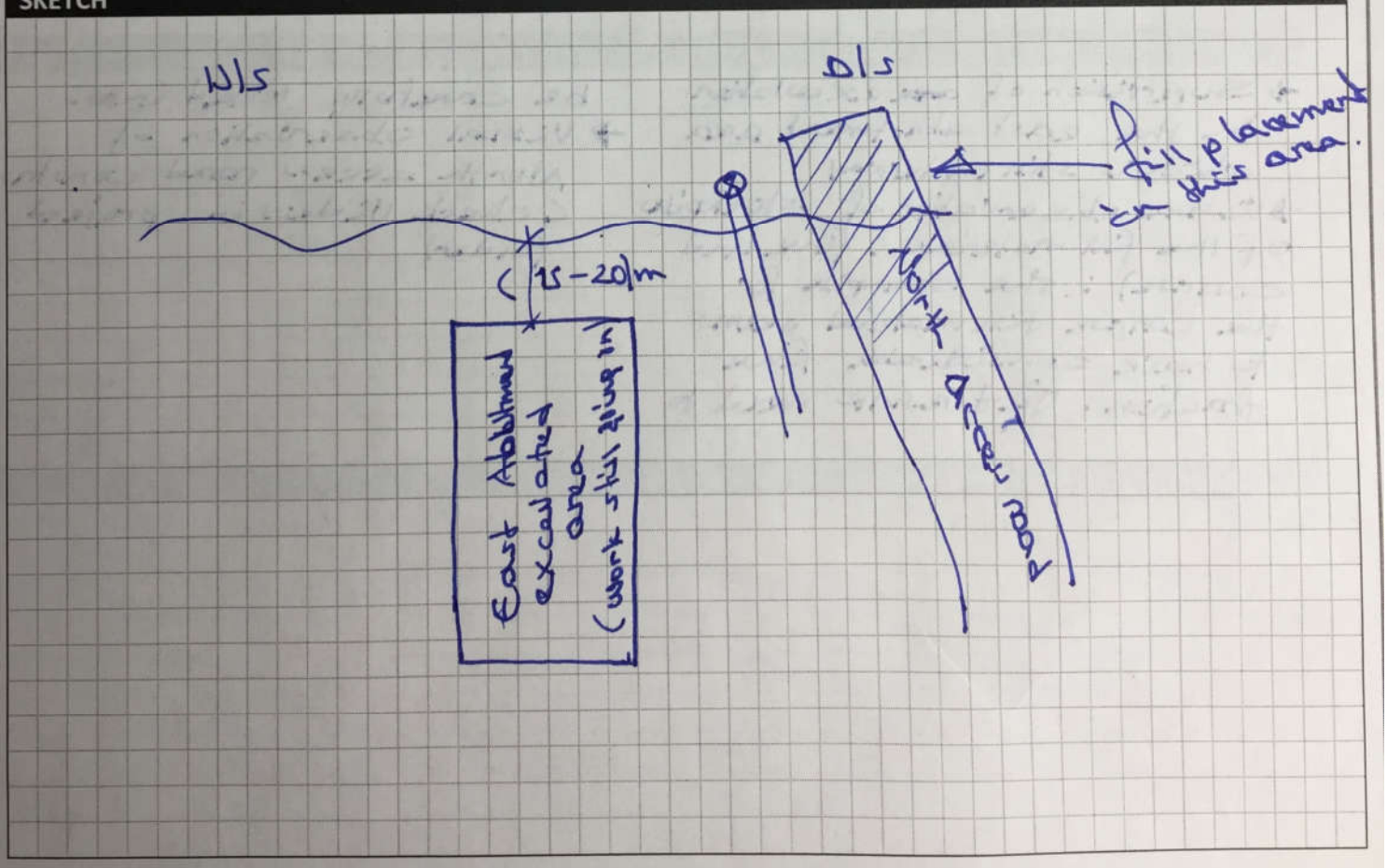
Elements	Location	Scope and comments
→ East abutment	→ East Abutment	→ Not yet fully excavated
→ Access road	→ North of east abutment (d/s of dike)	→ still in progress

SAFE AND SAFETY REMARKS

Issued by : Signature — July 27, 2018 (Date)

Verified by : Signature — Date

SKETCH



SNC·LAVALIN

SITE REPORT
(Detailed)

Document number

Visit date	Time (Start/End)	Project No.	Prepared by
2018-07-27/28	18:00/1:00		M. D.-SÉZÉQUEL

Project: CONSTRUCTION OF WHALE TAIL DIKE

Client: Agnico Eagle

Consultant: SNC-Lavalin

Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☒ Rain ☒ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 10 °C

Comments : Storm with thunder and lightning from 19:00 to 19:40 (work suspended)

Appendix : ☐ Yes ☒ No Pictures ☐ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

Supervision of access road construction

- visual inspection of gradation
- fill thickness
- compaction
- rockfill platform elevation

All those aspects were acceptable.

* Shift ended at 1:00 due to problems with WTP

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Access roads made of rockfill material	East abutment	Not within the footprint of the dike
	- North side (upstream) 0+777 @ 0+755	
	- South side (downstream) 0+720 @ 0+700	

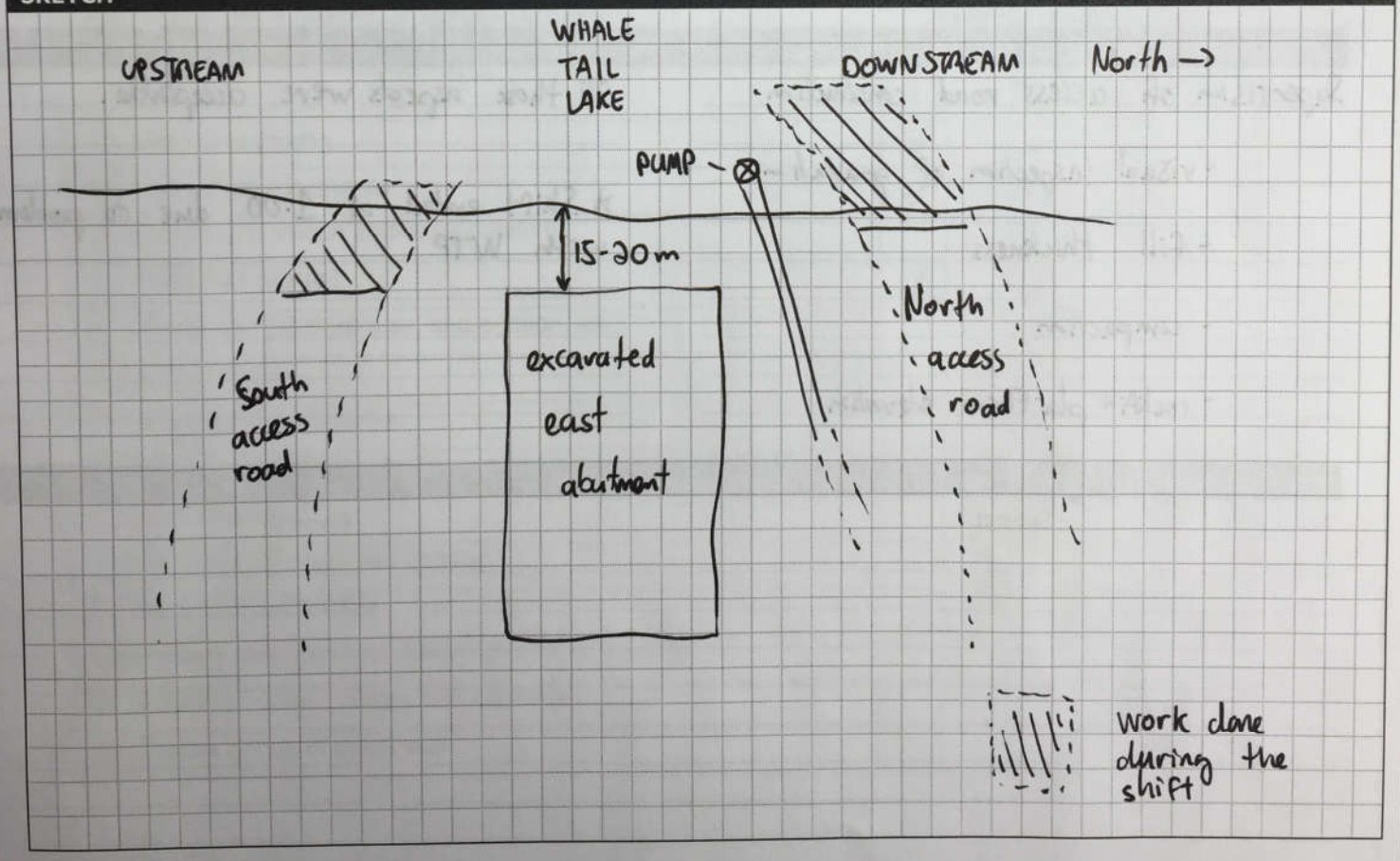
SAFE AND SAFETY REMARKS

Work was suspended due to lightning during rain storm

Issued by : Signature 2018-07-28 Date

Verified by : Signature Date

SKETCH



SNC·LAVALIN

SITE REPO
(Detaile

D-0002
Document number

CD ⇒ Day shift

Visit date	Time (Start/End)	Project No.	Prepared by
July 28, 2018	6:00AM / 6:00PM		Tezera Azmatch

Project	Client
Construction of Whale Tail Dike	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☑ Sunny ☑ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☑ Light ☐ Moderate ☐ Strong, gusts

Temperature : _____ °C

Comments : Morning was cloudy and afternoon was sunny.

Appendix : ☐ Yes ☐ No Pictures ☑ Yes ☐ No Inspection report or other :

See project folder

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

⇒ Visual observation of excavation of the east abutment area

⇒ Visual observation of rockfill placement u/s and d/s of dike on east side of dike (check videos on the progress made)

* Rockfill material seems to have considerable fine fraction.

NOTE: ~~exc~~ excavation is underway on west abutment but is not accessible for us.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

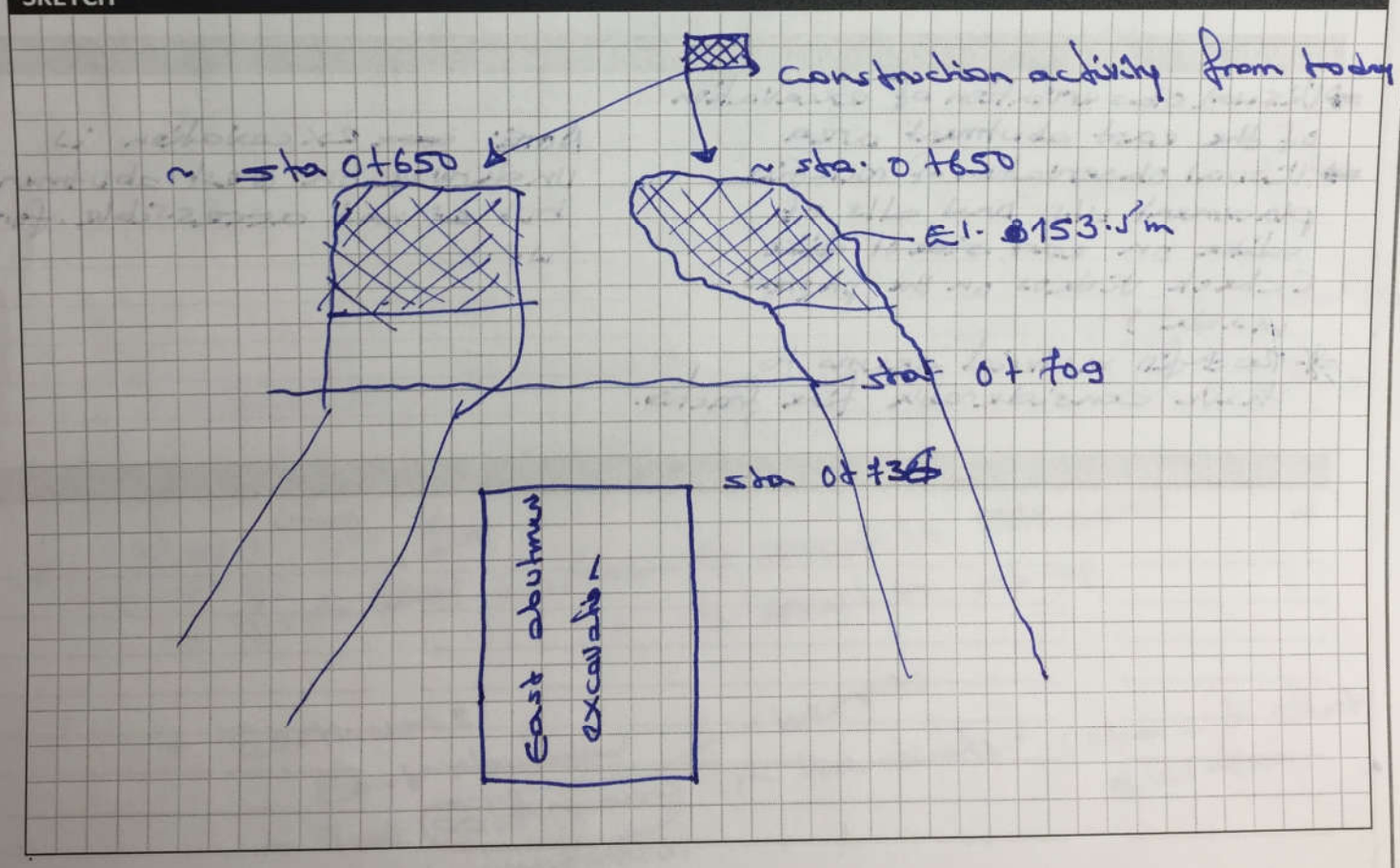
Elements	Location	Scope and comments
- East abutment	East abutment	excavation still going on
- u/s initial platform	u/s of dike c/L	progressive westward
- d/s " "	d/s of dike c/L	progressive westward

SAFE AND SAFETY REMARKS

Issued by : Tezera Firew Asmatch — Signature — July 28, 2018 — Date

Verified by : Signature — Date

SKETCH



SNC·LAVALIN

SITE REPORT
(Detailed)

Document number

Visit date	Time (Start/End)	Project No.	Prepared by
2018-07-28/29	18:00 / 6:00		M.D.-JÉZÉQUEL

Project: CONSTRUCTION OF WHALE TAIL DIKE

Client: Agnico Eagle

Consultant: SNC-Lavalin

Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☒ Moderate ☐ Strong, gusts

Temperature : 5 °C

Comments :

Appendix : ☒ Yes ☐ No

APPROVAL FORM

Pictures ☒ Yes ☐ No

Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

SUPERVISION OF CONSTRUCTION OF ROCKFILL PLATFORM

- QA told QC to look specifically at the compaction of the D8 bulldozers: QC approved the method of compaction
- QA told Patrice Ouellet that blocks > 1.0 m and close to 1.5 m have been observed and QA mentioned to put those blocks on the toe (farthest from the centerline)

Surveyor drew a line of paint on the upstream limit of south platform and downstream limit of north platform and they correspond to the top of the temporary safety berms (see sketch on page 2). However, the limits of platforms closer to the centerline are too close to the centerline, but that is to extend reach of the excavator. Excess rockfill will be removed following the excavation of the key trench.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Compaction of rockfill platform by bulldozers (verified by QC)	0+615 on both upstream and downstream platforms	4+ passes of bulldozer => compaction approved by QC inspector

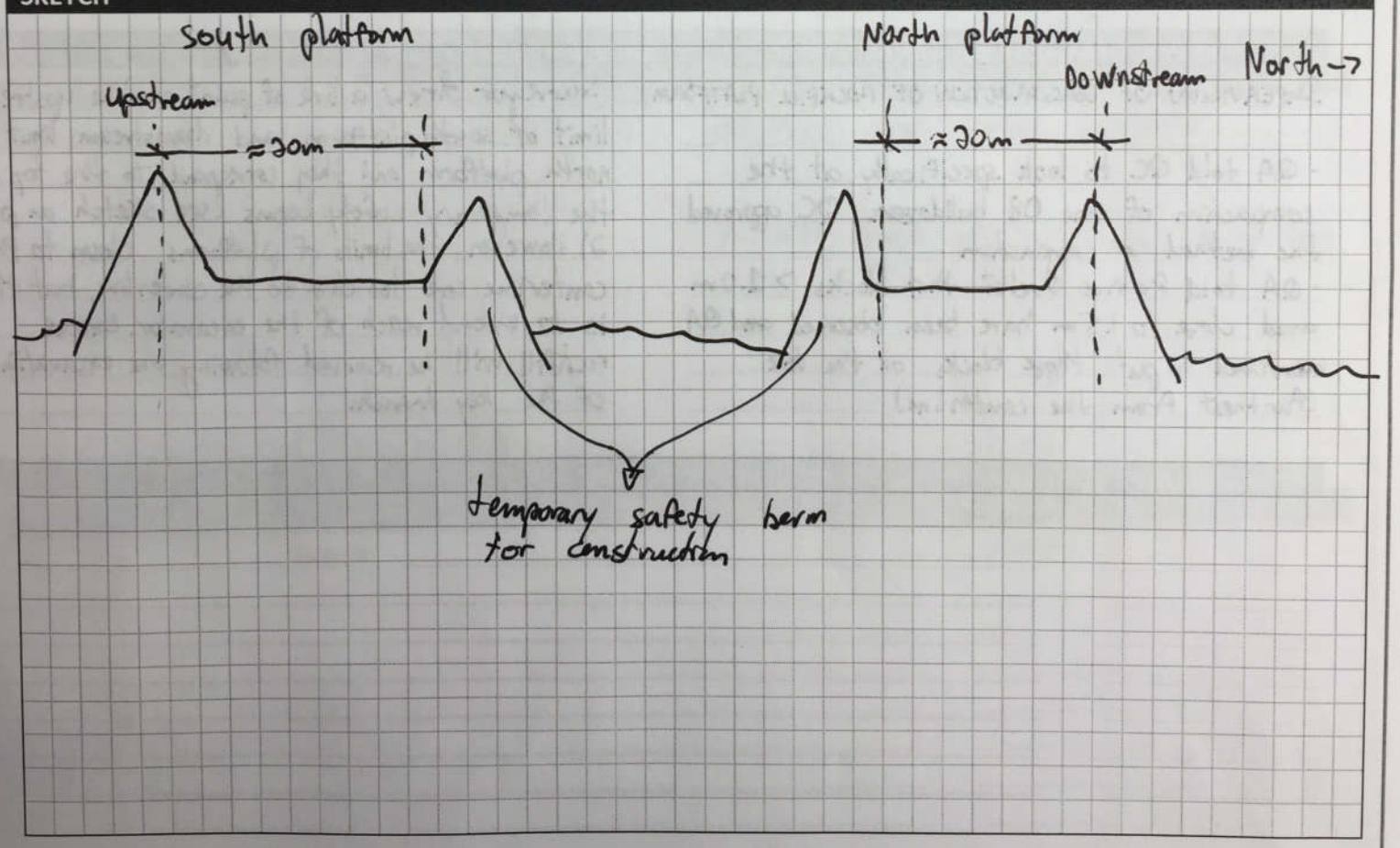
SAFE AND SAFETY REMARKS

Nights are getting cold, QA/QC inspectors should wear appropriate clothing (warm coats). Agnico have coats available in the "DRY" rooms of the Amaruq camp

Issued by : Signature — 2018-07-29 Date

Verified by : Signature — Date

SKETCH



SNC·LAVALIN

SITE REPORT
(Detailed)

D-0003
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
July 29, 2018	6:00 / 18:00		Tezera Firew Azmatch

Project: Construction of Whale Tail Dike
Client: Agnico Eagle

Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☑ Sunny ☐ Cloudy ☑ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☑ Light ☐ Moderate ☐ Strong, gusts

Temperature : 6 °C

Comments :

Appendix : ☐ Yes ☐ No

Pictures ☑ Yes ☐ No

Inspection report or other : Refer to project folder of SNC

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

⇒ Visual observation of excavation of east abutment
⇒ Visual observation of rockfill placement u/s and d/s of dike
• Rockfill seems to have considerable fine fraction.
⇒ observation of sampling procedure by QC (on fine filter stockpiles)
⇒ some oversize rockfill (>1.0m) observed
⇒ Need to be moved to u/s

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SITE REPORT

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
- East abutment excavation	east abutment	still going-on
- Rockfill placement	u/s of dike	progressing west : @ sta 0+560
- Rockfill placement	d/s of dike	progressing west : sta 0+560

SAFE AND SAFETY REMARKS

Issued by : Signature — July 29, 2018 Date

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

Document number

Visit date	Time (Start/End)	Project No.	Prepared by
2018-07-29/30	18:00/6:00		M.D.-JÉZÉQUEL

Project: CONSTRUCTION OF WHALE TAIL DIKE

Client: Agnico Eagle

Consultant: SNC-Lavalin

Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 5 °C

Comments :

Appendix : ☒ Yes ☐ No → APPROVAL FORM

Pictures ☒ Yes ☐ No

Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

-> Inspection of east abutment bottom of excavation: traces of erosion (ravines and gullies) due to runoff water coming down hill, finer material on top (fine sand to silt)

-> Inspection of south rockfill platform: material seems finer at some locations

-> Inspection of rockfill gradation in the 100ton trucks : seem to have a finer fraction (< 100 mm). QA told KCG supervisor that the shovel operator should pay attention to the gradation: when rockfill material is finer, try to include bigger rocks as well. Situation was corrected according to QC representative. However, QA noted that gradation was somewhat inconsistent and mostly on the finer side.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
-> East abutment bottom of ex cavation	- ≈0+760	- Ravines and gullies (erosion), finer material on top
-> rockfill gradation	- South rockfill platform 0+565 - buckets of 100-ton trucks	- Gradation on finer side - Somewhat inconsistent gradation mostly on the finer side
-> line of upstream limit of south platform	- ≈0+525	- line deviated south by ≈1 m (platform is larger at that location)

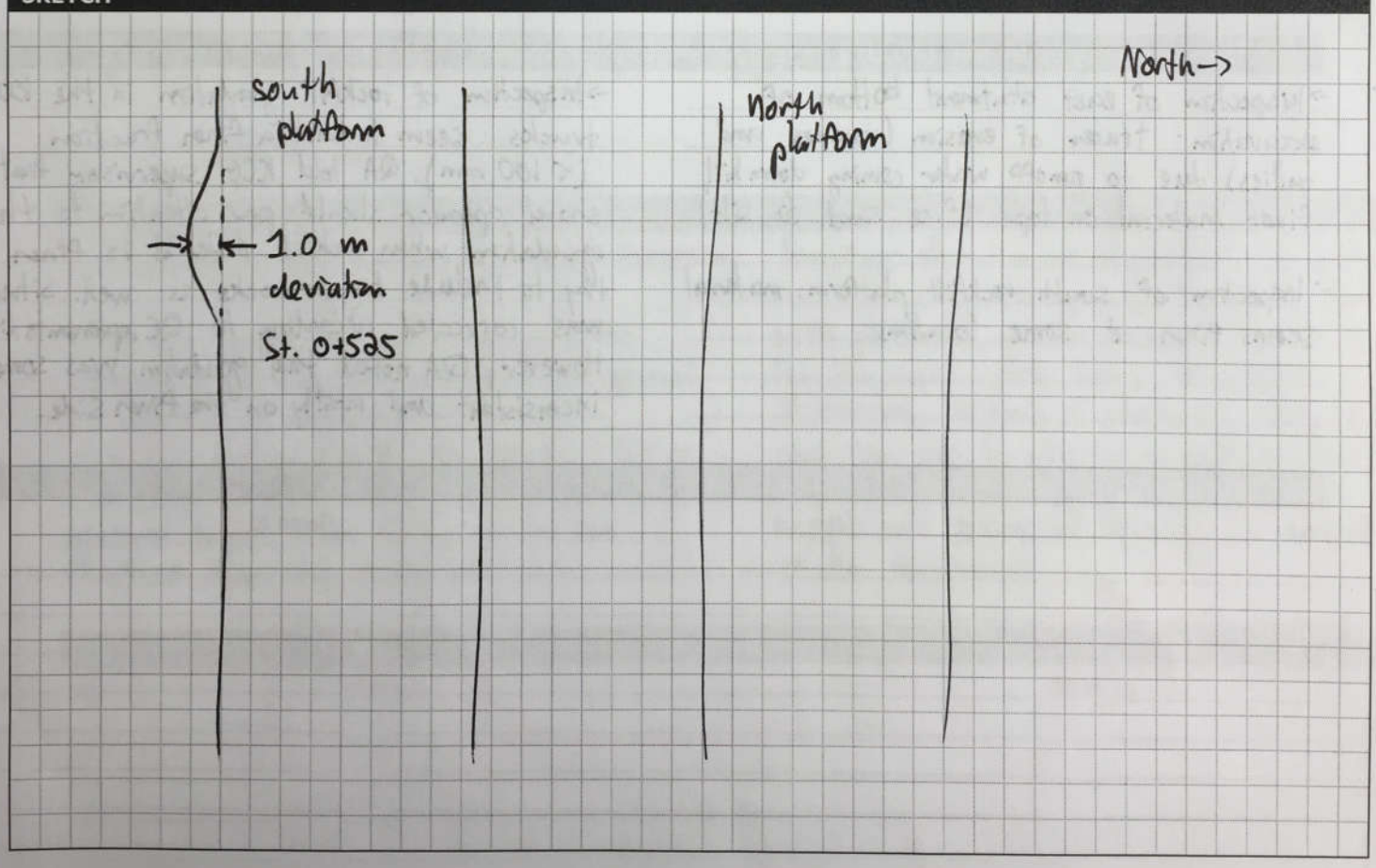
SAFE AND SAFETY REMARKS

For safety reasons, QA and QC inspectors did not go on the platforms to assess the rockfill gradation because 100-ton trucks and bulldozers were active and it was dark during the night. The rockfill gradation was evaluated in the bucket of the trucks for that reason.

Issued by : [signature] Signature — 2018-07-30 Date

Verified by : Signature — Date

SKETCH



SNC·LAVALIN

SITE REPORT
(Detailed)

D-0004
Document number

July 30, 2018 | 6:00 / 18:00 | Tezera Firew Azmatt
Visit date | Time (Start/End) | Project No. | Prepared by

Whale Tail Dike Construction | Agnico Eagle
Project | Client

SNC-Lavalin | KCG
Consultant | Contractor

Weather : ☐ Sunny ☑ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☑ Light ☐ Moderate ☐ Strong, gusts

Temperature : 8 °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☑ Yes ☐ No Inspection report or other :
check project folder of SNC Lavalin

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Visual observation of east abutment excavation
- Observation of rockfill placement u/s and d/s of dike
- Observation of Pad G: Rockfill Stockpile : seems to have considerable finer portion.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
→ East abutment excavation of overburden	→ East abutment	→ still in progress
→ Rockfill placement	→ u/s and d/s of dike	→ progressive test: @ sta 0+4/4/5
→ Rock fill stockpile	→ Pad G2	→ considerable fine portion

SAFE AND SAFETY REMARKS

Issued by : _____ Signature — July 30, 2018 Date

Verified by : _____ Signature — _____ Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

Document number

2018-07-30/31	18:00 / 6:00		M.O. - JÉZÉQUEL
Visit date	Time (Start/End)	Project No.	Prepared by

WHALE TAIL OKE CONSTRUCTION	Agnico Eagle
Project	Client
SNC-Lavalin	KCG
Consultant	Contractor

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 5 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

↓
APPROVAL FORM

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

-> CONSTRUCTION OF ROCKFILL PLATFORMS : BIT OF CONFUSION WITH SURVEY STAKES AS THEY DO NOT SEEM TO BE ON A STRAIGHT LINE (UPSTREAM LIMIT OF THE SOUTH PLATFORM). OTHER LINES ARE GOOD.

-> FIRST NIGHT SHIFT WITH CRUSHER, PRODUCTION OF FINE FILTER.

-> VISUAL INSPECTION OF ROCKFILL GRADATION. BIG BOULDERS ≈1.5m IN SOME TRUCKS, AND FINER MATERIAL IN OTHERS. SIGNIFICANT DIFFERENCES HAVE BEEN OBSERVED W TEAMS OF GRADATION BUT THEY SEEM TO STAY WITHIN GRADATION LIMITS.

-> FIRST NIGHT SHIFT WITH EAST ABUTMENT STRIPPING. EXCAVATION WITH RIPPER AND WITH SHOVEL.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
-> UPSTREAM LINE OF SOUTH PLATFORM	ST. 0+445 +/- 20 m	LINE IS A BIT OFF (< 1m) WITHIN THE LIMITS BUT VARIABLE ≈ 6 INCHES OF STRIPPING CONTRACTOR + SURVEYOR + QA WORKING TOGETHER TO RESPECT THE LINES
-> ROCKFILL GRADATION	0+445 TO 0+410	
-> EAST ABUTMENT EXCAVATION	0+830 to 0+850	
-> CURVE OF PLATFORMS WITHIN THE DIKE ALIGNMENT	≈ 0+410	

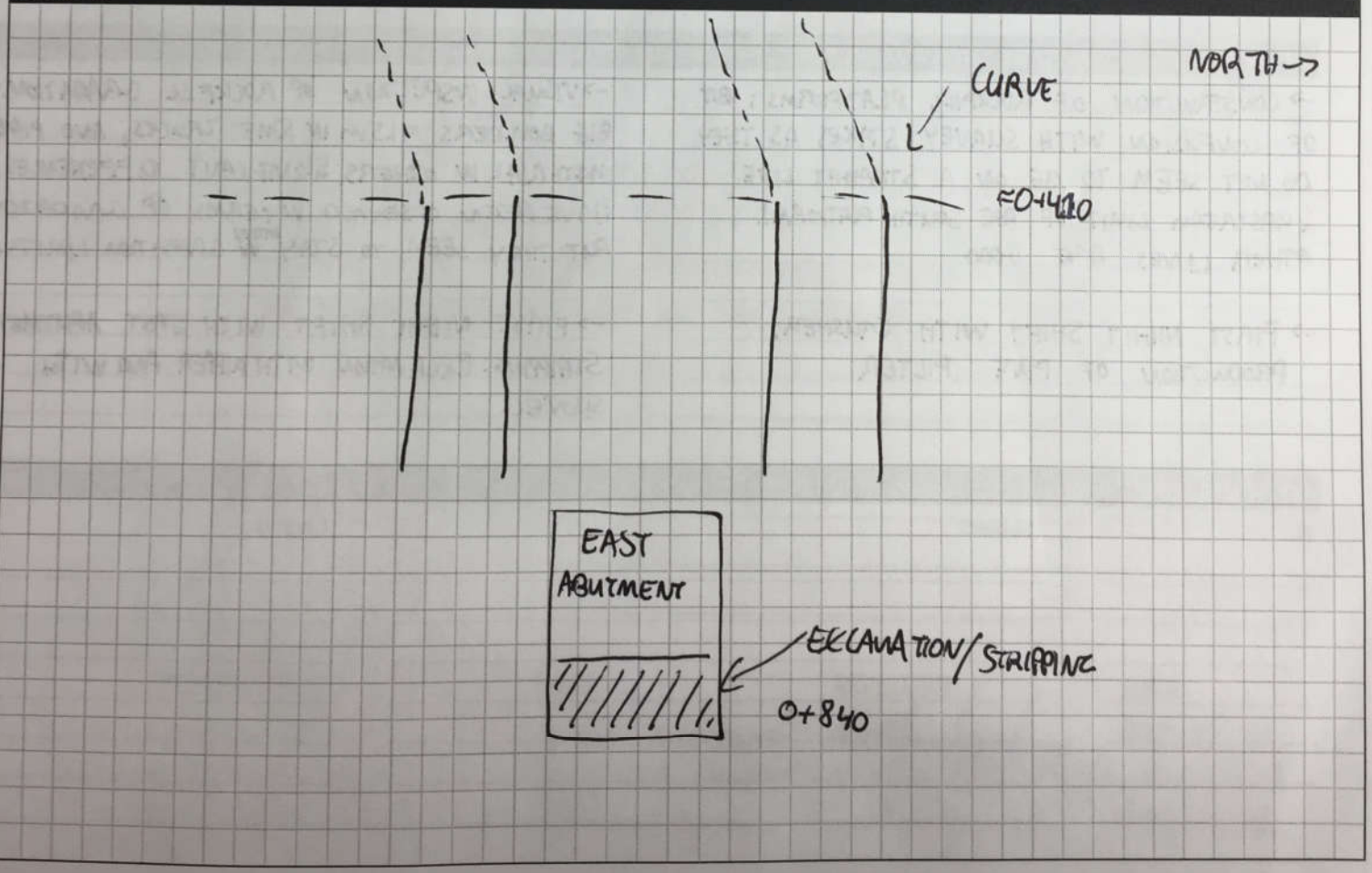
SAFE AND SAFETY REMARKS

MORE COACTIVITIES DURING NIGHT SHIFT, STAY VIGILENT AND AWARE OF SURROUNDINGS.

Issued by : Signature — 2018-07-31 Date

Verified by : Signature — Date

SKETCH



SNC·LAVALIN

SITE REPORT
(Detailed)

Document number

Visit date	Time (Start/End)	Project No.	Prepared by
31-01-2018	6:00 / 18:00		Tezera Firew Azmatch

Project	Client
Whale Tail Dike Construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☑ Sunny ☑ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☐ Moderate ☐ Strong, gusts

Temperature : 15 °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☑ Yes ☐ No Inspection report or other :

Refer to SNC project folder for pictures

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ sampling observation: fine filter material from production unit.
- QA mentioned to QC that the doger should place sample from a lower height and not dump it from a big height.
- QA mentioned QC that shovel should be taken out slowly to avoid losing coarser fraction.

→ observed rockfill placement
→ observed stockpiles for fine filter and coarse filter.
→ observed excavation in the east abutment.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
→ sampling observation	→ crusher area + stockpile area	
→ East abutment excavation	→ East abutment	in progress
→ Rockfill placement	→ sta. 0+405 to (both u/s and d/s of dike)	in progress

SAFE AND SAFETY REMARKS

Issued by : Signature — July 31, 2018 Date

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

20180801-US-SR
~~N-0005~~
Document number

2018-07-31 to 08-01	18:00/ 6:00		MD. SÉZÉQUEL
Visit date	Time (Start/End)	Project No.	Prepared by

CONSTRUCTION OF WHALE TAIL DIKE	Agnico Eagle
Project	Client
SNC-Lavalin	KCG
Consultant	Contractor

Weather : ☐ Sunny ☒ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 10 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

↓
APPROVAL FORM

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

-> SUPERVISION OF QC REP. SAMPLING FINE FILTER IN PRODUCTION FROM THE CRUSHER (2 times)

-> SUPERVISION OF EAST ABUTMENT EXCAVATION. NOTED THE PRESENCE OF ICE AT 2 to 2.3 m DEPTH.

-> VISUAL INSPECTION OF ROCKFILL GRADATION. BOULDERS > 45 m HAVE BEEN OBSERVED AND EXCESS FINES AS WELL.

-> INSPECTION OF PAD "G": ROCKFILL IS TOO FINE.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
ROCKFILL GRADATION	0+370 to 0+340, both platforms	Too fine-grained
	0+384 to 0+370, 0+340+0+320	Acceptable
	PAO "G"	Seems to have a lot of fines

SAFE AND SAFETY REMARKS

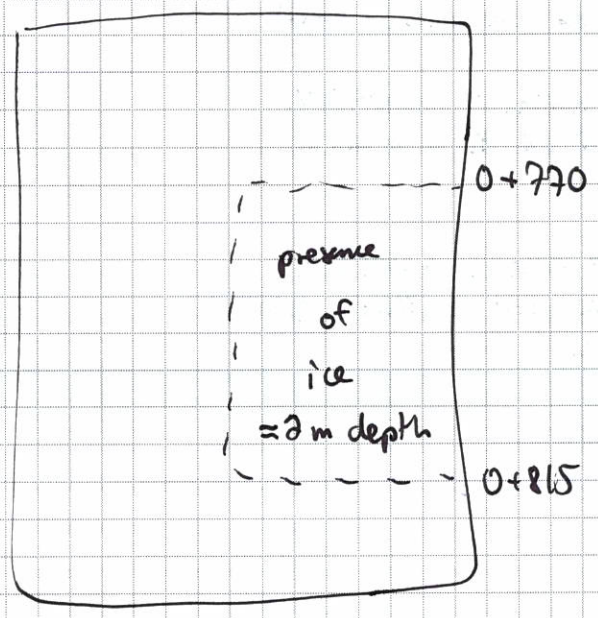
Agnico should provide flotation jackets for QA/QC representatives in order to walk on rockfill platforms safely.

Issued by : [signature] Signature — 2018-08-01 Date

Verified by : Signature — Date

SKETCH

East abutment excavation



SNC·LAVALIN

SITE REPORT
(Detailed)

20180802-NS-SR
~~N-0006~~
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
2018-08-01 to 08-02	18:00/6:00	~~710 805~~ 658309	J. LEBLANC

Project	Client
CONSTRUCTION WTD	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☐ Sunny ☒ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☒ Moderate ☐ Strong, gusts

Temperature : 6 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

↓
APPROVAL FORM.

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Supervision of East abutment excavation. Presence of ice at about 2.3m, between 0+813 @ 0+773. ice observed on N-0005 thawed.

→ Visual inspection of Rockfill gradation and placement. Boulder observed and placed at the exterior of platforms. Less finer material observed.

→ Supervision of QC rep. sampling fine filter.

→ Inspection stockpile Rockfill. Not much finer material.

→ Fine filter stockpile : watch too fine material accumulation on stockpile slope due to strong wind and Rain.

→ QC inspector lab preparation: 4 samples preparation for gradation and water content (fine filter). 2.5mm Sieve's missing.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Rockfill Gradation	both platforms stockpile, pad G	→ Less Finer than usual → Boulder at exterior of platforms
East Abutment	~~Ace~~ 0+813 @ 0+773	→ Ice observed, seems to thaw rapidly.
Samples preparation for gradation	~~Fin~~ Fine Filter	→ 2.5mm sieve is missing.

SAFE AND SAFETY REMARKS

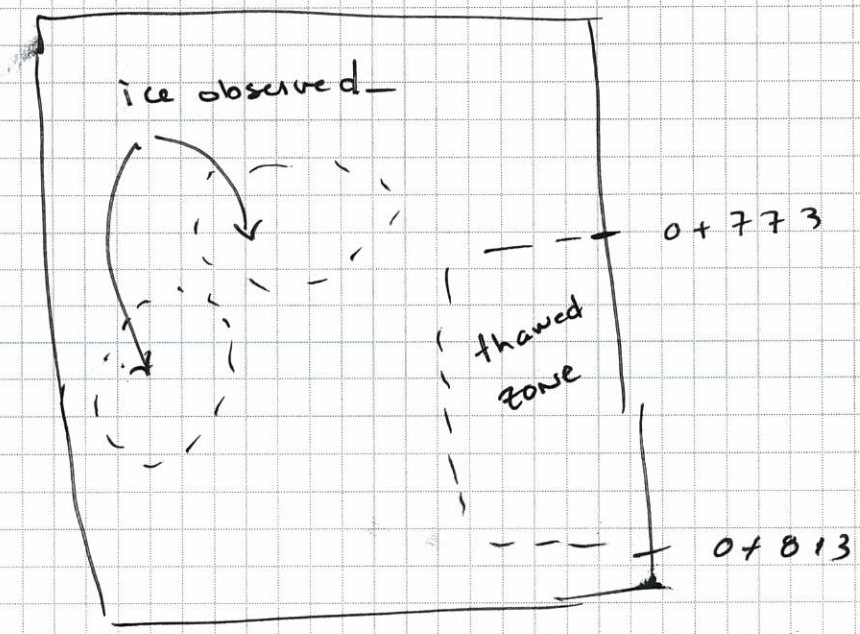
~~Fin~~ Flotation jackets have been provided for the rockfill platforms.

Issued by : Jonathan Leblanc — Signature — 2018-08-02 — Date

Verified by : Signature — Date

SKETCH

EAST ABUTMENT EXCAVATION



SNC·LAVALIN

SITE REPORT
(Detailed)

20180802-DS-SR ~~D-0006~~ ~~20180803-DS-SR~~
Document number

02-08-2018	6:00AM/6:00PM	710805	A. Arbaiza
Visit date	Time (Start/End)	Project No.	Prepared by

Construction of WTD	Agnico Eagle
Project	Client
SNC-Lavalin	KCG
Consultant	Contractor

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☒ Moderate ☐ Strong, gusts

Temperature : 5 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

Approval Form

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Supervision of rockfill placement (platforms)
- Verification (visual) of gradations for rockfill, coarse and fine filters
- Supervision of east abutment excavation
- Visit Quarry and rockfill stockpile
- Supervise QC sampling for fine filter.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Rockfill placement	0+257 to 0+228	Good placement, take section deeper than expected.
East abutment	0+750 to 0+820	Ice observed from ~el. 153 to 152.15 m

SAFE AND SAFETY REMARKS

walking through east abutment very muddy. Careful since there is risk of sliding.

Issued by : Signature — 2018-08-03 Date

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

~~N-0007~~
~~20180803-NS-SR~~
Document number
20180803-NS-SR

Visit date	Time (Start/End)	Project No.	Prepared by
2018-08-02 to 08-03	18:00 / 6:00	658309	JONATHAN LEBLANC

Project: WTD Construction
Client: Agnico Eagle

Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☒ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 7 °C

Comments :

Appendix : ☒ Yes ☐ No (APPROVAL FORM) Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Visual inspection of Rockfill gradation and placement. Rockfill visually of good quality (not too much fine material). Initial platfoems reached west abutment. West abutment excavation continues to reach 153m elevation. No ice observed.

→ Inspection of Rockfill stockpile. Finer zones avoided during truck loading.

→ East abutment excavation: Lot of ice observed from 0+810 towards the lake. Excavation elevation profile done with the surveyor to compare with 4m depth goal.

→ Water level of the lake:
upstream: 152,73m
downstream: 152,72m

→ Supervision of QC rep. sampling fine filter.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Backfill Gradation	Initial platforms, pad G	Good gradation (Not too much fine)
East abutment	0+810 towards WT Lake	Ice observed (thick ice lenses).
West abutment	General 0+120 @ 0+200	esker material excavation
Water level	~~Xpg~~ Upstream & downstream	Measurment at each shift with surveyor.

SAFE AND SAFETY REMARKS

Co-activity on the platforms. Be visible and aware of the environment, especially during nigth shift, during dark hours.

Issued by : Jonathan Leblanc — Signature — 2018-08-03 — Date

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

20180803-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
2018-08-03	6:00AM TO 6:00PM	658309	A. Arbaiza

Project	Client
WTD construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☒ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 5-7 °C

Comments :

Appendix : Yes ☒ No Pictures ☐ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Supervise the excavation of the Esker at the west abutment.
- Supervise the bathymetric at the key trench (up to topo), and compare it with the old bathymetric in order to verify the method (small boat).
- Supervise the excavation at the east abutment and make sure frozen soil is removed.
- Supervise lake bed foundation excavation

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
1	East abutment excavation: Remove more ice from st. 0+750 to 0+820 (about 2,5m, which may be where the rock is located). It was mentioned that the trench excavated could be more narrow.	P. Lagnon / KCG

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
East abutment excavation	0+760 – 0+840	Effort is being put to take out as much as possible the frozen soil.
West abutment excavation (Lake bed excavation)	~ 0+210	Excavation for trench until reach bedrock

SAFE AND SAFETY REMARKS

Use safety vest near water

Issued by : Signature — Date: 03/08/2018

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

(Detailed)

20180804-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
2018-08-03 TO 08-04	6:00PM to 6:00AM	658 309	J. LEBLANC

Project	Client
WTD CONSTRUCTION	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☐ Sunny ☐ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : _____ °C

Comments :

Appendix : ☐ Yes ☒ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Supervision of the east abutment excavation. Ice observed from 0+810 to 0+773.

→ Water level measurements : Upstream = 152.73m ; Downstream = 152.71m

→ Gradation on going with QC rep. First results should be ready in the beginning of Day shift (Fine Filter).

→ Key trench excavation with one excavator on upstream platform, removing parts of the ~~ser~~ lakebed material and ~~stoping~~ profiling the upstream rockfill slope of the key trench. Cleaning of the key trench is still necessary. Excavator reached 0+300 on the upstream init. platform.

→ Survey of the east abutment excavation and file update.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
→	Thermistor in the Key trench has been removed	

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
East abutment excavation	0+800 to 0+760	Effort to remove ice content.
key trench excavation	0+205 to 0+300	Profiling of the upstream key trench slope and partial excavation of lakebed material from 0+220 to 0+300

SAFE AND SAFETY REMARKS

East abutment slipery because of ice. Take precaution not to Fall.

Issued by : Jonathan Leblanc (Signature) 2018-08-04 (Date)

Verified by : (Signature) (Date)

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

20180804-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
04/08/2018	6AM-6PM	658309	A. Arbaiza

Project: WTD Construction
Client: Agnico Eagle

Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☐ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 6 °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☐ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Approval of gradation limits (received from QC representative) → see e-mail and Gradation data folder. more gradations to come.
- Supervision of lake bed excavation. - very clean
- Supervision of east abutment excavation to remove frozen soil, still needs 1 m
- visit rockfill stockpile
- One bucket cleans better than the other one (due to the metal placed in the teeth).
- Create a foundation approval process to state the steps before approval and aggregates approval.
- verify the bedrock elevation found and compare with logs

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
- key trench excavation down to bedrock	0+203 to 0+260 (~~south~~ North)	very clean. No material found.
- key trench – lake bed excavation / cleaning	0+203 to 0+260 (south)	
- East abutment excavation	~0+760 to 0+800	~1m remaining (vertical)

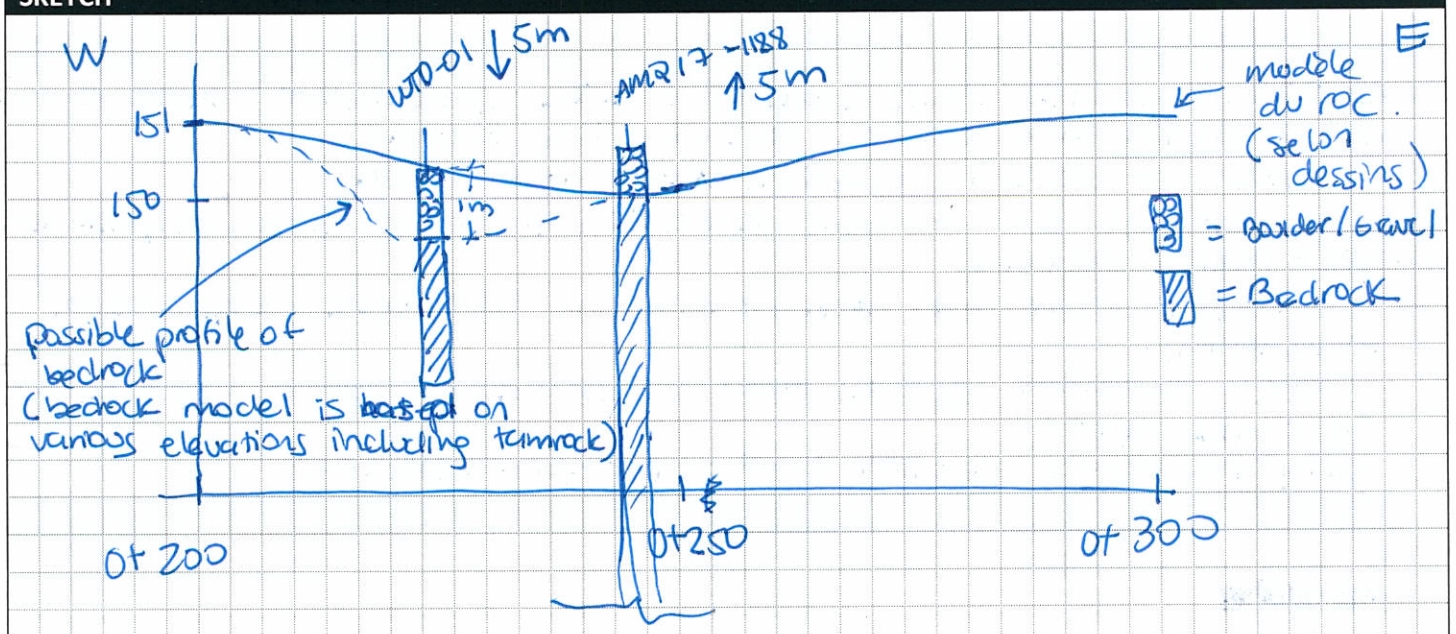
SAFE AND SAFETY REMARKS

Rainy day: Be careful when walking on site, especially at the east abutment since it can get muddy.

Issued by : Signature — Date: 04/08/2018

Verified by : Signature — Date

SKETCH



- One check with the bucket (with GPS) at 0+244 gave a bedrock elevation of 150.6m compared to 150.7 from our rock model (as per drawings).
- Possibility of reaching bedrock 1m below the rock model (as per drawings). It should not be a surprise.

SNC·LAVALIN

SITE REPORT
(Detailed)

20180805-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
04 to 05-08-2018	6PM - 6AM	658309	J. Leblanc

Project	Client
WTD Construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☐ Sunny ☒ Cloudy ☒ Rain ☐ Storm ☒ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☒ Moderate ☒ Strong, gusts

Temperature : 4 °C

Comments :

Appendix : ☐ Yes ☒ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Supervision and Approval of lakebed excavation, from 0+200 to 0+260. Bedrock surface is clean (both North and South side) and bathymetric survey of the bedrock surface has been permitted.

→ Supervision of east abutment excavation. New East abutment survey to caracterize the excavation advancement. 2 samples taken and ice surface delimited with the surveyor.

→ Supervision of west abutment excavation. Ice content has been reached in the eskee and being removed with the dozer.

→ Water level : Upstream = 152,73m Downstream: 152,74m

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
→	Key trench lakebed excavation from 0+260 to 0+340	

* Turbidity barrier D : Anchor problem on West WTL shoreline. This should be verified to ensure barrier efficiency. This problem has been communicated to Patrice Ouellet.

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
bedrock sounding Approval	0+200 to 0+260	Bathymetric survey of bedrock surface has been authorized.
East abutment excavation	~ 0+750 to 0+815	Ice content is being removed. ~~Graphic file updated. Survey~~
→ West abutment excavation	~ 0+200 to 0+125	Reach elevation of 153m
→ Water level measurement	Upstream and Downstream	Compilation file updated.

SAFE AND SAFETY REMARKS

Co-activity during Bedrock Sounding first Approval. Needs to be clearly visible by the operators since we are close to the equipment (especially during dark hours). Stay within eye contact of the excavator's operator.

Issued by : Jonathan Leblanc — Signature — 2018-08-05 — Date

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

20180805-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
05/08/2018	6AM-6PM	658309	A. Arbouiza

Project: WTD construction
Client: Agnico Eagle

Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☒ Moderate ☐ Strong, gusts

Temperature : ~5 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

Approval form

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Verify the bathymetry survey and data (by comparing it with the rock model).
- Supervise the survey by boat and verify the data (by comparing it with the bathymetry and the data obtained by the bucket).
- Approve the foundation from st. 0+205 to 0+260
- Supervise the lake bed excavation from st. 0+260 to ~0+340
- Supervise the east abutment excavation - still frozen soil found.
- Supervise the sampling method of QC (sampling from the east abutment - till).
- Supervise the placement of coarse filter between 0+205 to 0+220 with AEM
- Check the foundation at the west abutment and establish a strategy for the secant piles and slurry wall on the fractured bedrock and the irregular

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
	surface. this point should be verified and discussed with Henry Drilling to make sure there are no constraints.	
	- All survey data was obtained (abutments and bedrock foundation).	
	- A site visit was performed for the other infrastructures with AEM and the contractor. The abutments at the WRSF were discussed (concern of fractured bedrock with open cracks). Possibility to construct at the abutments in the summer 2019 was also discussed.	

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Foundation approval on bedrock	0+205 to 0+255	Bathymetry and spot checks were done.
Course filter placement	0+215 to 0+230	Proposed method was employed.

SAFE AND SAFETY REMARKS

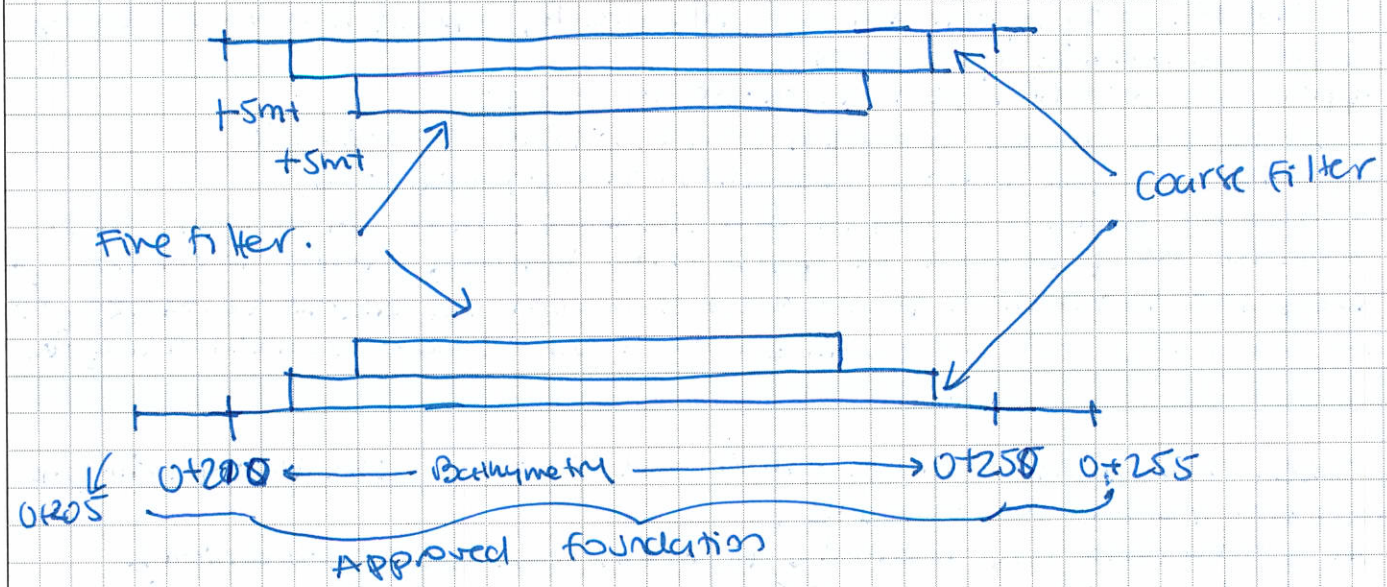
very windy, be careful with stability and use proper PPE.

Issued by : Signature — Date: 05/08/2018

Verified by : Signature — Date

SKETCH

Placement of aggregates :



SNC·LAVALIN

SITE REPORT
(Detailed)

20180806-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
05 to 06-08-2018	6:00AM to 6:00AM	658309	J. Leblanc

Project	Client
WTD Construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☒ Sunny ☐ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☒ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : _____ °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

Approval form

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Supervision and approval of COARSE FILTER PLACEMENT FROM 0+215 to 0+245 on the north side and 0+217 to 0+245 on south side.

→ Supervision of lakebed mass excavation on ~~the~~ north side from 0+340 to 0+353.

→ Supervision of west abutment excavation of the esker.

→ Water level measurement with the surveyor : Upstream = 152,731m ; Downstream = 152,7

→ Key trench cleaning supervision on the north side from ~ 0+307 to 0+325.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
COARSE FILTER PLACEMENT	0+215 to 0+245 North 0+217 to 0+245 South	Placement of material has been approved.
COARSE FILTER SAMPLING	~ 0+225	In place sample on the South side.
COARSE FILTER STOCKPILE	STOCKPILE	Be aware of segregation (no to much handle with the excavator)

SAFE AND SAFETY REMARKS

Be aware of the surroundings on both platforms. There is a lot of co-activity with haul trucks circulating in both directions.

Issued by : Jonathan Leblanc (Signature) 2018-08-06 (Date)

Verified by : (Signature) (Date)

SKETCH

Excavation of lakebed sediments	0+340 to 0+353 on ~~south~~ north platform	Considerable quantity of lakebed sediment to remove (as expected) with bedrock depth visually ~~corresping~~ coresponding to what is expected.
Cleaning of the key trench	0+307 to 0+325 north platform	Cleaning and rockfill profiling with excavator.

SNC·LAVALIN

SITE REPORT
(Detailed)

20180806-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
06-08-2018	6AM-6PM	658	A. Arbeiza

Project: WTD construction
Client: Agnico Eagle
Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : ~ 8 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

↳ Approval form

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Supervise the placement of the fine filter. the placement was done according to the specs and the method proposed and accepted by the contractor and designer.
- Supervise and update the excavation and survey at the east abutment
- Approve the foundation on bedrock by verifying the bathymetry and spot checks with the shovel (GPS). A small bump on the surface was observed in the bathymetry and it was double checked by the QA and QC with the shovel.
- Inspect the bathymetry sounding in the lakebed foundation.
- Quiet day since there was a crew swith from the contractor's side.
- Sampling of the placed fine filter by the QC.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Foundation approval on bedrock (key trench)	0+255 to 0+295	• Bathymetric and shovel spot checks were performed and verified.
Fine filter placement and sampling.	0+220 to 0+240	• Placement was done respecting the specs.
Bathymetric at lake bed foundation	~ 0+400 TO 0+640	• Bathymetry finished on all the lake section of the dike.

SAFE AND SAFETY REMARKS

working close to the water and near the shovel (when double checking the bedrock at the key trench). keep our distance.

Issued by : Signature — Date: 06/08/2018

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

20180807-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
07-08-2018	6PM to 6AM	658309	J. LeBlanc

Project: WTD Construction

Client: Agnico Eagle

Consultant: SNC-Lavalin

Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☒ None ☐ Light ☐ Moderate ☐ Strong, gusts

Temperature : 7 °C

Comments :

Appendix : ☒ Yes ☐ No Approval Form

Pictures ☒ Yes ☐ No

Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- East abutment excavation until 9h45pm to get rid of melted mud/material.
- West abutment excavation of the esker and rock outcrop.
- Water level survey: Downstream = 152,72m ; Upstream = 152,75m
- Approval of coarse filter placement from 0+245 to 0+280 m.
- Inspection of fine filter placement from 0+245 to ~ 0+260.
- Approval of key trench clean-up on the north side from 0+295 to 0+310. At 0+310, Bedrock near water surface (152,16m).

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Coarse filter placement approval	0+245 to 0+280	Placement done respecting the specs.
Fine filter placement	0+245 to ~0+260	Placement done respecting the specs.
Key trench clean-up on the North Side	0+245 to 0+310	very clean bedrock surface. irregular bedrock surface.

SAFE AND SAFETY REMARKS

A lot of co-activity and narrow access on the platforms.

Issued by : Jonathan Leblanc (Signature) — 07-08-2018 (Date)

Verified by : (Signature) — 2018/02/07 (Date)

SKETCH

☆ Address the usage for the rockfill on the initial platforms. Can't garantee 0-1000 mm gradation since it went into water and was partially mixed up with sediments.

☆ A lot of lakebed sediments on the initial platforms (leaks from haul truck during transportation). It should be addressed if the sediments needs to be removed or not.

☆ Keep distance when dumping coarse filter material. If to close, material falls in the trench. QC rep. addressed the situation with excavator operator.

SNC·LAVALIN

SITE REPORT
(Detailed)

20180807-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
07/08/2018	6AM-6PM	658309	A. Arbaiza

Project	Client
WTD construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☒ Moderate ☐ Strong, gusts

Temperature : 7 °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Cleaning of the lakebed foundation was observed by the QC inspector and the QC of KCG. It was observed that the lakebed sediments were placed on the rockfill platforms instead of placing it in a truck to be then be placed outside the dike. this was communicated to the KCG representative. Spot checks were taken with the shovel and compared with the model.
- Final cleanup of the keytrench (between 0+295 to 0+330) was observed. some of the rockfill from the slopes were placed near the trench. It was recommended to place it outside the keytrench (about 3-5 m) since this material lost most of its fines and is not considered appropriate to be close to the filters (between 153.5 and 157 m). Although this was the final cleanup, lakebed foundation was still very present in the key trench, especially at station 0+330 to 0+340. Even if the

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

QC inspector advised to place the lakebed foundation in a truck (to then place it out of the dike), the operator continued placing this material (which is very muddy and fine) on the rockfill platforms (on top of the rockfill that is supposed to be re-used for the dike). this was communicated, again, to KCG and they called a truck to take out all this material. It was also observed that the shovel was already ready to give us the spot checks (as though foundation is clean) even if it was clear that there was still material coming out of the trench. After talking to him, he continued taking out material and at least 5 more buckets of material came out. It was then agreed to go with the bathymetry.

- Placement of fine filter was also observed. the placement was done according to the specs.

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
• Lakebed foundation to bedrock (keytrench)	0+295 to 0+330	• See approval
• Lakebed foundation in keytrench	0+295 to 0+340	• Till material is being placed on the outside of the platform
• Course filter gradation (placed)	~ 0+215 to 0+230 @ el. 154.0 m	• Gradation ~~[illegible]~~. meets specs requirement.

SAFE AND SAFETY REMARKS

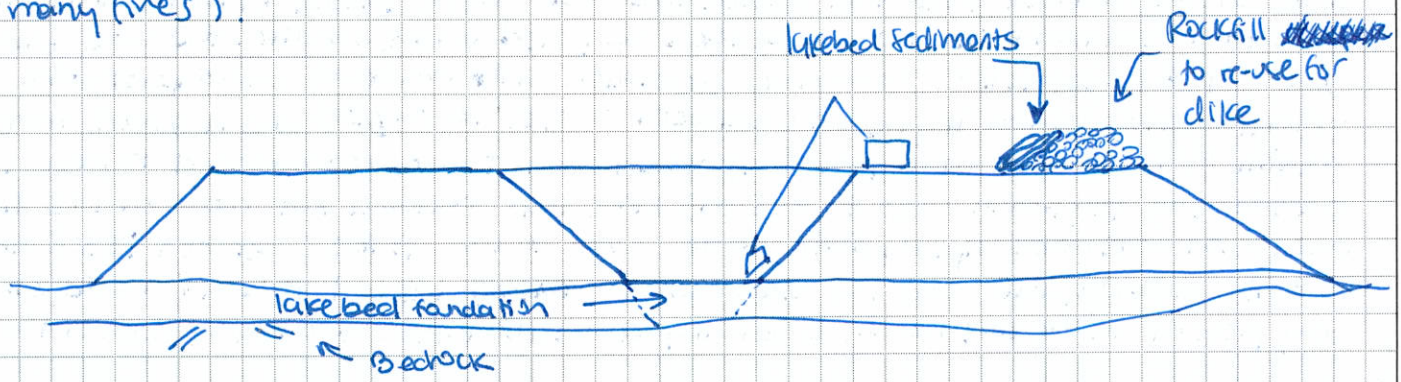
- Co-activity and narrow access on the platforms. Be safe when driving and walking
- Inspection of lakebed excavation close to water. Stay at least 3m away or wear vest.

Issued by : [signature] Signature — 07/08/2018 Date

Verified by : Signature — Date

SKETCH

This is the way the contractor is placing the lakebed mass. Important to either place it directly in a truck or remove it before re-using it for the dike (too many fines).



SNC·LAVALIN

SITE REPORT
(Detailed)

20180808 – NS – SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
08/08/2017	6PM–6AM	658309	J. Leblanc

Project: WTD CONSTRUCTION
Client: Agnico Eagle
Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : ~5 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

APPROVAL FORM

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Key trench clean up approval (stage 1) from 0+328 to 0+370. A lot of clean up needed to be done on a very irregular bedrock surface. Cleaning on both side of the trench to make sure to excavate all the irregularity.

→ Coarse filter approval from 280 to 0+320. Placement and gradation (visual) meets specs requirement.

→ Water level survey: Downstream = 152,719m ; Upstream = 152,706m

→ Sampling by QC rep. : Coarse filter (in place) at 0+295 and Fine filter (in place) at 0+285.

→ Fine filter placement observed. Gradation (visual) and placement done according to the specs.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
→	East abutment inspection: From 0+775 ~~towards~~ to ~0+735 (end of the current excavation), thick layer of mud (impossible to walk) that should be removed in order to favorise ice melting below.	
→	Lakebed mass excavation (mostly rockfill) on the ~~north~~ south side of the trench. Reached 0+425.	
→	Excavation of the hump in the west abutment (produced from jack hammered (Trammack?) bedrock.	

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
~~Rea~~ lakebed foundation approval (stage 1)	0+328 to 0+370	Irregular bedrock with deeper depression. Ready for bathymetry approval.
Coarse filter placement	0+280 to 0+320	See Approval Form.
lakebed mass excavation	Readed 0+425 on south side	Mostly Rockfill has been excavated. A lot of clean-up is to be expected.

SAFE AND SAFETY REMARKS

A lot of co-activity and narrow access road. A loader truck started to ~~t~~ enlarge the access road. Very important to have a good communication with the operators, especially during night shift.

Issued by : Jonathan Lefebvre (Signature) 2018-08-08 (Date)

Verified by : (Signature) (Date)

SKETCH

Bedrock survey with excavator.

Clt	Z (m)
0+333	147.95
0+337	147.85
0+339	147.65
0+341	147.62
0+346	147.99
0+351	147.96
0+354	148.07
0+357	147.53
0+360	147.78
0+370	147.58

SNC·LAVALIN

SITE REPORT
(Detailed)

20180808-DS-SR
Document number

08/08/2018	6AM - 6PM	658309	A. Arbaiza
Visit date	Time (Start/End)	Project No.	Prepared by

WTD Construction	Agnico Eagle
Project	Client
SNC-Lavalin	KCG
Consultant	Contractor

Weather : ☒ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☐ Moderate ☐ Strong, gusts

Temperature : ~7 °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Inspection of the new stockpile for fine filter: The placement is not done as proposed by the QC inspector. It is clear that there is seggregation of the material. the contractor says that they have no space to make benches. the QC has advised the contractor several times.
- the bathymetry from 0+328 to 0+370 had to be done a second time because there was too many fine particles in the water at the key trench. the operators stopped their work to let the fine particles set for a moment.
- Inspection of the excavation at the west abutment (~0+160 to 0+190). Frozen soil was observed but no ice lenses.
- Inspection of the excavation at the east abutment (where the plug is). Nothing abnormal to report.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

- After the second bathymetry, it was noted that there was a ~1.0m gap between the shovel spot checks and the bathymetrie (the latter being higher). In addition the theoritical bedrock showed that the bedrock was deeper. the QC inspector asked the contractor to go and clean again and it was then noticed that there was still a lot of lakebed mass inside the trench. It seems that the new operators were not informed properly of the cleaning they needed to do. It was then decided to do the cleaning until 0+360 and do the bathymetry (third one) until 0+350. the third bathymetry did not work due to the sediments in the lake (turbidity). It was then agreed with AEM and the contractor to do a bathymetry with the GPS shovel and verify it with manual →

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Fine filter placement	0+295 to 0+310	• Placement according to specs.
Key trench cleaning (final)	0+328 to 0+360	• Lots of sediments and problems with the excavation
East and west excavation	varies	• Tramac.

SAFE AND SAFETY REMARKS

- Working close to water → wear safety vest and/or stay away from water (at least 3m).
- Lots of haul trucks near the site (for the new camp) → stay vigilant and stay away (at least 75m).

Issued by : Signature — Date: 08/08/2018

Verified by : Signature — Date

SKETCH

(continued) .. measurements on the boat (by QC inspector and surveyor) - See e-mail for the proposed alternative from AEM - P.E. McDonald, 08-08-2018.

295

SNC·LAVALIN

SITE REPORT
(Detailed)

20180809-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
09-08-2018	6PM - 6AM	658309	J. Leblanc

Project	Client
WTD Construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☒ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : ~ 7 °C

Comments :

Appendix : ☒ Yes ☐ No Approval Form

Pictures ☒ Yes ☐ No

Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Approval of the key trench clean up (bedrock) using the proposed alternative (P.-E. McDonald) from 0+328 to 0+360. Survey of bedrock done using GPS of the bucket and then compared with manual measurements on boat.

→ Beginning of the clean up (bedrock) at south side, from 0+360. Very difficult to clean. At 0+362, excavator is 1.65m below bedrock surface interpretation with bucket full of rock (no sediment, rockfill OR fractured bedrock?).

→ Lakebed Mass excavation observation on north side until 0+480.

→ Water level measurements : Downstream = 152,719m Upstream = 152,705m

→ Observation of west abutment excavation. Frozen material observed at 0+170.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
→	Coarse filter placement with no approbation yet (Surveyor needs to make verifications since width of the coarse filter is below 2.5m). Adjustements needs to be made. Reached 0+330 on north side and 0+339 on south side.	

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
Approval of foundation (bedrock)	0+328 to 0+360	See Approval form.
Coarse filter placement	North: 0+330 South: 0+339	No approval has been made. Adjustments need to be made to reach 2.5m width.
Clean-up key trench	0+360 to 0+362	Reached 1.65m below bedrock interpretation and still need clean

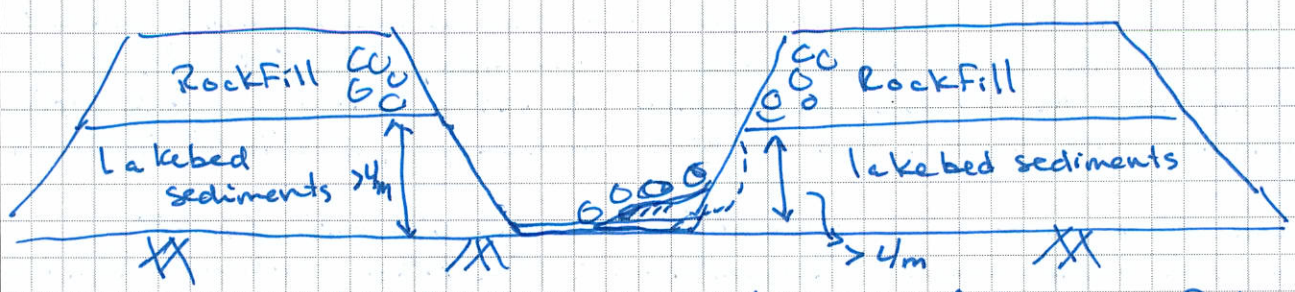
SAFE AND SAFETY REMARKS

Working close to excavator and co-activity.

Issued by : Jonathan LeBlanc (Signature) 2018-08-09 (Date)

Verified by : (Signature) (Date)

SKETCH



Lakebed sediments thickness below rockfill of more than 4m. It seems that after clean-up of the key trench, sediments fall back in the trench with rockfill and have to be cleaned again. (underwater lakebed erosion).

SNC·LAVALIN

SITE REPORT
(Detailed)

20180809-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
09/08/2018	6AM-6PM	658309	A. Arbaiza

Project	Client
WTD construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☐ Sunny ☒ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : 5 °C

Comments :

Appendix : ☐ Yes ☒ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Approved foundation of last night seemed to have more material in the key trench. It was decided by the contractor and AEM to clean again between 0+340 to 0+360 (even if it was approved the shift before). Another bathymetry was done with the shovel's GPS only on the south side. In addition, it was noticed that the coarse filter zone was thinner than the design sections (see appendix). Some sections had 0,7 thick of coarse filter (upstream) and 1,1 m (downstream). this was the case from station 0+325 to 0+340. the client contacted the designer to know the tolerance of this thickness and the strategy to be implemented. the designer advised to redo the upstream side from station 0+325 to +340 since

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

a 0,7 m thickness was unacceptable. the contractor was advised by the client to adapt its work methods and have a close control on the operators and the surveyor because this was clearly a mistake from the contractor's team.

- Since the bedrock seems to decrease in elevation around 0+360, a test was done at 0+373, where a borehole was drilled in 2017 (AMQ17-1210). The shovel "found" bedrock at el. 148 m, whereas the borehole described that the bedrock was at 147 m. It should be noted that the bedrock in this borehole is highly fractured. Once final cleanup occurs in this section, a careful control should be implemented.

- The east and west abutments excavations were inspected. Nothing abnormal to report.

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
East and west excavation	varies	ice continues to be present in east abutment.
Key trench excavation	0+340 to 0+360 south side	bathymetry done.

SAFE AND SAFETY REMARKS

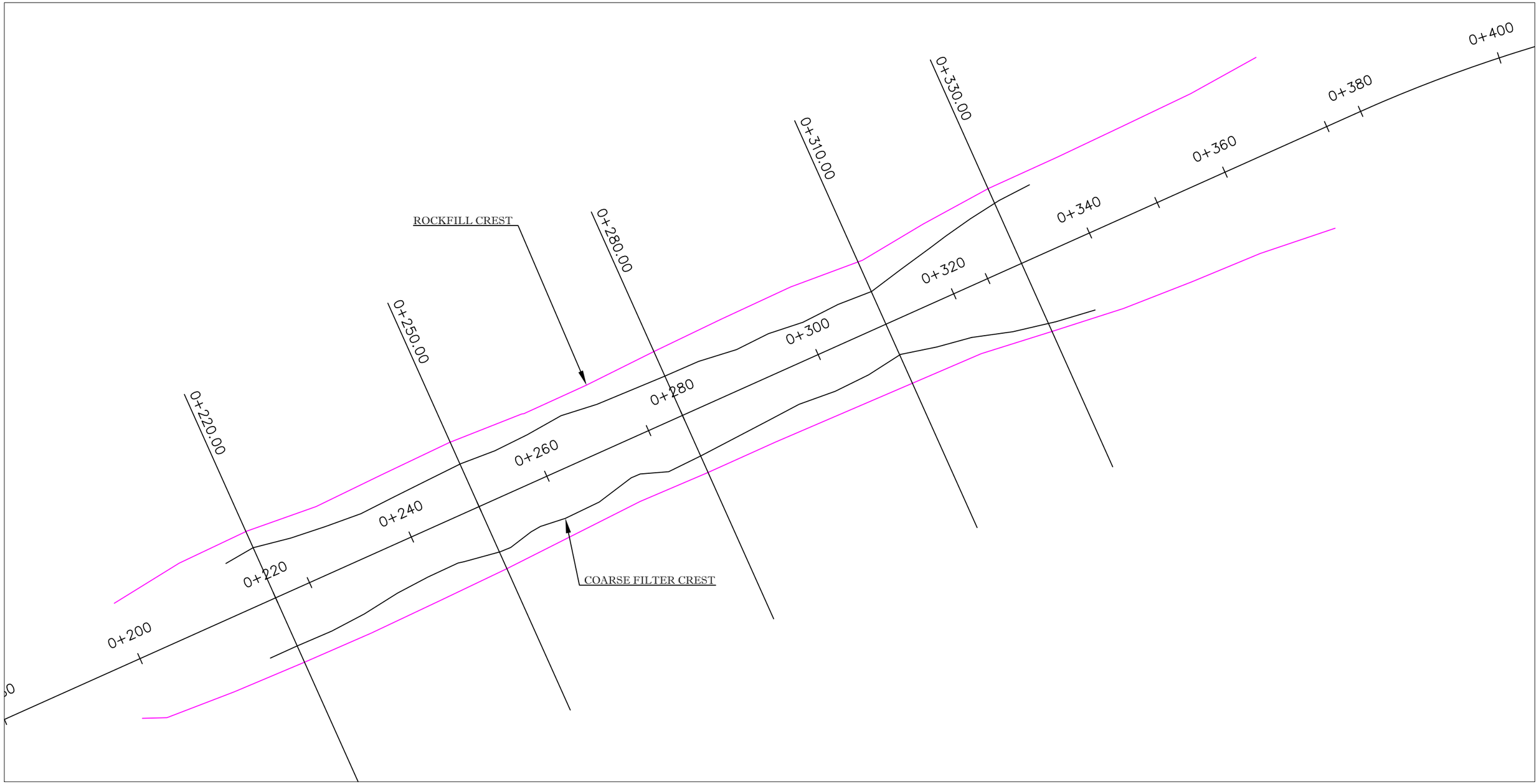
working close to the water. - use safety vest.

Issued by : Angel A. (Signature) 10/08/2018 (Date)

Verified by : (Signature) (Date)

SKETCH

COARSE FILTER BACKFILL ANALYSE
WHALE TAIL CONSTRUCTION
CONTRACT # 11-811

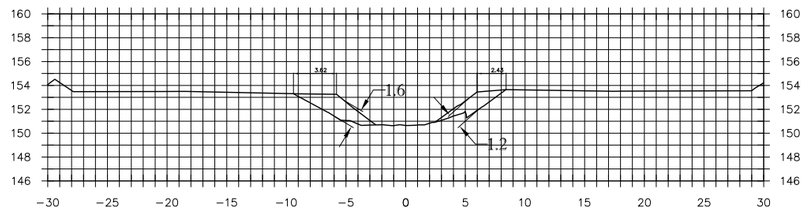


KIVALLIQ CONTRACTORS GROUP LTD

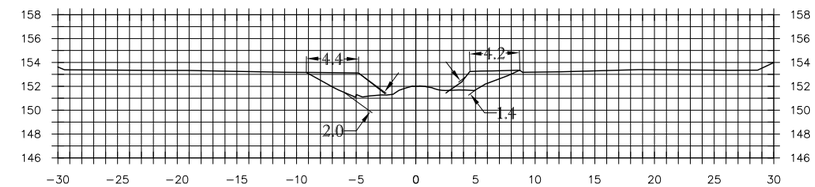
PREPARED BY : MIKAËL LÉVESQUE
DATE : 09-08-2018
CON-AD-001_CF ANALYSE

COARSE FILTER BACKFILL ANALYSE
WHALE TAIL CONSTRUCTION
CONTRACT # 11-811

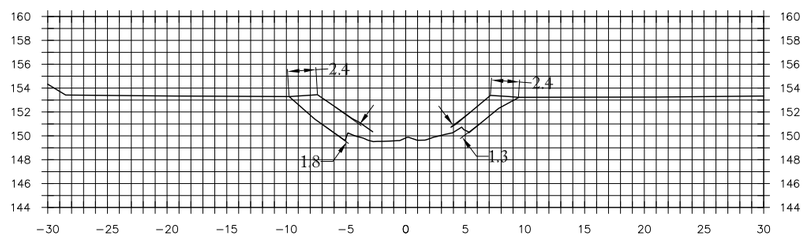
0+280.000



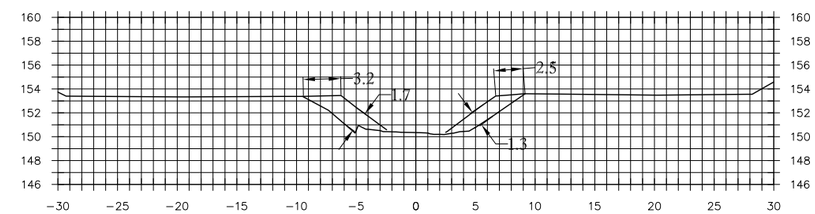
0+310.000



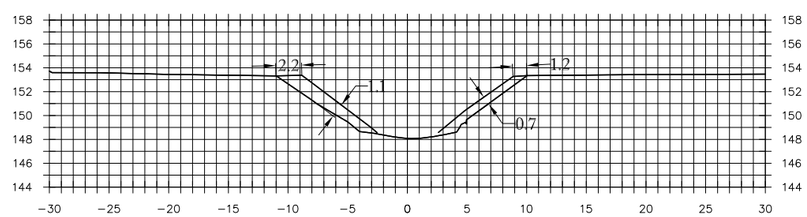
0+220.000



0+250.000



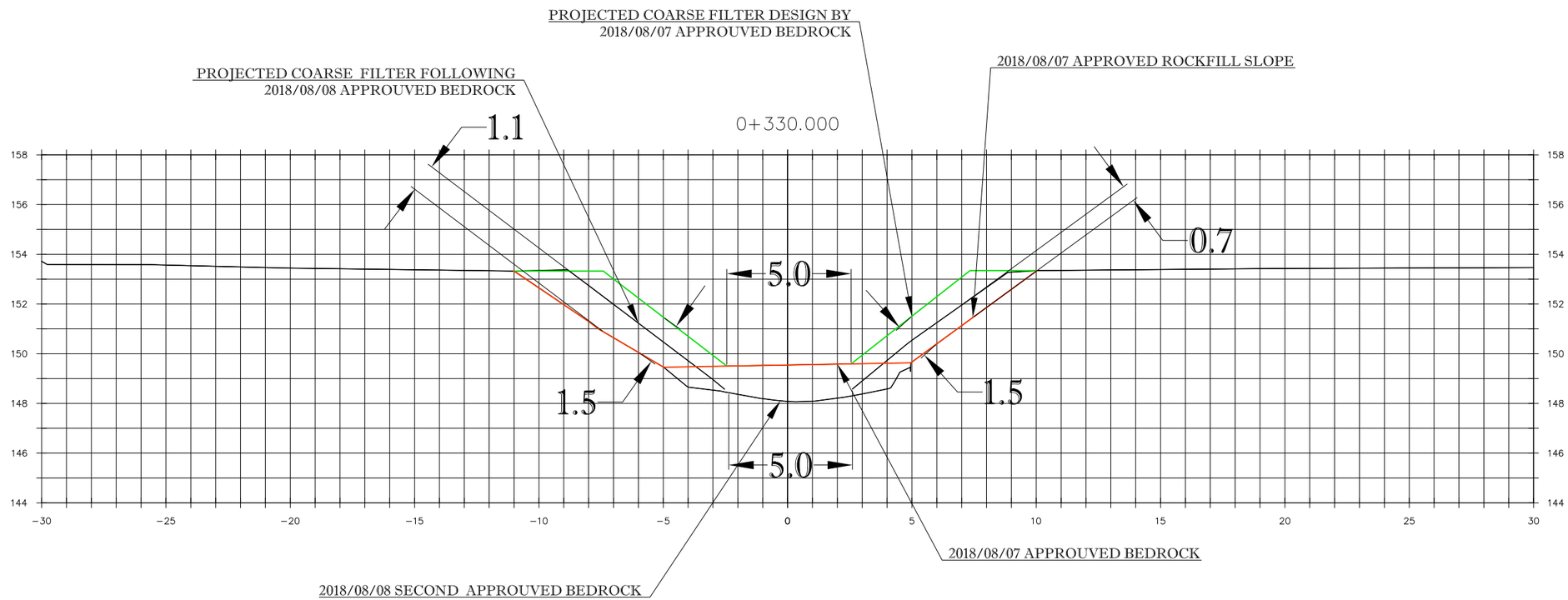
0+330.000



KIVALLIQ CONTRACTORS GROUP LTD

PREPARED BY : MIKAËL LÉVESQUE
DATE : 09-08-2018
CON-AD-001_CF ANALYSE

COARSE FILTER BACKFILL ANALYSE
WHALE TAIL CONSTRUCTION
CONTRACT # 11-811



KIVALLIQ CONTRACTORS GROUP LTD

PREPARED BY : MIKAËL LÉVESQUE
DATE : 09-08-2018
CON-AD-001_CF ANALYSE

SNC·LAVALIN

SITE REPORT
(Detailed)

20180810-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
10/08/2018	6PM-6AM	658 309	J. Leblanc

Project: WTD Construction
Client: Agnico Eagle
Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : ~5 °C

Comments :

Appendix : ☒ Yes ☐ No APPROVAL FORM.

Pictures ☒ Yes ☐ No

Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Water level survey : Downstream = 152,737m Upstream = 152,7 m.

→ From 0+340 to 0+360, Coarse filter had to be removed because the rockfill slope (toe) was badly implemented, hence the coarse filter dimensions was not meeting the specifications. Rockfill ~~wor~~ ~~toe slope~~ slope toe was initially localised using the interpolated bedrock surface. Bathymetry revealed much deeper bedrock surface (> 1,5 to 2.0m), hence the key trench needed to be larger. Rockfill slope was reprofiled using GPS measurements of the bedrock surface at the slope toe of the coarse filter.

→ Re-profiling of rockfill slopes, from 0+340 to 0+360, caused some sediments and rockfill to fall off in the middle of the trench. It will need to be clean-up again. *

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
→ East abutment	excavation of loose material. ~~for~~ (see advancement figure).	
→ West abutment	excavation (see advancement figure).	

* There is an additionnal page for this site report that follows.

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
→ Foundation approval	Southside 0+328 to 0+352	Re-approval of the foundation after rockfill slope adjustments.
→ Coarse filter placement	0+328 to 0+345	→ No approval until day shift
→ Key trench clean up on bedrock	~~[illegible]~~ North side 0+328 to 0+355	Cleaned bedrock surface. Do some spot checks during DS before bathymetry.

SAFE AND SAFETY REMARKS

Narrow Road access on both platforms with a lot of co-activity. It is really important to communicate our presence with the operators.

Issued by : Jonathan Leblanc (Signature) 2018-08-10 (Date)

Verified by : (Signature) (Date)

SKETCH

→ Key trench clean-up (bedrock surface):

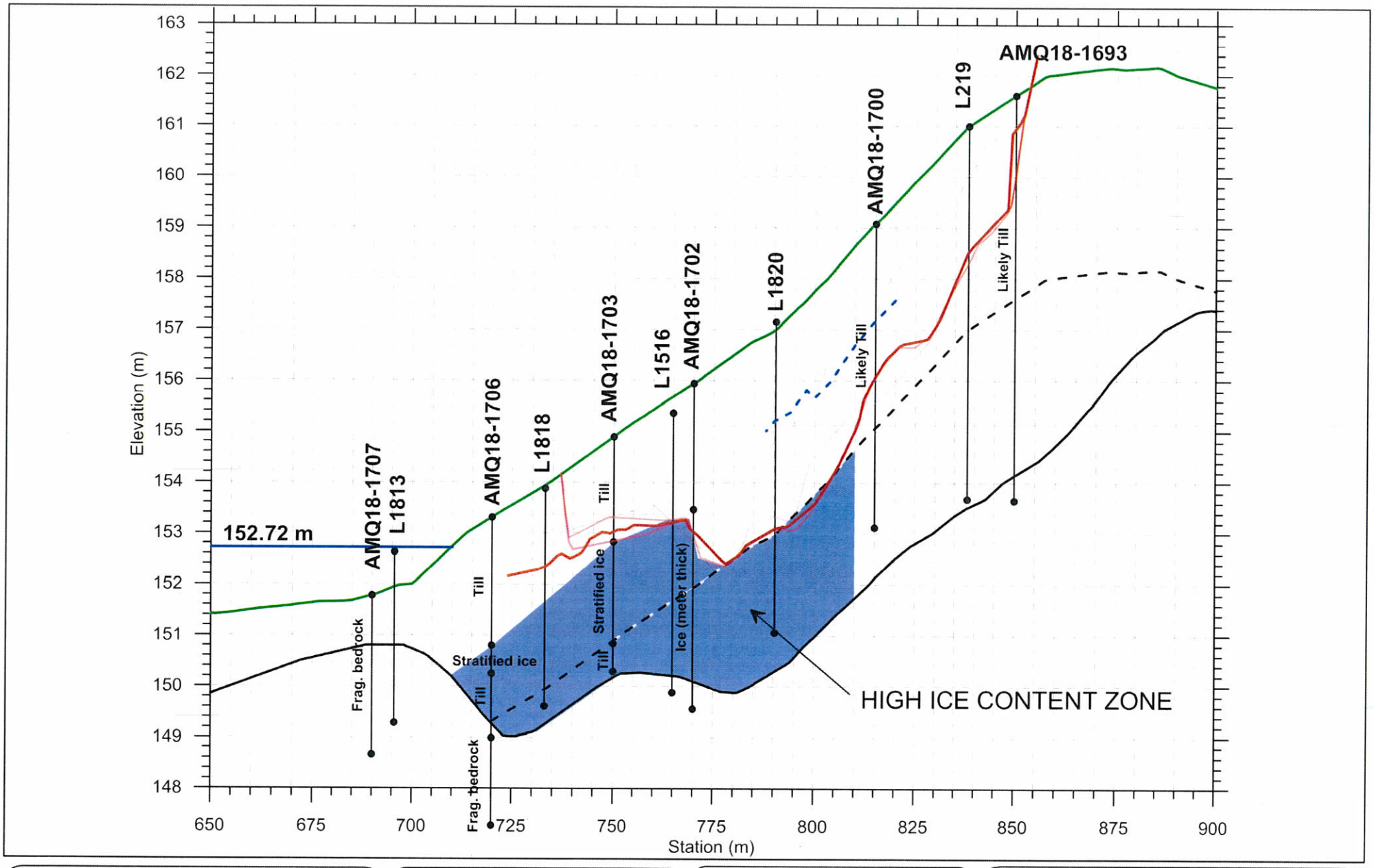
After the ~~a~~ Re-profiling of the rockfill slope, the south portion of the key trench was cleaned-up again, from 0+328 to 0+352. Spot check were taken at the centerline and compared with the bathymetry results FND-WT-005, taken the previous day shift. The south portion of the key trench was approved, from 0+328 to 0+352, and coarse filter placement ~~could~~ started again in this section.

→ Key trench needs to be cleaned up from 0+352 to 0+360 before approval and before finishing bathymetric survey of the north side of the key trench, from 0+340 to 0+360.

→ Cleaning up of the key trench from 0+340 to 0+360:

- A lot of energy was spent (the last 2 days) to clean the key trench, from 0+340 to 0+360. Lakebed sediments seems to be falling back in trench after clean-up (sediments coming from below Rockfill initial platforms and eroded by important water movement caused during the excavation). There is more than 4 m of sediments below the rockfill and close to 6 m of water depth. It is nearly impossible to perfectly clean up the trenches before new sediments falling back in.

- Around 0+360, we seems to have reached weathered bedrock (relatively clean rocks coming out of the trench during excavation). Excavator can dig deeper and deeper without reaching refusal on more quality bedrock. Low quality RQD has been observed in the area (WTD-03 and AMQ17-1210, respectively at 0+350 and 0+370). Log of AMQ17-1210 described the bedrock as "heavily fractured". RQD can be as low as 8. We should make a decision with AEM: try to continue excavation to reach more quality bedrock (deep on AMQ17-1210 log) or approve this portion of the key trench and identify the exact location of fractured bedrock zone.



Legend

- Excavation survey 20180730
- Excavation survey 20180803
- Excavation survey 20180804
- Excavation survey 20180805
- Excavation survey 20180808
- TN
- Excavation depth (4 m)
- Bedrock
- Water level (2018-08-09)
- Observed High ice content zone surface

Prepared by

SNC·LAVALIN

Prepared for

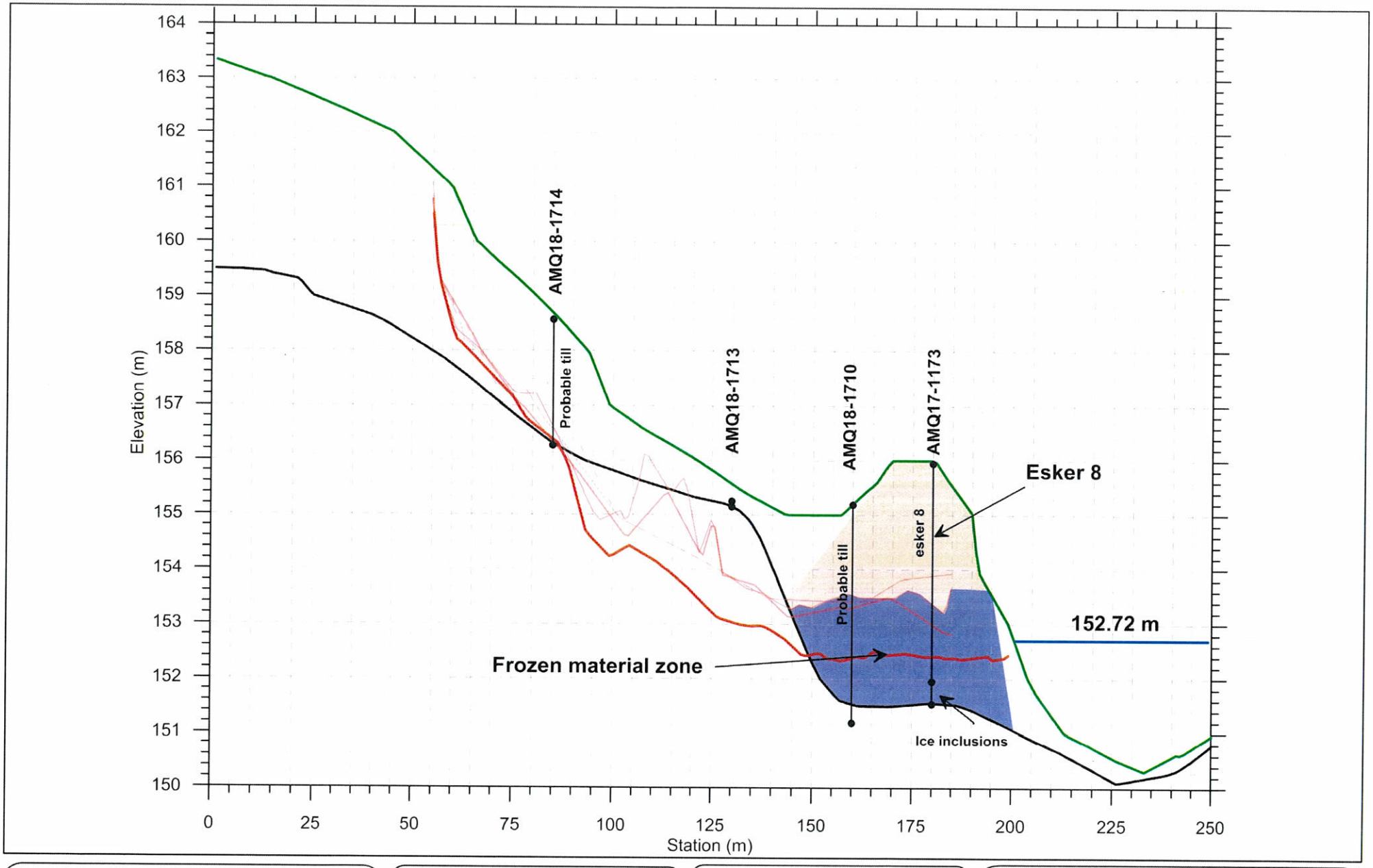
AGNICO EAGLE

Whale Tail Dike Construction

Daily excavation at the East Abutment

Dessin.	Scale	Project # 658309
Verif.	Date 2018-08-10	Figure #

5 of 5



Legend

- TN
- Bedrock
- Water level (2018-08-10)
- West abutment survey - 20180802
- West abutment survey - 20180803
- West abutment survey - 20180804
- West abutment survey - 20180805
- West abutment survey - 20180808

Prepared by

SNC · LAVALIN

Prepared for

AGNICO EAGLE

Whale Tail Dike Construction

Daily excavation at the East Abutment

Dessin.	Scale	Project # 658309
Verif.	Date 2018-08-10	Figure #

4 of 5

SNC·LAVALIN

SITE REPORT
(Detailed)

20180810-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
10/08/2018	6AM-6PM	658309	A. Arbeiza

Project	Client
WTD Construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : [X] Sunny [X] Cloudy [ ] Rain [ ] Storm [ ] Snow [ ] Glaze

Wind : [ ] None [X] Light [ ] Moderate [ ] Strong, gusts

Temperature : 7 °C

Comments :

Appendix : [X] Yes [ ] No Pictures [X] Yes [ ] No Inspection report or other :

2 Approval forms

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- spot checks and observe bathymetry performed between 0+342 to 0+355. There was a low point found around station 0+340. More points were taken and the bathymetry was adjusted (see approval form "01")
- The coarse filter placed at night (the correction of the south side at 0,7m thickness) was verified and the fine filter was placed (after approval - see approval "02")
- Since there is a lot of reprofiling to do (due to the deep bedrock - compared to the theoretical model of the rock) the contractor adapted its construction method by assuming that the bedrock is 1m below than the theoretical model. the platforms are then being re-profiled. If ever the bedrock is even lower then the contractor will have to re-profile the platforms again, but if it is not lower, he will just place more material in the trench → either more coarse or fine filter.
- Placement of fine filter from 0+314 to about 0+325. the placement is done according to specs and there was nothing abnormal to note.
- Excavation at the east and west abutment. the east excavation seems to have lowered of about 1m below the 4m blasting limit (proposed in drawings). Ice still present.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
- East abutment excavation	~ 0 +130	· ice still present.
- west abutment excavation	~ 0 + 150	· Cleaning of fractured bedrock
- Foundation approval		
- coarse filter placement	0+325 to 0+355 south	· see approval form
- fine filter placement	0+314 to 0+325	· According to Specs

SAFE AND SAFETY REMARKS

Working close to water - wear safety vests

Issued by : Signature — Date: 10/08/2018

Verified by : Signature — Date

SKETCH

SNC·LAVALIN

SITE REPORT
(Detailed)

20180811-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
11-08-2018	6PM-6AM	658309	J. LEBLANC

Project: WTD CONSTRUCTION
Client: Agnico Eagle
Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None gusts ☐ Light ☒ Moderate ☒ Strong,

Temperature : ~10 °C

Comments : A lot of RAIN AFTER 00h30.

Appendix : ☒ Yes ☐ No Approval Form

Pictures ☒ Yes ☐ No

Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ East abutment observations: ice lenses observed from 0+800 to 0+725 (the end of the current excavation). Massive ice was observed from 0+760 to 0+730. On 2018-08-09, from ~0+760 to 0+810, the excavation is about 1m below the 4m excavation line (see advancement figure).

→ West abutment observations: water from the trench is now reaching 0+120. It is impossible to see if there is still frozen material since it is now below water. Most of the abutment has been excavated into bedrock. Bedrock surface is also observed from 0+060 to 0+085, but cleaning could be done. See advancement figure.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

→ Coarse filter placement on the north side of the trench, from 0+325 to 0+355. The placement has been done according to specs (See Approval form).

→ Fine filter placement, from 0+325 to 0+330, after the approval of the coarse filter. Placement according to specs.

→ Key trench clean-up (bedrock foundation): from 0+355 to ~0+370, clean-up from the south side. A zone of heavily fractured bedrock was reached. An elevation of 144m was reached, but material was still being excavated. We stopped the excavation at 144m to try to delimitate the zone that was still observed at 0+370. A decision will have to be made by AEM representatives neither or not to excavate deeper or decide to stop the excavation at a chosen elevation.

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
- East abutment excavation	0+725 to ~0+845	See advancement figure.
- West abutment excavation	0+055 to 0+200	See advancement figure.
- Coarse filter placement approval	North side 0+325 to 0+355	See approval form.
-> Fine filter placement.	0+325 to 0+330	According to specs.
-> Clean up bedrock foundation and rockfill profiling	0+355 to ~ 0+369	We reached heavily fractured zone (see sketch)

SAFE AND SAFETY REMARKS

Particularly dark night ~~while~~ with a lot of rain. It's particularly difficult to be visible and radio communication is essential.

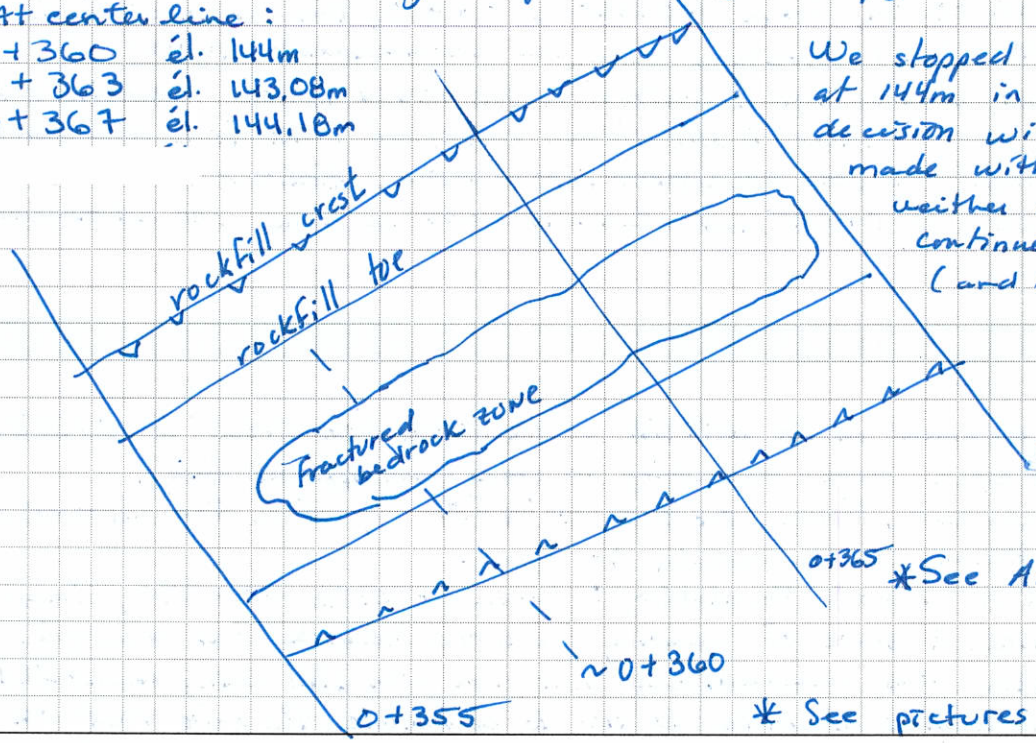
Issued by : Jonathan Leblanc — Signature — 2018-08-11 — Date

Verified by : Signature — Date

SKETCH

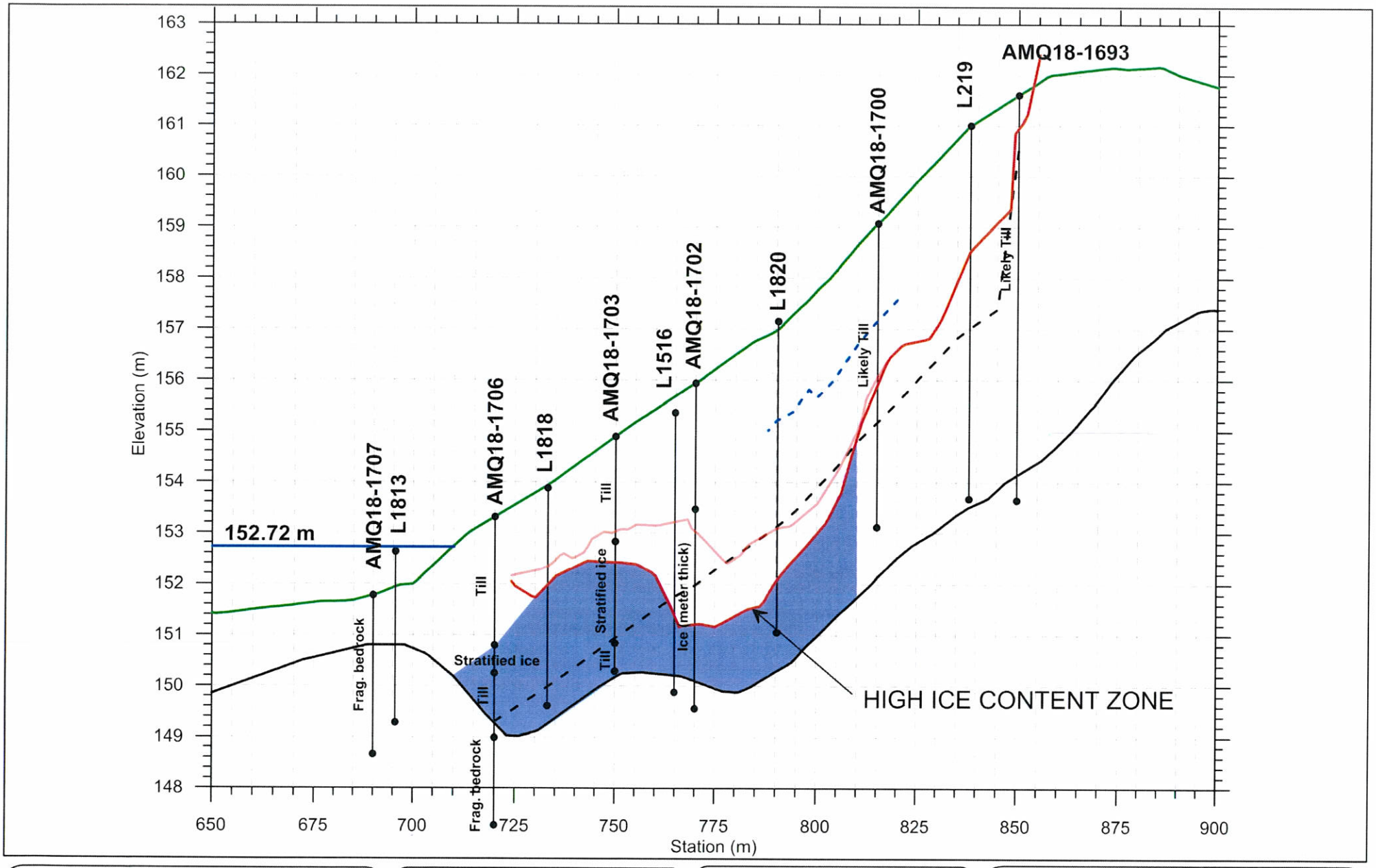
At 0+361, an elevation of 144.15m has been reach.
The more we go deep, the more heavily fractured the bedrock becomes.
The excavator can't go any further (to deep).
At center line :
0+360 él. 144m
0+363 él. 143.08m
0+367 él. 144.18m

We stopped the excavation at 144m in the zone. A decision will have to be made with AEM representatives weither or not to continue excavating (and how to proceed).



*See AMQ17-1210.

* See pictures of excavated material.



Legend

- Excavation survey 20180808
- Excavation survey 20180809
- TN
- Excavation depth (4 m)
- Bedrock
- Water level (2018-08-09)
- Observed High ice content zone surface

Prepared by

SNC·LAVALIN

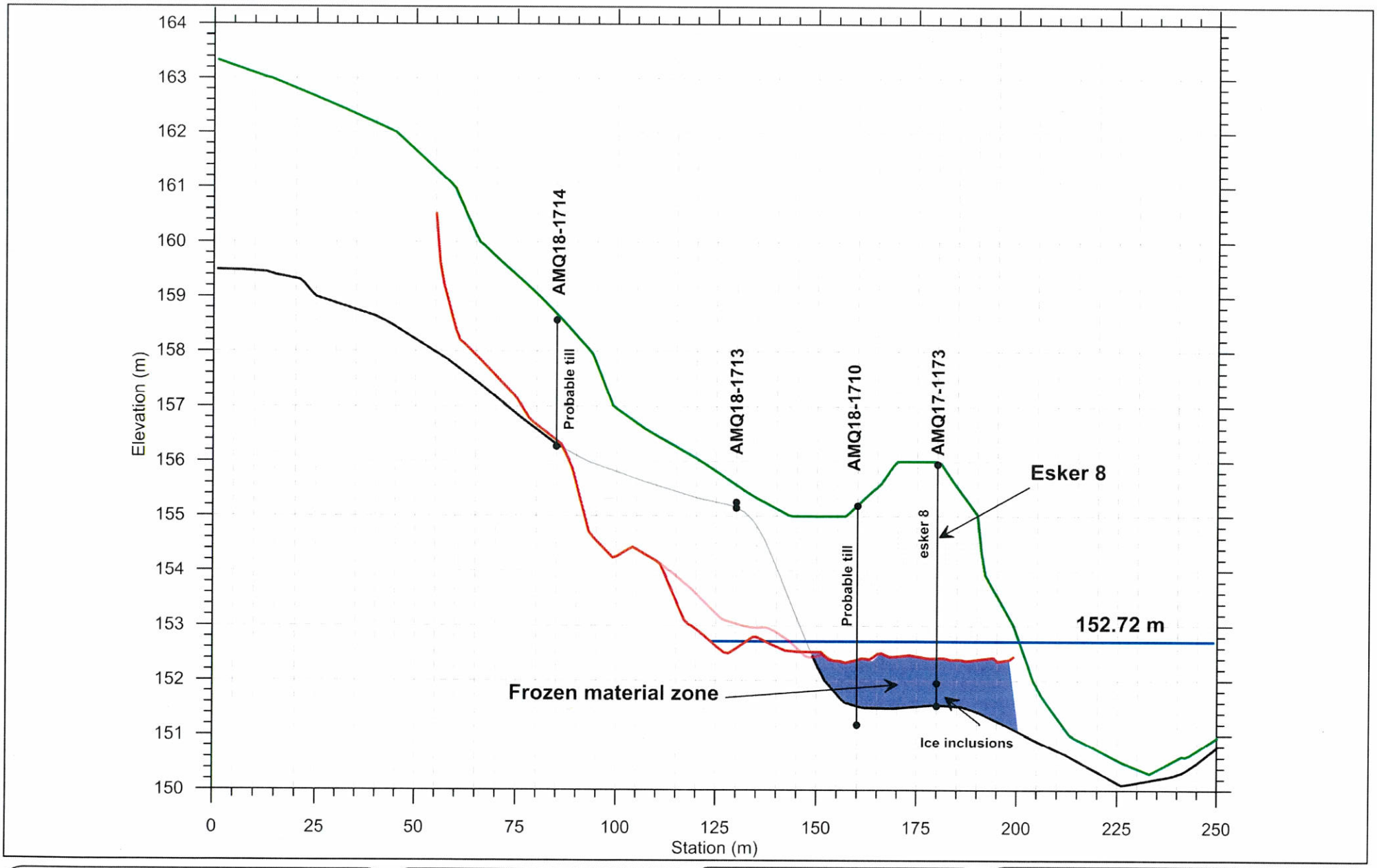
Prepared for

AGNICO EAGLE

Whale Tail Dike Construction

Daily excavation at the East Abutment

Dessin.	Scale	Project # 658309
Verif.	Date 2018-08-11	Figure #



Legend

- TN
- Bedrock
- Excavated bedrock
- Water level (2018-08-10)
- West abutment survey - 20180808
- West abutment survey - 20180809

Prepared by

SNC·LAVALIN

Prepared for

AGNICO EAGLE

Whale Tail Dike Construction

Daily excavation at the East Abutment

Dessin.	Scale	Project # 658309
Verif.	Date 2018-08-11	Figure #

SNC·LAVALIN

SITE REPORT
(Detailed)

20180811-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
11/08/2018	6AM-6PM	658309	A. Arbaiza

Project: WTD Construction
Client: Agnico Eagle
Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : _____ °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Due to the low elevation of the bedrock (very fractured) at st. 0+360 and 0+369, it was decided to excavate from st 0+440 (where bedrock is at el. 149 m and is good quality - according to borehole WTD-04 (2m downstream of centerline) towards to west. Unfortunately the shovel with long reach and with GPS is broken so effort will be placed from st. 0+500 to 0+700 to find the frozen soil and let it thaw. Also, the east and west abutments are being excavated.
- there was an internal discussion with the client to figure out the strategy in the problematic section (0+355 to 0+370) since the other shift found very fractured

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

bedrock at elevations around 143.1 m (at st. 0+363). The designer agreed to stop the excavation ~~[illegible]~~ on this sector and note it for henry drilling. This sector might need to be injected or deeper secant piles would have to be installed if unstable.

- for this same sector, the contractor proposed to approve the foundation by 4 steps (due to difficult reach with the shovel): First clean the sector with the non profiled platforms and take points with the shovel to create a bathymetry (south side), then do the same on the North side, then re-profile the platforms according to the elevation of the bedrock and place the coarse filter on both sides, and finally do a final clean up of the trench and final bathymetry of the portion were the fine filter will be placed.

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
• Fine filter placement	0+330 to 0+342	• placement according to specs. Sampling taken by QC at st. 0+340
• Cleaning of key trench	0+355 to 0+370	• 4 steps approval as described.
• East abutment excavation	~0+780	• using a reaper - ice present.
• west abutment excavation	~0+180 to 0+200	• foundation almost ready to be approved.

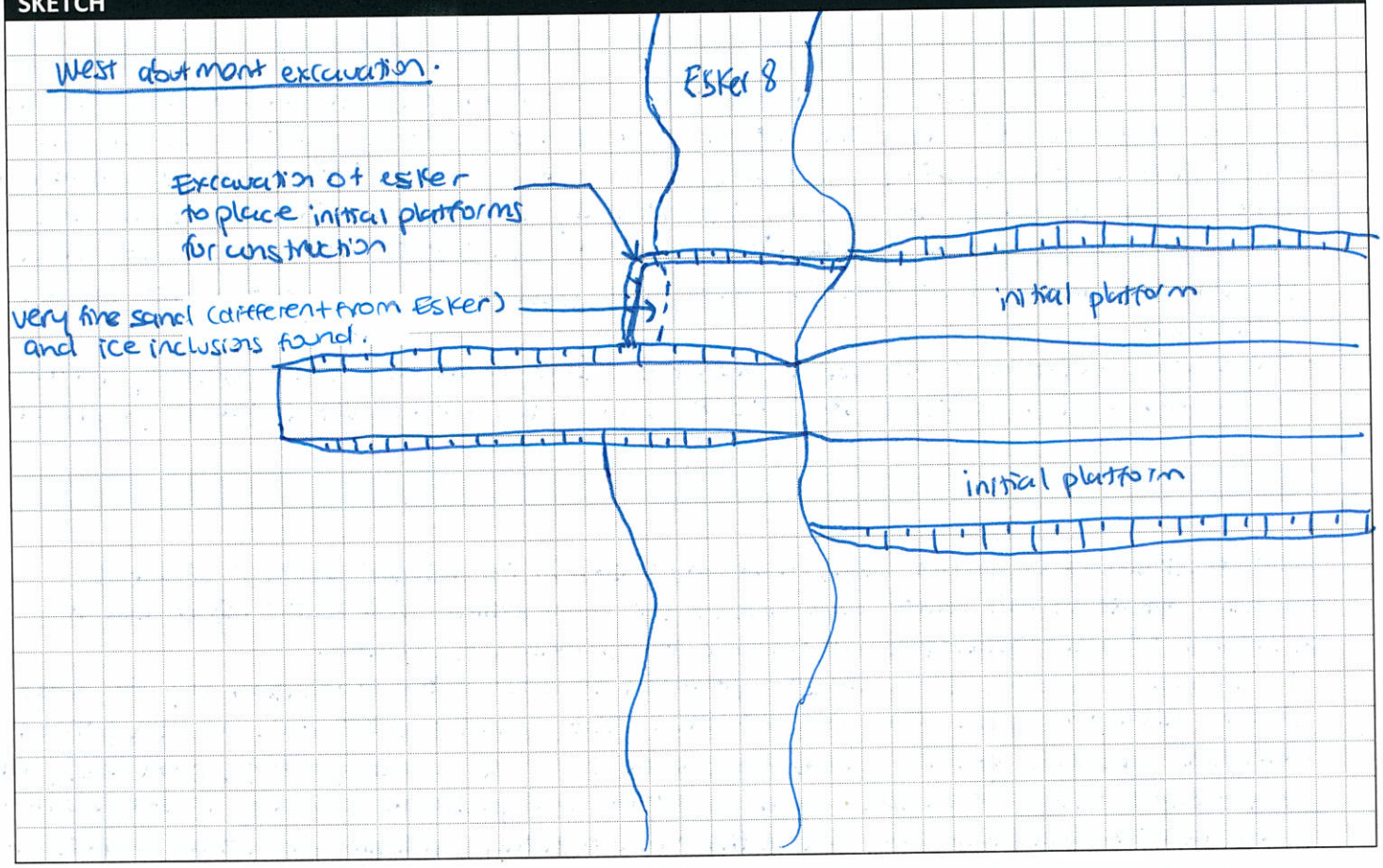
SAFE AND SAFETY REMARKS

Working near water - keep your distance and wear safety vest.

Issued by : Signature — Date: 11/08/2018

Verified by : Signature — Date

SKETCH



SNC·LAVALIN

SITE REPORT
(Detailed)

20180812-NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
12-08-2018	6AM - 6AM	658309	J. Leblanc

Project: WTD Construction
Client: Agnico Eagle
Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☐ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☐ Moderate ☒ Strong, gusts

Temperature : ~ 4 °C

Comments :

Appendix : ☐ Yes ☒ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Cleaning of the key trench from 0+355 to 0+370 on the north side prior to the first north side bathymetry (without going any deeper in the fractured bedrock). First bathymetry on the north side, from 0+355 to 0+370 with the GPS equipped bucket. Rockfill slope profile of the north side from 0+355 to 0+370. Needs to be cleaned again before taking the second bathymetry.

→ West abutment cleaning of the key trench, from 0+150 to ~~0+197~~ 0+197. ~~The action was supposed~~ Bathymetry was done from 0+150 to 0+182. Lakebed sediments was observed in the deeper zone at about 0+204-0+205. Clean-up needs to be finished from 0+197 to 0+205, from both side of the trench.

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
→	East abutment excavation observation from 0+725 to ~0+770 specifically.	
→	West abutment sloping of the key trench in the bedrock section, from 0+150 to 0+063 on the north side. The ~~two~~ foundation of the ~~lowest~~ abutment is on bedrock and is ready for approval. Particular attention on the 3H:1V slope at the ~~back~~ end of the abutment.	

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
→ Bedrock foundation clean-up	0+355 to 0+370 on the north side	initial clean-up (without going any deeper).
→ Bathymetry of Bedrock foundation	0+355 to 0+370 northside	Prior to profiling the rockfill slope.
→ Bedrock foundation clean-up at the west abutment	0+150 to 0+205	cleaning still needs to be done from 0+197 to 0+205 and should be done on both side.

*

SAFE AND SAFETY REMARKS

Strong wind and rain with very low visibility. Needs to take good care in order to be really visible on the site

Issued by : Jonathan Leblanc (Signature) 2018-08-12 (Date)

Verified by : (Signature) (Date)

SKETCH

* Bedrock foundation bathymetry of the west abutment done from station 0+150 to 0+182. Cleaning up needs to be done before advancing the bathymetry any further. All the section of the trench (0+150 to 0+205) was supposed to be already clean, but sediment was still found, especially at 0+204 – 0+205, where sediments accumulated in a depression in the bedrock, next to the fine filter.

SNC·LAVALIN

SITE REPORT
(Detailed)

20180812-DS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
12/08/2018	6AM-6PM	658309	A. Arbaiza

Project	Client
WTD construction	Agnico Eagle

Consultant	Contractor
SNC-Lavalin	KCG

Weather : ☒ Sunny ☒ Cloudy ☒ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☐ Light ☐ Moderate ☐ Strong, gusts

Temperature : ~5 °C

Comments :

Appendix : ☒ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

Approval form

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

- Inspect the re-profiling of the initial platforms from st. 0+355 to 0+375 (noticeable offset due to low elevation of the bedrock). The bathymetry of the key trench was done during the other two shifts but we did not receive the bathymetry yet - it seems that the surveyor was too busy. Therefore no approval was done for this section yet. - Bathymetry received at the end of the shift and approved
- the west abutment was cleaned from st. 0+205 to 0+150. No presence of ice was observed. It should be noted that between st. 0+155 to 0+175 the bedrock elevation was found to be higher (from 0,2m to 1m). Before approval, QA and QC went to do some spot checks with the shovel and see if the elevations

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to

were right. It seems that there is an outcrop of bedrock in this zone, being the highest elevation at st. 0+160 (see sketch). It should be noted that the closest boreholes are at st. 0+160 and 0+180, therefore it is very possible that an outcrop is located just in the middle. Several checks were performed with the shovel but no material was coming out. Since this is the zone were frozen material can be encountered, it was decided to keep making spot checks while placing the coarse material to see if the foundation thaws (if frozen soil).

- East abutment excavation: lowest point at st. 0+775, el. 150.75m (0,75m to reach bedrock).

SPECIFIC ELEMENTS VERIFIED

Elements	Location	Scope and comments
• Excavation at east abutment	~ 0 + 775	• Bedrock (theoretical) almost reached
• Excavation at west abutment (cleaning and bathymetry)	0+205 to 0+150	• Approval form
• Reprofile of platforms	0+355 to 0+325	• Bathymetry received - Approval night shift.

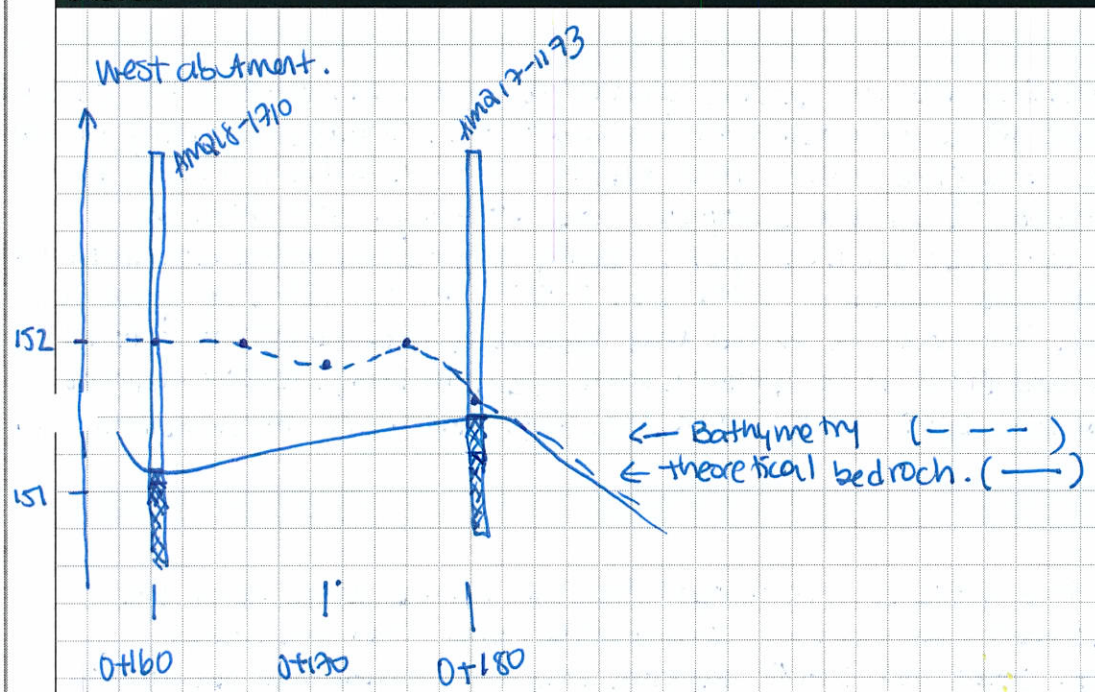
SAFE AND SAFETY REMARKS

- working close to water - safety vest.

Issued by : Signature 12/08/2018 Date

Verified by : Signature Date

SKETCH



SNC·LAVALIN

SITE REPORT
(Detailed)

2018 08 13 - NS-SR
Document number

Visit date	Time (Start/End)	Project No.	Prepared by
13/08/2018	6PM-6AM.	658 309	J. Leblanc

Project: WTD Construction
Client: Agnico Eagle

Consultant: SNC-Lavalin
Contractor: KCG

Weather : ☐ Sunny ☒ Cloudy ☐ Rain ☐ Storm ☐ Snow ☐ Glaze

Wind : ☐ None ☒ Light ☐ Moderate ☐ Strong, gusts

Temperature : ~ 2 °C

Comments :

Appendix : ☐ Yes ☐ No Pictures ☒ Yes ☐ No Inspection report or other :

ACTIVITIES PERFORMED BY SNC-LAVALIN (indicate if test forms were used)

→ Coarse filter placement observations on the north side of the key trench, from station 0+355 to 0+370. The excavator has almost finished the placement but he had some issues with the GPS during the shift. This will have to be approved during day shift. The placement of the material meet the specs requirements.

→ Coarse filter placement observations at the west abutment, from station 0+205 to 0+150. The south side of the trench was completed but we didn't verify the measurements with a surveyor. This will have to be done during day shift before the approval. The north side of the trench has just begun (maybe at ~ 0+190).

SITE GUIDELINES (guidelines, memos, modification proposals, etc.)

No	Subject	Given to
→	Observations of QC rep. sampling coarse filter in place at station 0+360 and 0+165.	
→	Cleaning of the west abutment key trench from station 0+150 to 0+132. Bathymetric survey with the GPS of the shovel started at 0+150 but stopped at 0+132 (excavator was required elsewhere so the survey stopped and will have to be completed).	
→	West abutment footprint on bedrock: QC rep. asked to clean the bedrock in the west abutment. There is some depressions in the rock where sediments need to be excavated. (The cleaning was no achieved during this night shift).	