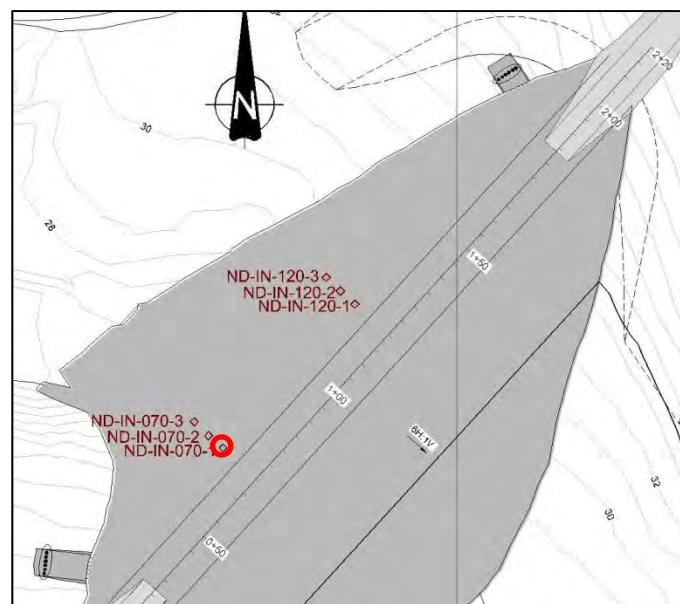
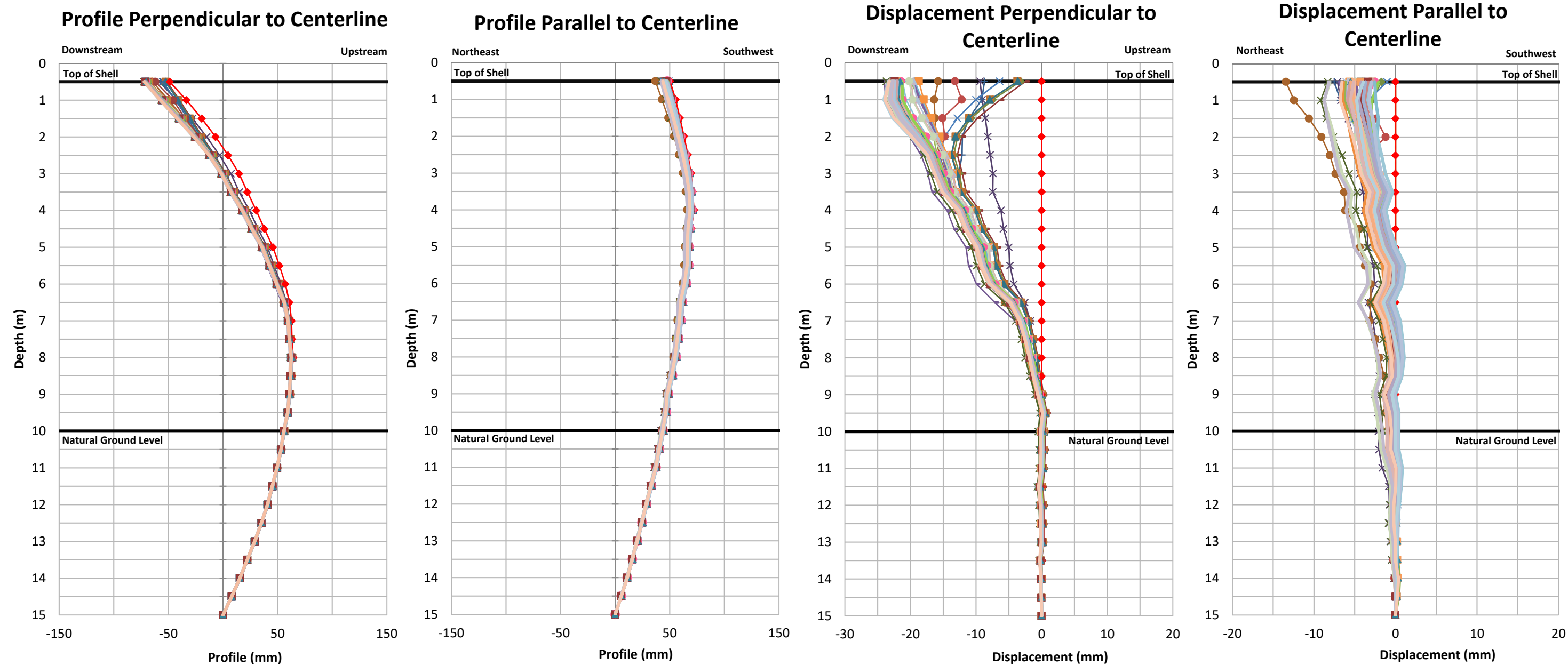




- Notes:**
1. Manufacture's accuracy is +/- 0.25 mm per location
 2. Survey data excluded from the charts is noted on Figure E.1

LEGEND:		
7/26/2013	10/1/2013	5/18/2014
7/12/2014	8/8/2014	9/1/2014
10/1/2014	2/2/2015	3/21/2015
4/8/2015	4/16/2015	5/18/2015
6/25/2015	7/9/2015	8/2/2015
9/4/2015	10/9/2015	11/25/2015
12/30/2015	2/8/2016	3/7/2016
4/11/2016	7/2/2016	8/14/2016
9/25/2016	12/24/2016	11/26/2016
1/26/2017	2/23/2017	3/23/2017
4/15/2017	5/20/2017	6/25/2017
7/16/2017	8/9/2017	9/14/2017
10/14/2017	11/16/2017	12/16/2017
1/16/2018	2/16/2018	3/21/2018
4/20/2018	5/19/2018	6/8/2018
7/7/2018	8/3/2018	9/29/2018
10/21/2018	Initial Reading (9/8/2012)	

srk consulting

TMAC
RESOURCES

2018 Annual Geotechnical Inspection

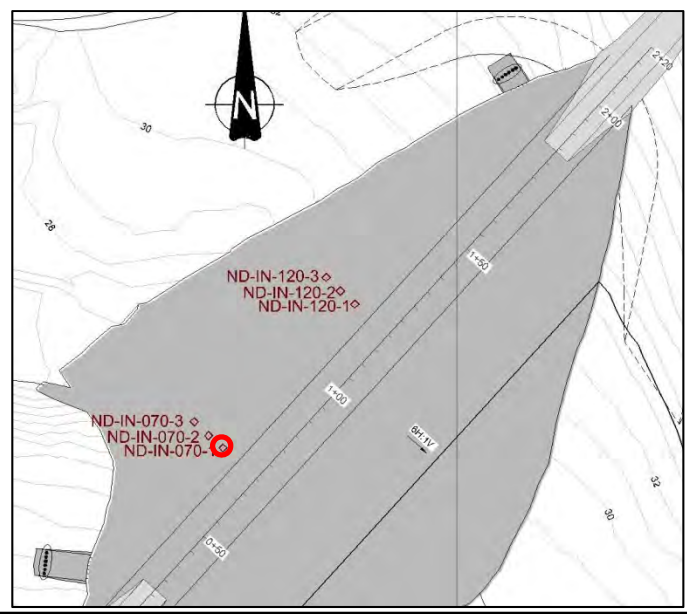
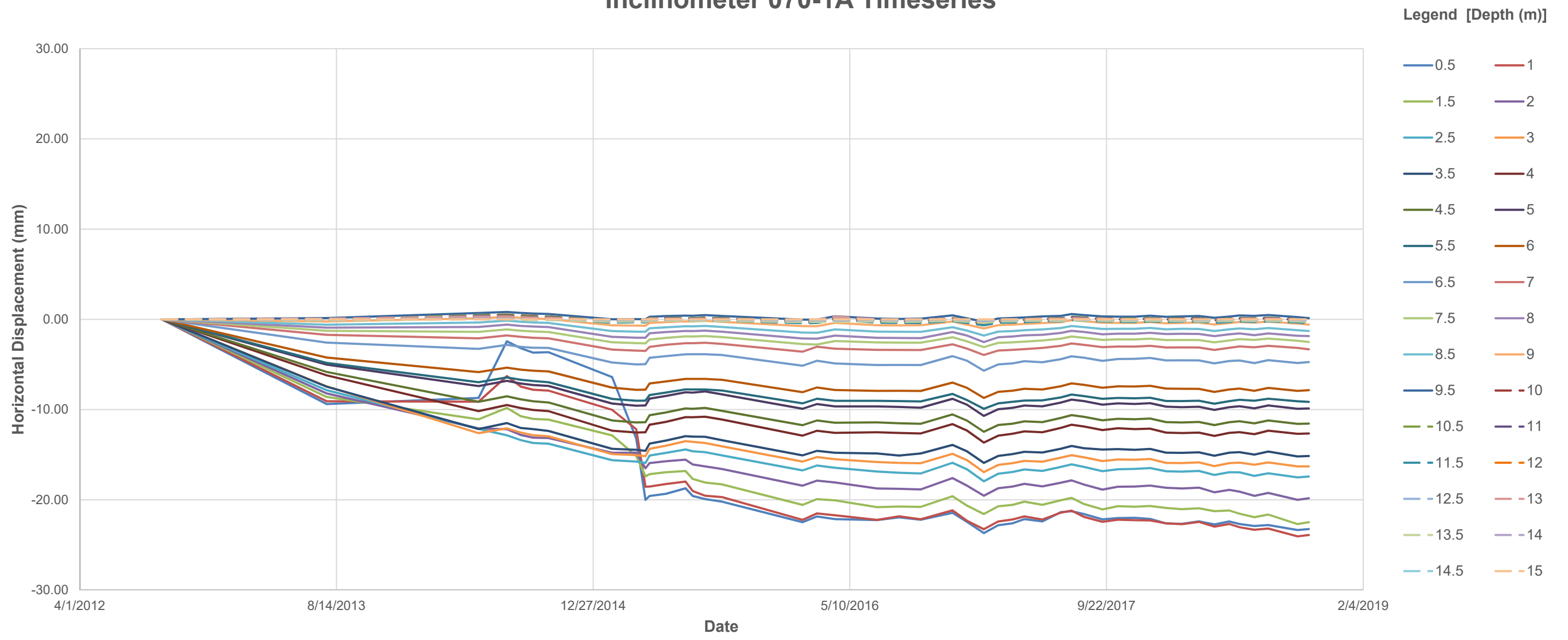
Inclinometer 070-1

Job No: 1CT022.028
Filename: AppE_1CT022.028_Inclinometers.pptx

DORIS TIA

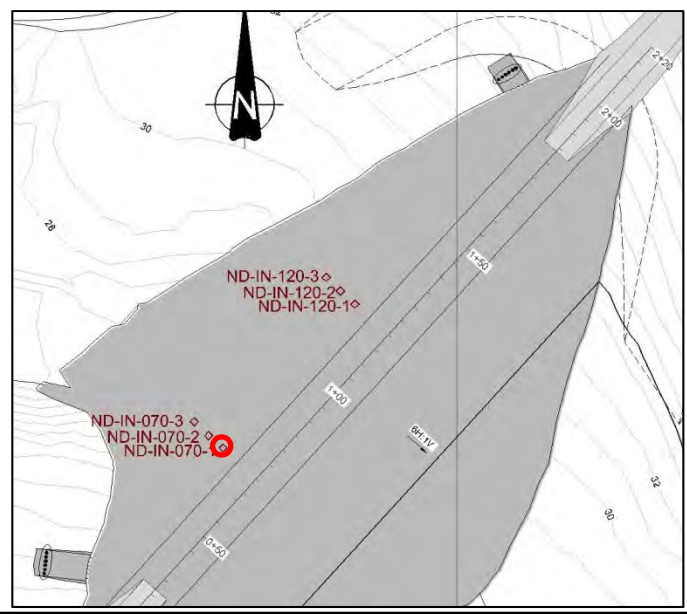
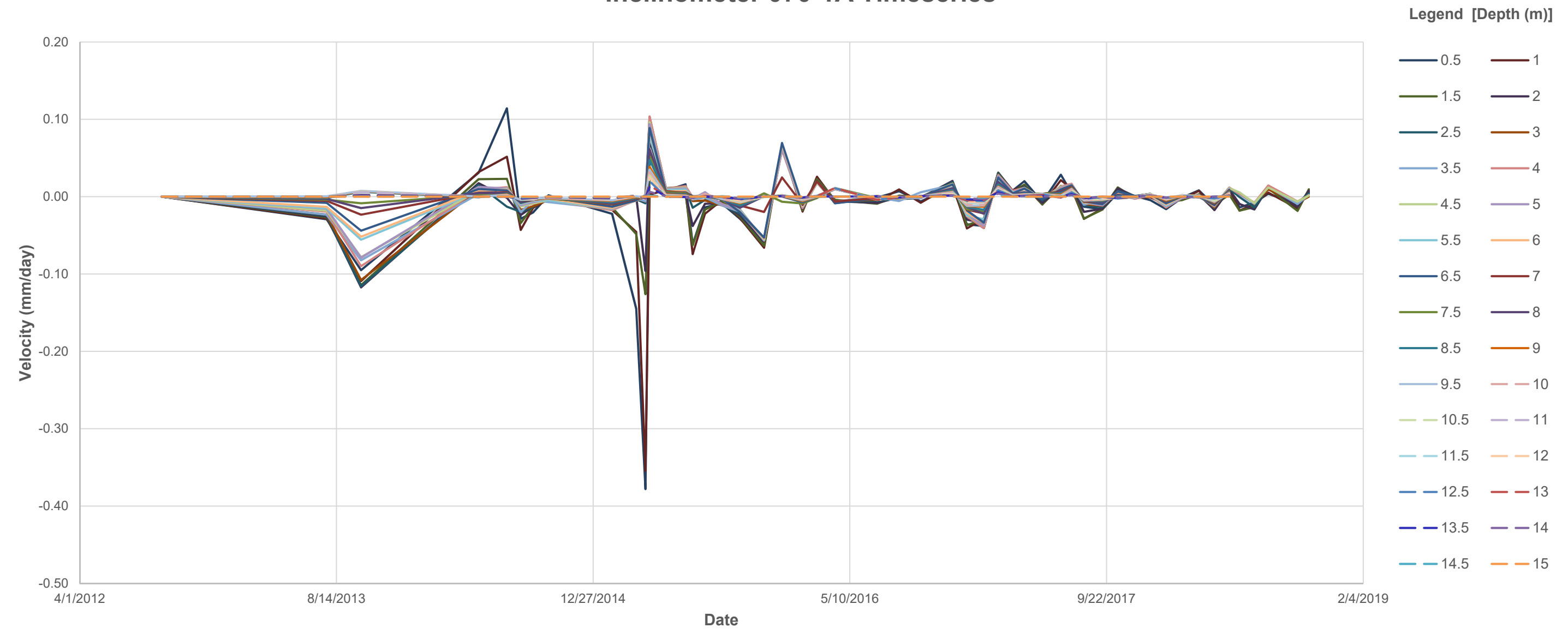
Date: Nov. 2018
Approved: PDL
Figure: **E.2**

Inclinometer 070-1A Timeseries



- Notes:**
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

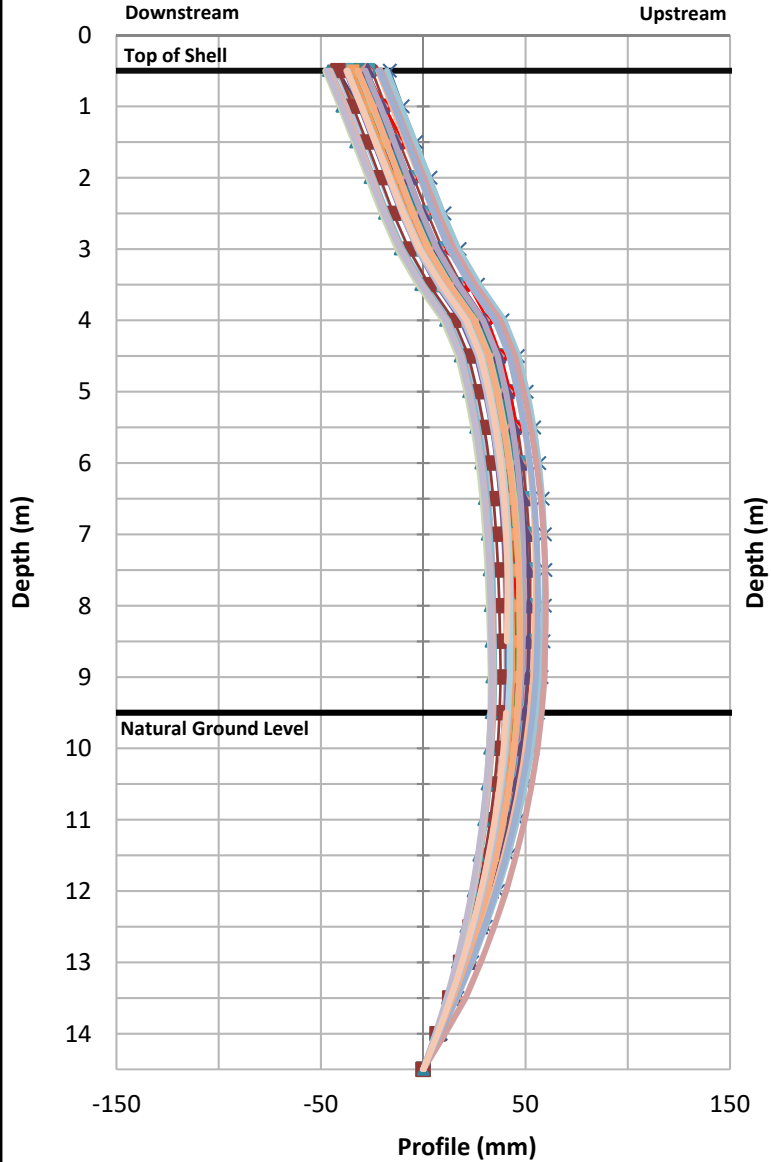
Inclinometer 070-1A Timeseries



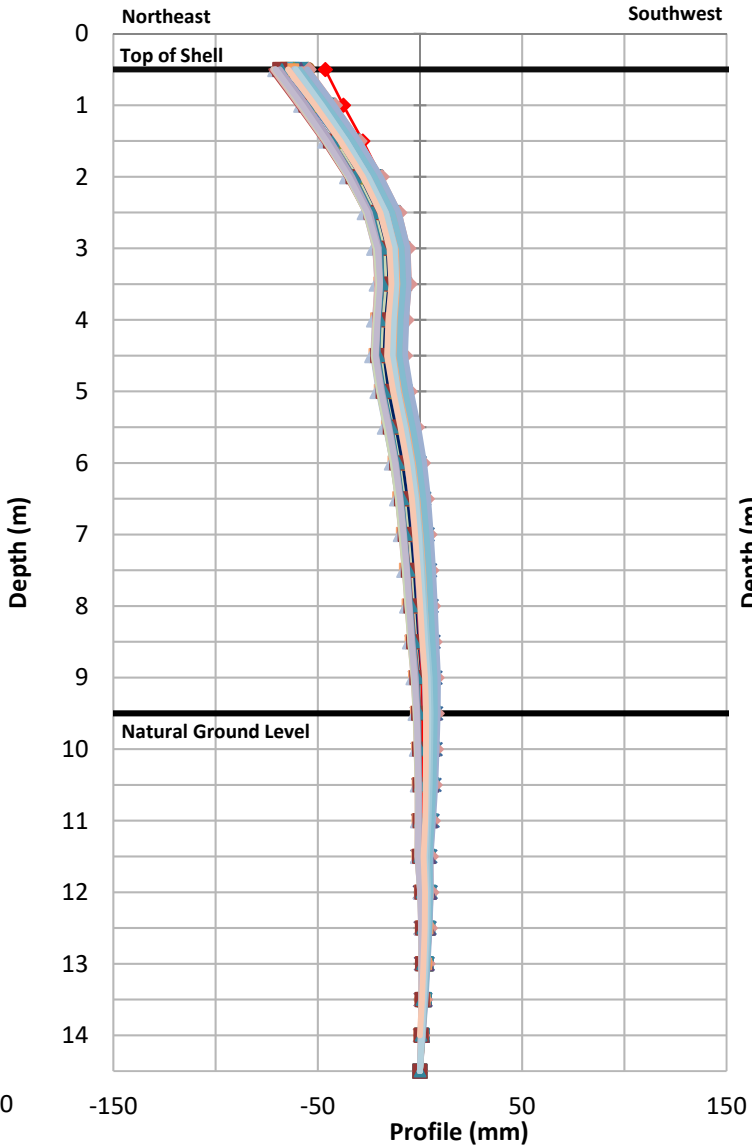
- Notes:**
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

		2018 Annual Geotechnical Inspection		
		Inclinometer 070-1A Velocity Time Series		
Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	DORIS TIA	Date: Jan. 2019	Approved: PDL	Figure: E.4

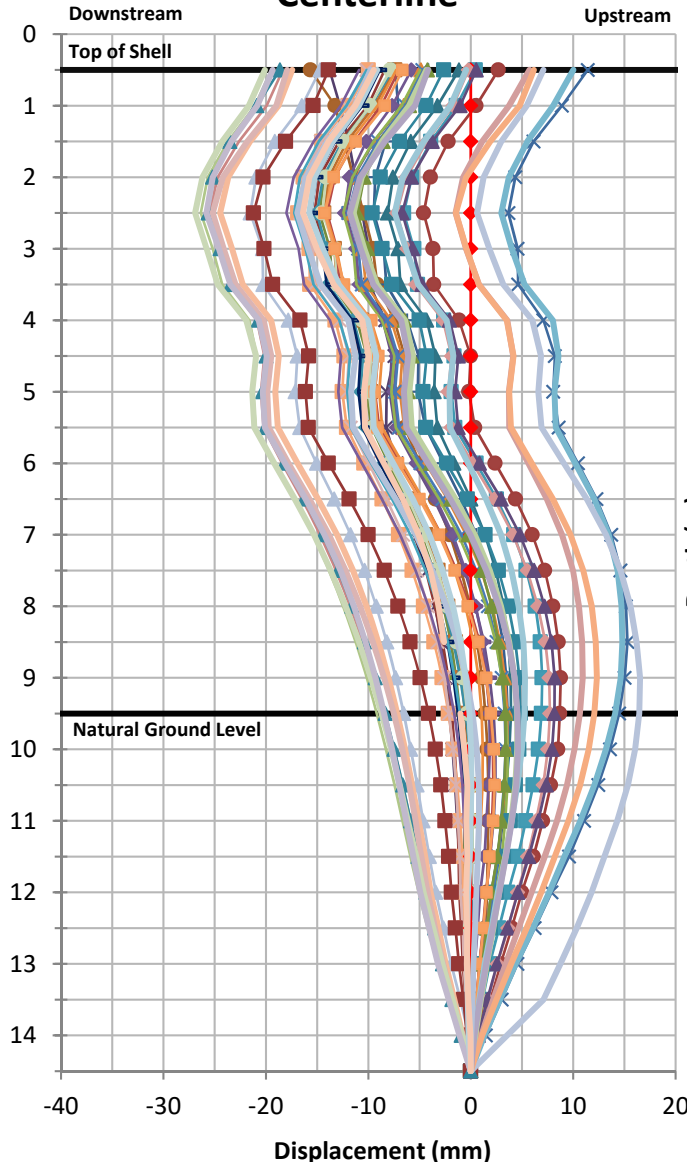
Profile Perpendicular to Centerline



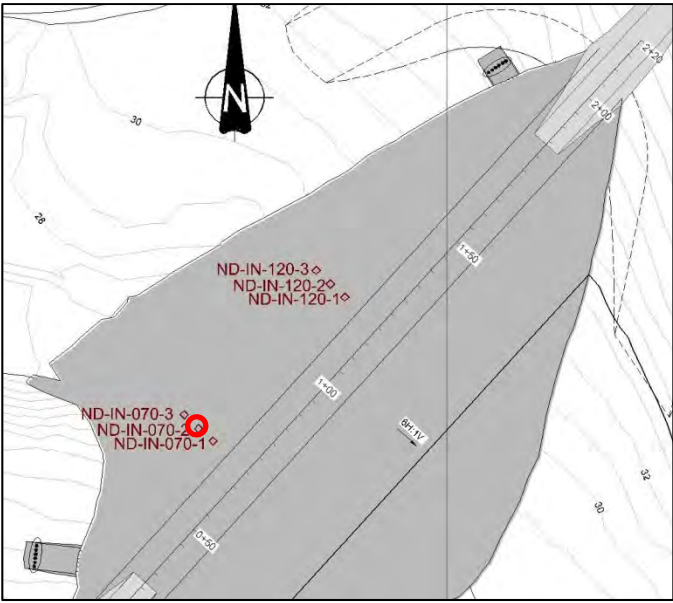
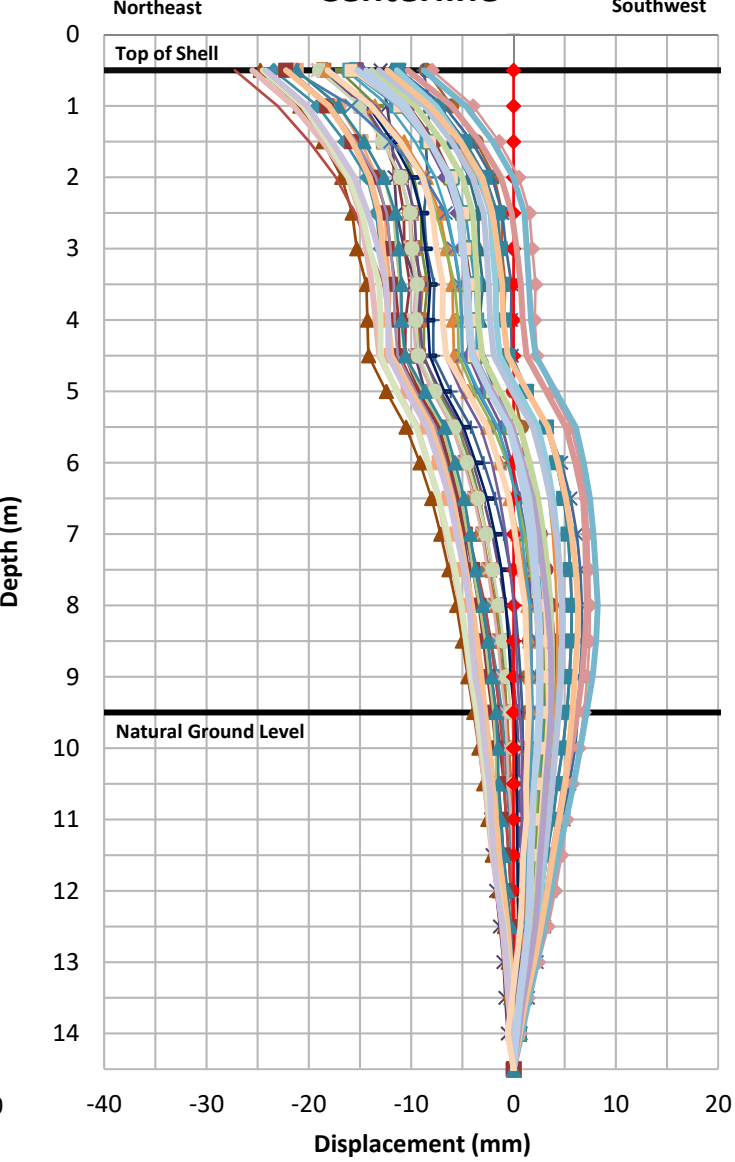
Profile Parallel to Centerline



Displacement Perpendicular to Centerline



Displacement Parallel to Centerline



- Notes:**
1. Manufacture's accuracy is +/- 0.25 mm per location
 2. Survey data excluded from the charts is noted on Figure E.1

LEGEND:

- | | | |
|------------|----------------------------|------------|
| 7/26/2013 | 10/1/2013 | 5/20/2014 |
| 7/12/2014 | 8/8/2014 | 9/1/2014 |
| 10/1/2014 | 2/1/2015 | 3/21/2015 |
| 4/16/2015 | 5/18/2015 | 6/25/2015 |
| 7/9/2015 | 8/2/2015 | 8/8/2015 |
| 9/4/2015 | 10/9/2015 | 11/25/2015 |
| 12/30/2015 | 2/8/2016 | 3/7/2016 |
| 4/11/2016 | 7/2/2016 | 12/24/2016 |
| 8/14/2016 | 9/26/2016 | 12/24/2016 |
| 11/26/2016 | 2/23/2017 | 3/23/2017 |
| 4/15/2017 | 5/20/2017 | 6/25/2017 |
| 7/16/2017 | 8/9/2017 | 9/14/2017 |
| 10/14/2017 | 11/16/2017 | 12/16/2017 |
| 1/16/2018 | 2/16/2018 | 3/21/2018 |
| 4/20/2018 | 5/19/2018 | 6/8/2018 |
| 7/7/2018 | 8/3/2018 | 9/29/2018 |
| 10/21/2018 | | |
| | Initial Reading (9/8/2012) | |

srk consulting

Job No: 1CT022.028
Filename: AppE_1CT022.028_Inclinometers.pptx

TMAC
RESOURCES

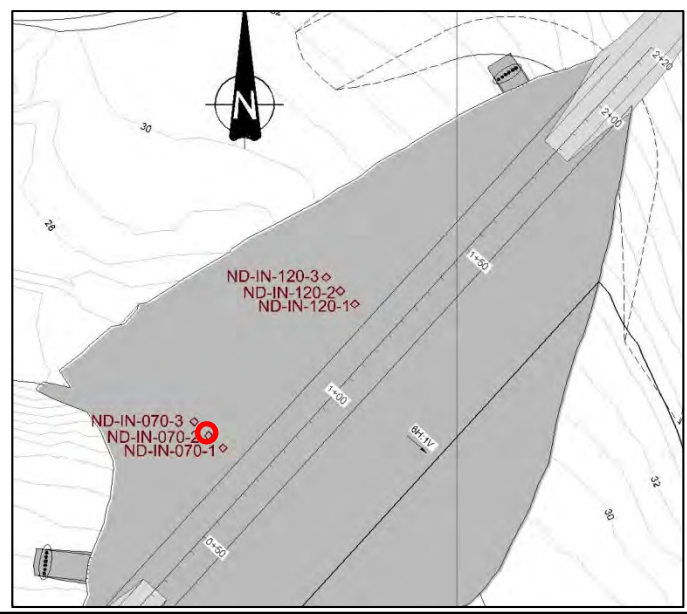
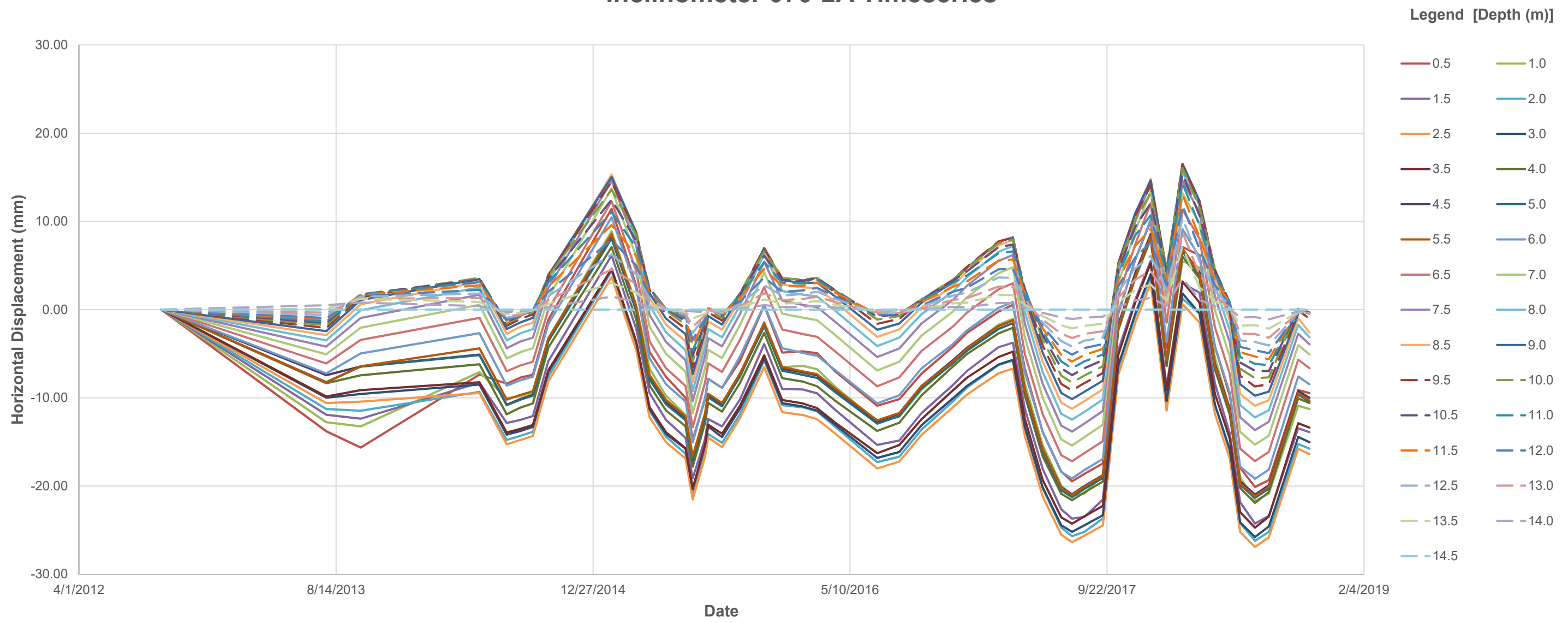
DORIS TIA

2018 Annual Geotechnical Inspection

Inclinometer 070-2

Date: Jan. 2019	Approved: PDL	Figure: E.5
-----------------	---------------	--------------------

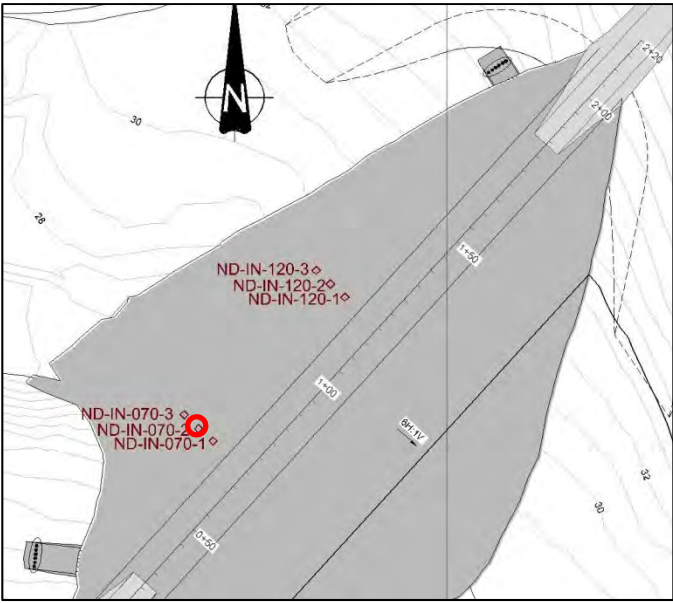
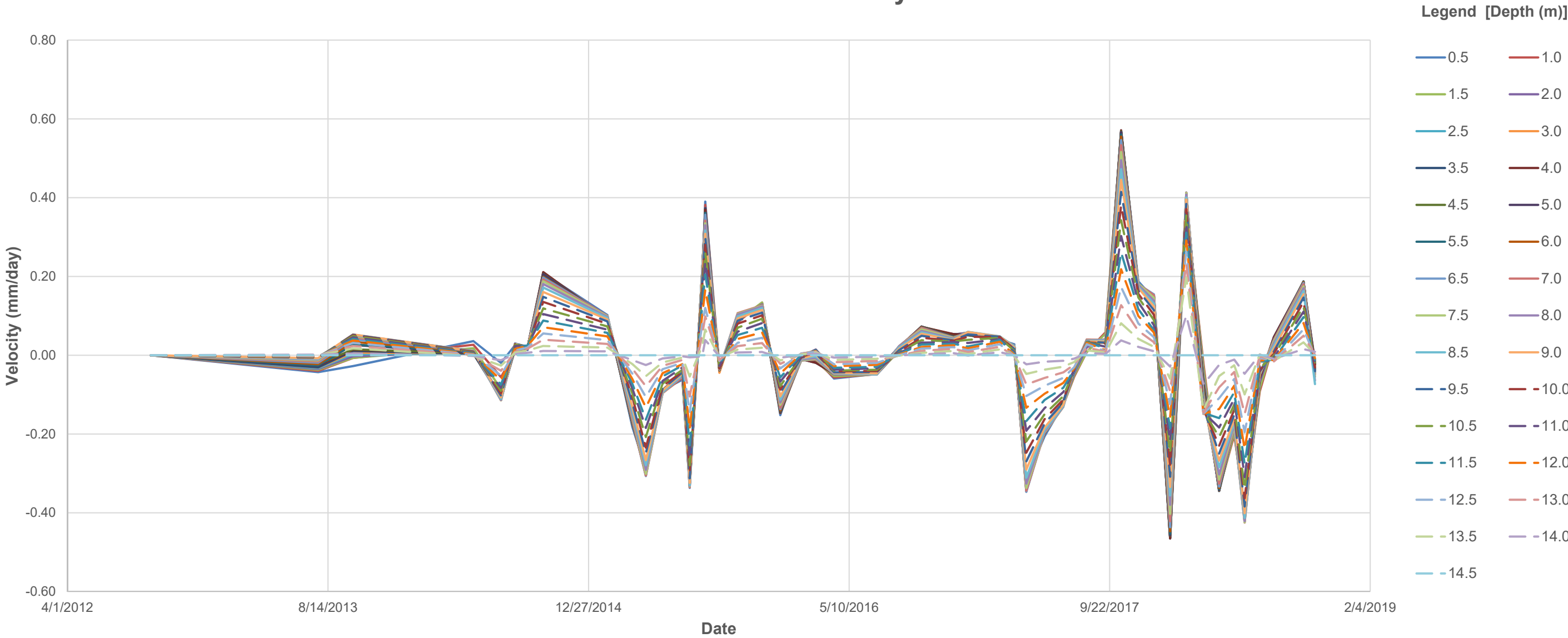
Inclinometer 070-2A Timeseries



- Notes:**
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

		2018 Annual Geotechnical Inspection		
		Inclinometer 070-2A Displacement Time Series		
Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	DORIS TIA	Date: Jan. 2019	Approved: PDL	Figure: E.6

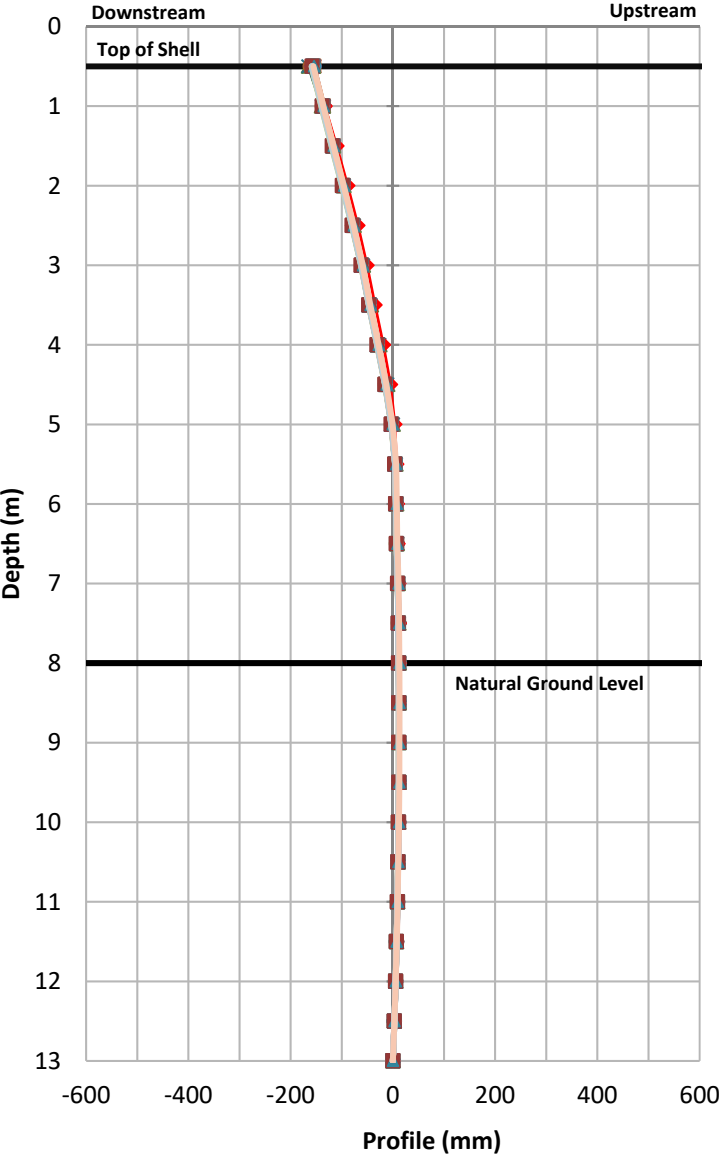
Inclinometer 070-2A Velocity Timeseries



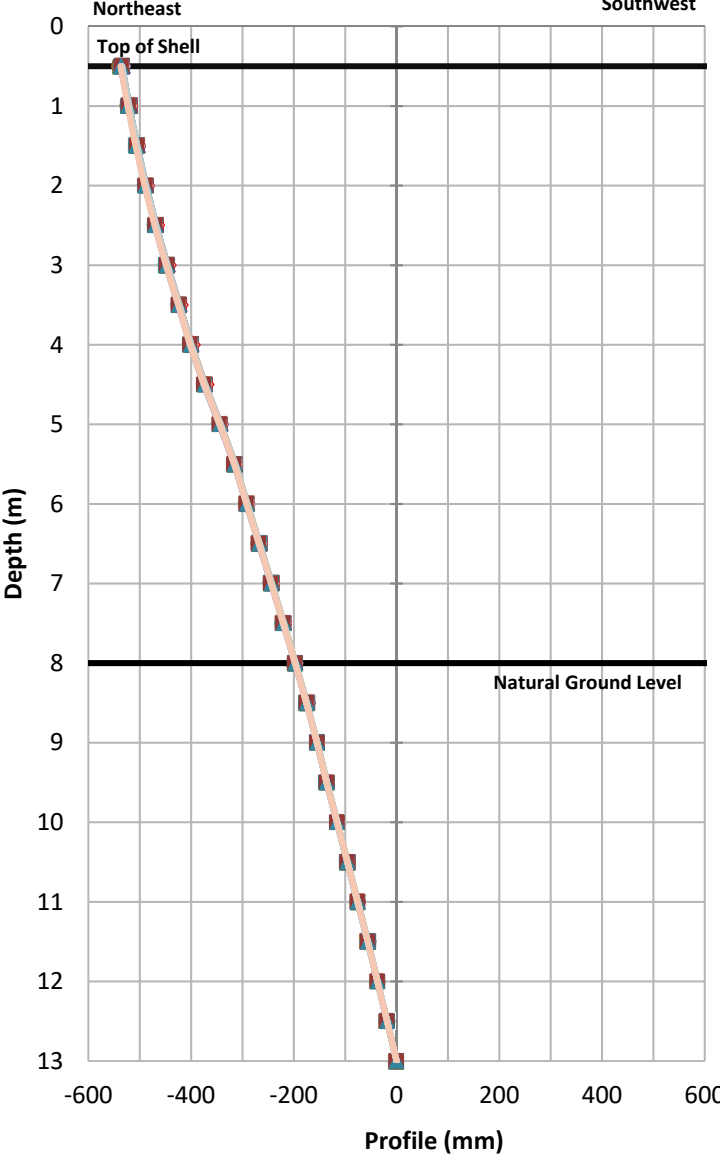
- Notes:
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

	2018 Annual Geotechnical Inspection	
	Inclinometer 070-2A Velocity Time Series	
Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	 DORIS TIA	Date: Jan. 2019 Approved: PDL Figure: E.7

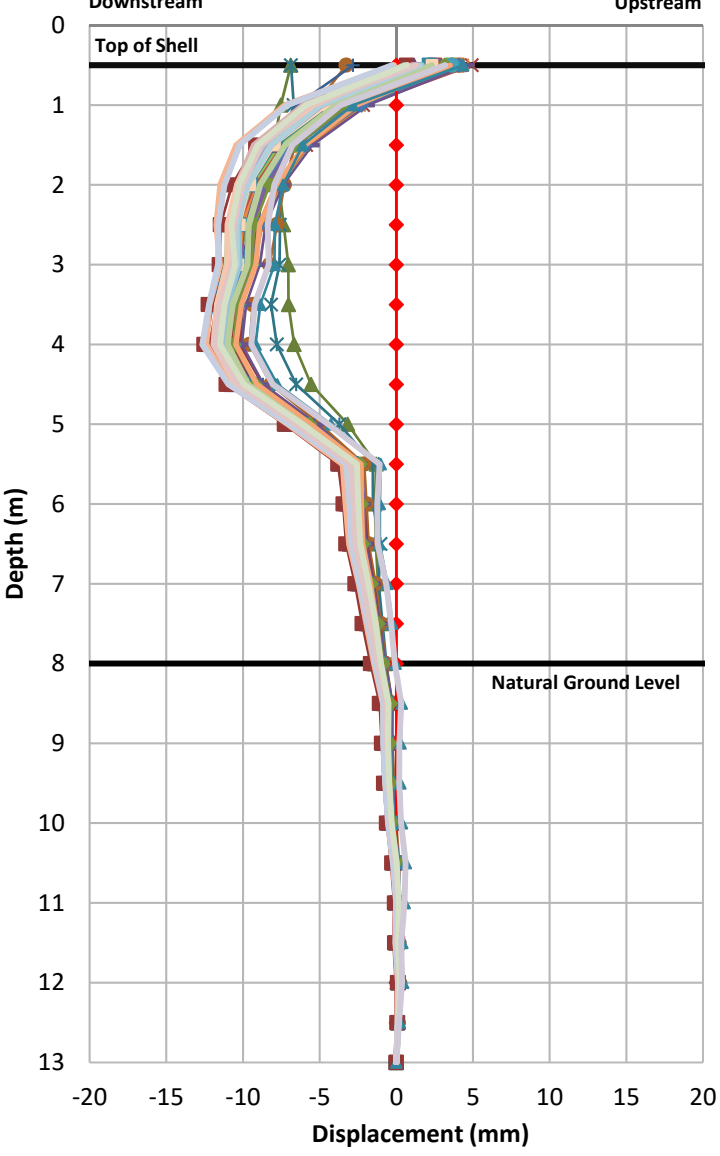
Profile Perpendicular to Centerline



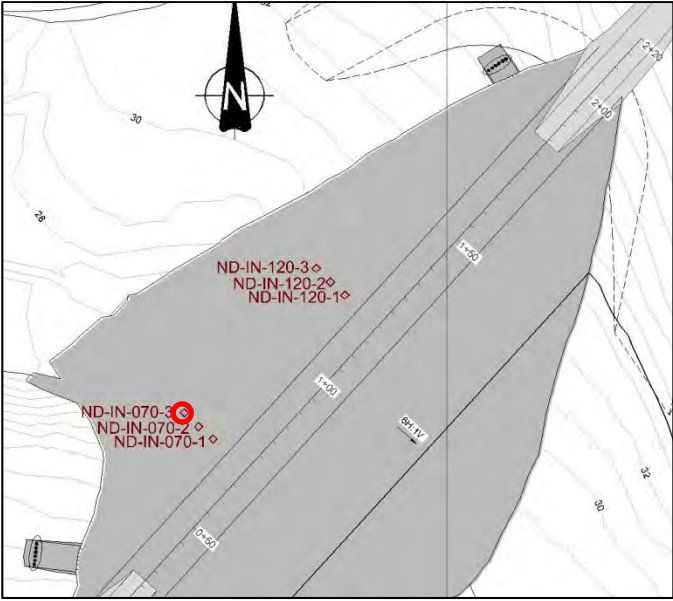
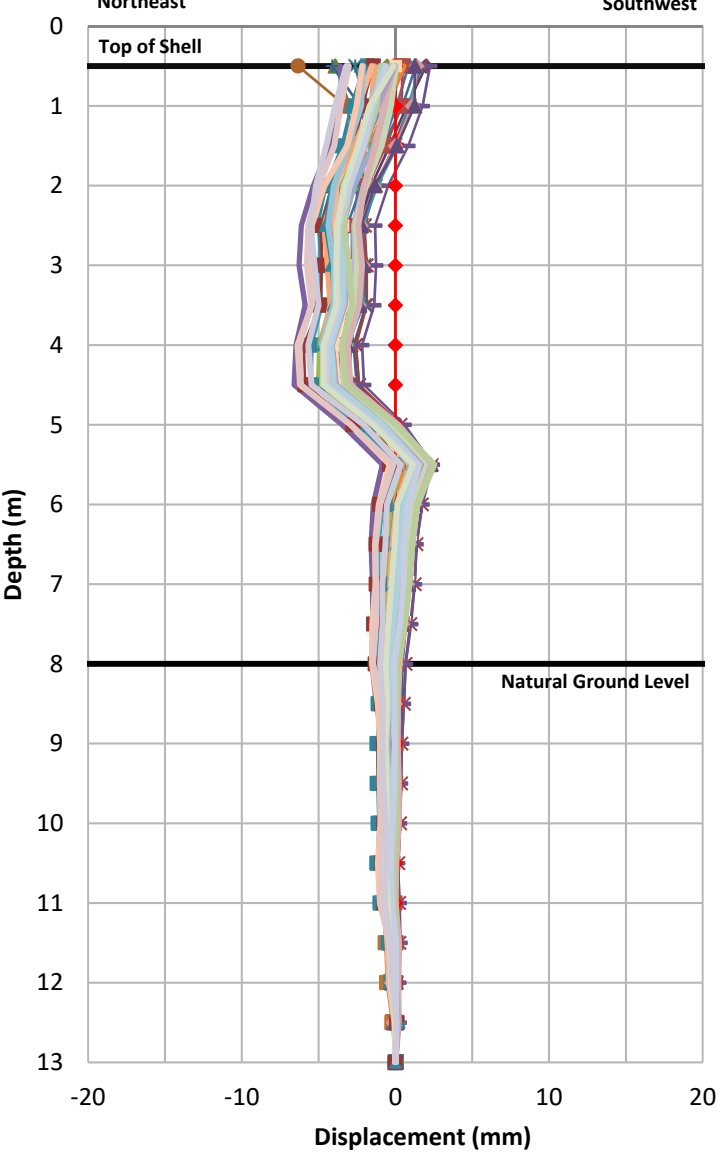
Profile Parallel to Centerline



Displacement Perpendicular to Centerline



Displacement Parallel to Centerline

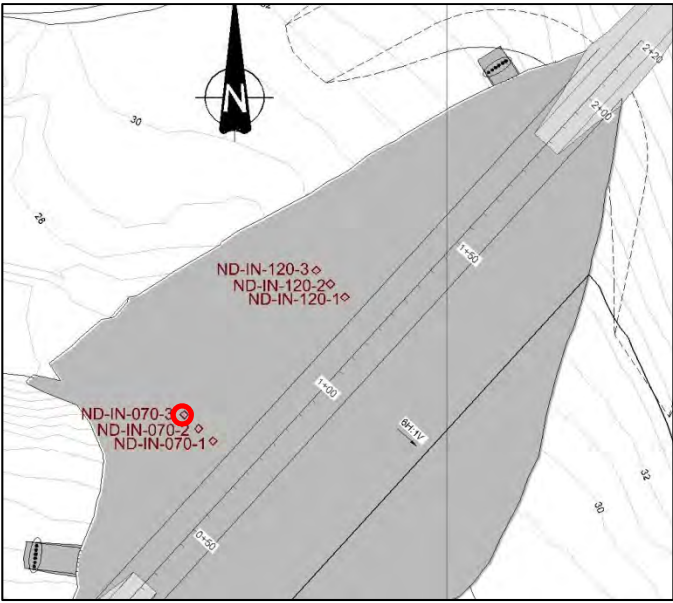
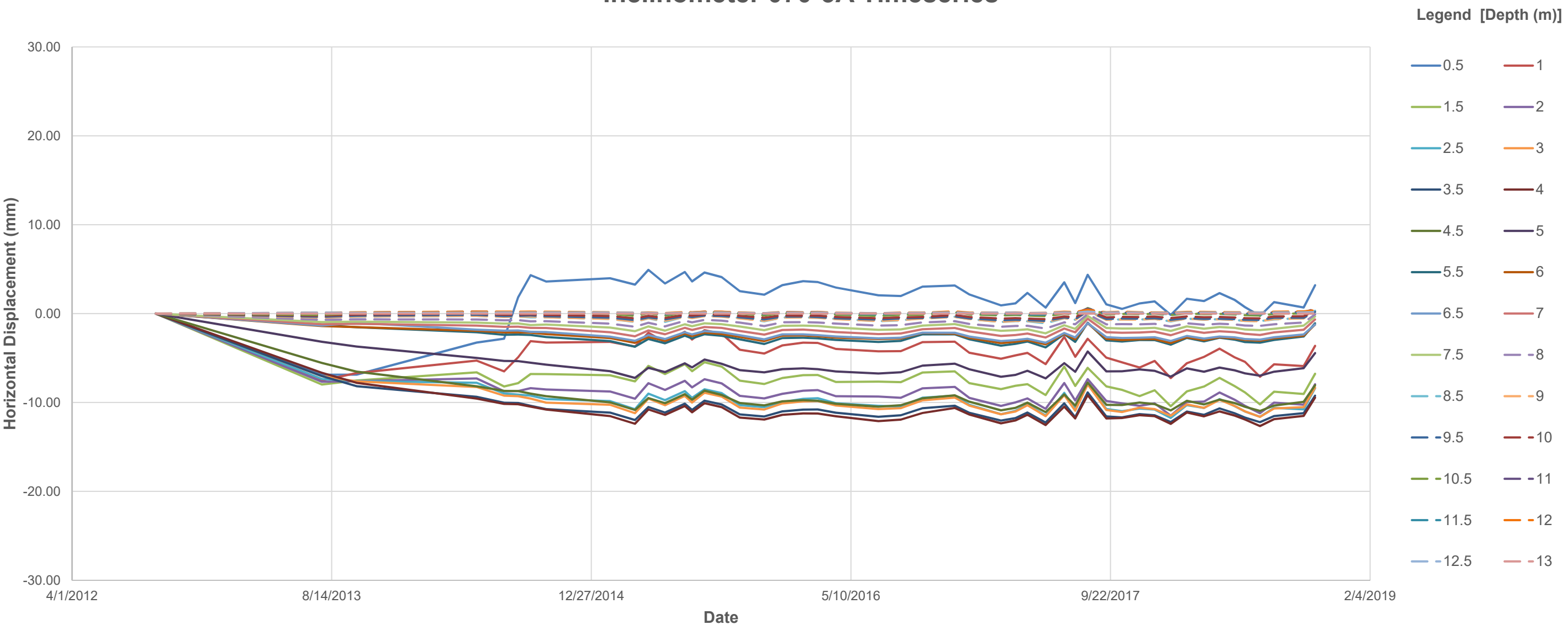


- Notes:**
1. Manufacture's accuracy is +/- 0.25 mm per location
 2. Survey data excluded from the charts is noted on Figure E.1

LEGEND:		
7/26/2013	10/1/2013	5/20/2014
7/12/2014	8/8/2014	9/1/2014
10/1/2014	2/1/2015	3/21/2015
4/16/2015	5/18/2015	6/25/2015
7/9/2015	8/2/2015	9/4/2015
10/9/2015	11/25/2015	12/30/2015
2/8/2016	3/7/2016	4/11/2016
7/2/2016	8/14/2016	9/25/2016
12/24/2016	11/26/2016	2/23/2017
3/23/2017	4/15/2017	5/20/2017
6/25/2017	7/16/2017	8/9/2017
9/14/2017	10/14/2017	11/17/2017
12/16/2017	1/16/2018	2/16/2018
3/21/2018	4/20/2018	5/19/2018
6/8/2018	7/7/2018	8/3/2018
9/29/2018	10/21/2018	Initial Readings (9/9/2012)

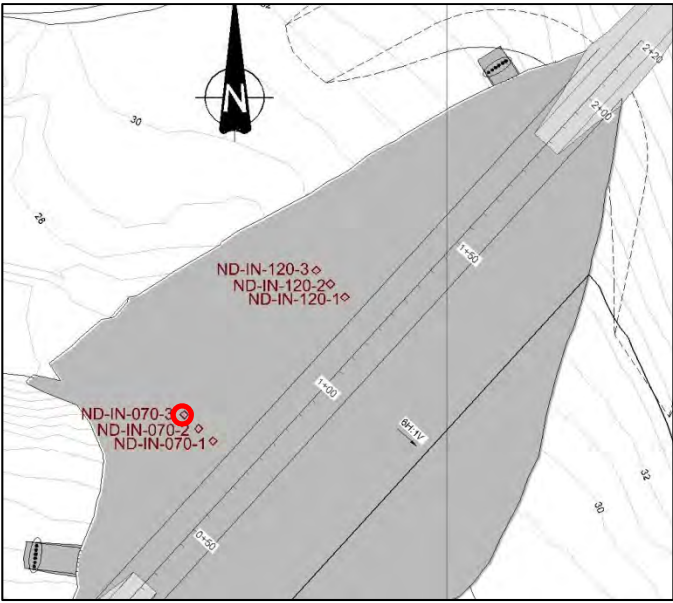
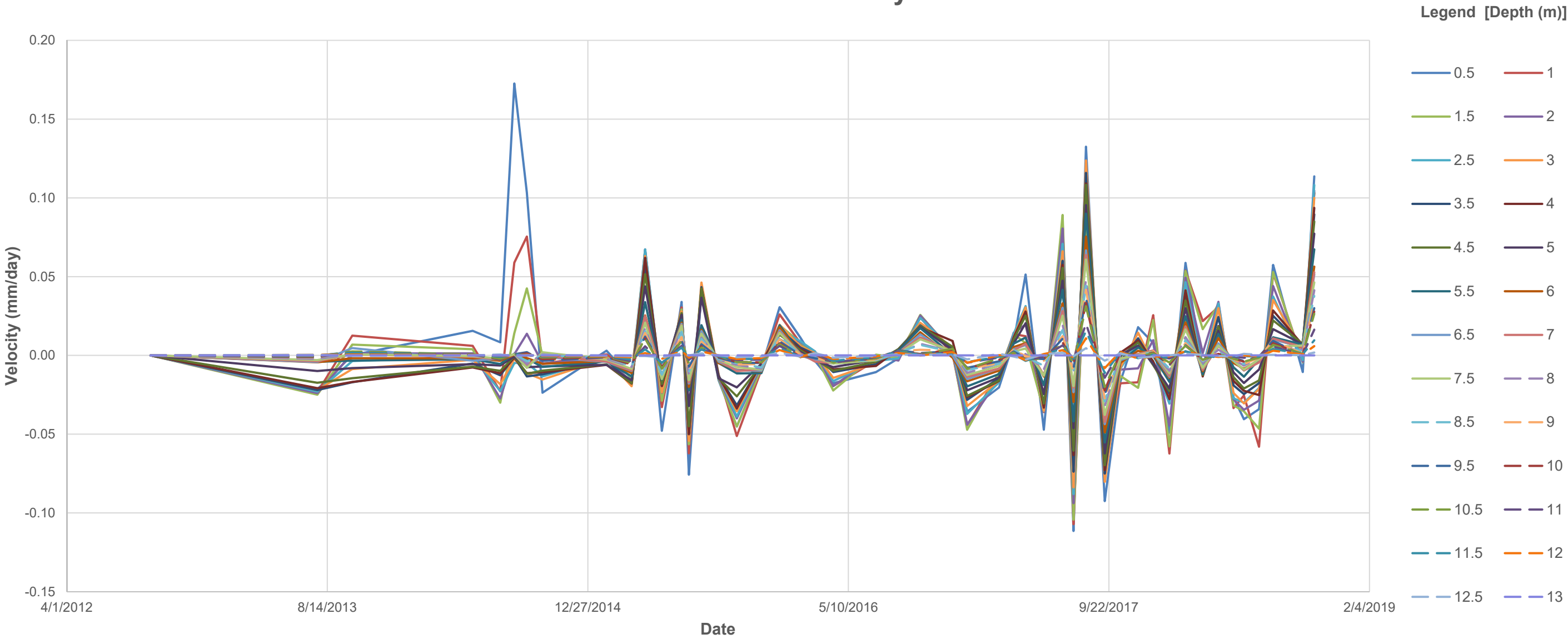
 Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	 DORIS TIA	2018 Annual Geotechnical Inspection		
		Inclinometer 070-3		
		Date: Jan. 2019	Approved: PDL	Figure: E.8

Inclinometer 070-3A Timeseries



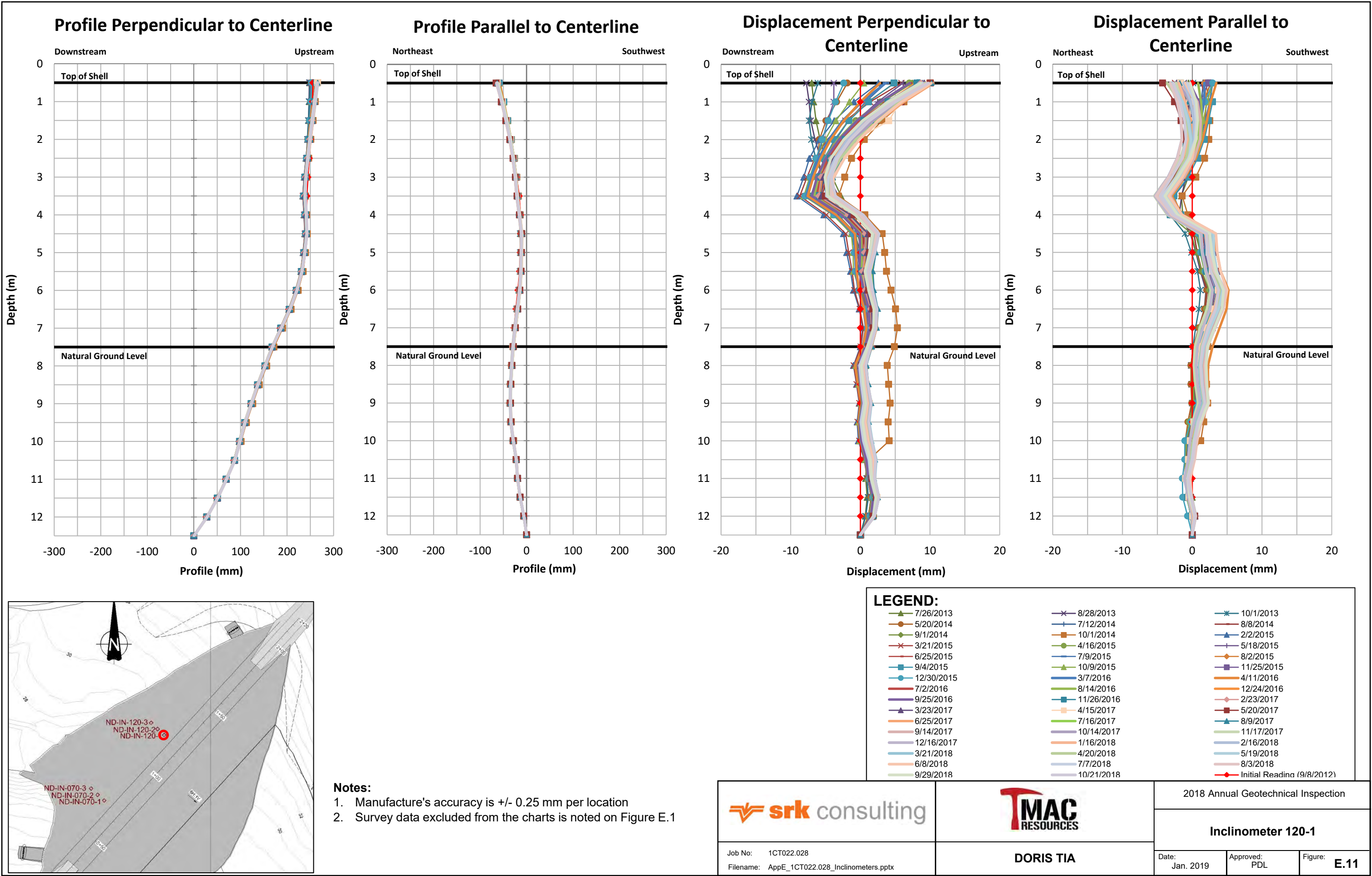
- Notes:
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

Inclinometer 070-3A Velocity Timeseries

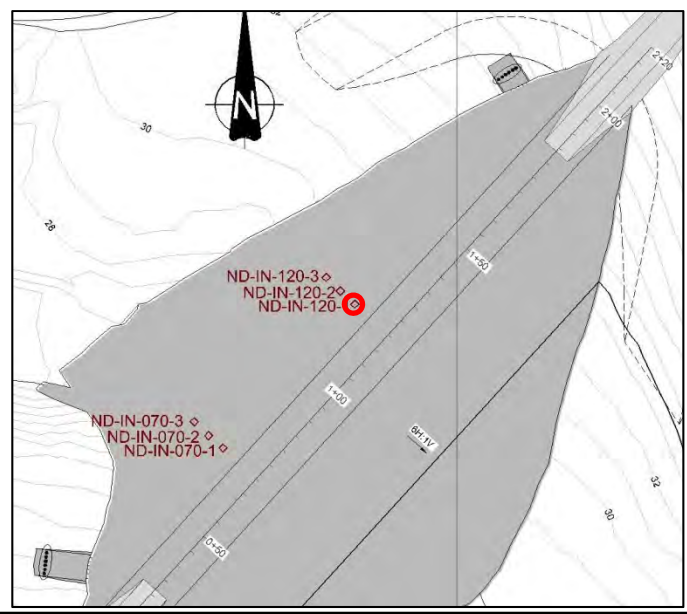
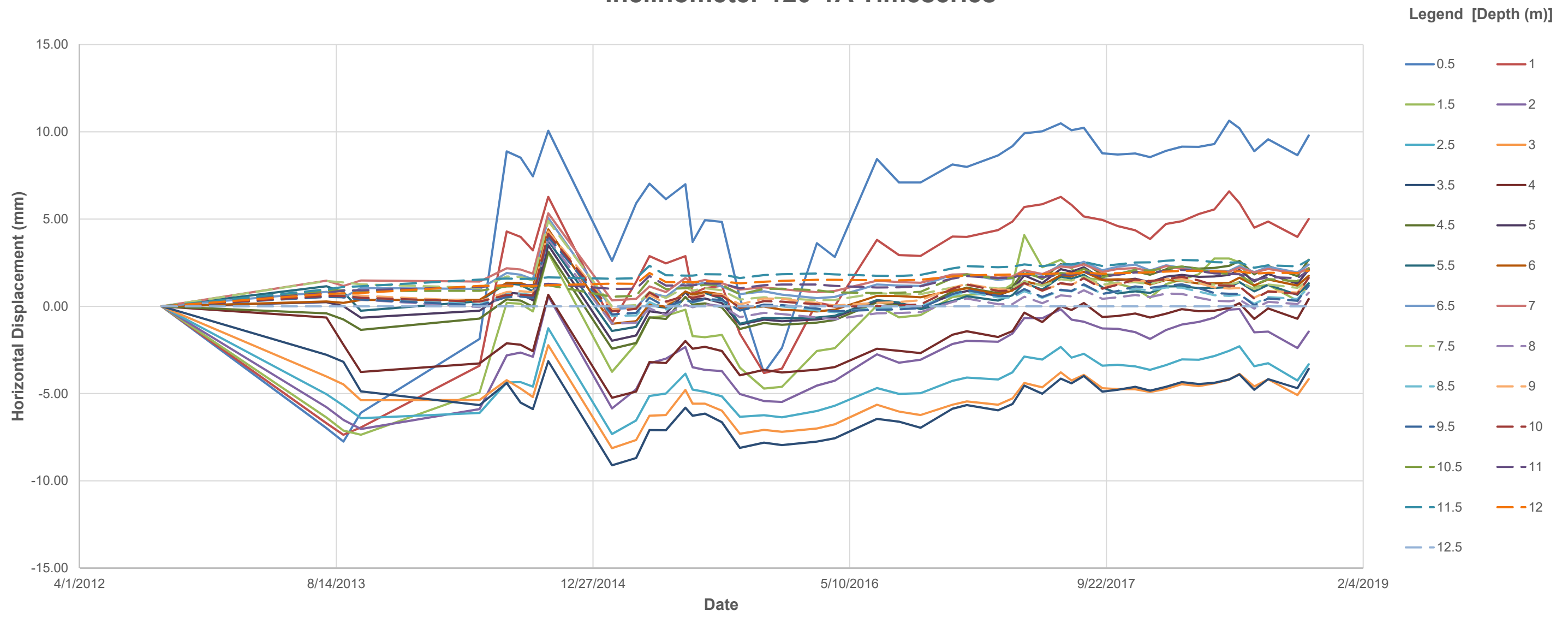


- Notes:
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

		2018 Annual Geotechnical Inspection		
		Inclinometer 070-3A Velocity Time Series		
Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	DORIS TIA	Date: Jan. 2019	Approved: PDL	Figure: E.10



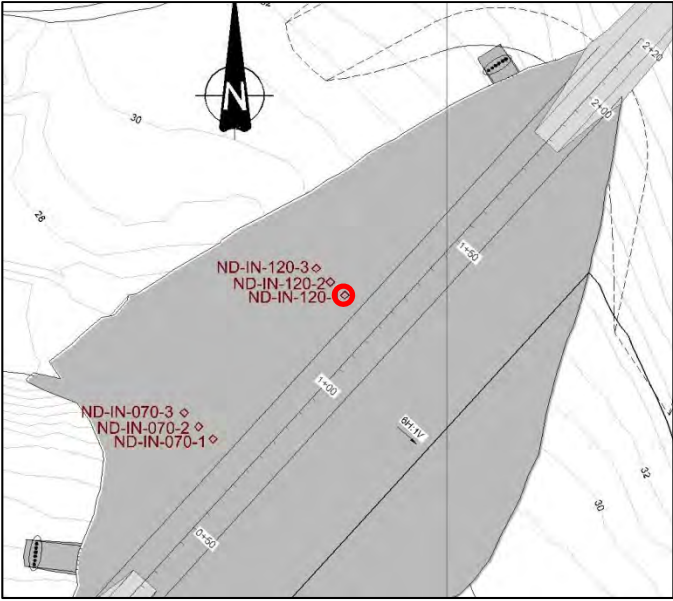
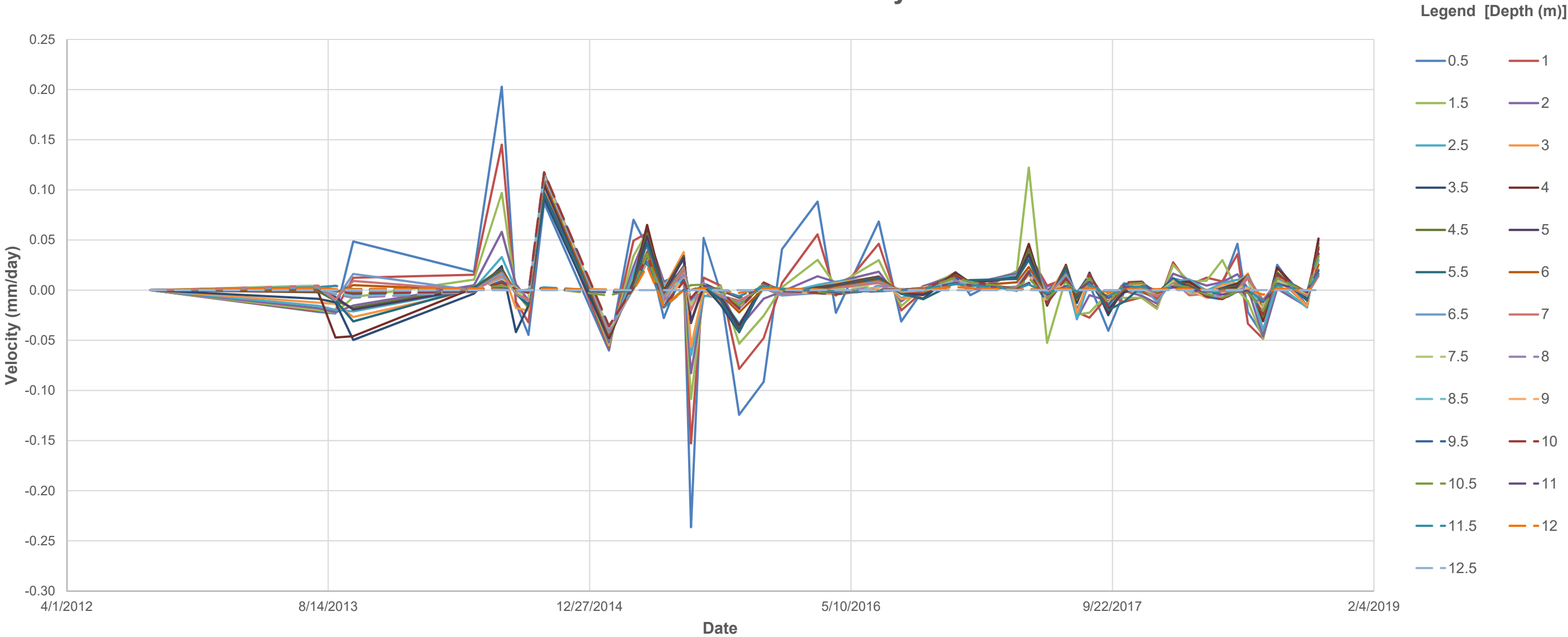
Inclinometer 120-1A Timeseries



- Notes:**
1. Manufacture's accuracy is +/- 0.25 mm per location
 2. Survey data excluded from the charts is noted on Figure E.1
 3. Dashed lines represent depths at or below the natural ground surface

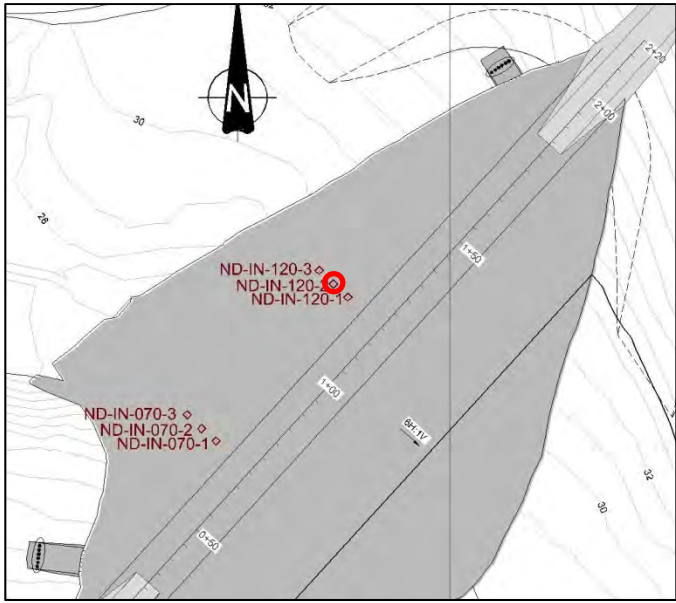
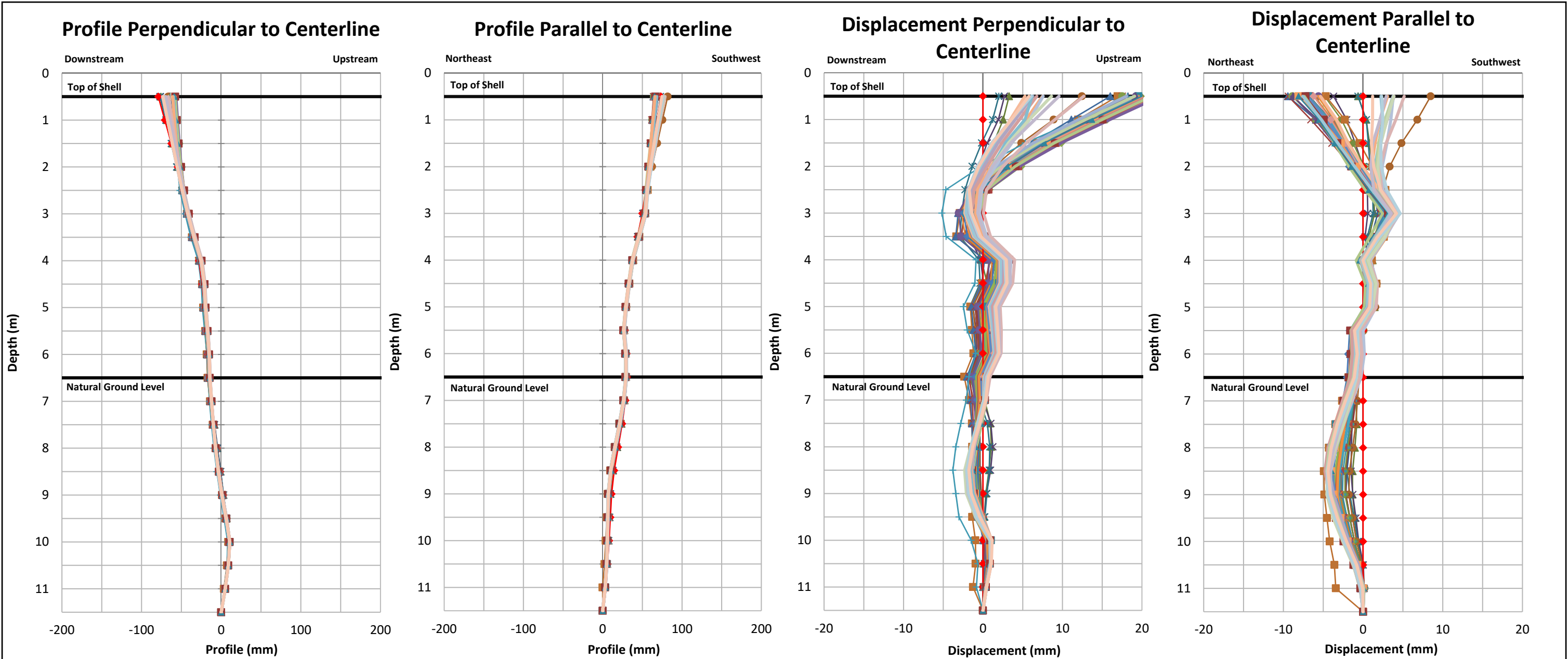
 Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	 DORIS TIA	2018 Annual Geotechnical Inspection		
		Inclinometer 120-1A Displacement Time Series		
		Date: Jan. 2019	Approved: PDL	Figure: E.12

Inclinometer 120-1A Velocity Timeseries



- Notes:**
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

		2018 Annual Geotechnical Inspection		
		Inclinometer 120-1A Velocity Time Series		
Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	DORIS TIA	Date: Jan. 2019	Approved: PDL	Figure: E.13



- Notes:**
1. Manufacture's accuracy is +/- 0.25 mm per location
 2. Survey data excluded from the charts is noted on Figure E.1

LEGEND:		
7/26/2013	8/28/2013	10/1/2013
5/20/2014	7/12/2014	8/8/2014
9/1/2014	10/1/2014	2/2/2015
3/21/2015	4/16/2015	4/20/2015
5/19/2015	6/26/2015	7/9/2015
8/2/2015	9/4/2015	10/9/2015
11/25/2015	12/30/2015	2/8/2016
3/7/2016	4/11/2016	7/2/2016
8/14/2016	12/24/2016	9/25/2016
11/26/2016	2/23/2017	3/23/2017
4/15/2017	5/20/2017	6/25/2017
7/16/2017	8/9/2017	4/20/2018
9/14/2017	3/21/2018	10/14/2017
2/17/2018	11/17/2017	1/16/2018
12/16/2017	5/19/2018	6/8/2018
7/7/2018	8/3/2018	9/30/2018
10/21/2018	Initial Reading (9/8/2012)	



2018 Annual Geotechnical Inspection

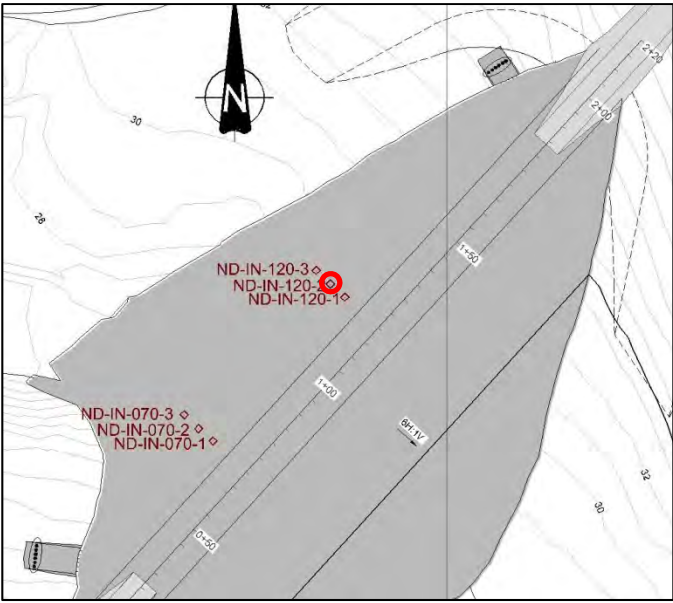
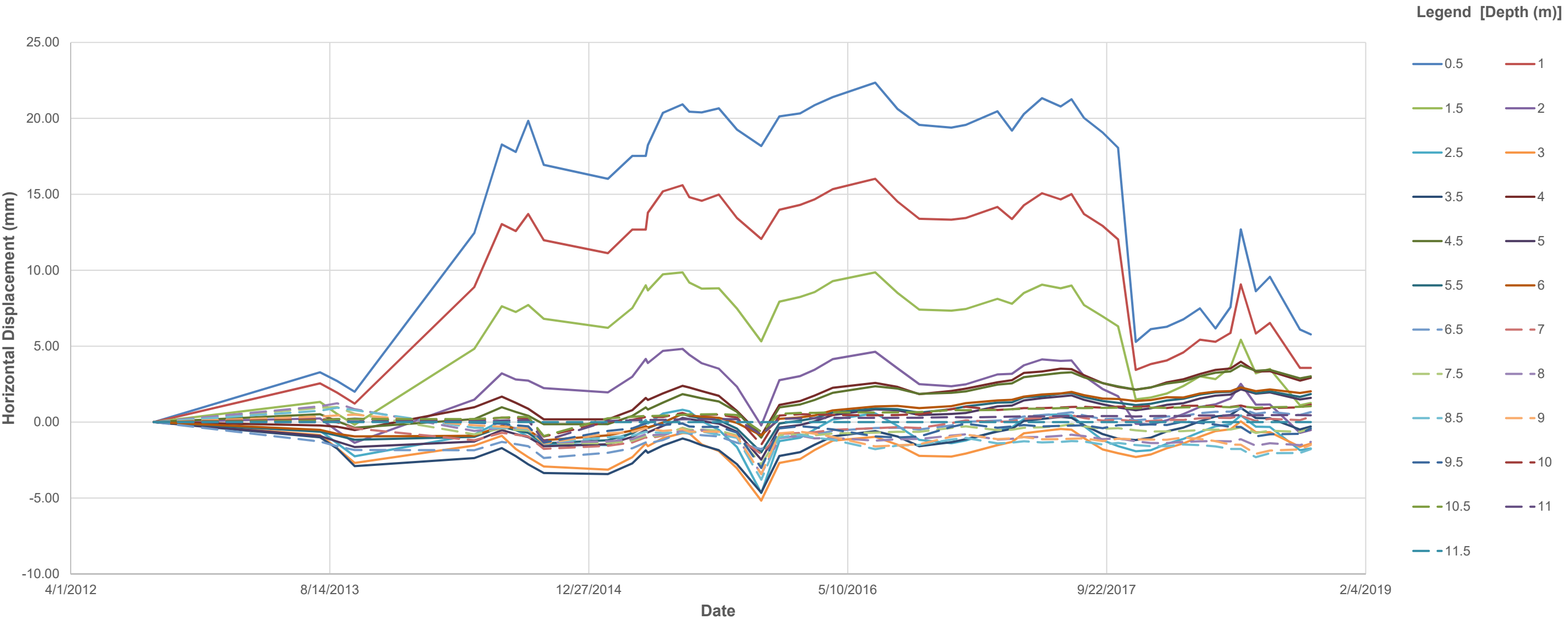
Inclinometer 120-2

Job No: 1CT022.028
Filename: AppE_1CT022.028_Inclinometers.pptx

DORIS TIA

Date: Jan. 2019
Approved: PDL
Figure: E.14

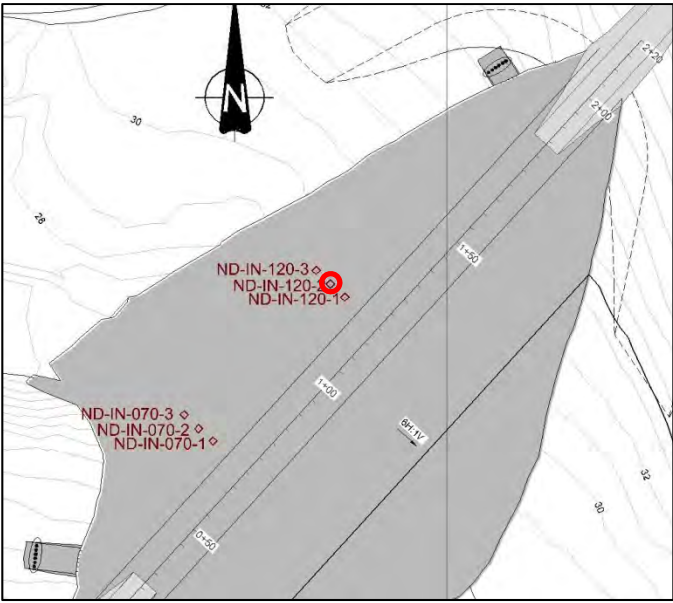
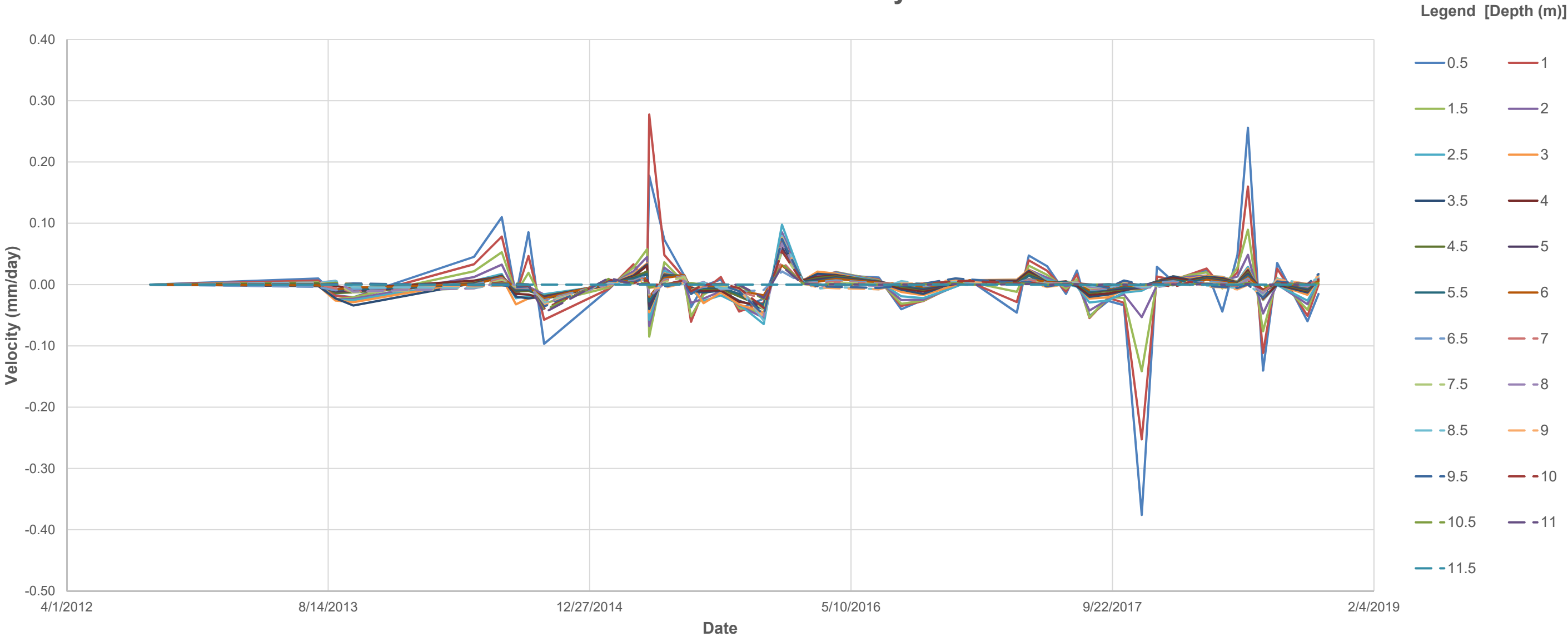
Inclinometer 120-2A Timeseries



- Notes:**
1. Manufacture's accuracy is +/- 0.25 mm per location
 2. Survey data excluded from the charts is noted on Figure E.1
 3. Dashed lines represent depths at or below the natural ground surface

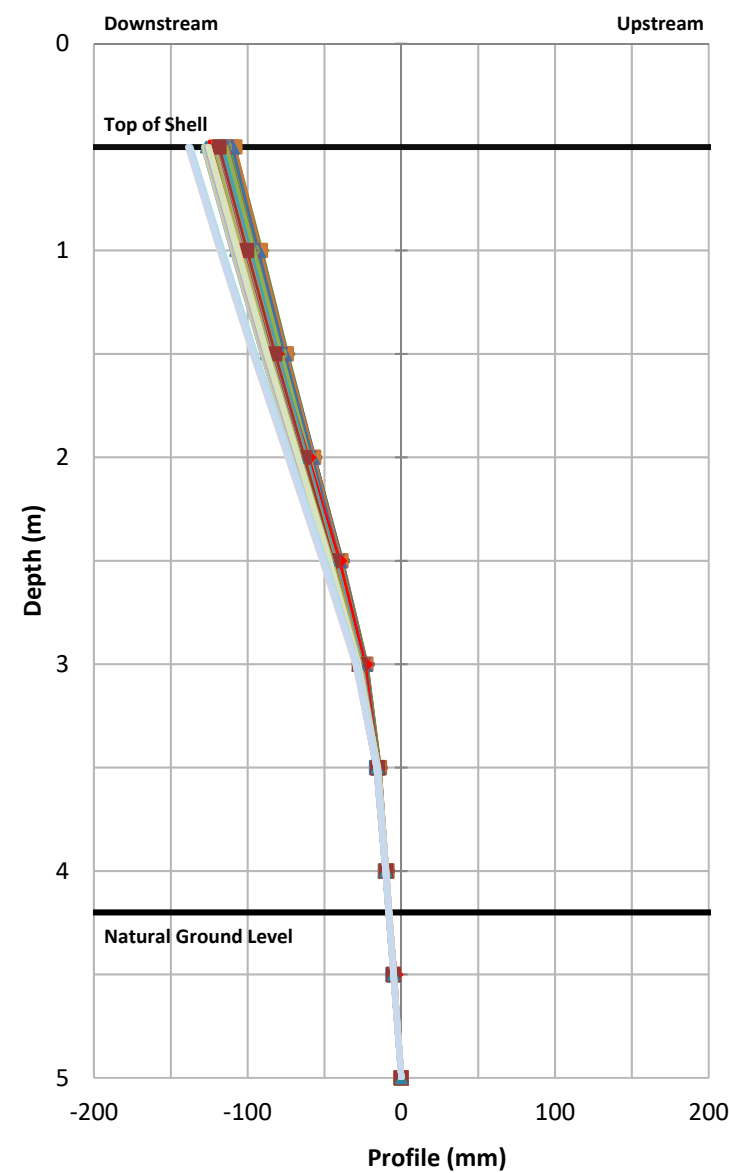
		2018 Annual Geotechnical Inspection		
		Inclinometer 120-2A Displacement Time Series		
		Date: Jan. 2019	Approved: PDL	Figure: E.15
Job No: 1CT022.028	DORIS TIA			
Filename: AppE_1CT022.028_Inclinometers.pptx				

Inclinometer 120-2A Velocity Timeseries

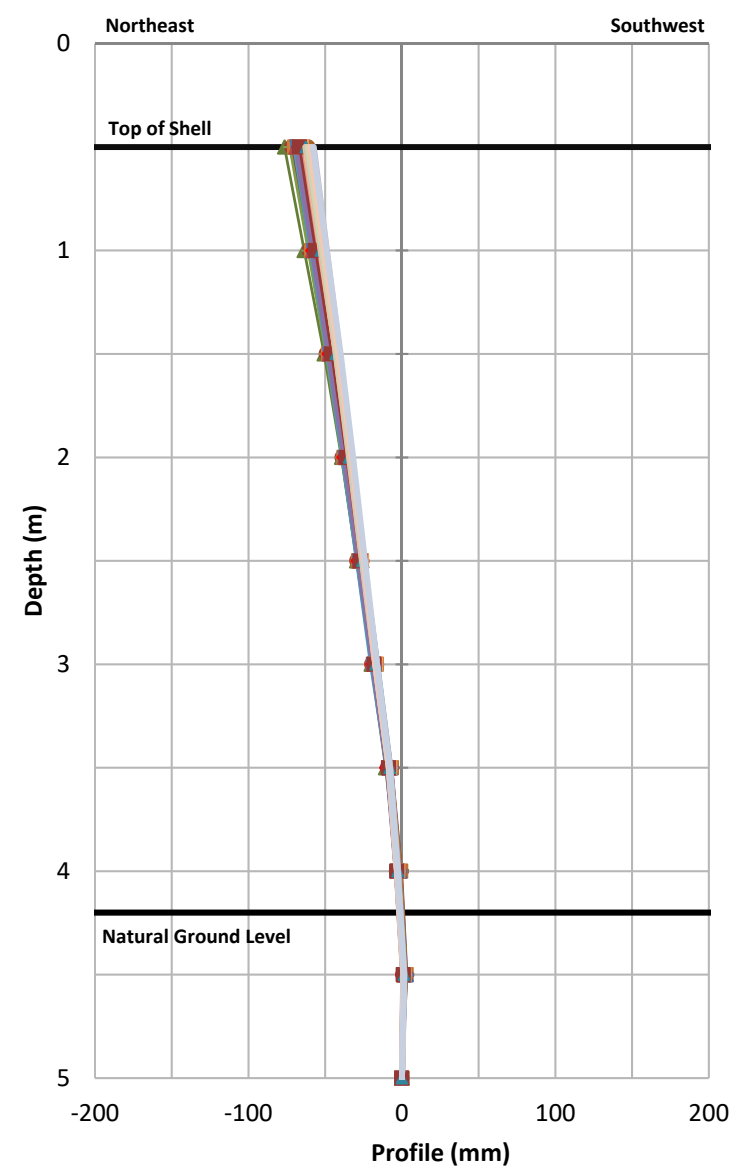


- Notes:**
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

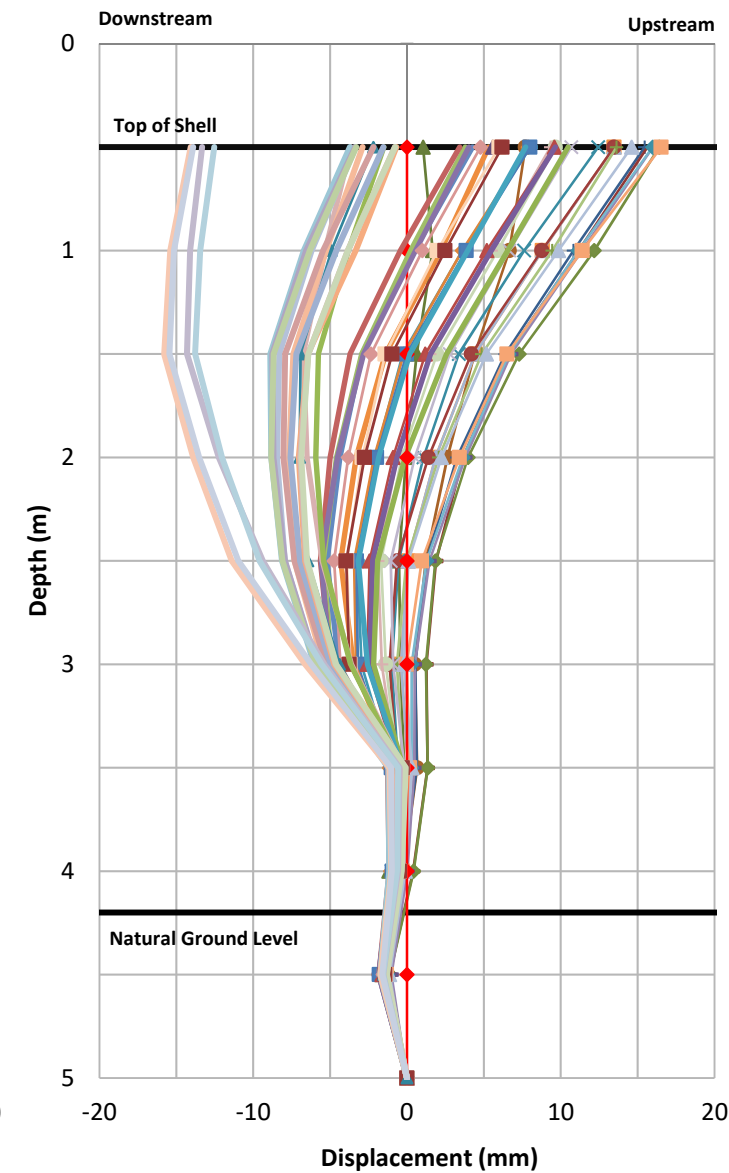
Profile Perpendicular to Centerline



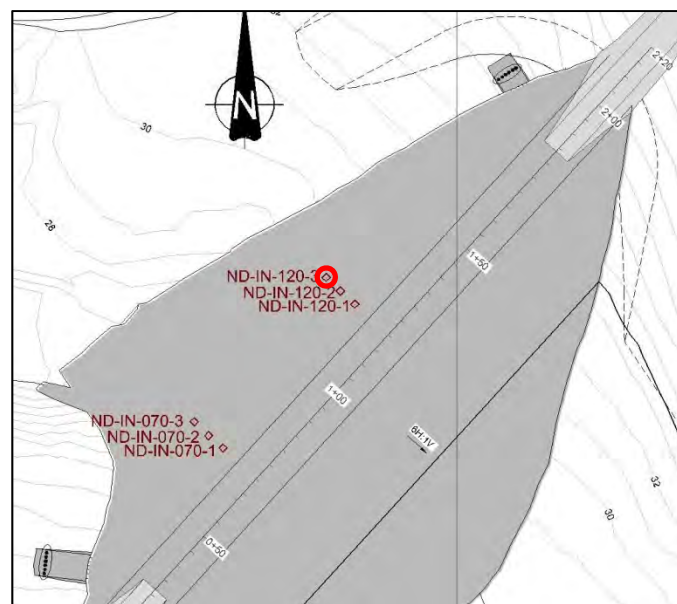
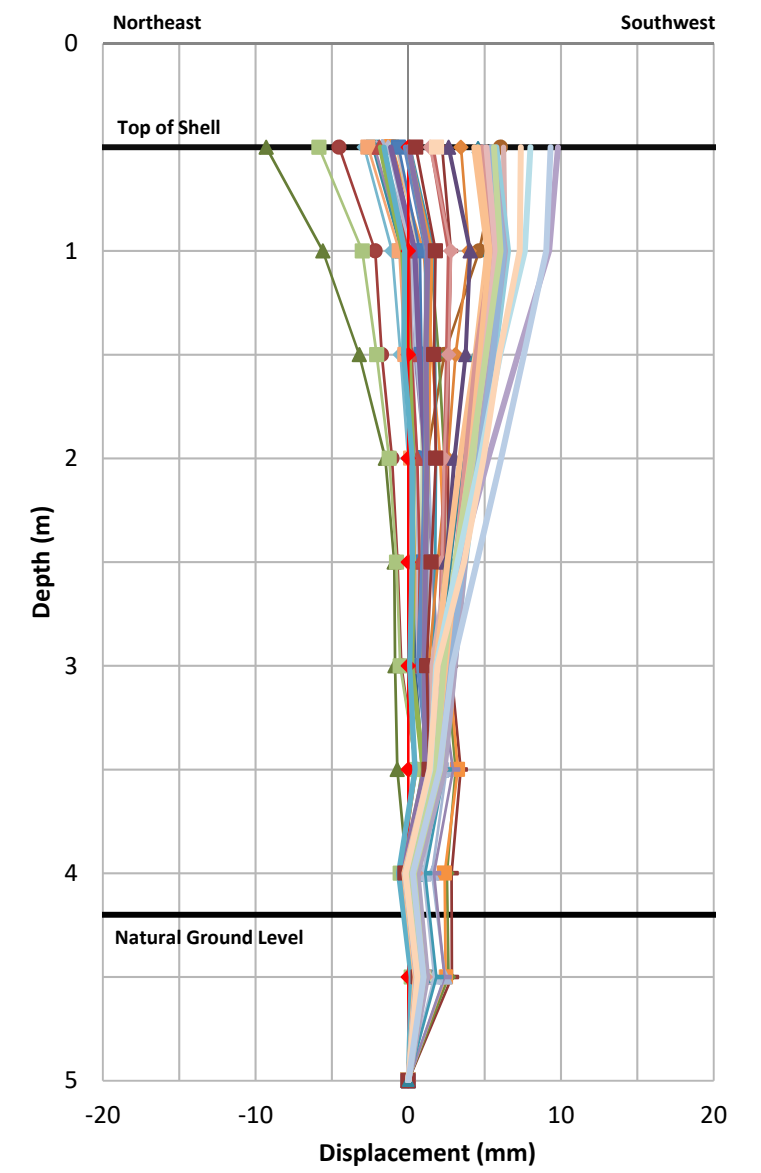
Profile Parallel to Centerline



Displacement Perpendicular to Centerline



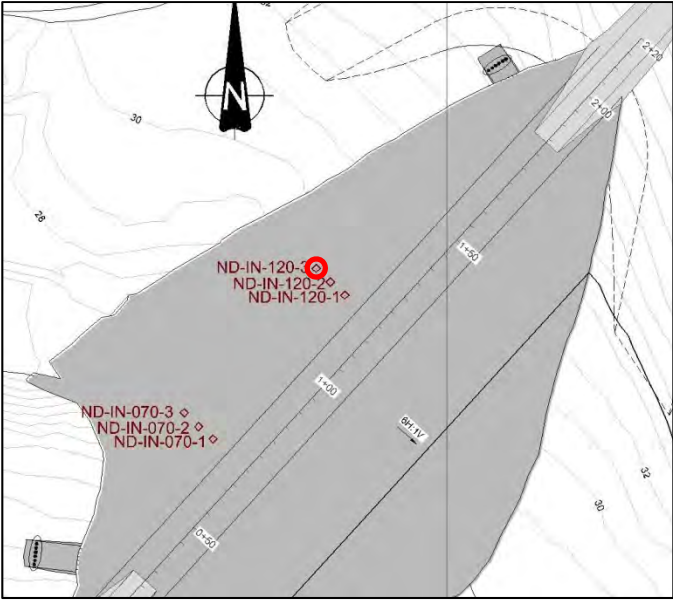
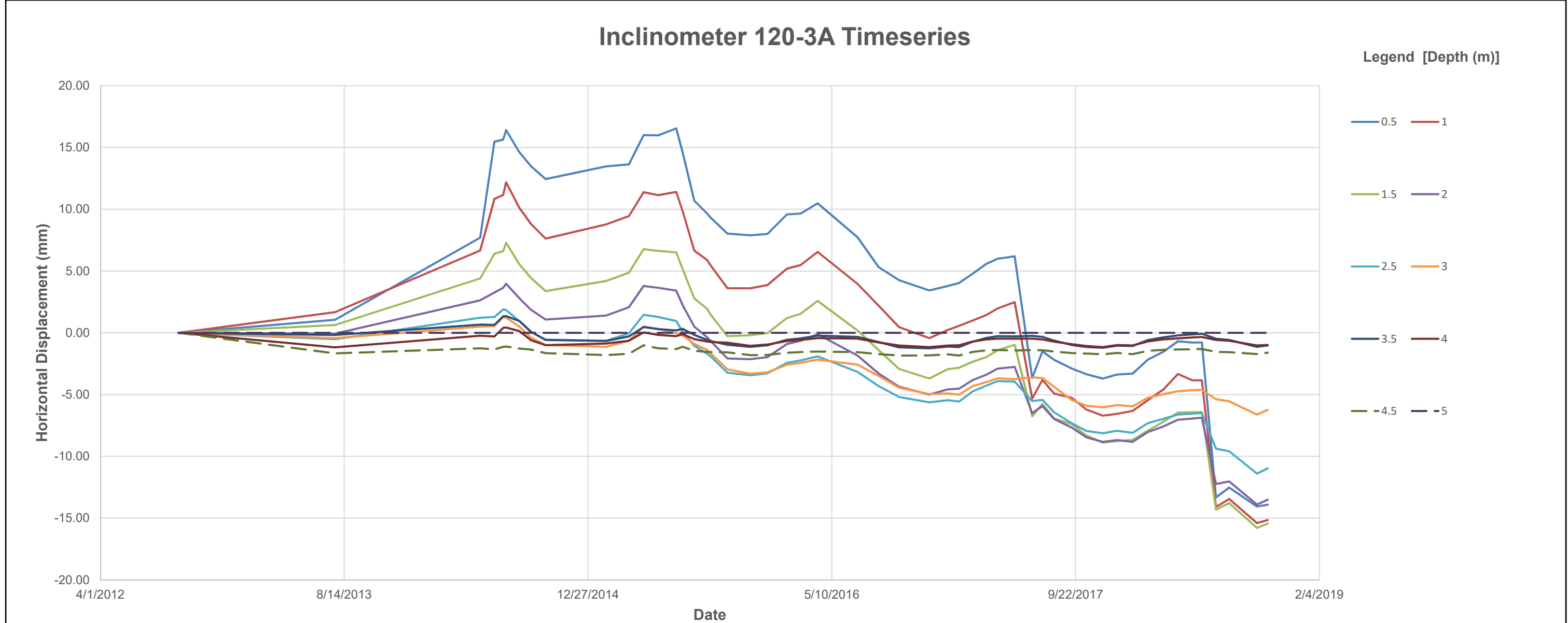
Displacement Parallel to Centerline



- Notes:**
1. Manufacture's accuracy is +/- 0.25 mm per location
 2. Survey data excluded from the charts is noted on Figure E.1

LEGEND:		
7/26/2013	5/20/2014	6/18/2014
7/6/2014	7/12/2014	8/8/2014
9/1/2014	10/1/2014	2/2/2015
3/21/2015	4/20/2015	5/20/2015
6/26/2015	7/9/2015	8/2/2015
8/28/2015	9/4/2015	10/9/2015
11/25/2015	12/30/2015	2/8/2016
3/7/2016	4/11/2016	7/2/2016
8/14/2016	9/25/2016	1/3/2017
11/26/2016	1/3/2017	1/26/2017
2/23/2017	3/23/2017	4/15/2017
5/20/2017	6/25/2017	7/16/2017
8/9/2017	9/14/2017	10/14/2017
11/17/2017	12/16/2017	1/17/2018
2/17/2018	3/21/2018	4/20/2018
5/19/2018	6/8/2018	7/7/2018
8/3/2018	9/29/2018	10/21/2018
Initial Reading (9/8/2012)		

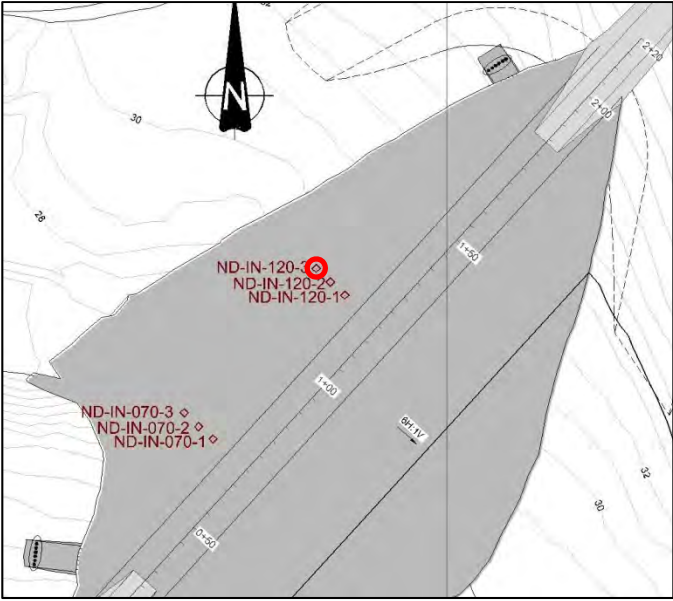
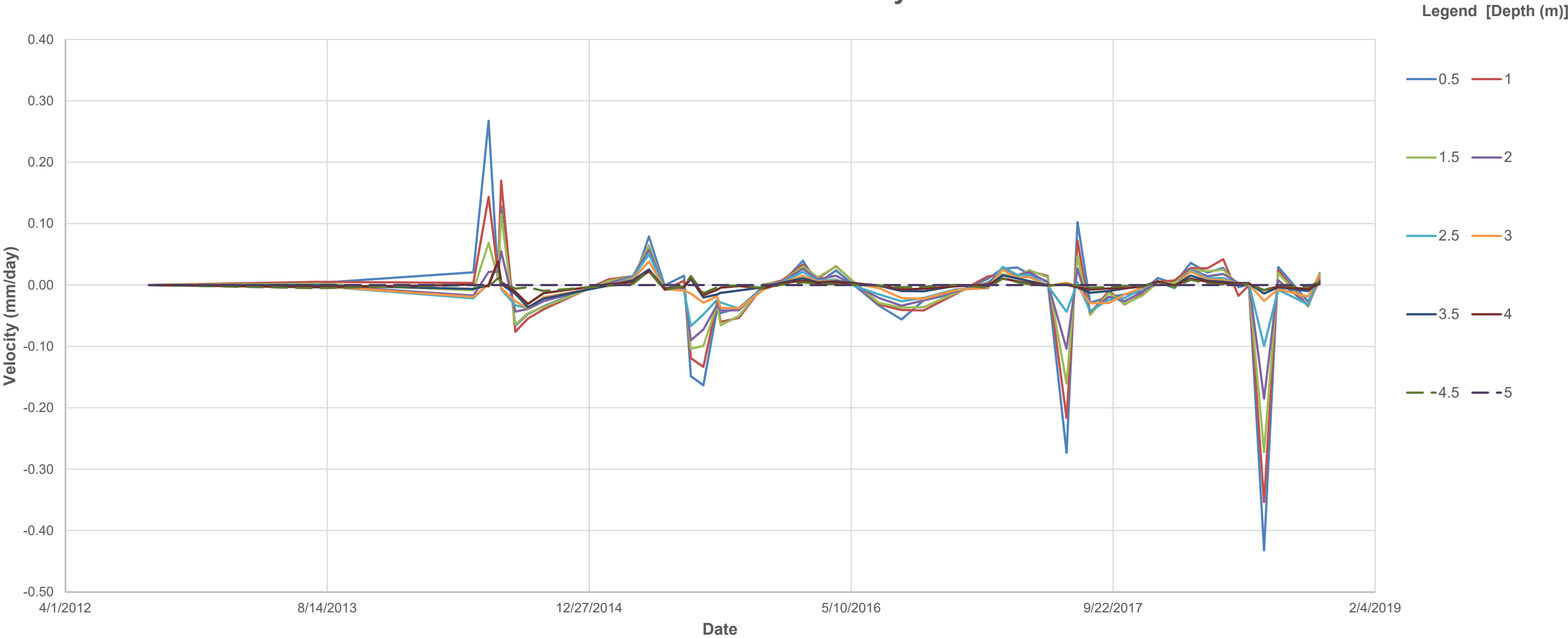
				2018 Annual Geotechnical Inspection	
Job No: 1CT022.028		DORIS TIA		Inclinometer 120-3	
Filename: AppE_1CT022.028_Inclinometers.pptx				Date: Jan. 2019	Approved: PDL
				Figure: E.17	



- Notes:**
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

		2018 Annual Geotechnical Inspection		
		Inclinometer 120-3A Displacement Time Series		
		Date: Jan. 2019	Approved: PDL	Figure: E.18
Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	DORIS TIA			

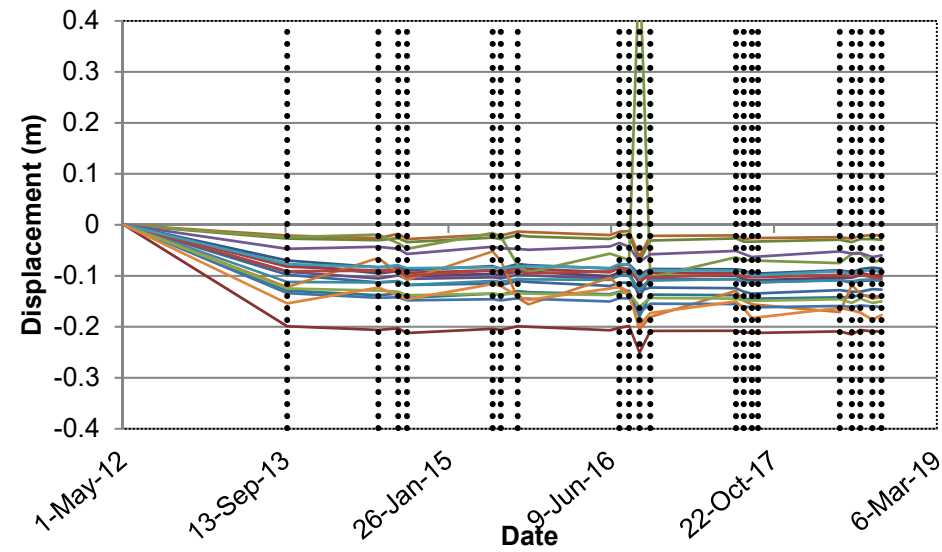
Inclinometer 120-3A Velocity Timeseries



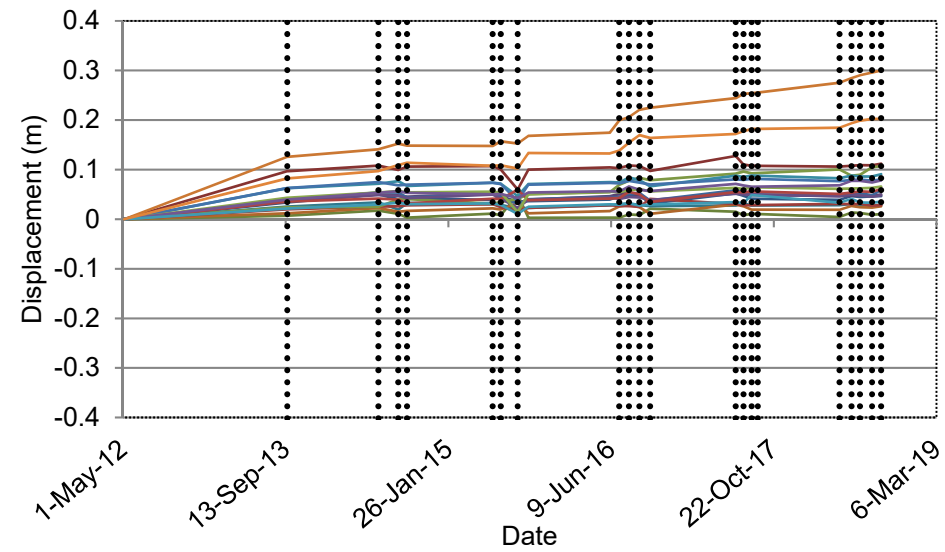
- Notes:
- 1. Manufacture's accuracy is +/- 0.25 mm per location
 - 2. Survey data excluded from the charts is noted on Figure E.1
 - 3. Dashed lines represent depths at or below the natural ground surface

 Job No: 1CT022.028 Filename: AppE_1CT022.028_Inclinometers.pptx	 DORIS TIA	2018 Annual Geotechnical Inspection		
		Inclinometer 120-3A Velocity Time Series		
		Date: Jan. 2019	Approved: PDL	Figure: E.19

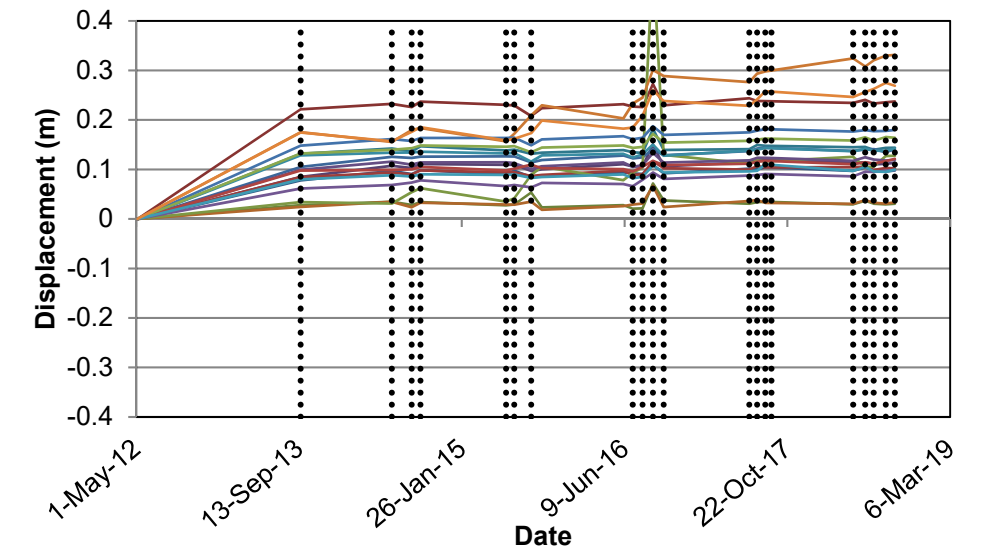
Vertical Displacement



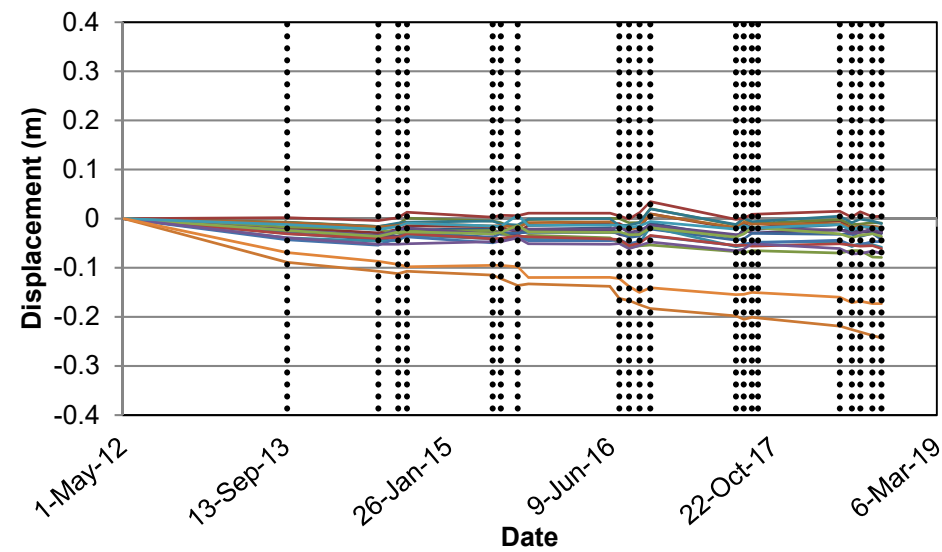
Horizontal Displacement



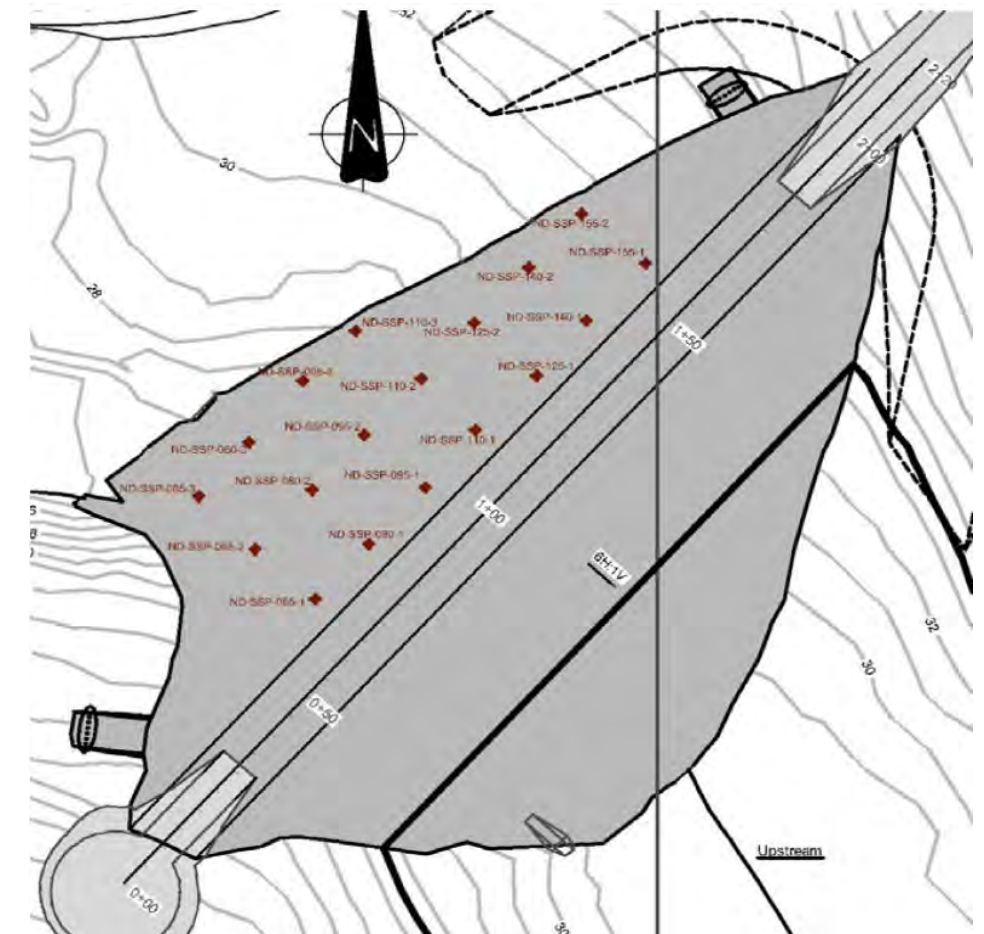
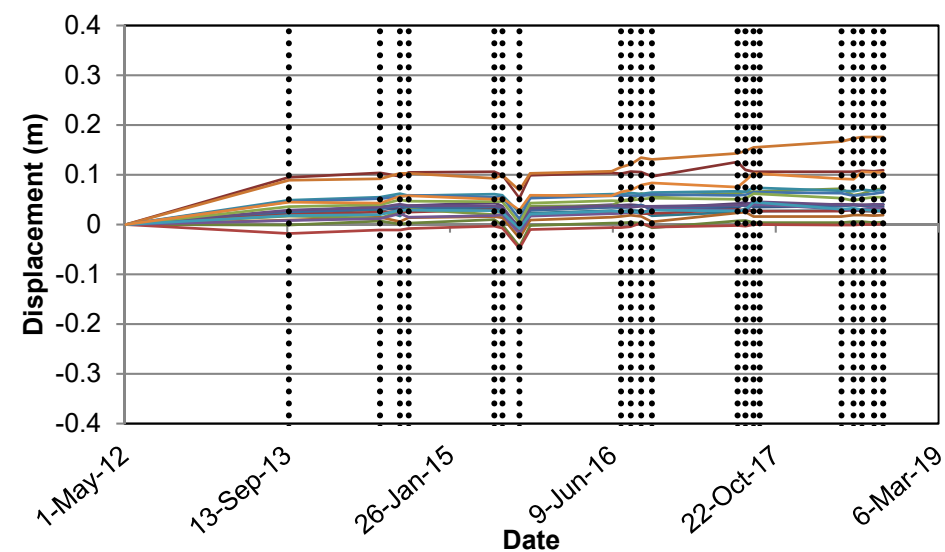
Total Displacement



Change in Easting



Change in Northing



LEGEND

ND-SSP-065-1	ND-SSP-065-2
ND-SSP-065-3	ND-SSP-080-1
ND-SSP-080-2	ND-SSP-080-3
ND-SSP-095-1	ND-SSP-095-2
ND-SSP-095-3	ND-SSP-110-1
ND-SSP-110-2	ND-SSP-110-3
ND-SSP-125-1	ND-SSP-125-2
ND-SSP-140-1	ND-SSP-140-2
ND-SSP-155-1	ND-SSP-155-2
.....	Survey Date

NOTES:

1. The anomolous horizontal displacement observed are Settlement point ND-SSP-110-3 and ND-SSP-155-2 near the downstream toe of the dam.



Job No: 1CT022.016
Filename: AppA_1CT022016_ND_GTC_20170906



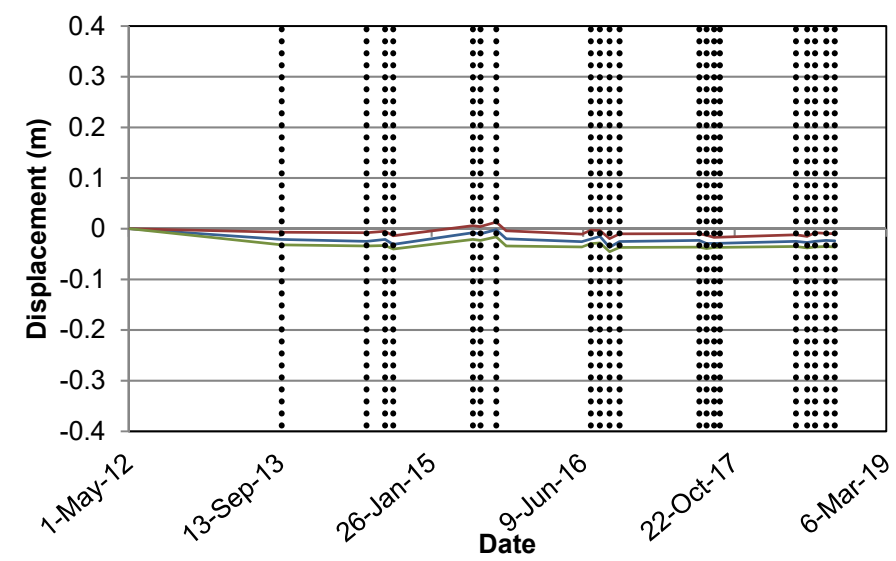
DORIS TIA

2018 Annual Geotechnical Inspection

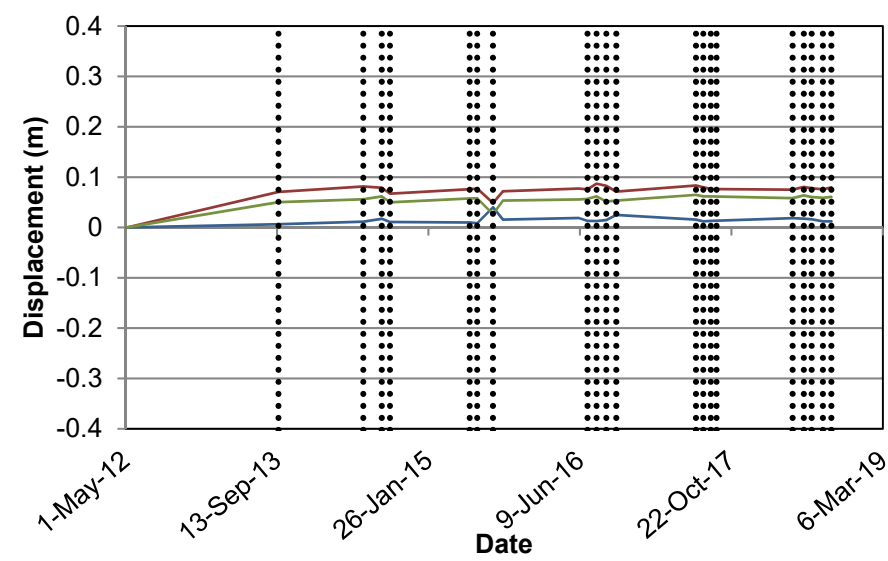
Surface Survey Monitoring Points
Displacement Timeseries

Date: Jan. 2019	Approved: PL	Figure: F.1
--------------------	-----------------	-----------------------

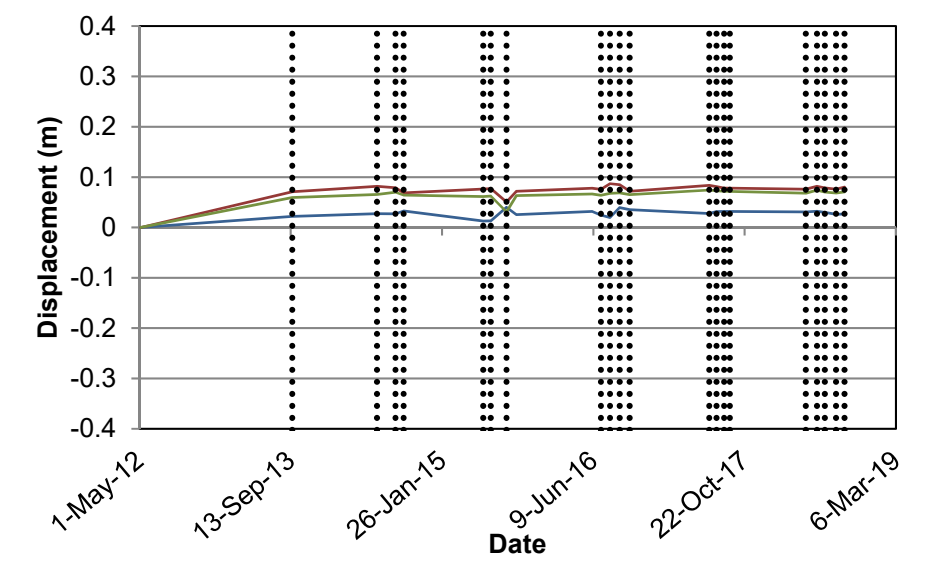
Vertical Displacement



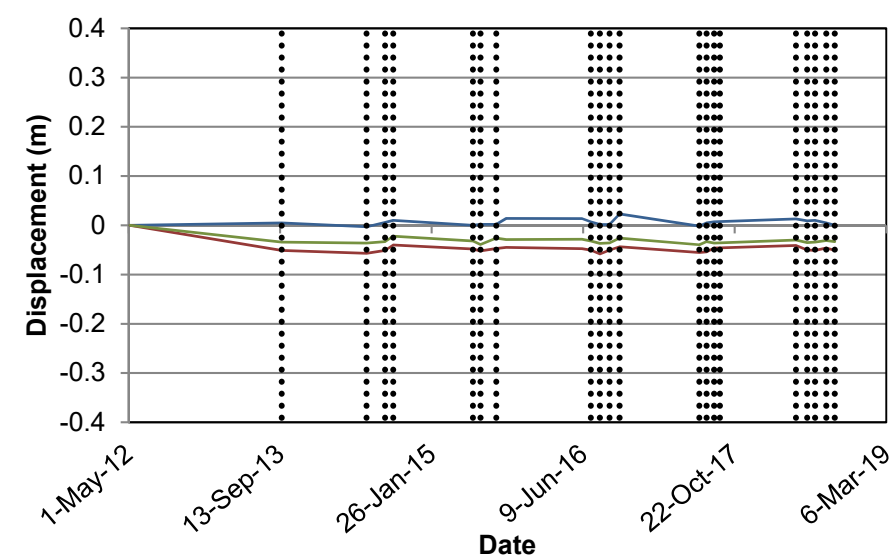
Horizontal Displacement



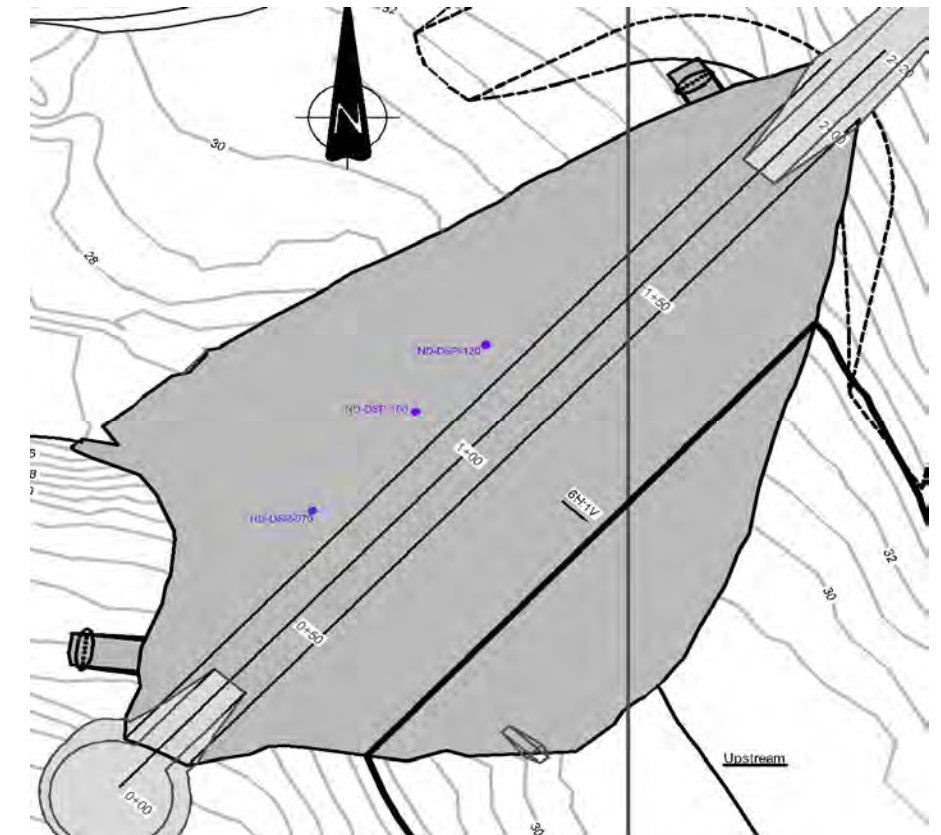
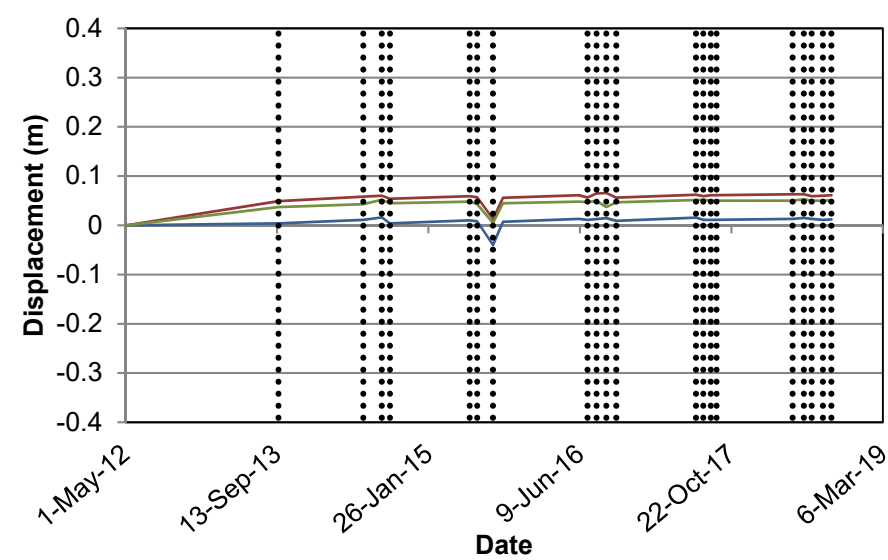
Total Displacement



Change in Easting



Change in Northing



LEGEND

- ND-DSP-070
- ND-DSP-100
- ND-DSP-120
- Survey Date



Job No: 1CT022.016
Filename: AppA_1CT022016_ND_GTC_20170906



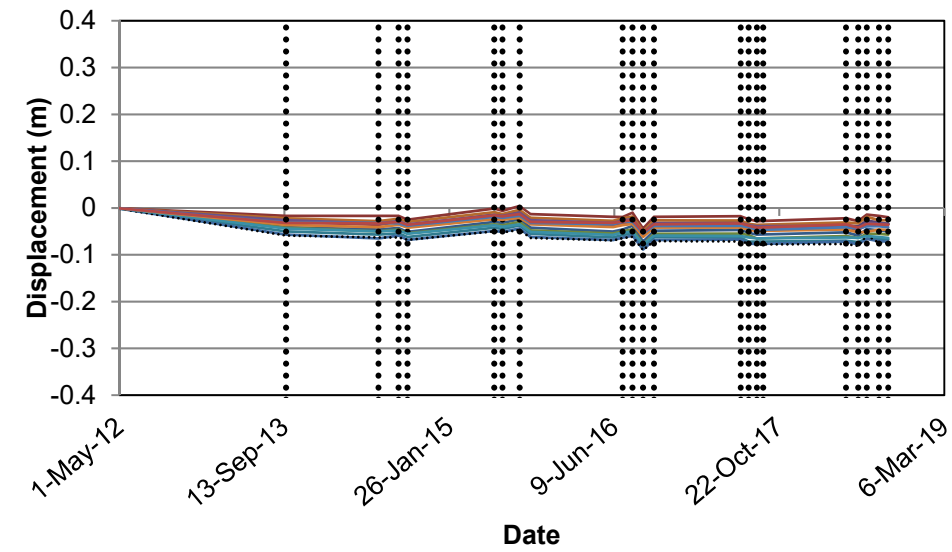
DORIS TIA

2018 Annual Geotechnical Inspection

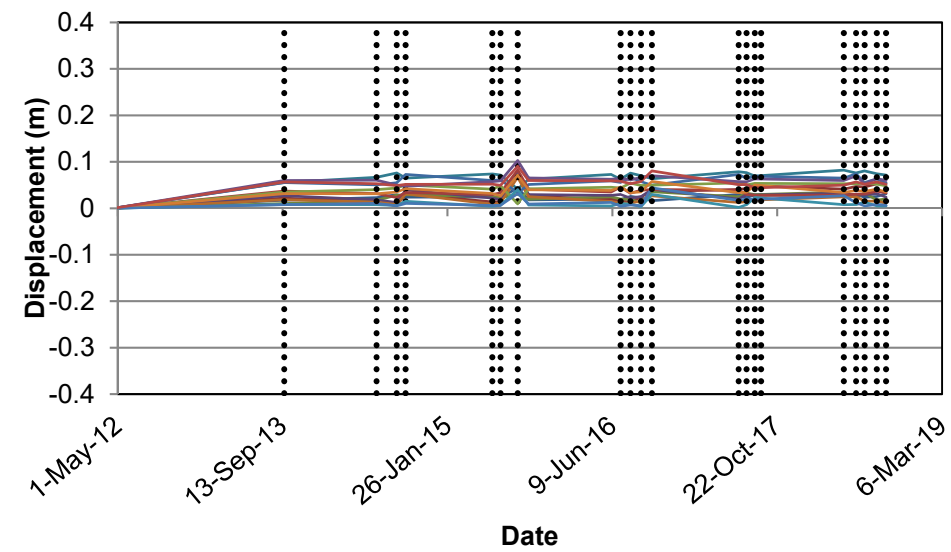
DeepSurface Survey Monitoring
Points
Displacement Timeseries

Date: Jan. 2019	Approved: PL	Figure: F.2
--------------------	-----------------	----------------

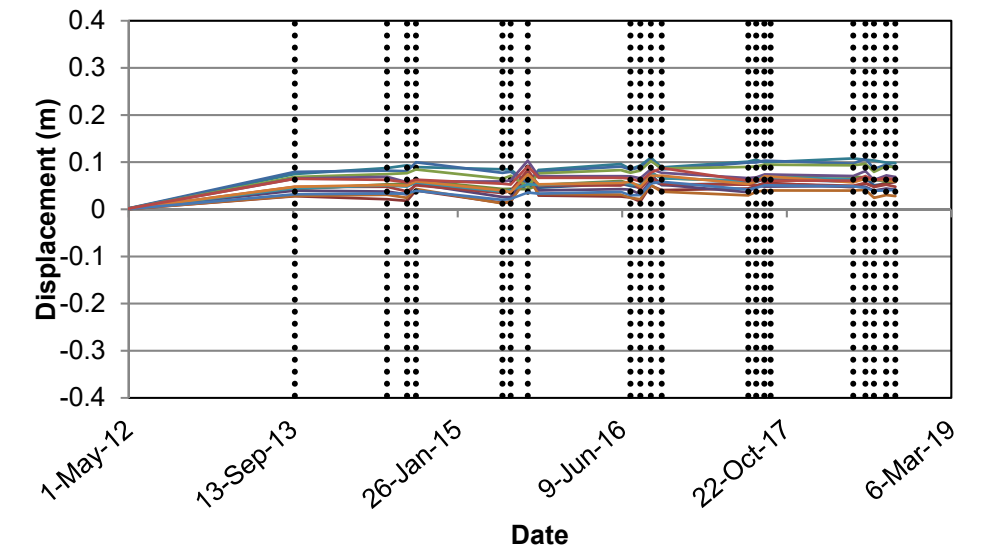
Vertical Displacement



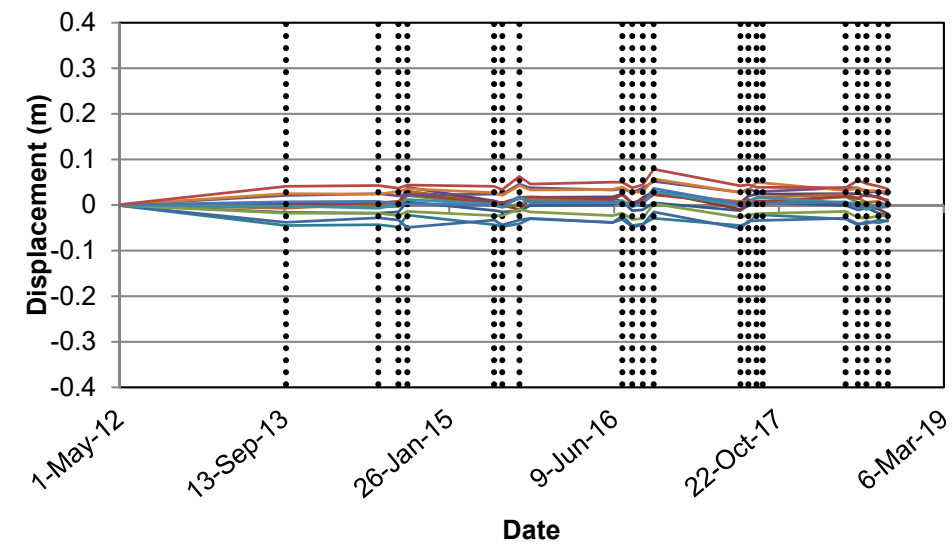
Horizontal Displacement



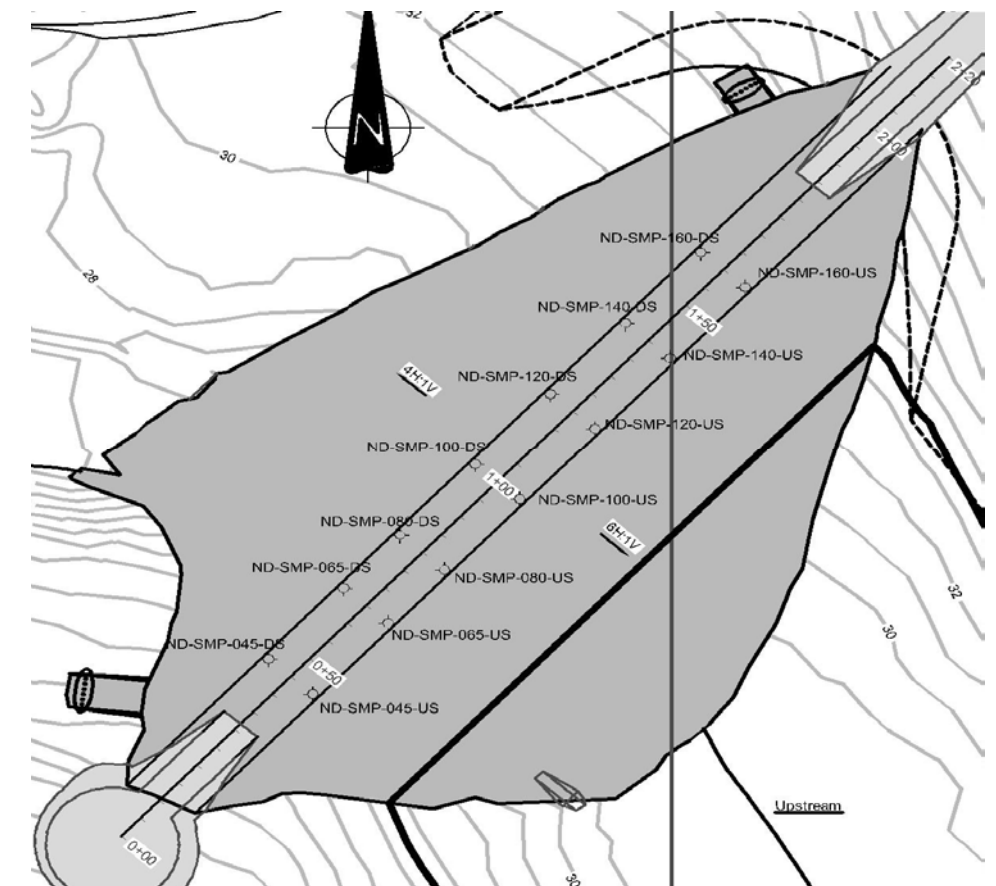
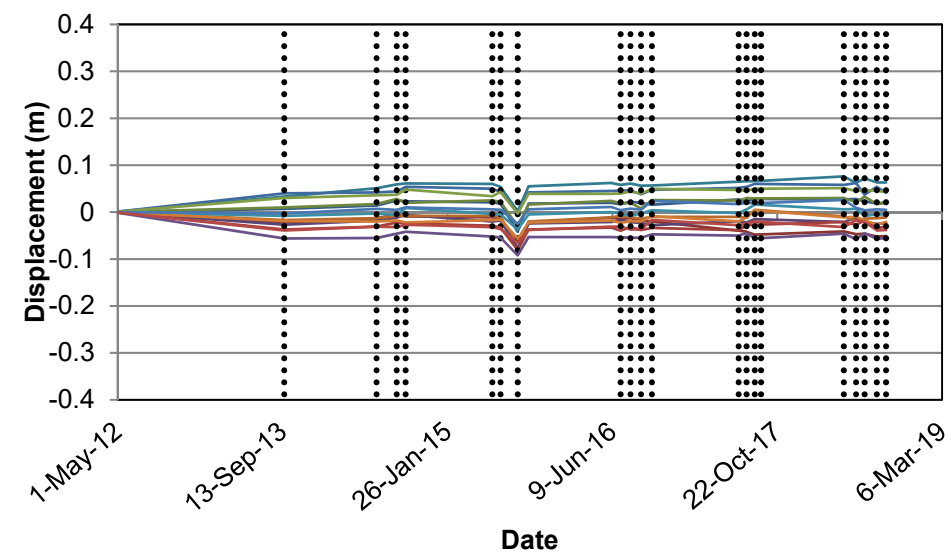
Total Displacement



Change in Easting



Change in Northing



LEGEND	
ND-SMP-045-DS	ND-SMP-045-US
ND-SMP-065-DS	ND-SMP-065-US
ND-SMP-080-DS	ND-SMP-080-US
ND-SMP-100-DS	ND-SMP-100-US
ND-SMP-120-DS	ND-SMP-120-US
ND-SMP-140-DS	ND-SMP-140-US
ND-SMP-160-DS	ND-SMP-160-US
.....	Survey Date

		2018 Annual Geotechnical Inspection		
		Crest Survey Monitoring Points Displacement Timeseries		
Job No: 1CT022.016 Filename: AppA_1CT022016_ND_GTC_20170906	DORIS TIA	Date: Jan. 2019	Approved: PL	Figure: F.3

Appendix G – Walk Over Surveys



North Dam Weekly Walkover Survey Report

Date:	Aug 1, 2017
Inspected By:	Josh Fro
Conditions:	(ie. snow on ground, clear) Clear

Visual Inspection:

This weekly walkover survey report is a means to track the condition on the North Dam, please provide details on changes that have developed since the previous inspection and/or any observations of particular concern. All photos are appreciated. Please send the completed form (scans are fine) and any photos to hopebaymonitoring@srk.com and pluedke@srk.com

Upstream Side of Dam		
Any visible concerns? (cracks, depressions, erosion, etc.)	Yes	No
Downstream Side of Dam		
Any visible concerns? (cracks, depressions, erosion, seepage, etc.)	Yes	No
Crest of Dam		
Any visible concerns? (cracks, depressions, erosion, etc.)	Yes	No
Thermosyphons North Side		
Any visible concerns? (cracks, punctures, <u>Minor</u> peeling paint, birds nests, etc.)	Yes	No
Thermosyphons South Side		
Any visible concerns? (cracks, punctures, <u>Minor</u> peeling paint, birds nests, etc.)	Yes	No
Instrumentation (on crest and downstream side)		
Any visible concerns? (bent, rusted, cracked, etc.)	Yes	No
Thermistors and Dataloggers		
Any visible concerns? (frayed or cut cables, damaged boxes, etc.)	Yes	No
Suspended Sediment in TIA (When not frozen)		
Any suspended sediment in Tail Lake?	Yes	No
Water at the Toe of the Downstream Side of the Dam (If yes refer to Doris North – North Dam and Tail Lake Outflow Seepage Monitoring Work Plan 2015)		
	Yes	No
If you answered yes to any of the questions above please provide details and photos. Observations can be sketched on the figure provided on the next page. If seepage has been noted please estimate the flow.		







North Dam Weekly Walkover Survey Report

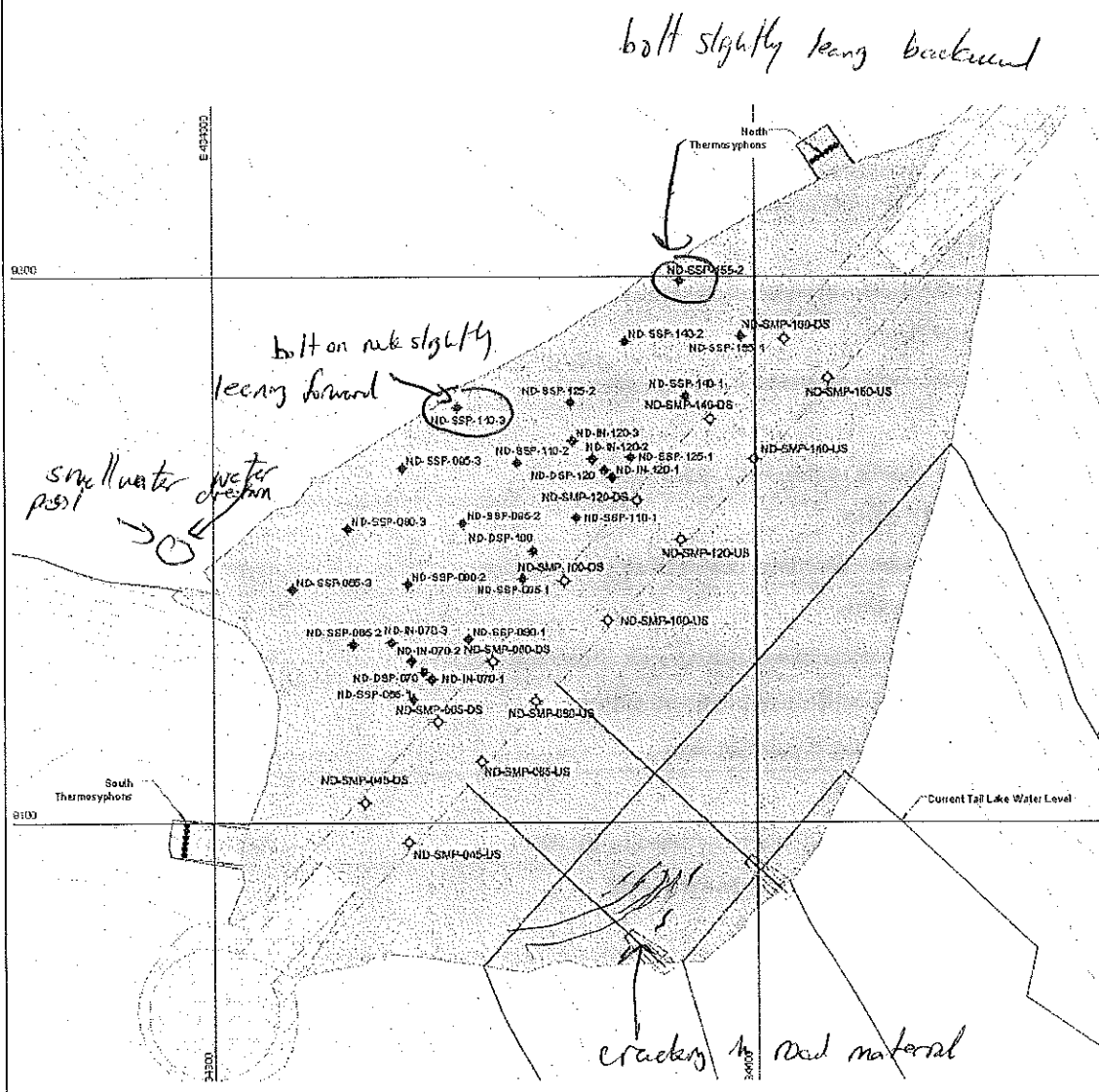
Date:	28-Aug-2017
Inspected By:	Nick Yogo
Conditions:	(ie. snow on ground, clear) clear

Visual Inspection:

This weekly walkover survey report is a means to track the condition on the North Dam, please provide details on changes that have developed since the previous inspection and/or any observations of particular concern. All photos are appreciated. Please send the completed form (scans are fine) and any photos to hopebaymonitoring@srk.com and pluedke@srk.com

Upstream Side of Dam → only on road		
Any visible concerns? (cracks, depressions, erosion, etc.)	Yes	☒ No
Downstream Side of Dam same as before		
Any visible concerns? (cracks, depressions, erosion, seepage, etc.)	Yes	☒ No
Crest of Dam		
Any visible concerns? (cracks, depressions, erosion, etc.)	Yes	☒ No
Thermosyphons North Side 8 only same as before		
Any visible concerns? (cracks, punctures, peeling paint, birds nests, etc.)	Yes	☒ No
Thermosyphons South Side 11 only same as before		
Any visible concerns? (cracks, punctures, peeling paint, birds nests, etc.)	Yes	☒ No
Instrumentation (on crest and downstream side)		
Any visible concerns? (bent, rusted, cracked, etc.)	Yes	☒ No
Thermistors and Dataloggers		
Any visible concerns? (frayed or cut cables, damaged boxes, etc.)	Yes	☒ No
Suspended Sediment in TIA (When not frozen)		
Any suspended sediment in Tail Lake?	Yes	☒ No
Water at the Toe of the Downstream Side of the Dam (If yes refer to Doris North - North Dam and Tail Lake Outflow Seepage Monitoring Work Plan 2015) ^{Yes} same as before		
If you answered yes to any of the questions above please provide details and photos. Observations can be sketched on the figure provided on the next page. If seepage has been noted please estimate the flow.		

Please provide any other observations you have made or items that did not fit in the space above



Photos:

Please collect the following photos:

Photo from north end looking south along the dam

Photo from south end looking north along the dam



Other photos, please describe

cracks @ upstream part near road
 pictures of ND-SSP-110-3 & ND-SSP-155-2

