Stantec

To:	Jerald Schnabel	From:	Paul Kos
	Continental Materials Corp.		Denver, CO 80222
File:	June 2022 Monitoring Summary	Date:	July 31, 2022

Reference: June 2022 Geotechnical Monitoring Summary Pikeview Quarry

1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has prepared this June 2022 Geotechnical Monitoring Summary for the Pikeview Quarry. The Pikeview Quarry is situated along the foothills of the Rocky Mountains, northwest of Colorado Springs, Colorado. Continental Materials Corp. (CMC) operates the quarry, which is currently closed and undergoing reclamation. A geotechnical monitoring program was established to monitor reclamation activities which will affect the geotechnical performance of the existing and reclaimed slopes during and following reclamation grading. This report presents the geotechnical monitoring results for the slope reclamation activities at the site through the month of June 2022. Continuous monitoring by the robotic survey system began in 2010 and has continued through the month June 2022 uninterrupted. Visual inspections of the slopes were performed by CMC employees and Stantec engineers.

1.1 PURPOSE

The purpose of this report is to summarize the June 2022 geotechnical monitoring results and verify the geotechnical performance of the existing and reclaimed slopes with respect to the historical performance record. The goals of the geotechnical instrumentation monitoring program can be described as:

- Meet corporate risk management requirements,
- Provide ongoing slope monitoring and advance warning of any changed conditions that could pose a hazard to workers or to the public,
- Document the geotechnical performance of the slope, and
- Document monthly site grading activities and construction quality assurance.

1.2 MONITORING SUMMARY

Major components of the instrumentation monitoring program are listed in Table 1 and shown on Figure 1.

Table 1 Monitoring Frequency

Monitoring Type	Frequency
Visual inspection	Daily (CMC) and Monthly (Stantec)
Robotic theodolite/prism	Continuous
Drone inspection	Monthly
Compaction testing	Every 5,000 yd^3 (min.)

2.0 VISUAL INSPECTIONS

Inspections are completed daily by site personnel and monthly by Stantec personnel to document visual observations of slope conditions, including conditions of instability (i.e., cracking, slumping, over-steepened slopes, seeps, perched boulders, rock falls, erosion, and areas undercut by construction or maintenance activities). Certain areas of the landslide have been designated as safety exclusion zones, and these areas are inspected from adjacent locations.

On working days, site operators inspect their work areas for signs of instability daily before starting work per site safety rules and regulations. The daily inspection starts by reviewing any prism alerts/alarms and inspecting those areas before work begins in that area. The daily inspection also includes visual observations of the quarry walls and floor for any changes. No changes to the quarry conditions were identified during daily inspections in June 2022. The notes from the daily inspections are included in Table A-1 in Appendix A.

Stantec conducted visual inspections of the Pikeview Quarry slopes on June 21, 2022. The engineering inspections were conducted by traversing each area of the mine and observing the uphill slope and the downhill slope for signs of instability, and areas in need of maintenance. Slopes that have been graded and are 2 horizontal (H):1 vertical (V) or shallower are also traversed on foot. The findings are listed below, and photographs of notable observations are included on Figure 2 in Appendix A.

- Reclamation grading began in February 2022 and continued throughout June.
- Operators are moving material from the North Borrow Area to the pit floor for compaction in one-foot lifts. Note that the North Borrow Area is a separate project associated with the City's plans for the property; this grading was permitted by El Paso County. (Photo 5 and 7)
- Offsite fill was placed near the reclamation benches. The material was spread by dozers and compacted in one-foot lifts in accordance with the project specifications. (Photo 6)
- A safety buffer zone is being kept between the active work areas and the toe of the slide to stop any rocks that might come loose during grading operations. Compacted fill is placed in the buffer zone as the buttress fill is placed.
- Riprap has been produced and stockpiled at several locations on site.
- No cracking was observed on the native granite slopes above the extents of the disturbed area.
- Known cracks were monitored for changes. Currently the cracks are not growing in any of the areas on the slopes of the site. The hummocky field in the area immediately above the southern extent of the slide shows evidence of cracking but they are not fresh or active. No new or open cracks were found immediately inside or next to the slide area. (Photo 3)
- The culvert remains cleared but mostly blocked inside. CMC has partially cleared the debris, but access limitations and supports within the culvert inhibit clearing all the debris. CMC has procured a pump and will begin pumping operations if any water collects behind the culvert. CMC inspects the culvert for ponded water following rain events, and should any water be observed, it will be removed using pumps. To date, no ponding has been observed.
- Visual inspections of the Pikeview Quarry did not reveal any evidence of large-scale instability outside of the landslide areas previously identified. No bulging, rippling, over-steepening, depressions, slumps, or dry slip-offs were observed in areas that have been graded and/or reclaimed.

3.0 PRISM SURVEY

A Leica Robotic station is used to continuously survey the prisms onsite to document slope movements. The station records the location of each prism every hour. There are currently 23 active prisms; 3 prisms are control points located outside the slope movement area, 17 prisms are located on the slopes surrounding the landslide area, and 3 prisms are located at the toe of the landslide. As the slope is backfilled and graded, the existing prisms will be removed, and additional prisms will be installed. The rock at the prism P4 location has deteriorated, and the prism was abandoned on June 17, 2022. Prism P5 also monitors the rock slopes where P4 was located, and the prism was not replaced. A log of prism removals and installations is included in Appendix B. The prism locations are shown on the current topography in Figure 3, and the proposed prism locations are shown on the reclamation topography in Figure 4. Both figures are included in Appendix B.

The monitoring software, GeoMos, has been programed to provide automatic alarms if there is a movement recorded that is greater than 0.35 feet or if a prism cannot be located. The alarm notes and actions taken are logged, and the alarms are summarized in Table 2. Following each alarm, CMC clears the area of concern until the data can be reviewed and the slope can be inspected. CMC made sure that there were no workers in the area before inspecting the slope. During June 2022, a movement alarm was received from prism P35; however, when the prism was inspected, there were no signs of slope movements. The subsequent readings returned to normal, and the alarm is assumed to be a data error related to weather conditions. All other alarms were determined to be caused by weather or animals blocking the prism.

Table 2 Alarm Summary

Date(s)	Alarm	Cause/Actions taken	Issue Resolved
06/01/2022 to 06/02/2022	Points not found	Fog and rain. No work being performed	06/02/2022
06/03/2022	Points not found	Fog and rain.	06/03/2022
06/06/2022 to 06/07/2022	Points not found	Heavy rain overnight. No work performed at time.	06/07/2022
06/17/2022	P4 not found	Rock deterioration removed prism. Occurred during non-working hours.	06/17/2022
06/25/2022	P35 Level 1 exceeded	Measured during bad weather. No crews onsite. Not repeated. Assumed to be data error. Reading of -0.352ft.	06/25/2022
06/26/2022	Points not found	Fog	06/26/2022
06/26/2022 to 06/27/2022	No communication with sensor	GFI tripped at Leica station. Reset on Monday	06/27/2022
06/28/2022	No communication with sensor	GFI tripped at Leica station. Adjusted thermostat to prevent system overheating.	06/28/2022
06/28/2022	CP1 not found	Single event in middle of night. Potentially blocked by animal.	06/28/2022

The prism monitoring results for transverse and height displacements, monthly change, and cumulative change are summarized in Table 3 below. The transverse displacement measures the change in the horizontal distance from the robotic station to the prism; positive displacements indicate less distance between the station and prism (movement towards the total station). The height displacement measures the change in the vertical distance from the robotic station to the prism; positive displacements indicate upward

movement. The values for the last reading in the month are included in Table 3. The monthly delta is the most recent reading cumulative delta displacement (horizontal, lateral, and vertical) subtracted from the last reading from the previous month. The cumulative delta values are a total displacement and are not associated with a direction. The transverse, height, and cumulative delta displacements are the total displacement over the life of the monitoring, which has been several years for all the prisms except P69. Prism P69 was moved on June 20, 2020, and the displacements included in Table 3 are the displacements since that date. According to Leica documentation, the survey accuracy is +/-4 mm+1.5 ppm for prisms located greater than 500m from the station; these equates to an accuracy of +/-0.016 ft.

The data show stable conditions with no movement for 15 of 23 prisms with recorded displacements limited to data scatter and not actual movements. Prisms P63, TOE4, and TOE5 are located at the toe of the landslide, and these locations showed slope creep movements at slow velocities. Prisms BR1, BR2, NP66, P69, and TS1 are located above the landslide, and these prisms also recorded slope creep movements at slow velocity. This settlement is likely related to the landslide material consolidating under its own weight. New prisms are placed in areas where slope creep movements are likely to be recorded; therefore, slope creep movements being recorded at more locations is expected to occur. Plots of the transverse and height displacements for each prism are included in Appendix B.

Table 3 Prism Summary

Prism ID	Cumulative Transverse Displacement (ft)	Cumulative Height Displacement (ft)	Monthly Delta (ft)	Cumulative Delta (ft)	Notes / Recommendations
BR1	-0.029	-0.092	0.0515	0.1579	Slope creep movements
BR2	-0.027	-0.202	0.0543	0.6025	Slope creep movements
CP1	0.006	-0.022	-0.0117	0.0268	
CP4	0.004	-0.028	0.0038	0.0325	
CP5	0.010	-0.059	-0.0043	0.0599	
NP2	0.122	-0.111	0.0233	0.2100	
NP3	0.008	-0.044	-0.0147	0.0472	
NP66	0.650	-0.882	0.0491	1.3289	Slope creep movements
P1	0.376	-0.084	0.0203	0.3870	
P2	0.170	-0.053	0.0201	0.2421	
P25	0.001	0.005	0.0118	0.1771	
P32	-0.062	-0.115	0.0084	0.2964	
P33	-0.086	-0.087	0.0010	0.2078	
P35	0.034	-0.210	0.0237	0.4672	
P4	0.389	-0.136	0.0176	0.5133	Prism abandoned on June 17
P5	0.402	-0.178	0.0267	0.6561	
P63	15.885	-6.516	0.0230	17.1698	Slope creep movements
P69	0.021	-0.100	-0.0096	2.0416	Slope creep movements
P70	0.377	-0.341	0.0264	0.6613	
TOE4	-0.055	0.021	0.0177	0.1001	Slope creep movements
TOE5	-0.077	-0.050	0.0294	0.1161	Slope creep movements
TOE6	-0.008	0.006	-0.0100	0.0102	
TS1	-0.002	-0.088	0.0587	0.1791	Slope creep movements

4.0 DRONE SURVEY

The site was flown for aerial imagery using an unmanned aircraft system (UAS or ‘drone’) on, June 28, 2022. The imagery was inspected for signs of instability and used to supplement the onsite visual inspections. Features noted in the aerial imagery review were inspected during Stantec’s engineering inspection and are summarized in Section 2 above. The imagery was also used to create site topography.

The June topography was also compared to the May topography to identify changes in the site topography. Comparison of the two surveys showed the placement of the fill material at the toe of the landslide. Fill material is excavated from the Lower and South Borrow Areas or imported from offsite projects, including the North Borrow Area. No slope movements or other changes in topography were identified. The current imagery

and topography are included in Figures 1 and 3, and the comparison surface is included as Figure 5 in Appendix C.

As previously reported in the September 2020 monitoring report, there are limitations with the method of comparing drone surveys from different months. The drone data indicate changes in the slopes along each of the reclamation benches, buildings, and areas with trees or shrubs. These areas are stable, and the changes are the result of survey limitations on or near vertical slopes.

5.0 COMPACTION TESTING

Fill placement started on February 25, 2022 and continued throughout June. Fill was excavated from the North Borrow Area and placed in the buttress and buffer zones. Importing fill also continued. Fill was placed in one-foot lifts, moisture conditioned as necessary, and compacted. Compaction testing began March 2022 and occurs at the rate of at least one test per 5,000 yd^3 placed. During June, approximately 156,000 yd^3 had been placed and compacted. This includes approximately 26,000 yd^3 of imported fill. This volume placed in the buttress zone required at least 32 compaction tests. There were 63 compaction tests associated with the June fill. As of June 28, 2022, a total 876,000 yd^3 had been placed and compacted. This requires 176 compaction tests (not considering the buffer zone volume), and 195 tests have been taken. All tests except one met or exceeded the minimum compaction requirement of 90% of the optimal density as measured by a Standard Proctor Test. Test #172 originally measured 86% of optimal density; this area was moisture conditioned and recompacted, and a retest measured 100% of optimal density. The compaction testing results are summarized in Appendix D, and the testing locations are shown on Figure 6.

6.0 RECLAMATION PROGRESS

CMC has initiated reclamation grading at the Pikeview Quarry and has contracted with Stantec to provide EPCM services through completion. As an updated feature of our monthly report, we will provide progress of activities, anticipated milestone schedule and a one month look ahead to better communicate project objectives. A phased or ‘gated” approach will be used to complete the reclamation process going forward (See milestone schedule below)

Phase 1 - Value Engineering and issue RFP to qualified Contractors

Phase 2 - Commercial negotiations with successful contractor

Phase 3 - Execution planning and Contractor readiness review

Phase 4 - Site Construction execution

Phase 5 - Final revegetation (season 2)

Task/Milestone	Estimated Dates
Phase 1 – Issue RFP to Bidders	Completed June 2021
Phase 1 – RFP Evaluation & Recommendation	Completed July 2021
Phase 2 – Constructor Contract Award	Completed January 2022
Phase 3 – Project Kick-off with successful Contractor	Completed February 4, 2022
Phase 4 – Contractor Mobilization to Site	Completed February 2022
Phase 4 – Reclamation Grading	February 2022 to present
Phase 4 – Contractor Demobilize from Site	Fall 2023
Phase 5 – Final Revegetation season 2 Begins	2023 until acceptance

Progress of activities this month:

- Contractor continued earth moving activities
- Quality assurance testing continued
- Importing fill material continued
- Geotechnical monitoring continued

Work planned for next month includes:

- Continue reclamation grading
- Continue importing fill material
- Continue geotechnical monitoring
- Demolish and remove shop and begin grading in that area
- Move Leica building
- Continue removing and replacing prisms on an as-needed basis

7.0 CONCLUSIONS

The data collected in June 2022 demonstrate compliance with the reclamation grading plan. The buttress fill is being placed as intended and specified; this includes one-foot-thick compacted lifts.

None of the data collected in June 2022 indicate evidence of any large-scale movements that increase risk to workers or to the public. The landslide area continues to show slope creep movements with slow velocities. Shallow surface erosion continues to occur requiring ongoing maintenance and cleanup.

- Restricted access to the ungraded landslide slopes should continue.
- All monitoring should continue at current frequencies.
- All alarms shall continue to be taken seriously even if data errors are suspected.

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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Existing Prism
- Removed Prism

N

0 300' 600'

Client/Project
CONTINENTAL MATERIALS CORP.
PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

Title
SITE MAP

Revision
#

Date
2022.07.31

Drawn By
PK

Figure No.
1

Appendix A

Visual Inspections

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Table A-1 Summary of Daily Inspecitons

Date	Notes	Inspection By
1-June-22	Rain and fog. No work.	Jerald Schnabel
2-June-22	Rain and fog. No work.	Jerald Schnabel
3-June-22	No movement observed. Good to proceed.	Jerald Schnabel
4-June-22	No movement observed. Good to proceed.	Jerald Schnabel
5-June-22	No work.	Not applicable
6-June-22	No movement observed. Good to proceed.	Jerald Schnabel
7-June-22	No movement observed. Good to proceed.	Jerald Schnabel
8-June-22	No movement observed. Good to proceed.	Jerald Schnabel
9-June-22	No movement observed. Good to proceed.	Jerald Schnabel
10-June-22	No movement observed. Good to proceed.	Jerald Schnabel
11-June-22	No movement observed. Good to proceed.	Jerald Schnabel
12-June-22	No work.	Not applicable
13-June-22	No movement observed. Good to proceed.	Jerald Schnabel
14-June-22	No movement observed. Good to proceed.	Jerald Schnabel
15-June-22	No movement observed. Good to proceed.	Jerald Schnabel
16-June-22	No movement observed. Good to proceed.	Jerald Schnabel
17-June-22	No movement observed. Good to proceed.	Jerald Schnabel
18-June-22	No work.	Not applicable
19-June-22	No work.	Not applicable
20-June-22	No movement observed. Good to proceed.	Jerald Schnabel
21-June-22	No movement observed. Good to proceed.	Jerald Schnabel
22-June-22	No movement observed. Good to proceed.	Jerald Schnabel
23-June-22	No movement observed. Good to proceed.	Jerald Schnabel
24-June-22	No movement observed. Good to proceed.	Jerald Schnabel
25-June-22	No work.	Not applicable
26-June-22	No work.	Not applicable
27-June-22	No movement observed. Fog in upper areas of mine. Good to proceed.	Jerald Schnabel
28-June-22	No movement observed. Good to proceed.	Jerald Schnabel
29-June-22	No movement observed. Good to proceed.	Jerald Schnabel
30-June-22	No movement observed. Good to proceed.	Jerald Schnabel

6. Compacted area in the pit looking north.

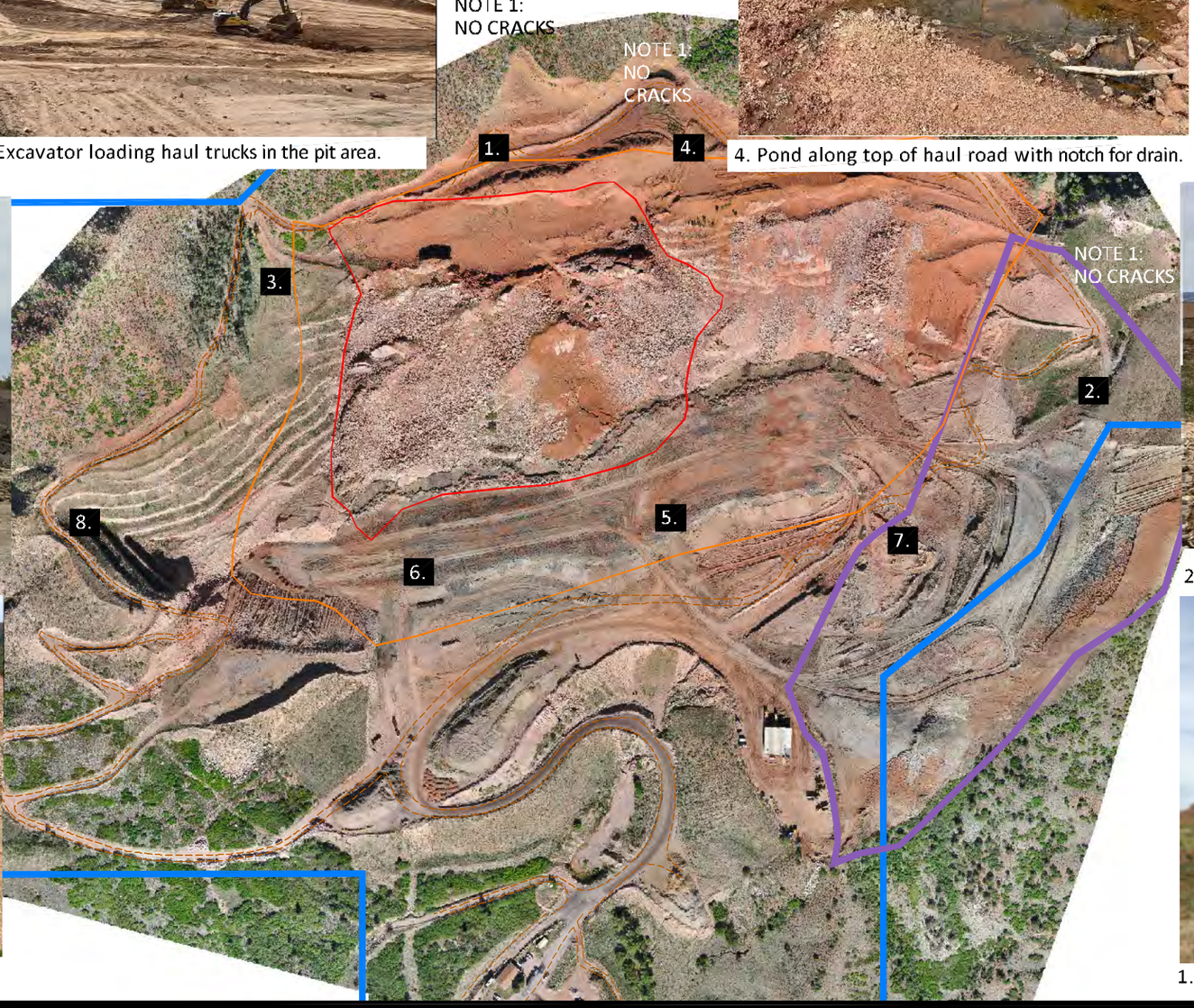
5. Excavator loading haul trucks in the pit area.

4. Pond along top of haul road with notch for drain.

3. Cracking on south end of the site - no change.

7. Excavator working in the North Borrow Area.

8. Reclamation benches at the south end of the site.



2. View of the North Borrow Area.

1. View of South Peak from top of haul road.

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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Observed Crack

NOTES

1. NO CRACKS OBSERVED IN THIS AREA.
2. ALL PHOTOS TAKEN JUNE 21, 2022.

N

0 400' 800'

Client/Project
CONTINENTAL MATERIALS CORP.
PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

Title
OBSERVATIONS FROM JUNE INSPECTION

Revision
#

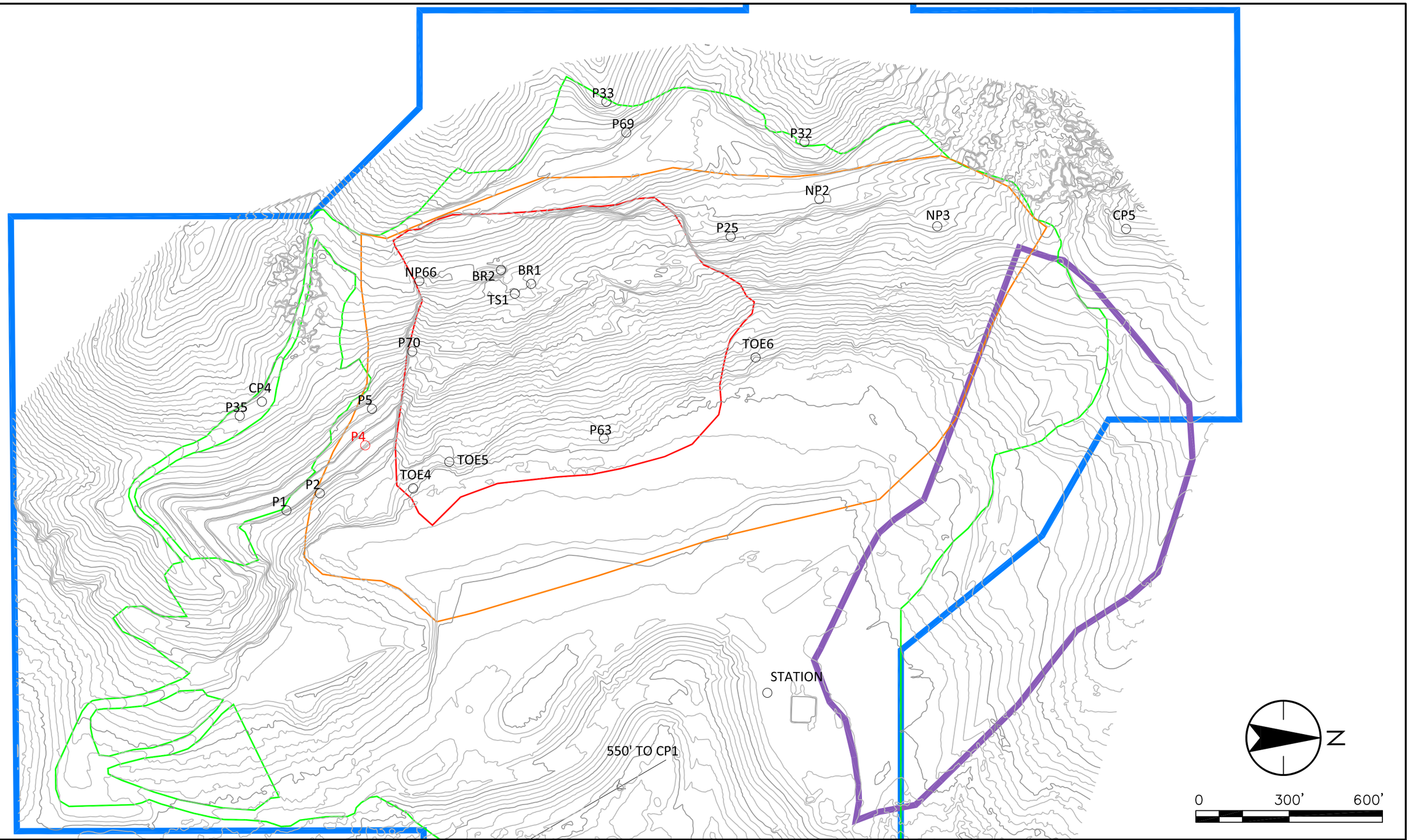
Date
2022.07.31

Drawn By
PK

Figure No.
2

Appendix B

Prism Survey



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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Existing Prism
- Removed Prism

1. GRADING AND MOVEMENT OF STATION WILL BE EXTENDED AS LONG AS POSSIBLE.
2. PRISMS WILL BE INSTALLED AS EACH BENCH IS FINISHED.
3. ALL PRISMS WILL BE RETAINED AS LONG AS POSSIBLE.
4. TOPOGRAPHY FROM June 28, 2022 DRONE SURVEY.
5. CONTOUR INTERVAL IS 10 FEET

Client/Project
CONTINENTAL MATERIALS CORP.
PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

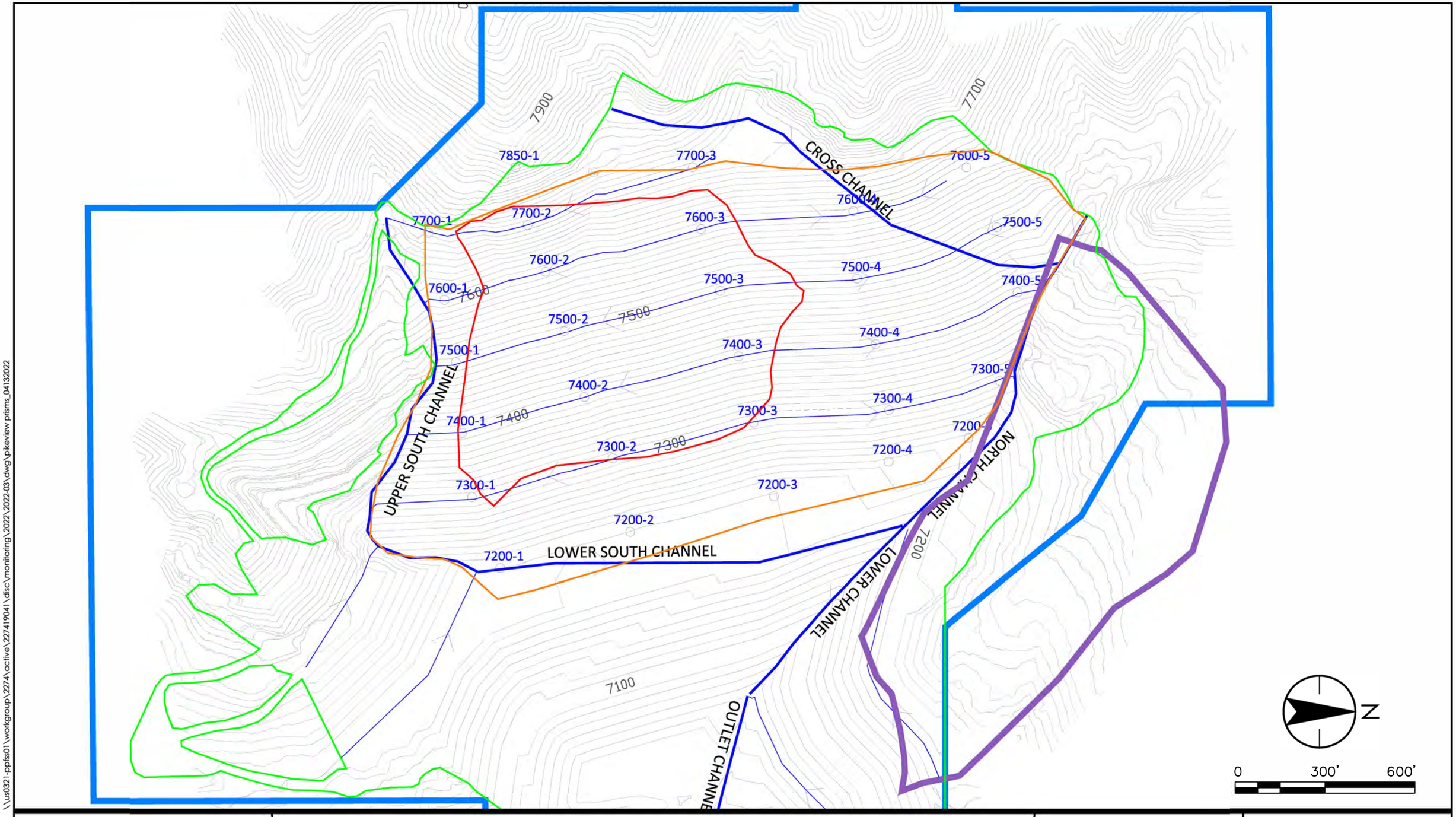
Title
EXISTING PRISMS WITH CURRENT SURFACE

Revision
#

Date
2022.07.31

Drawn By
PK

Figure No.
3



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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Proposed Prism

NOTES

1. GRADING AND MOVEMENT OF STATION WILL BE EXTENDED AS LONG AS POSSIBLE.
2. PRISMS WILL BE INSTALLED AS EACH BENCH IS FINISHED.
3. ALL PRISMS WILL BE RETAINED AS LONG AS POSSIBLE.

Client/Project
CONTINENTAL MATERIALS CORP.
PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

Title
PROPOSED PRISMS WITH RECLAMATION SURFACE

Revision	Date
#	2022.07.30
Drawn By	Figure No.
PK	4

Prism Log

Prism	Date	Action	Comment
CP2	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
CP3	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
NP1	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
TOE2	11-Mar-22	Prism Removed	Reclamation grading to affect prism in near future
CP4	11-Mar-22	Prism Added	Control Point Replacement
CP5	11-Mar-22	Prism Added	Control Point Replacement
TS1	12-Mar-22	Prism Added	New Prism Added
TOE3	30-Mar-22	Prism Removed	Reclamation grading to affect buffer filling activities
TOE4	8-Apr-22	Prism Added	New Prism Added
TOE5	8-Apr-22	Prism Added	New Prism Added
BR1	8-Apr-22	Prism Added	New Prism Added
BR2	8-Apr-22	Prism Added	New Prism Added
NP3	22-Apr-22	Prism Added	Originally NP1. Prism re-set in same spot and is now NP3
TOE6	22-Apr-22	Prism Added	Originally TOE3. Prism moved to a higher elevation and is now TOE6
TOE1	22-Apr-22	Prism Removed	Reclamation grading to affect buffer filling activities
P4	17-Jun-22	Prism Removed	Prism removed due to rock deterioration

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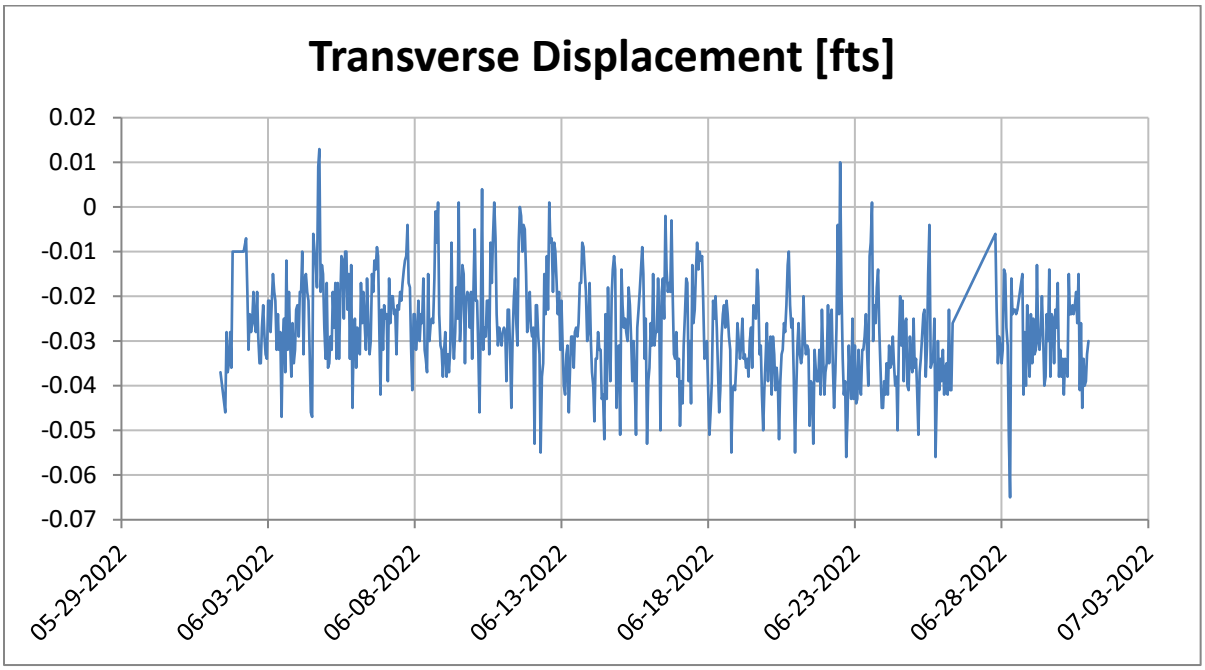
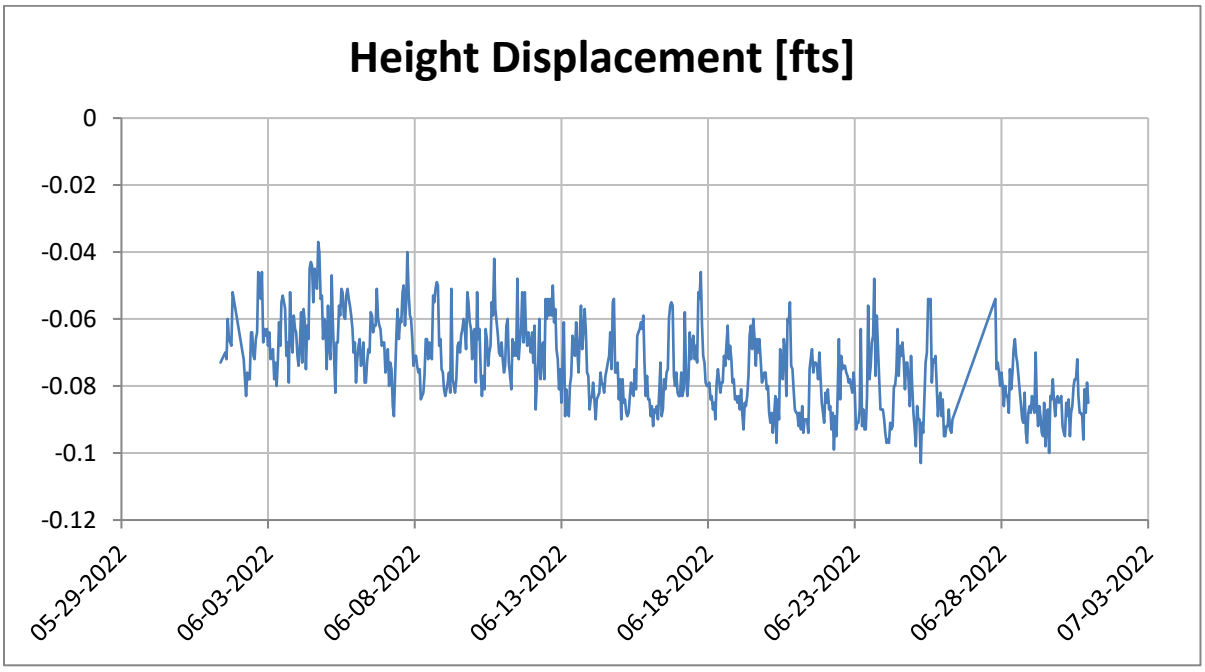
Prism BR1





Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.

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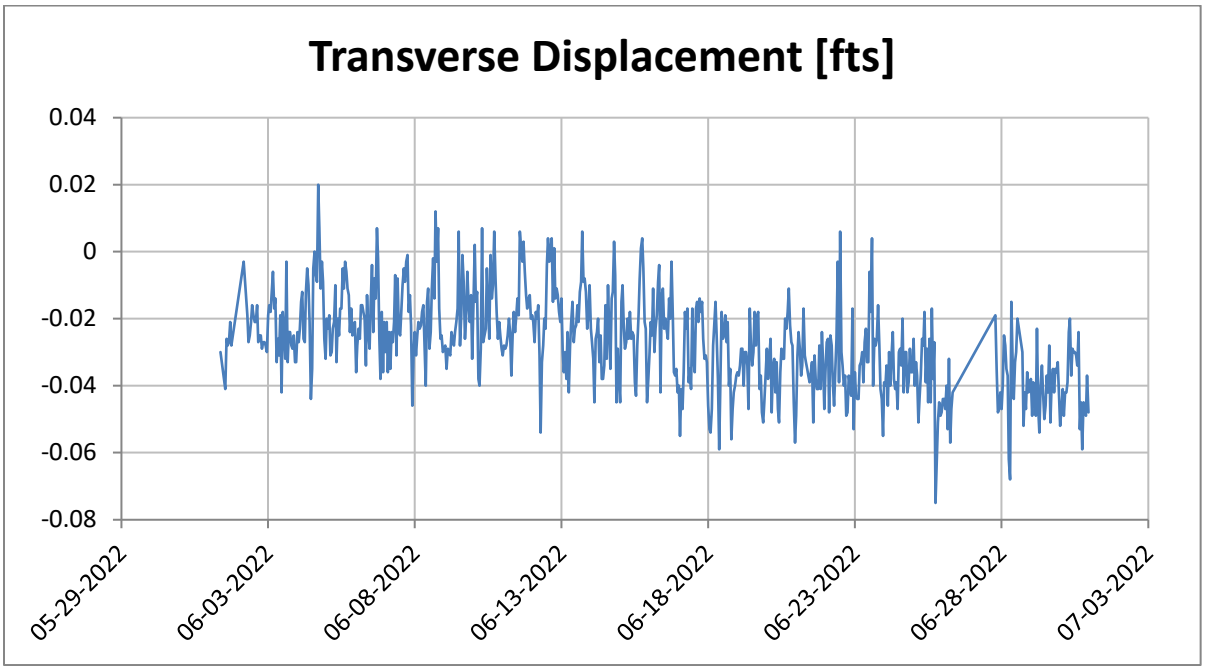
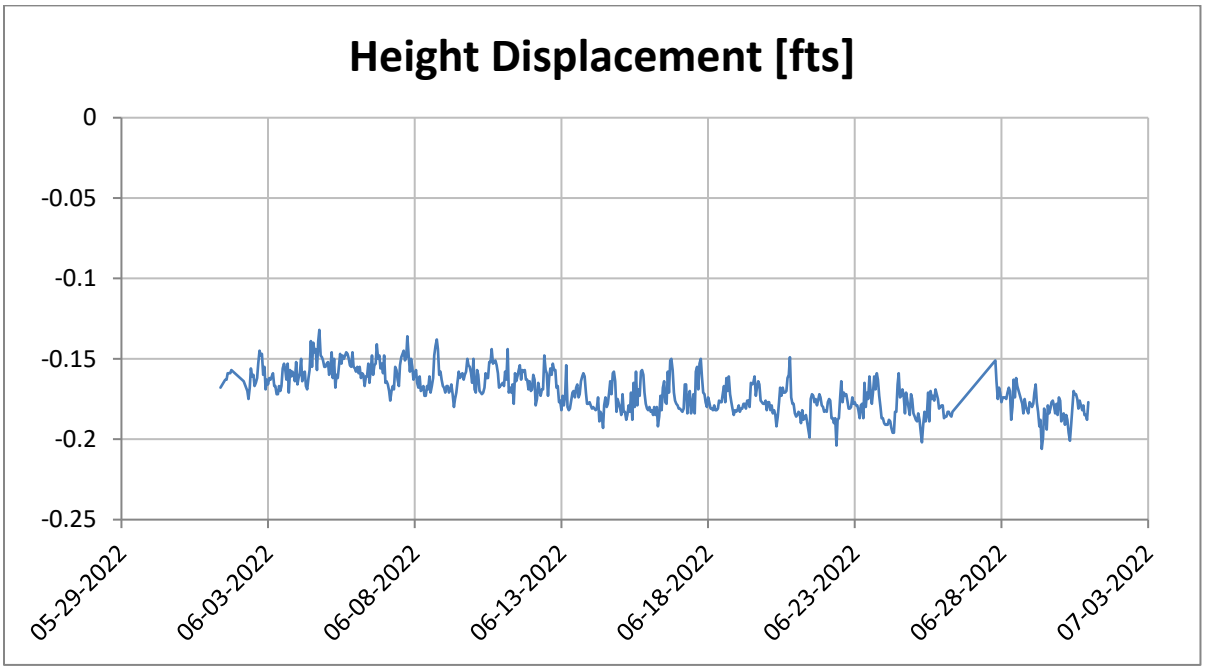
Prism BR2





Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism is located in an area where ongoing movements are expected. The prism records slope creep movements with slow velocity.

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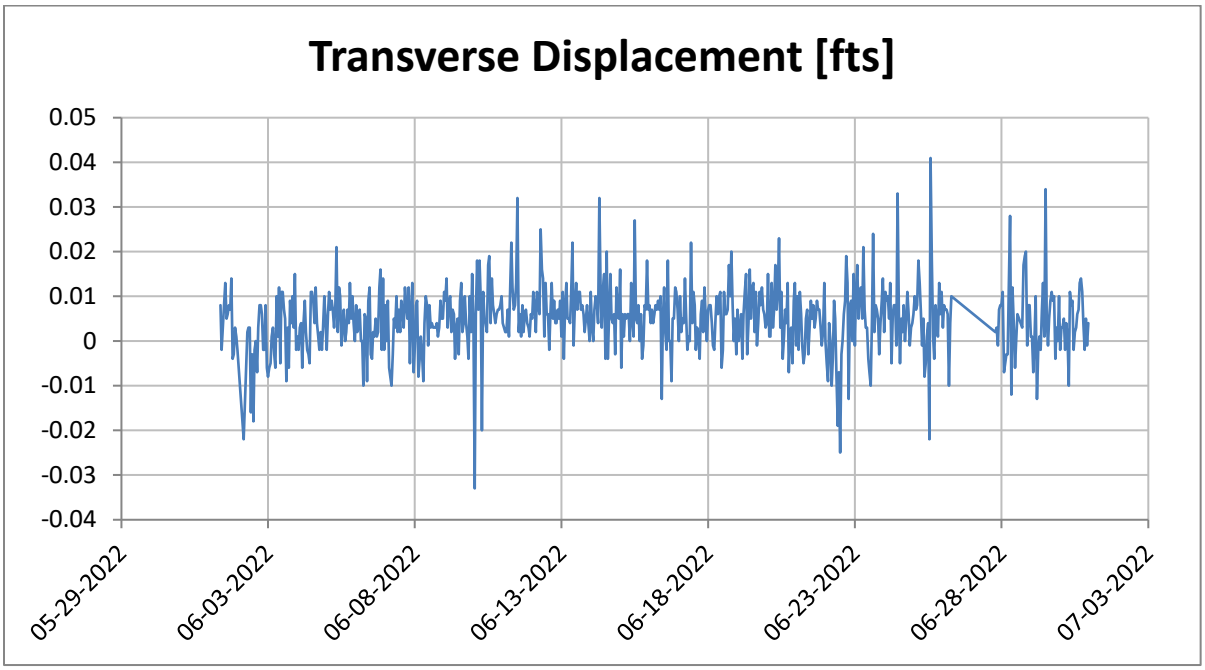
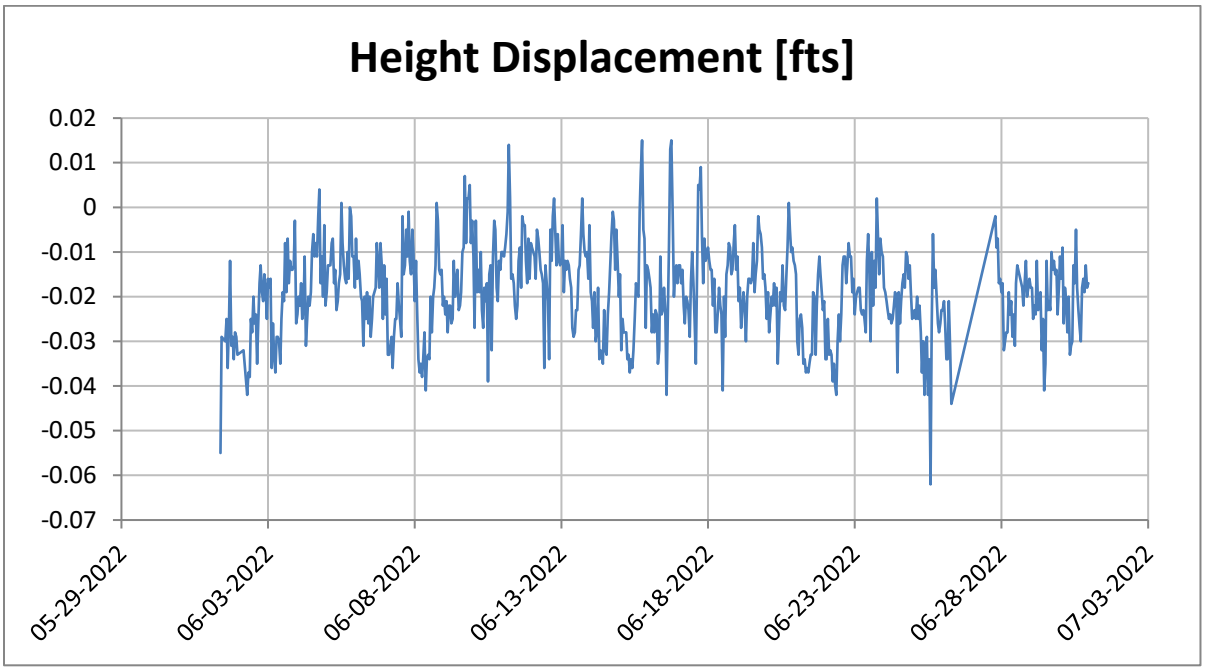
Prism CP1



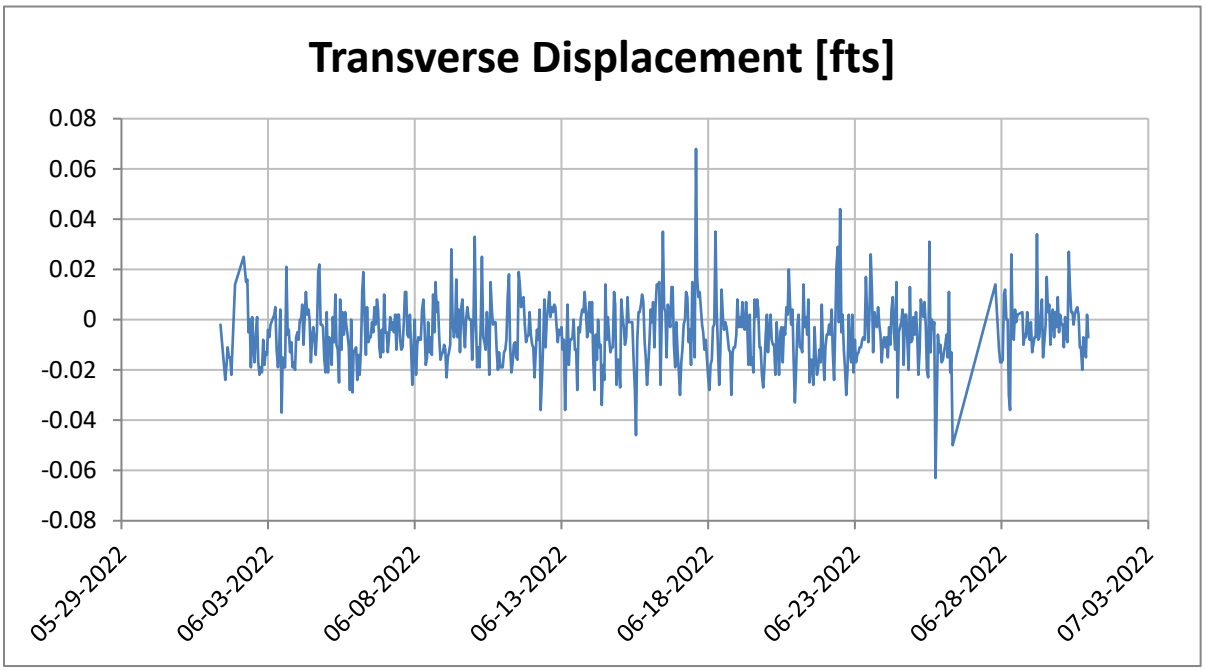


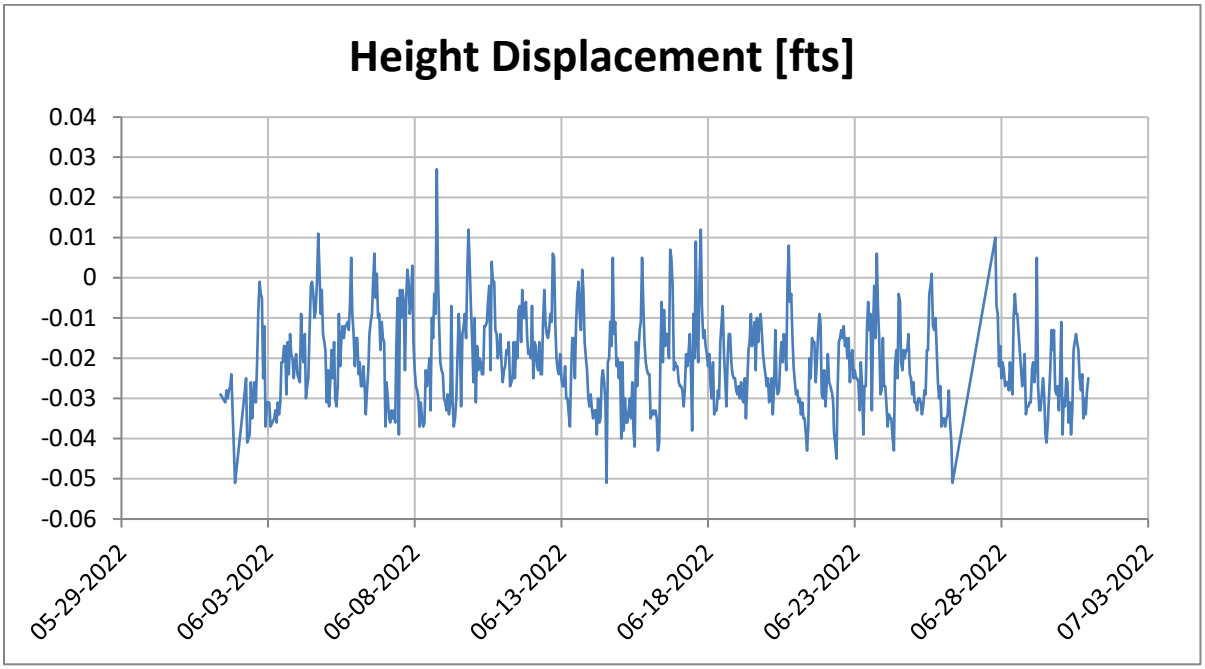
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism CP4



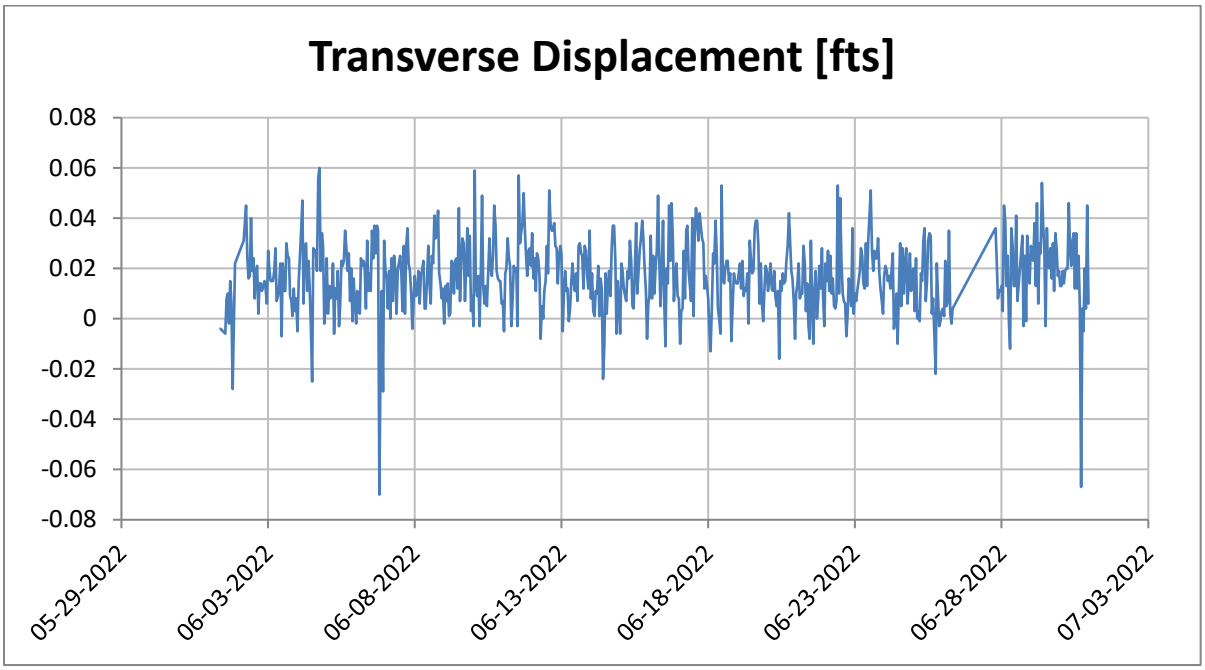


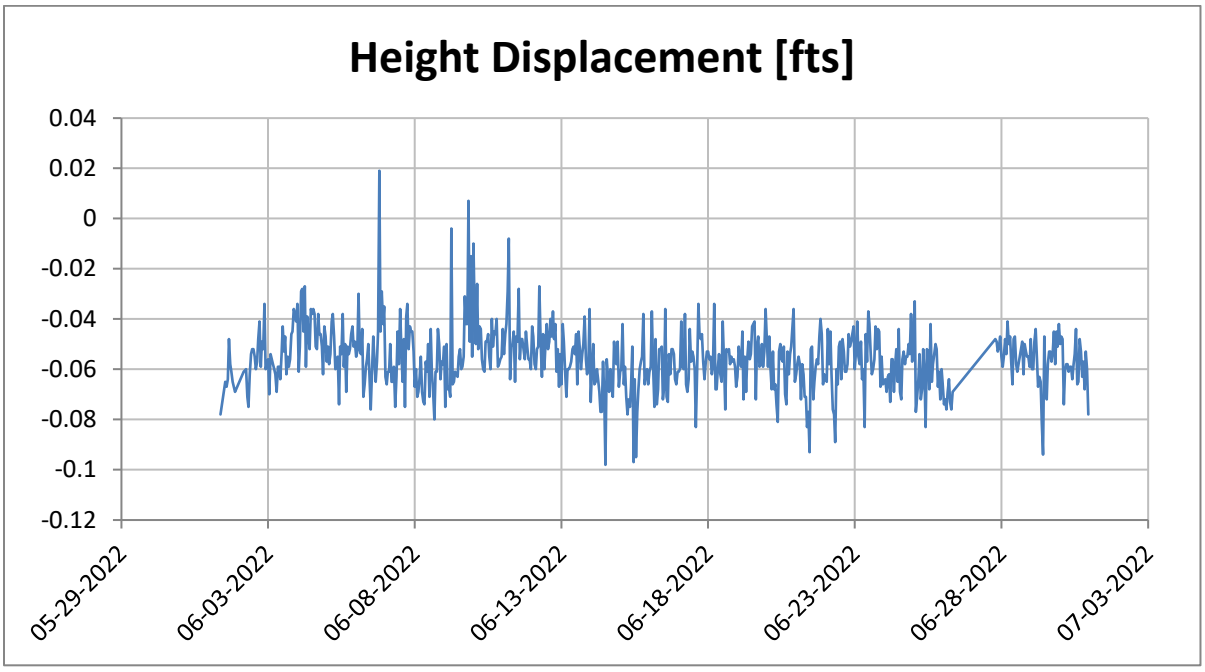
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism CP5



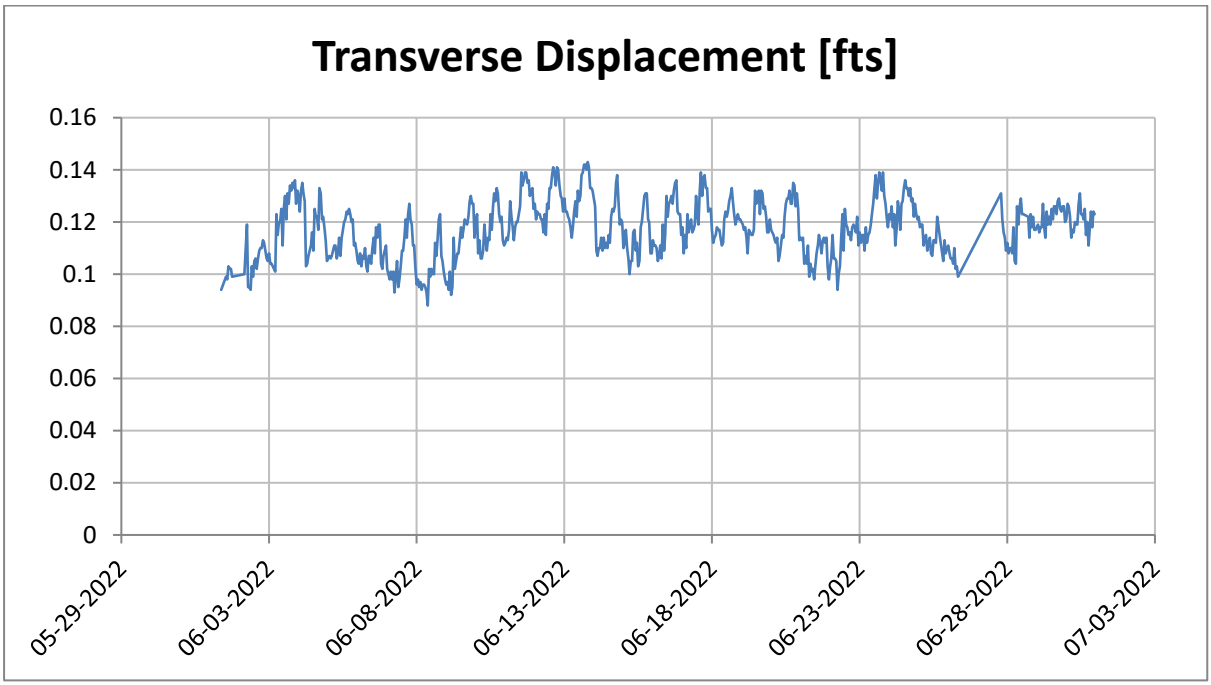


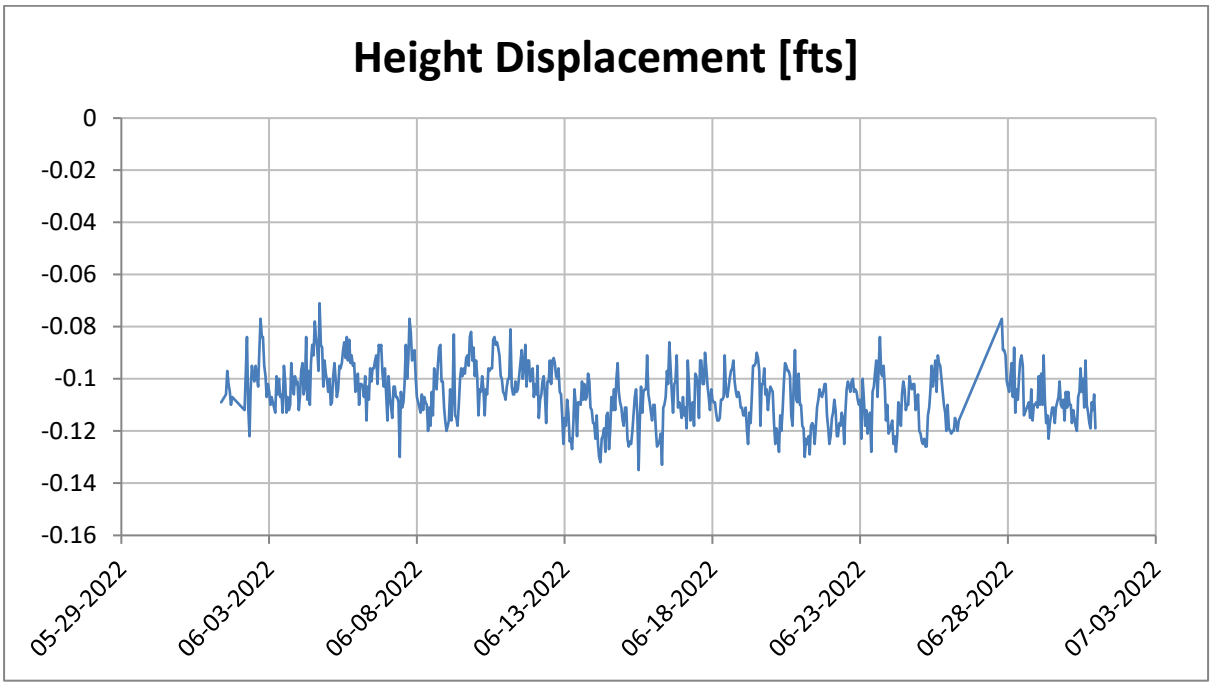
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism NP2



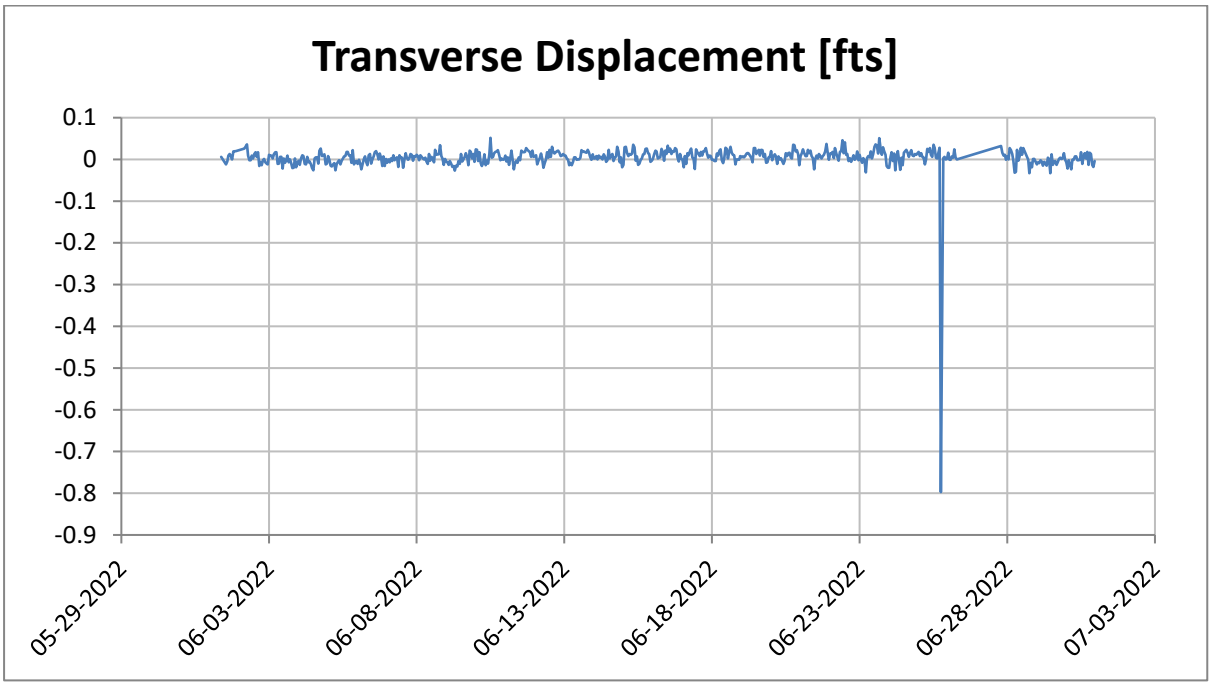


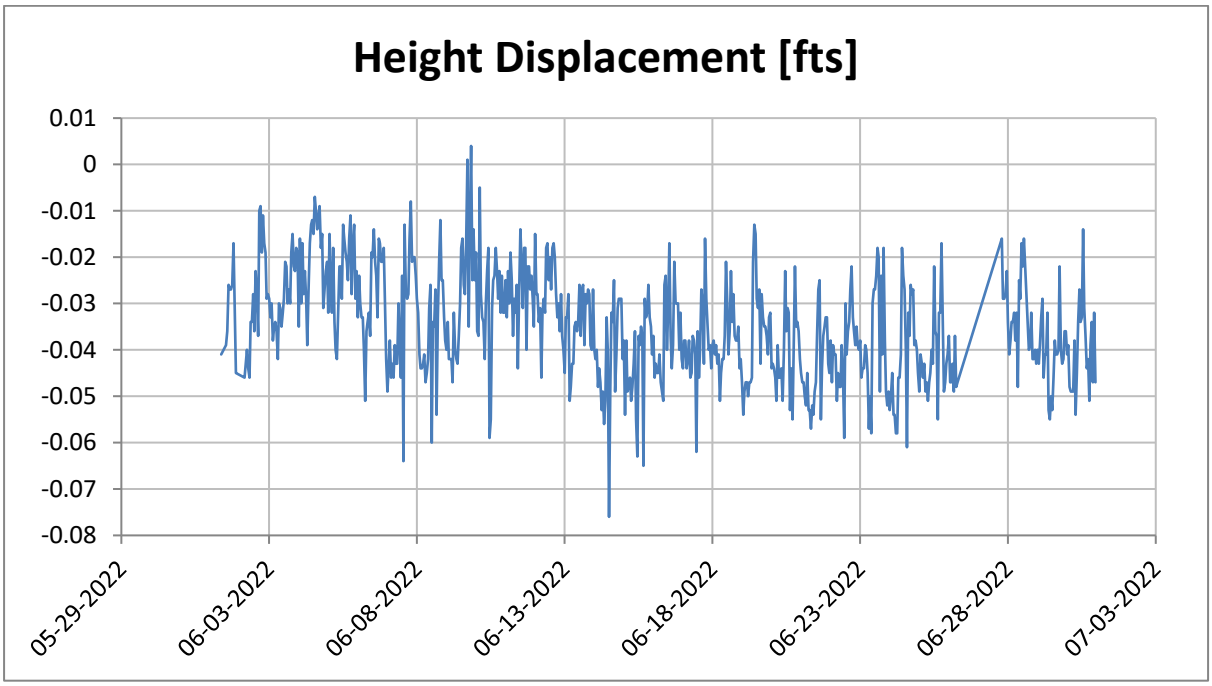
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism NP3



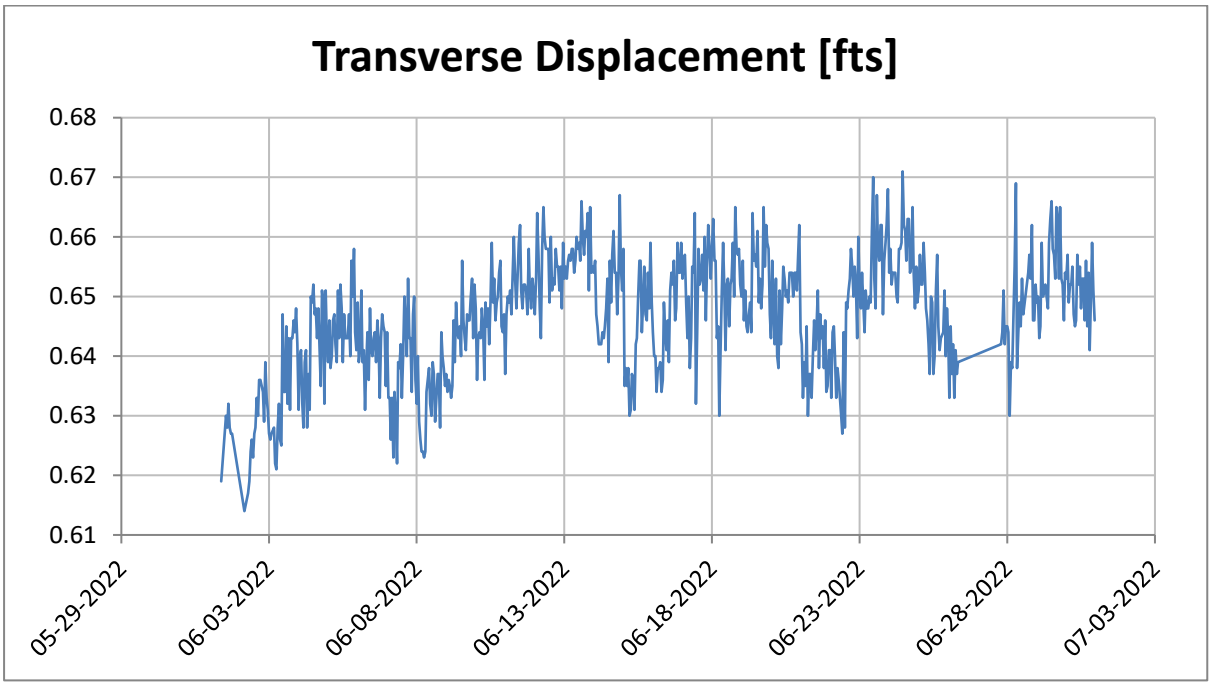


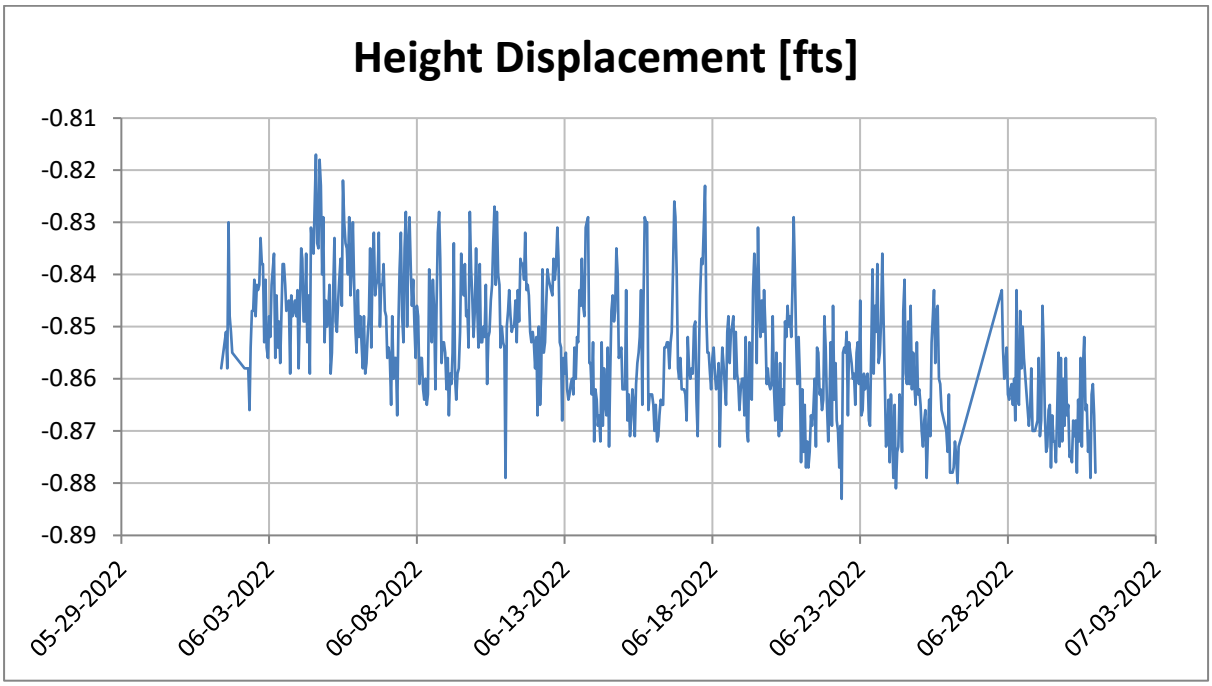
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism NP66



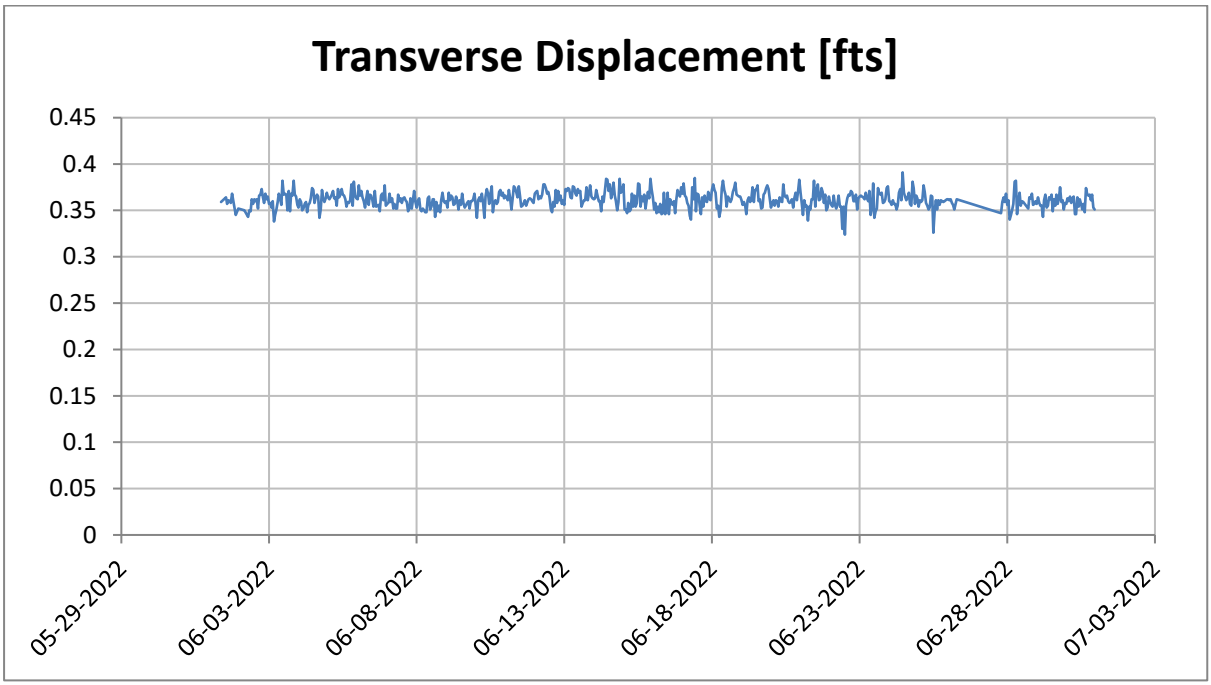


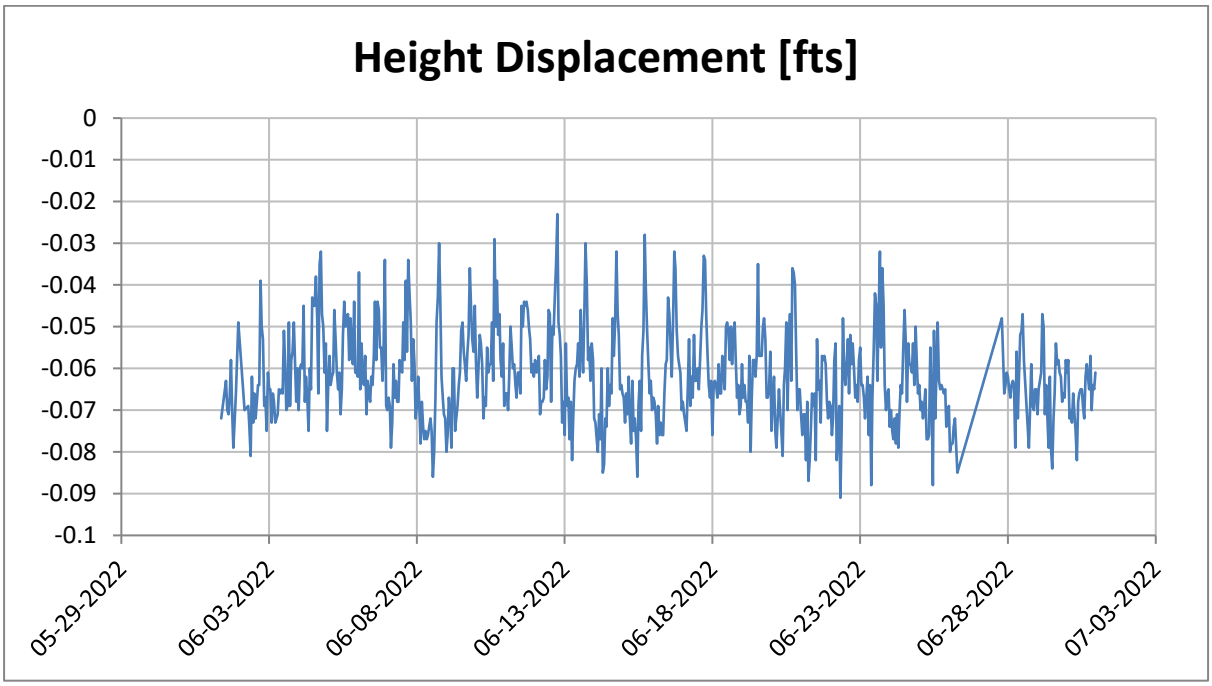
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.

Stantec

Prism P1



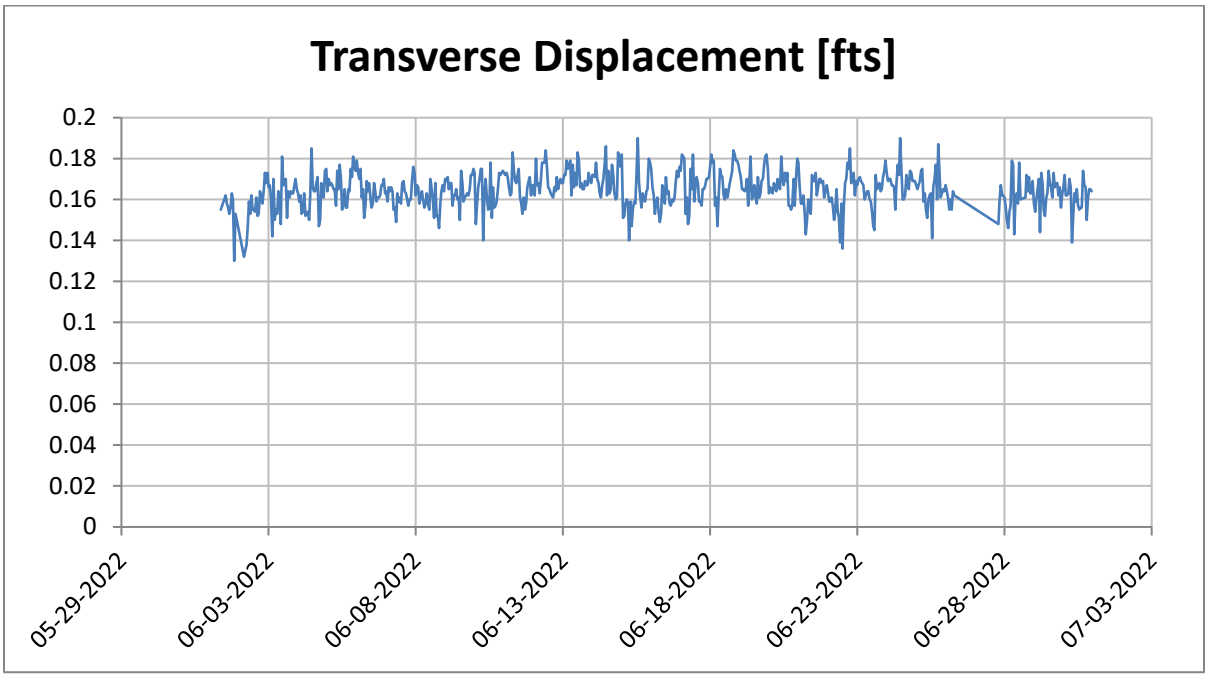


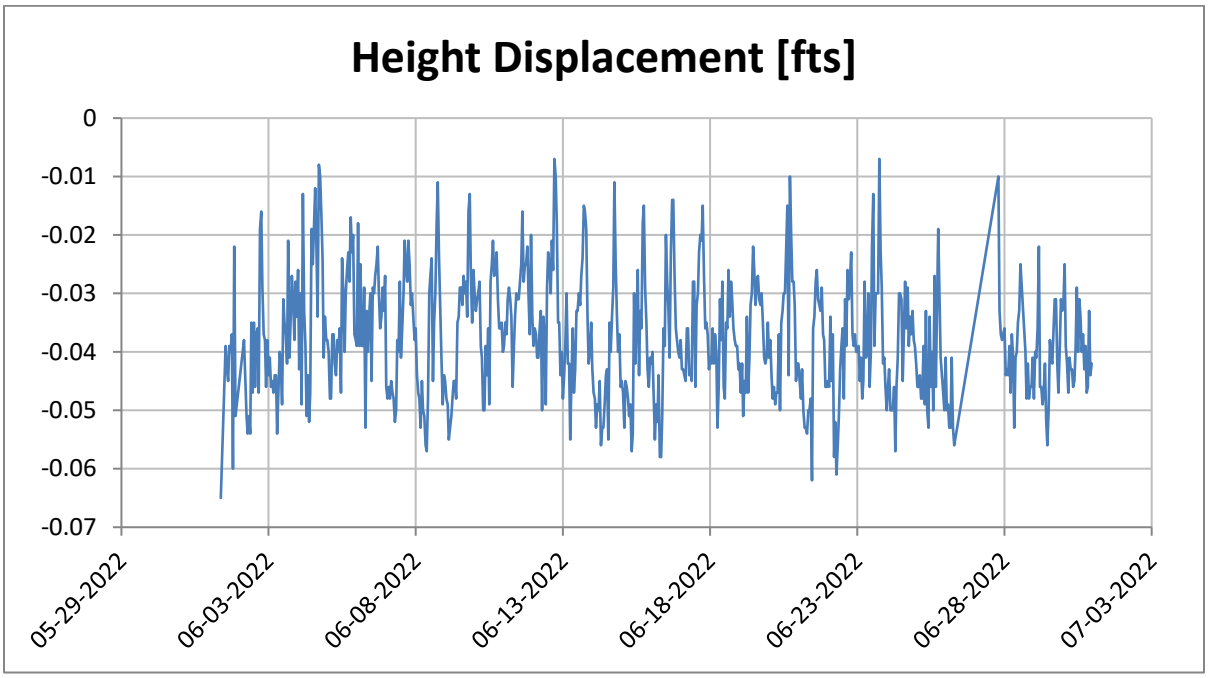
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P2



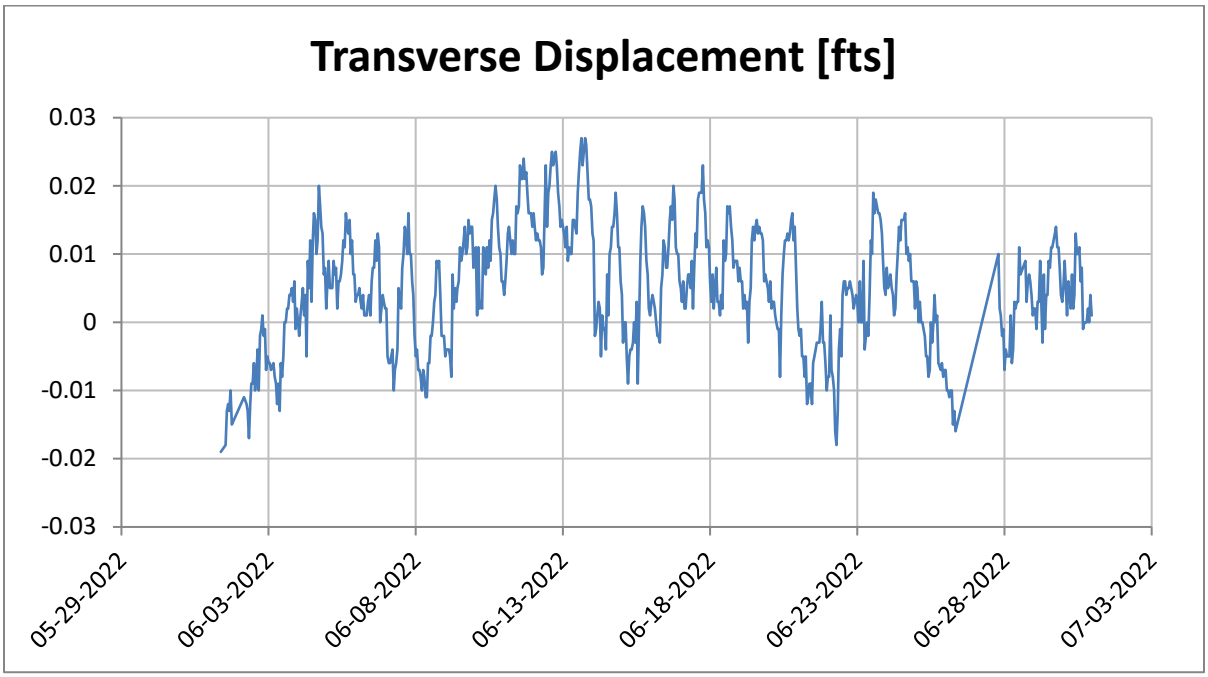


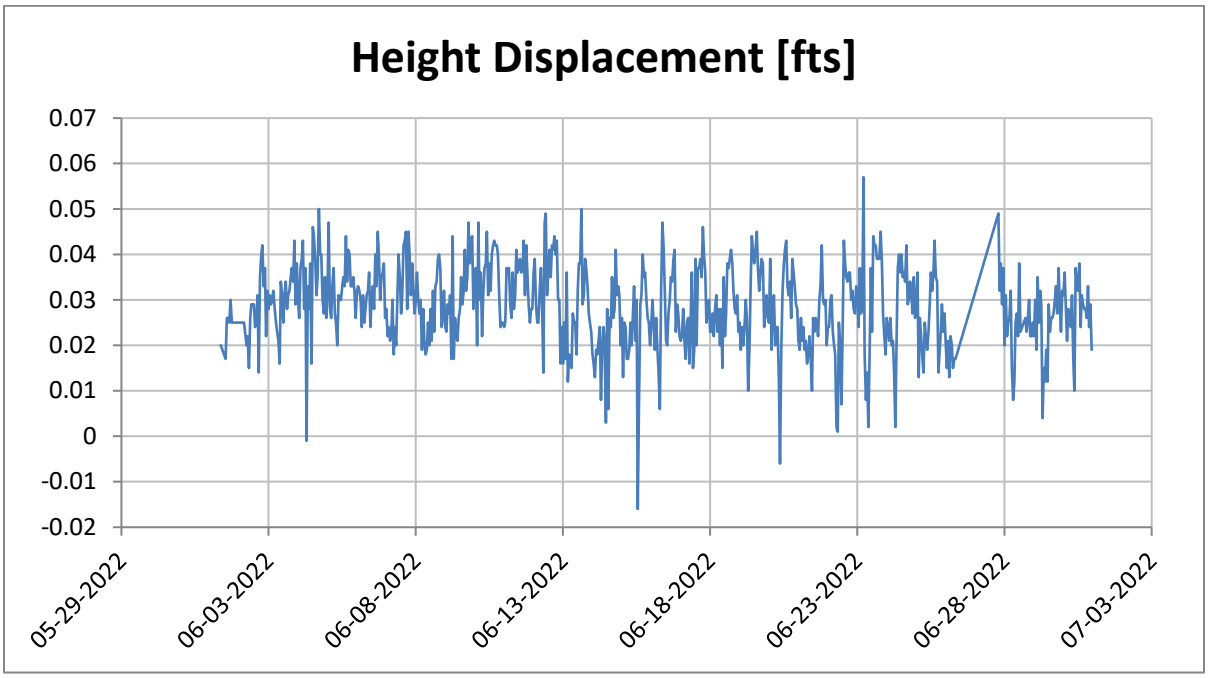
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P25



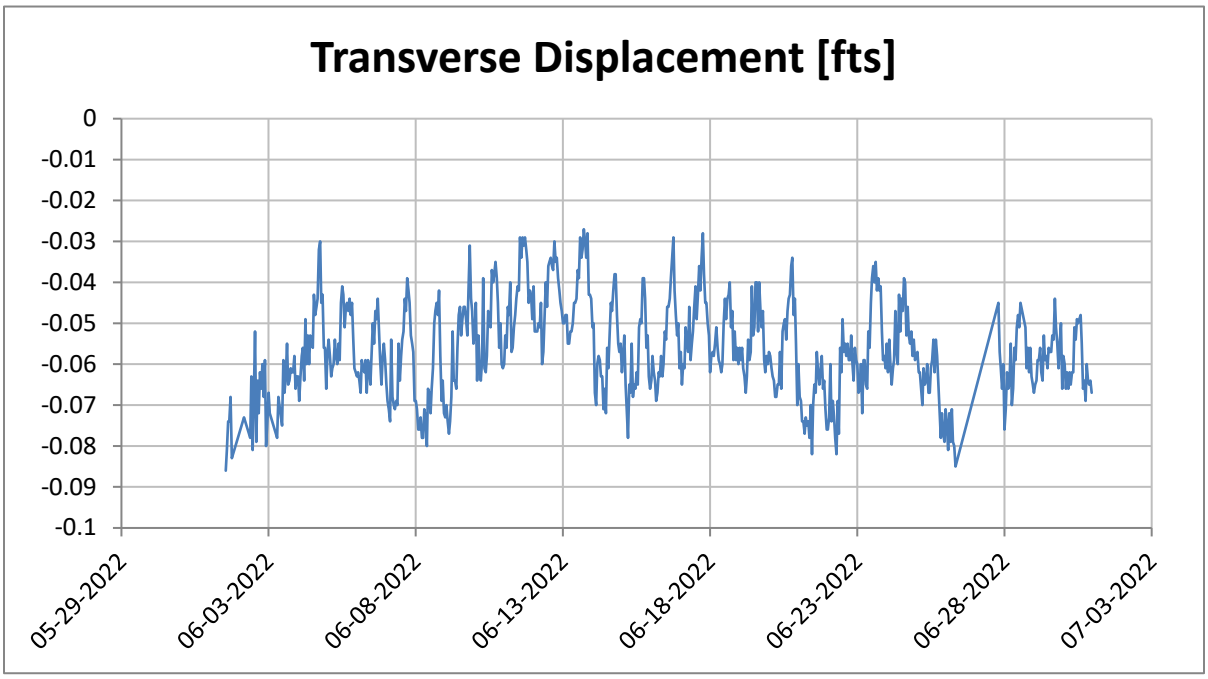


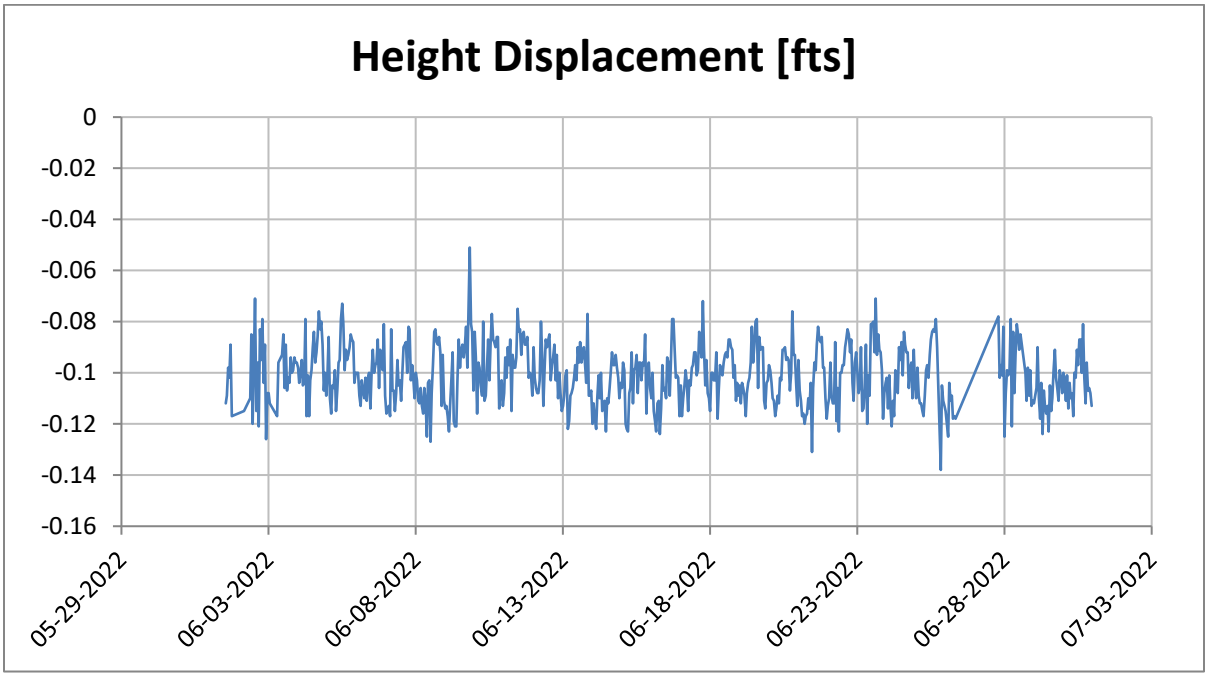
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P32



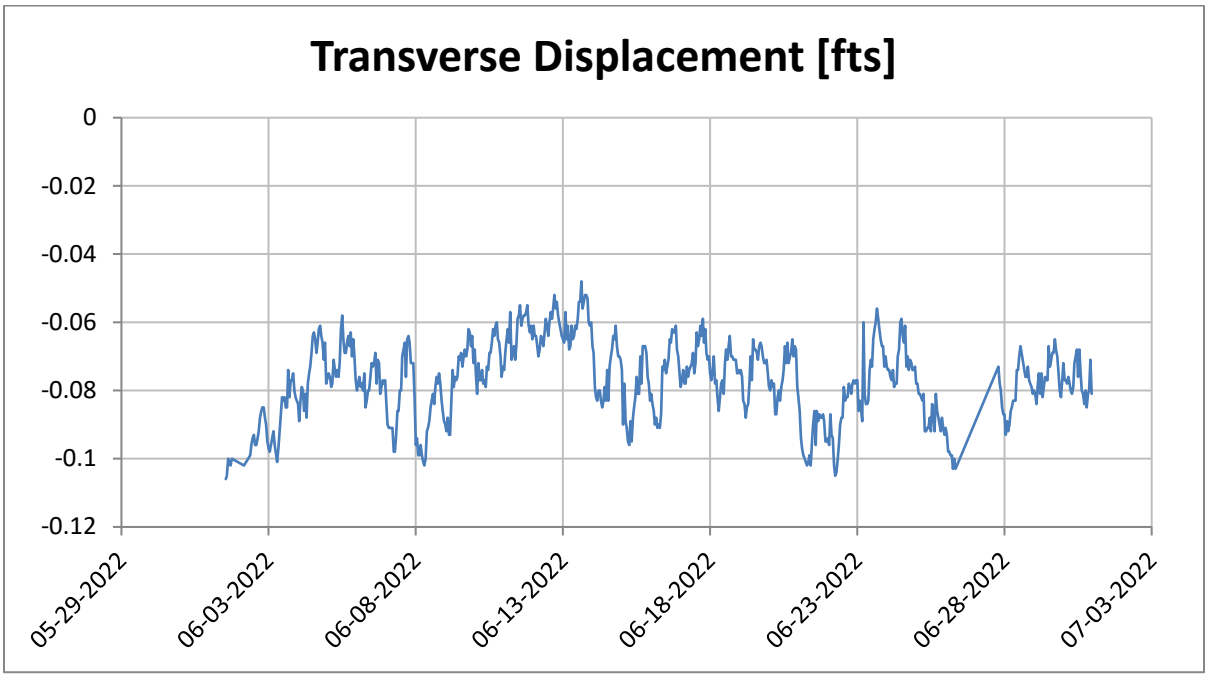


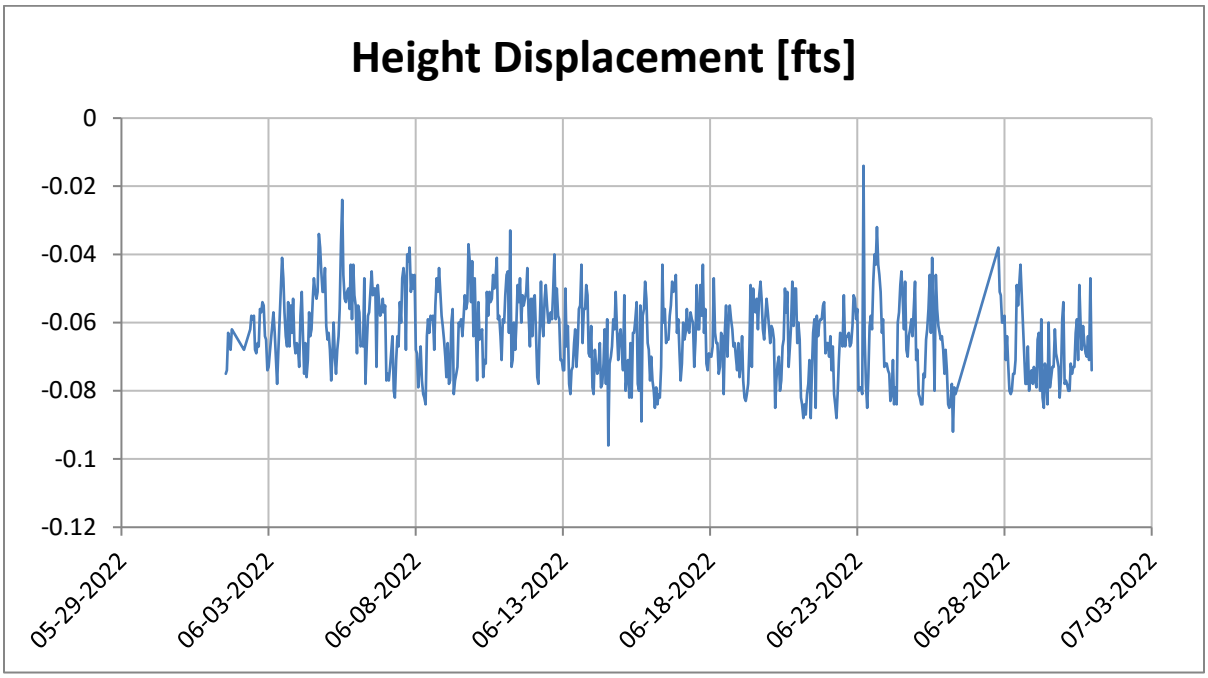
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P33



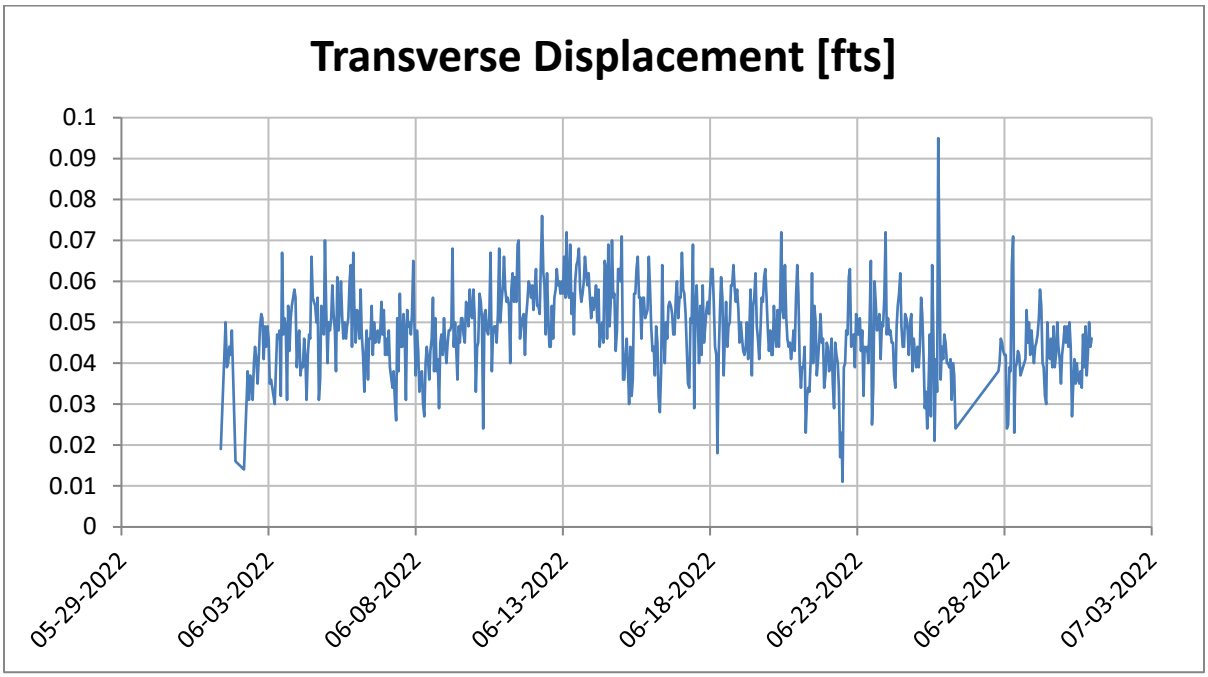


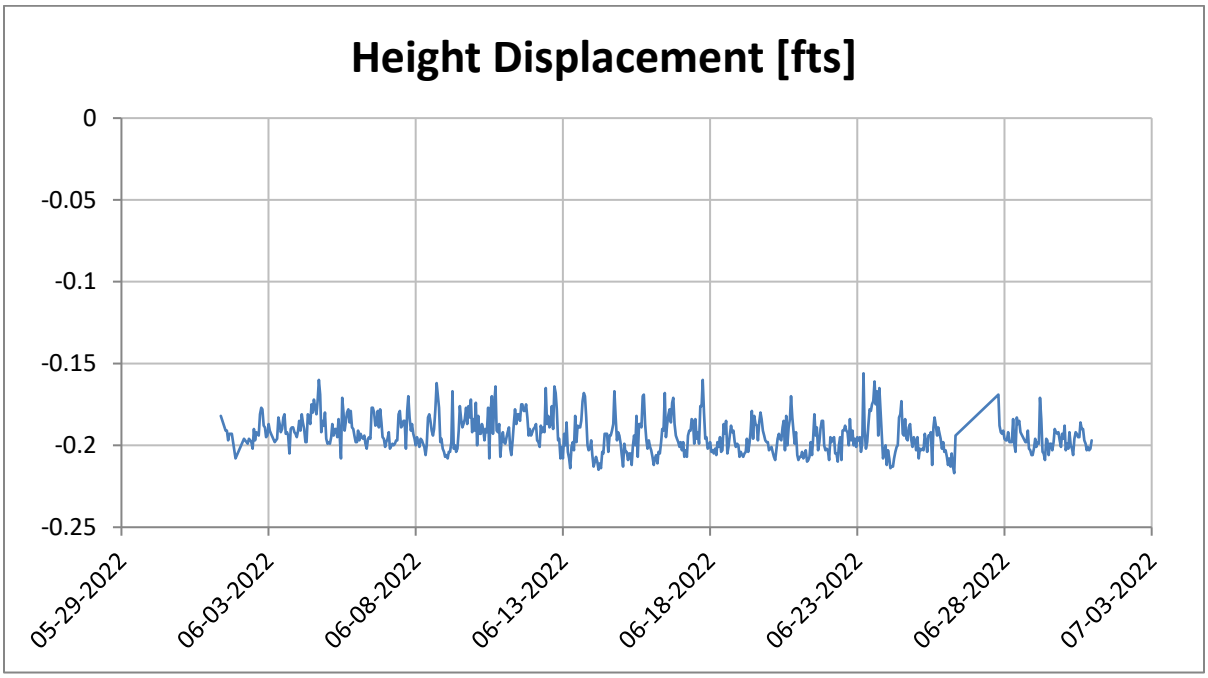
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P35



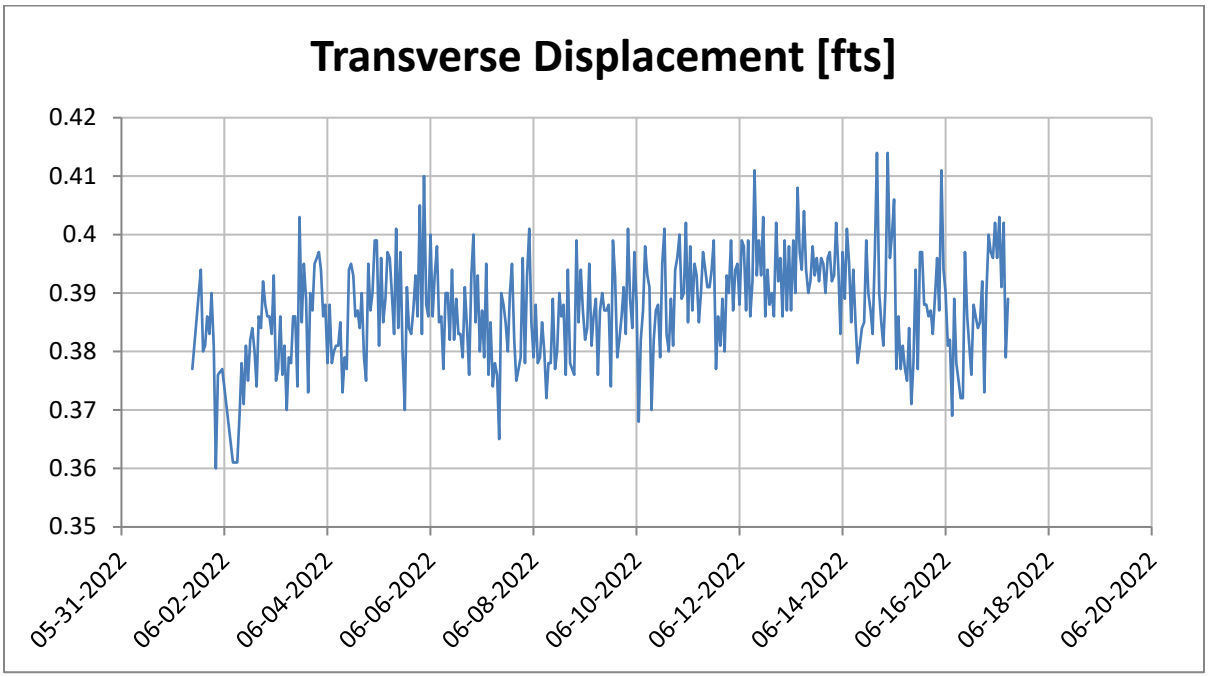


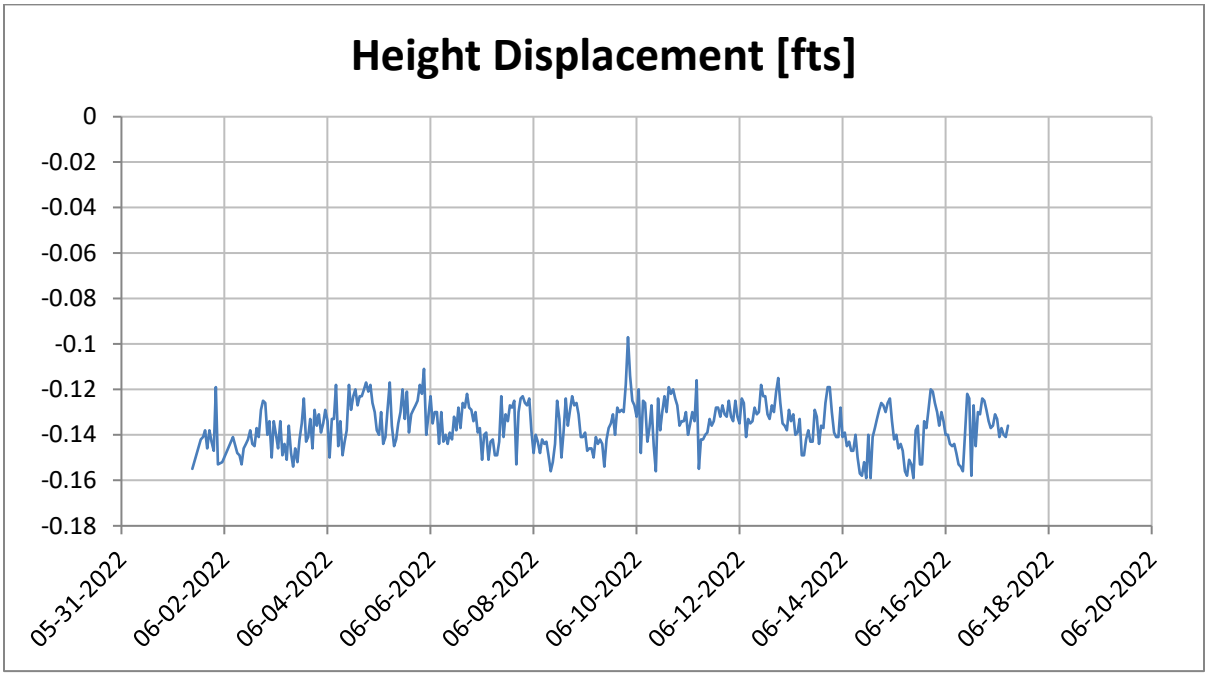
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Regression limit alarm was received on June 25.

Stantec

Prism P4



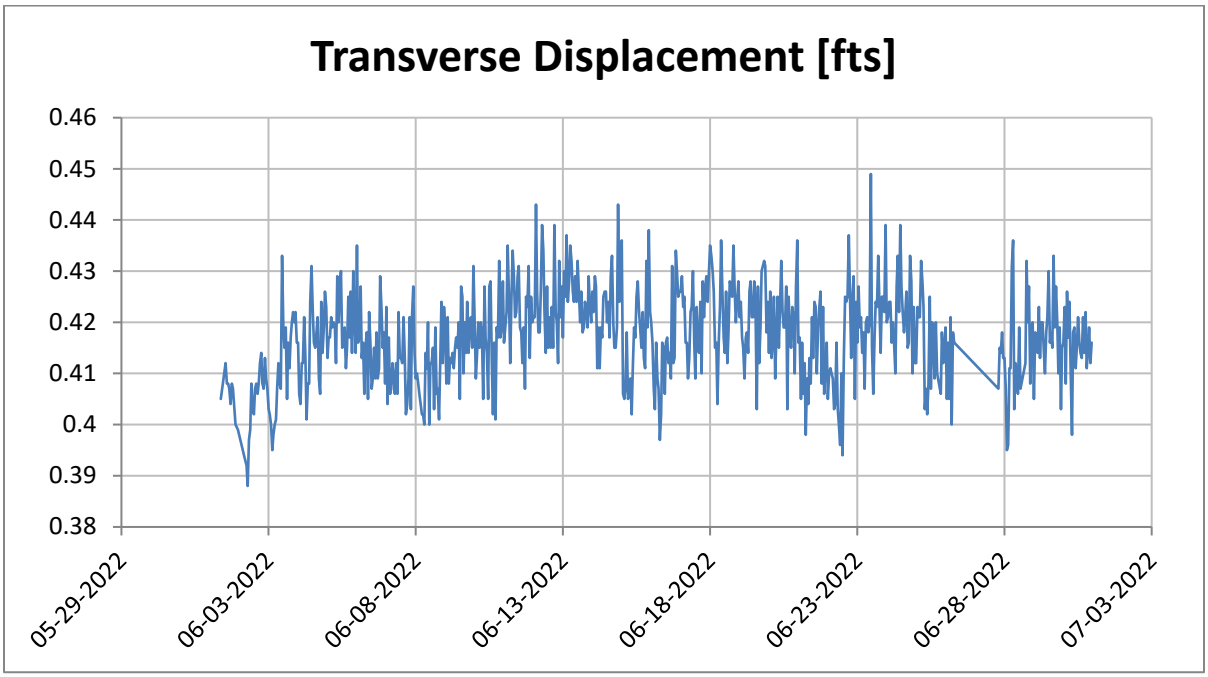


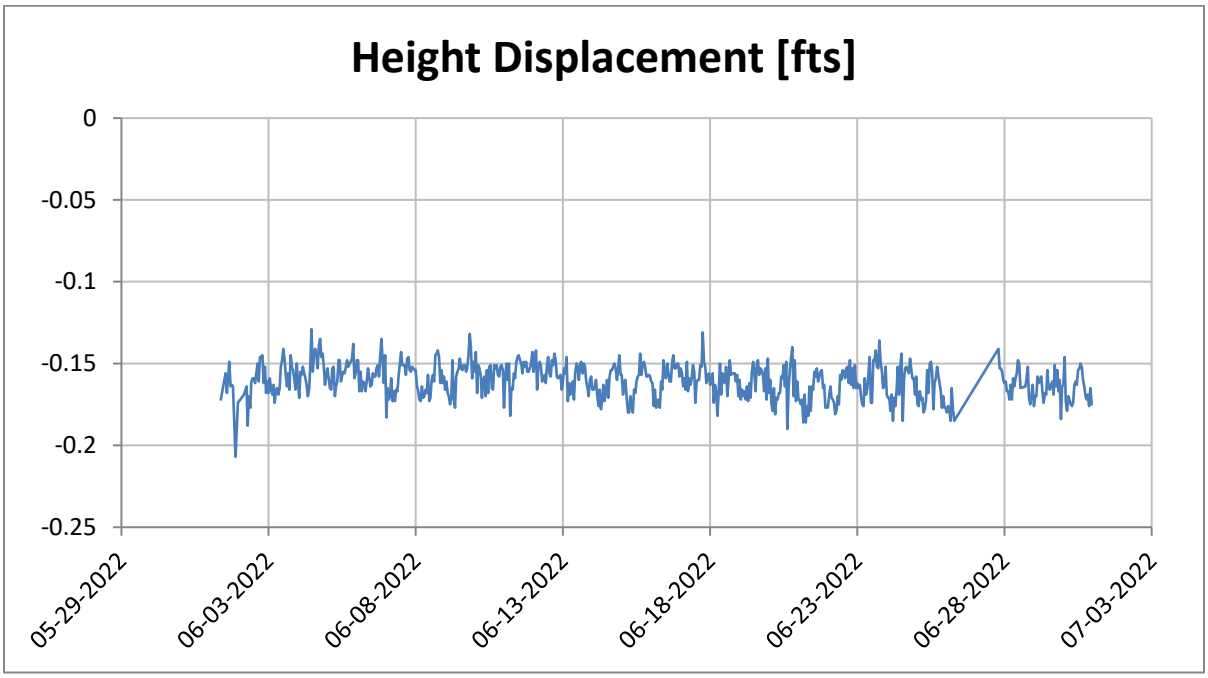
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism abandoned due to rock deterioraton.

Stantec

Prism P5



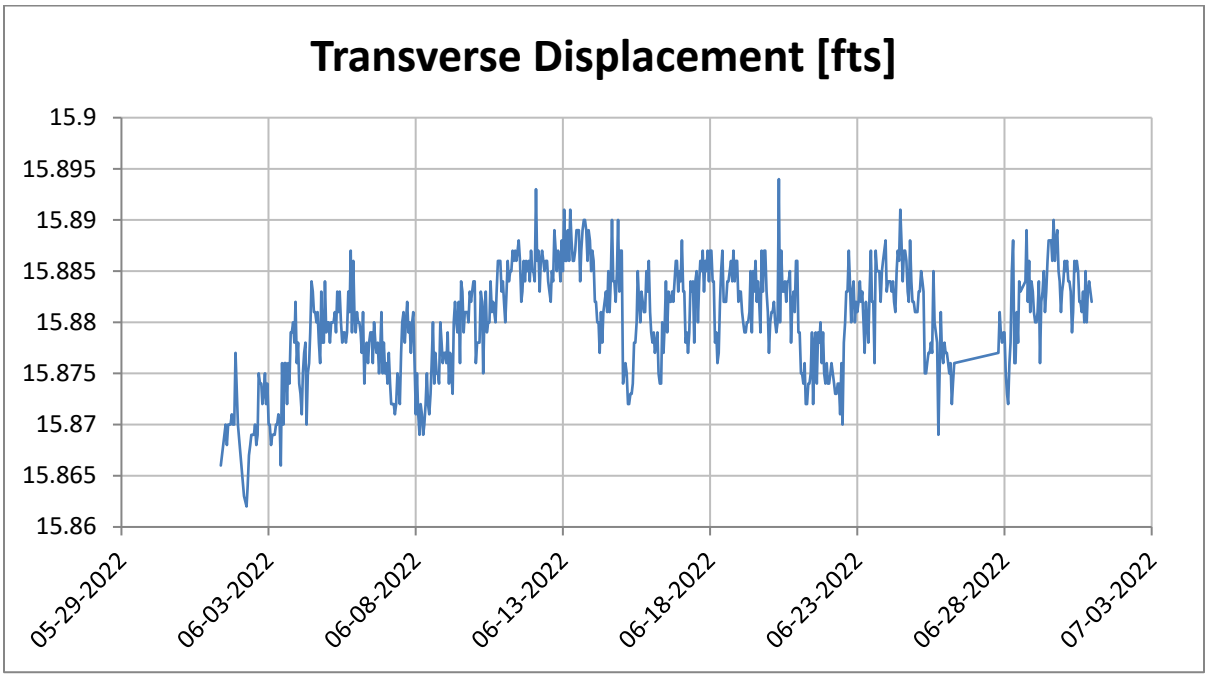


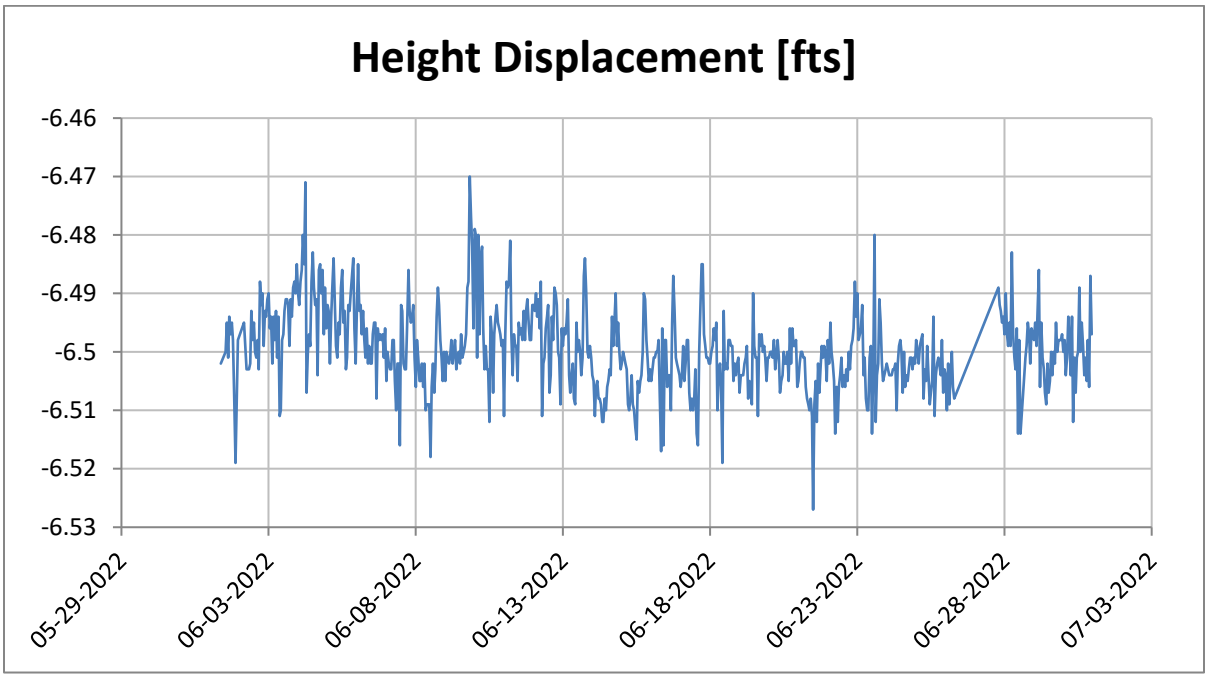
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism P63



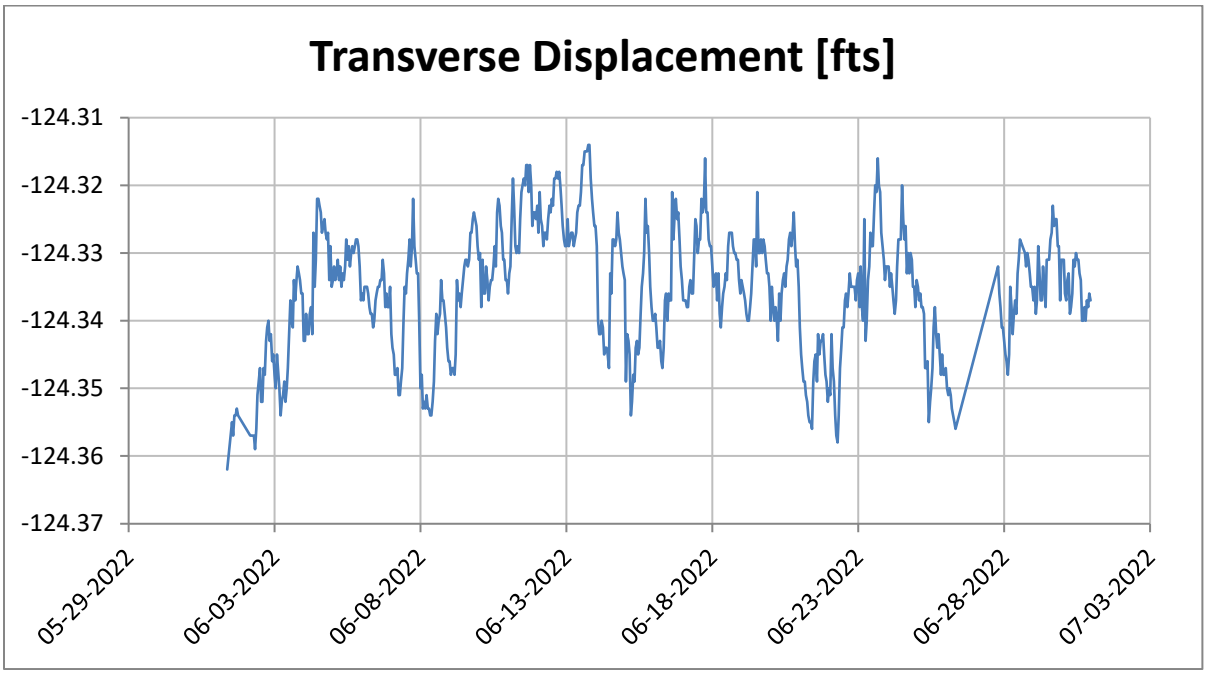


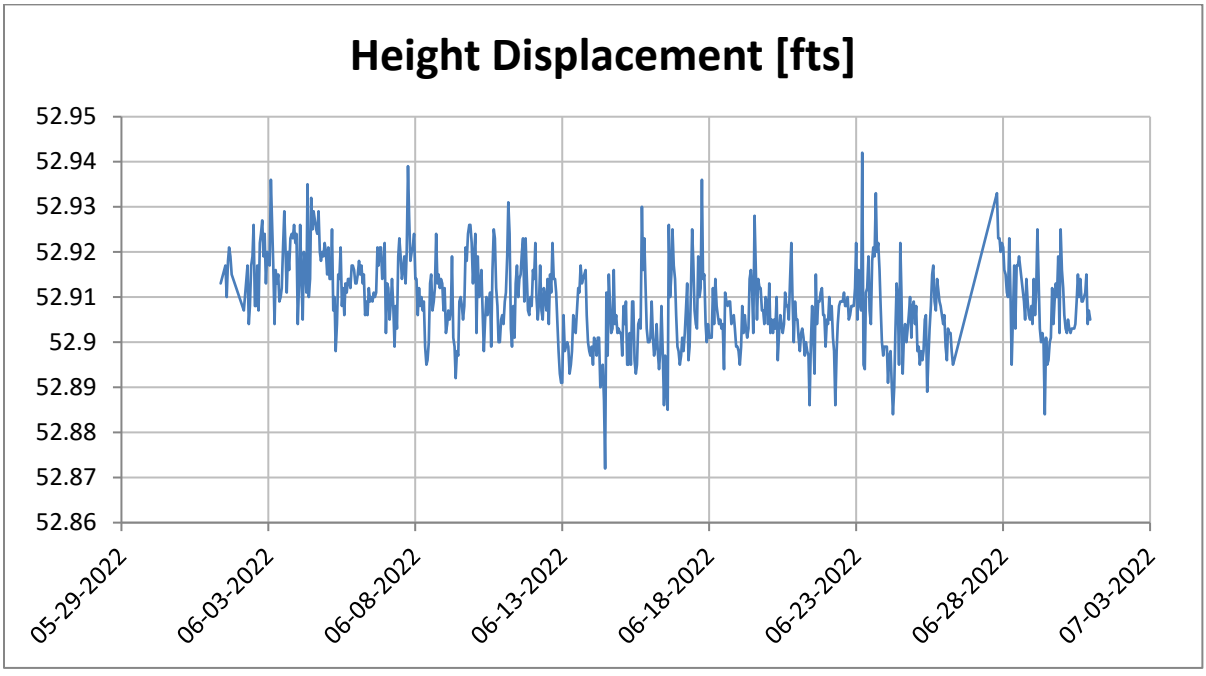
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.

Stantec

Prism P69



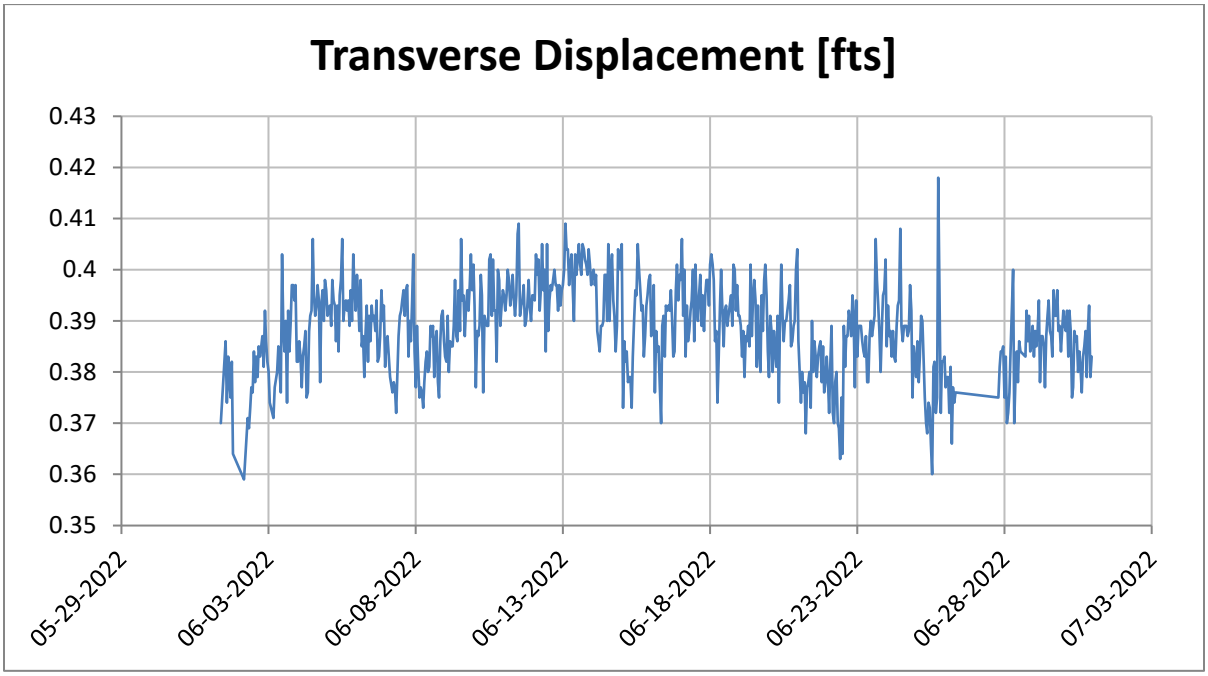


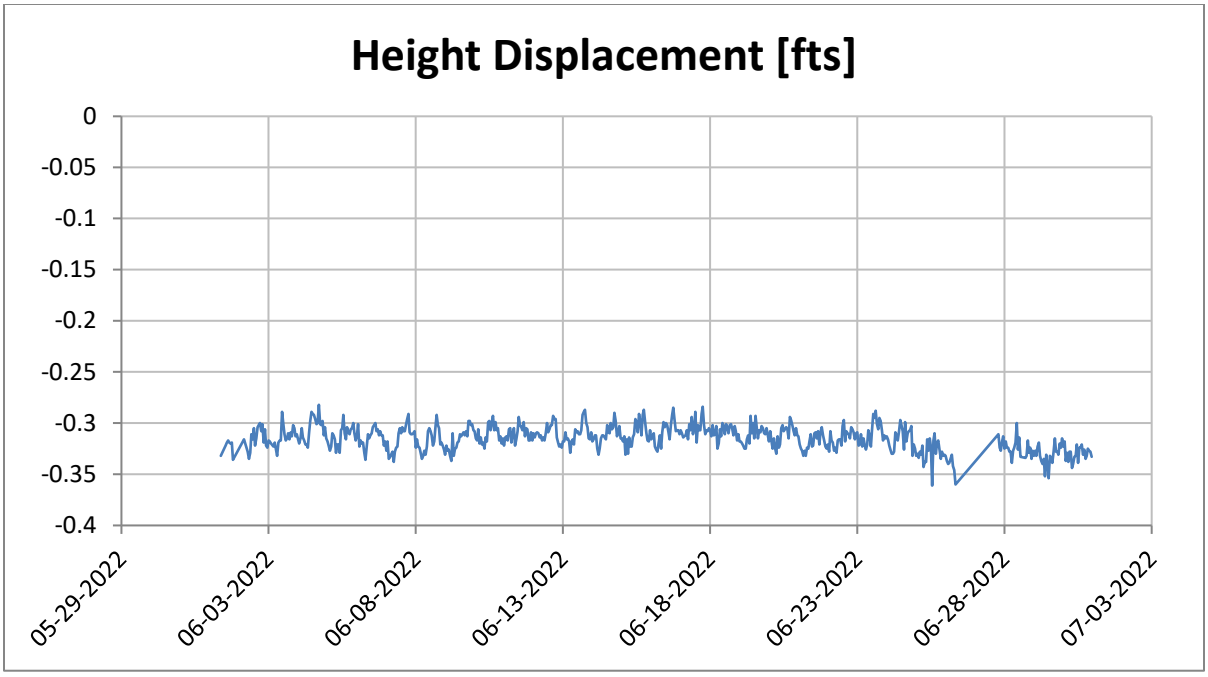
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.

Stantec

Prism P70



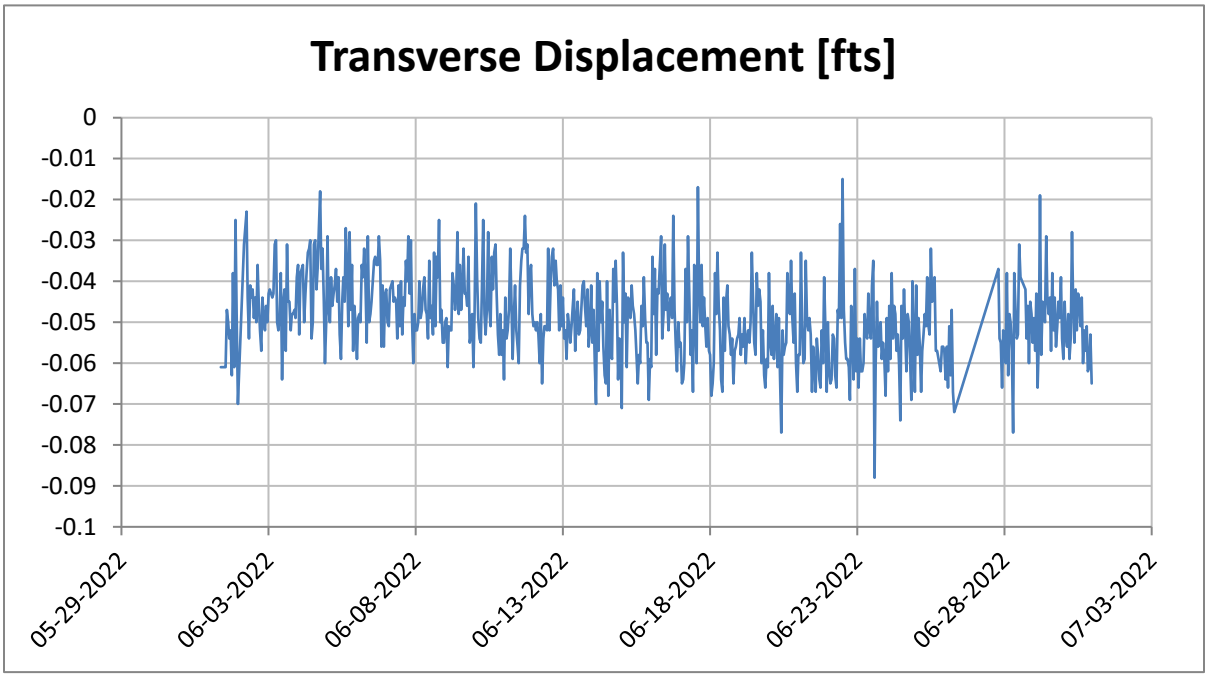


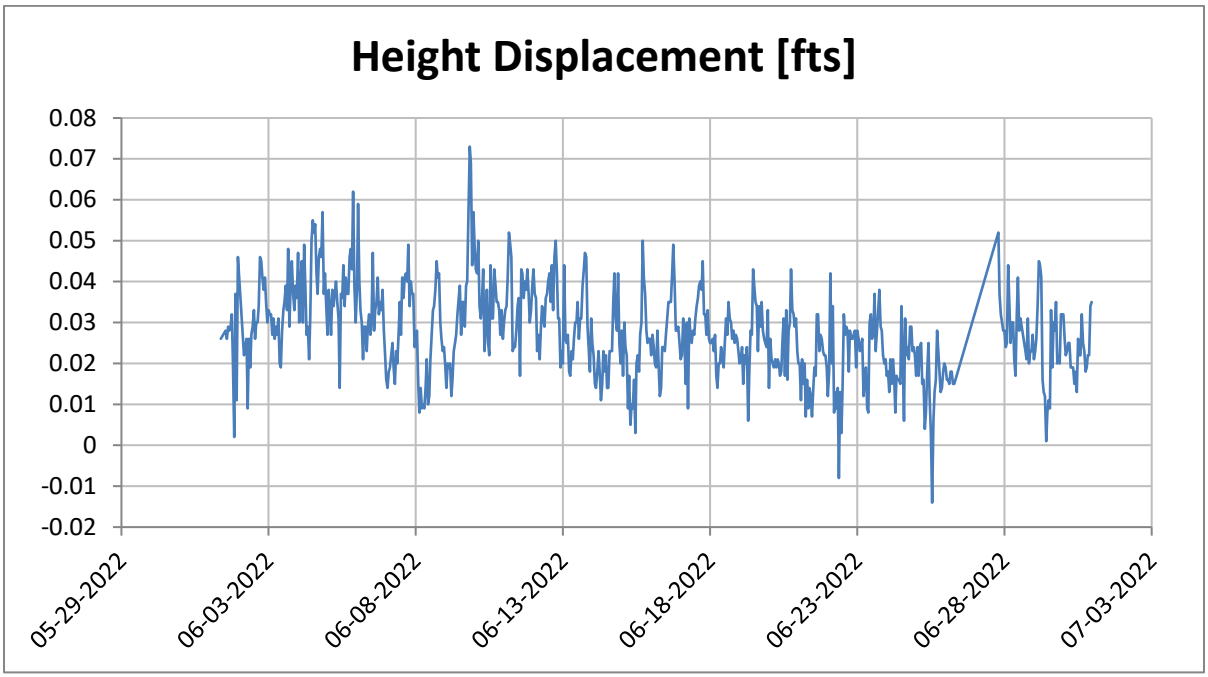
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism TOE4



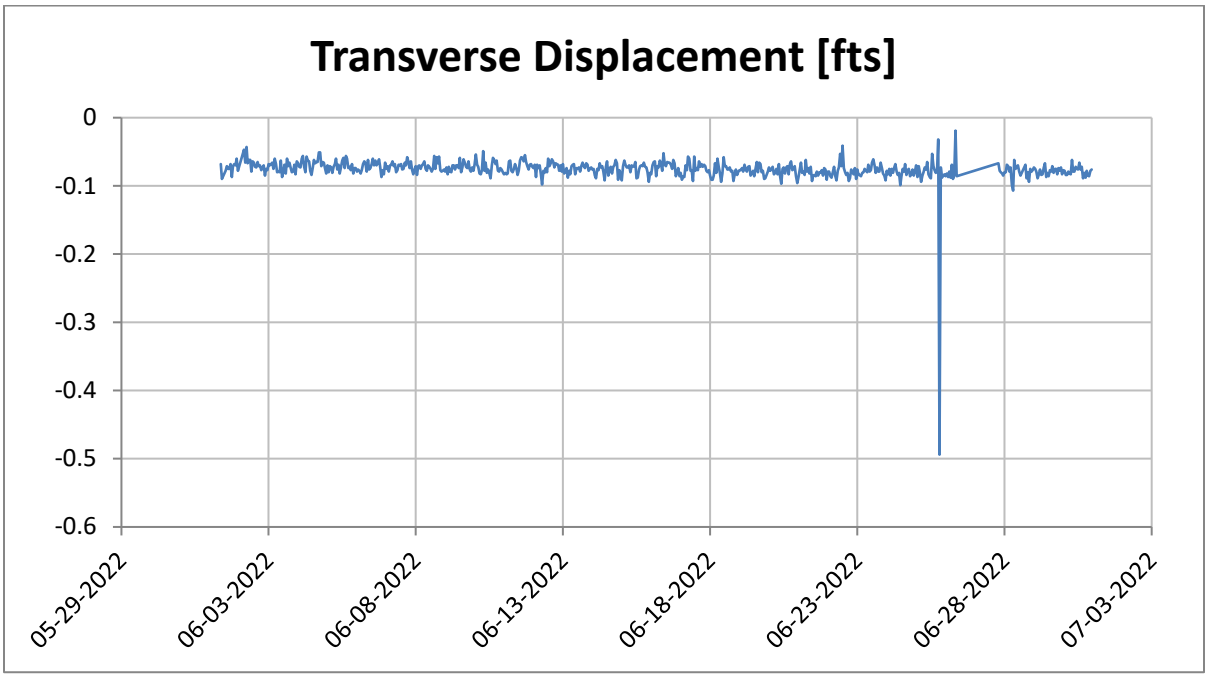


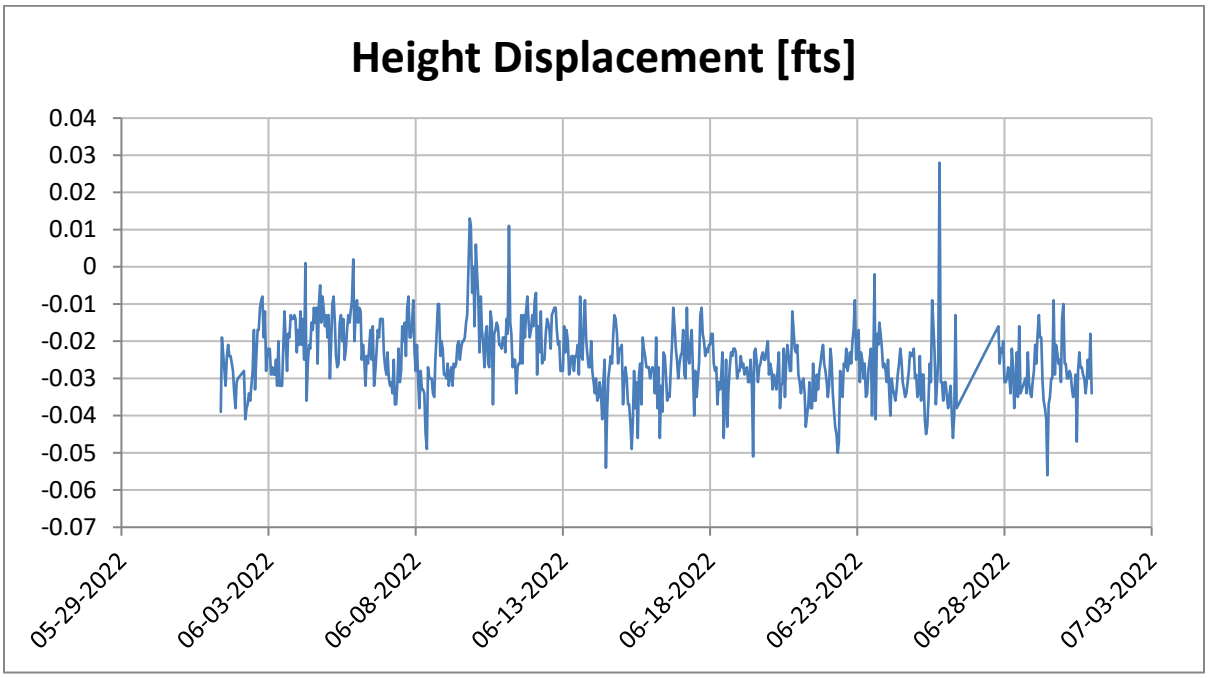
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.

Stantec

Prism TOE5



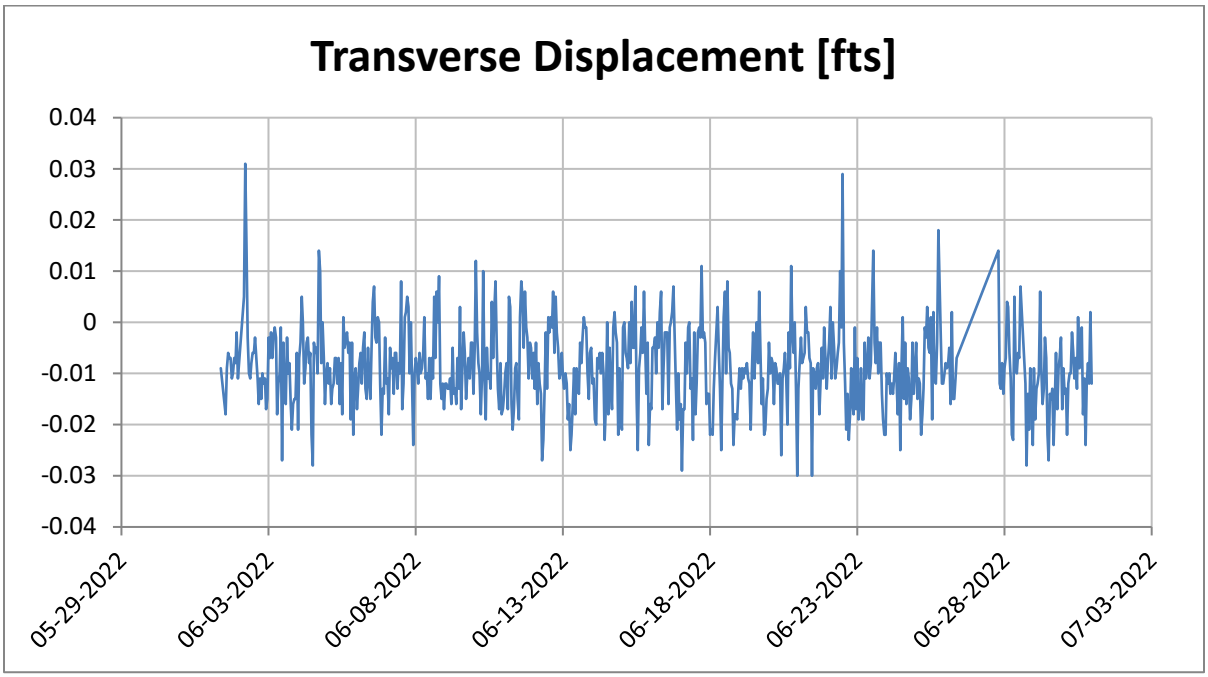


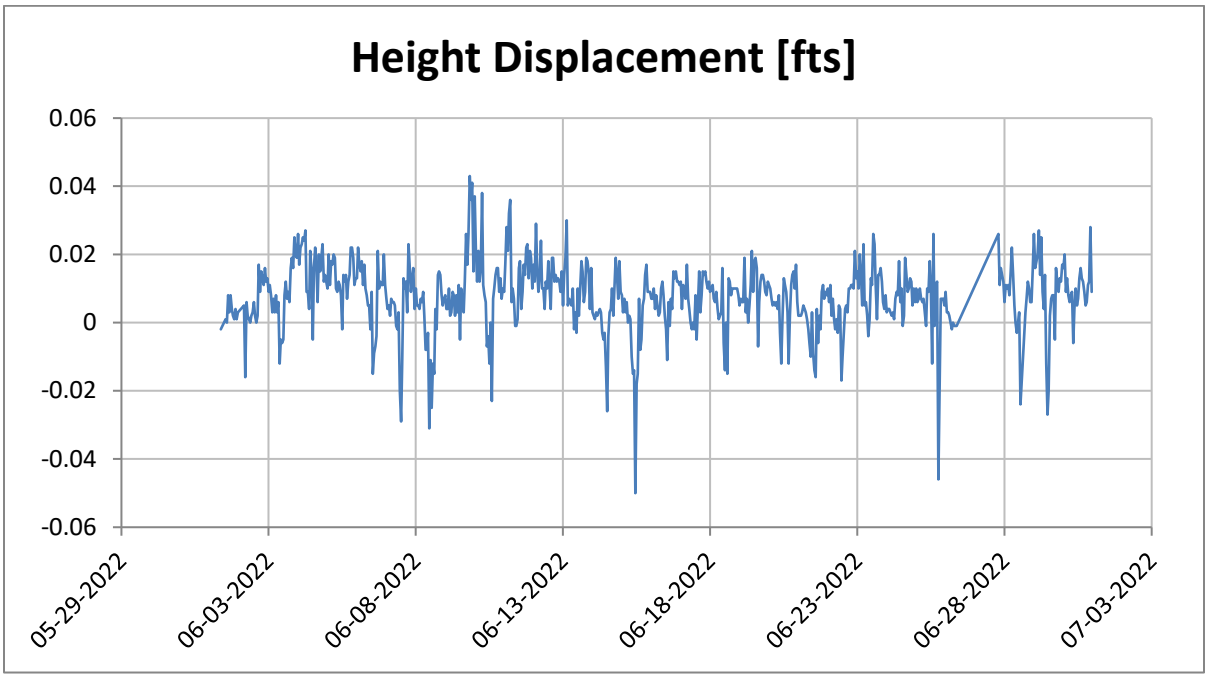
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.

Stantec

Prism TOE6



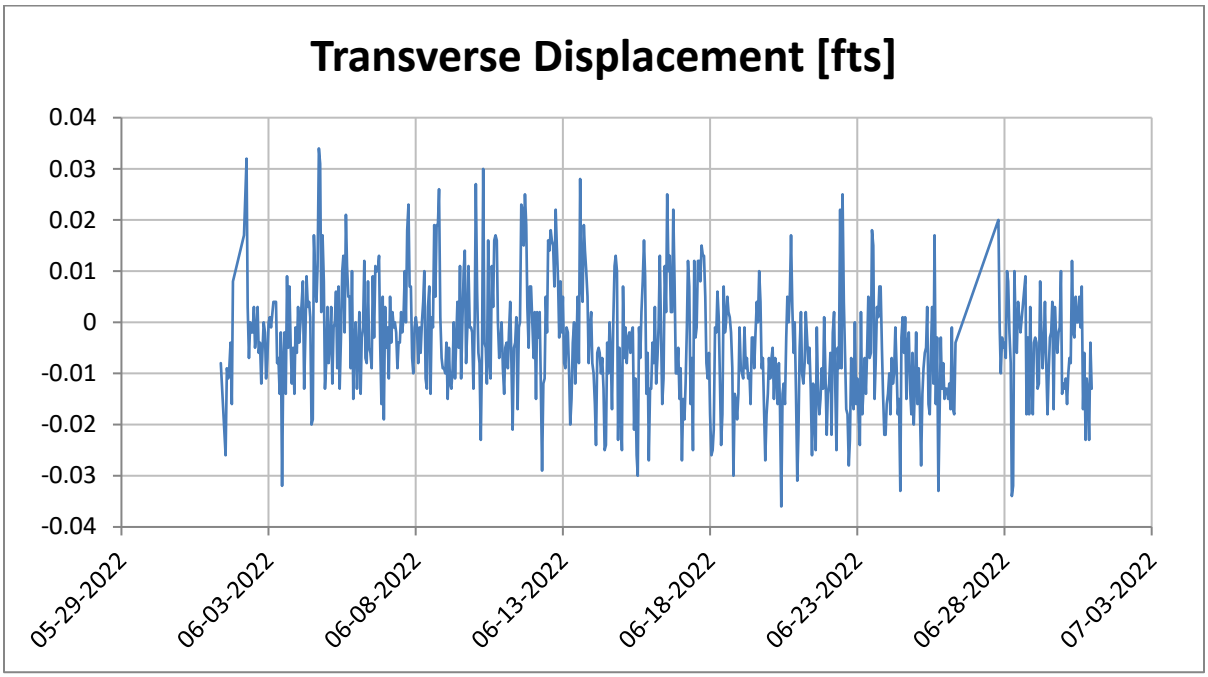


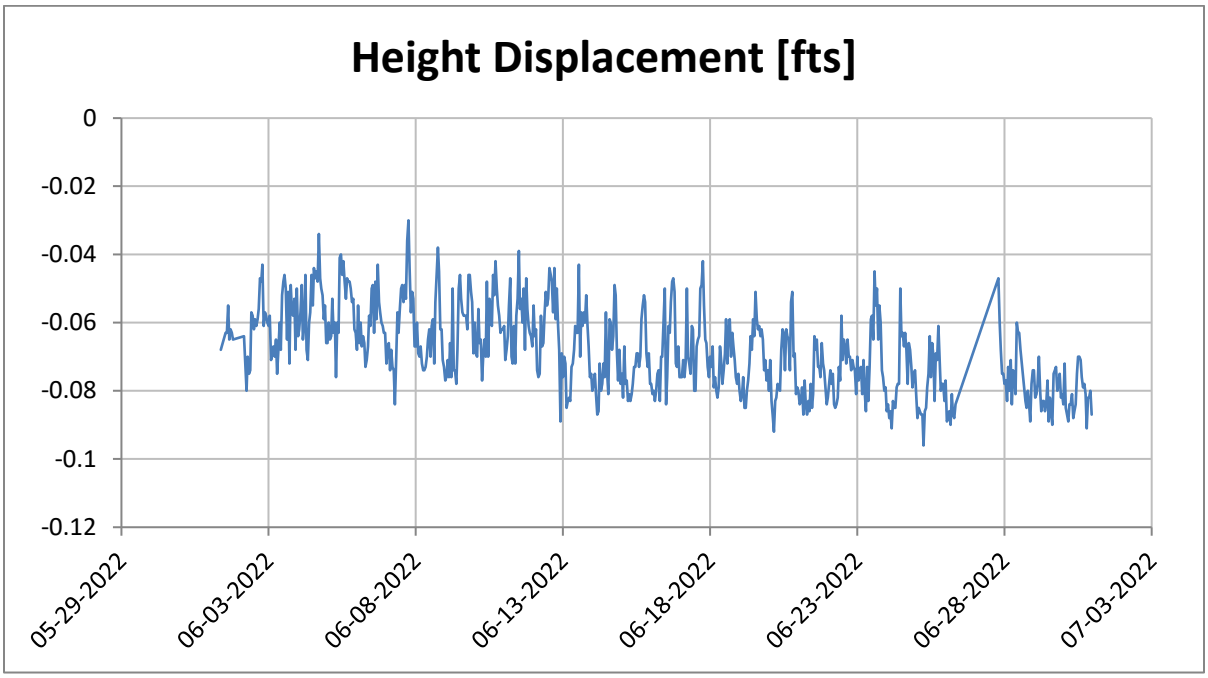
Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.

Stantec

Prism TS1





Notes:

1. Survey accuracy is +/-0.016 feet.
2. Alarm threshold is +/-0.35 feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction. Positive direction means higher in elevation.
5. Prism records slope creep movements with slow velocity.

Appendix C

Drone Survey

Stantec

Stantec Consulting Services Inc.
2000 South Colorado Boulevard Suite 2-300
Denver CO 80222-7933
Tel (303) 758-4058
www.stantec.com

LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Comparison Contour. Increase in elevation. (CI=2')
- Comparison Contour. Decrease in elevation. (CI=2')

1. COMPARISON OF DRONE FLIGHTS FROM 05/31/2022 and 06/28/2022.

Client/Project
CONTINENTAL MATERIALS CORP.
PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

Title
EXISTING PRISMS WITH CURRENT SURFACE

Revision	Date
#	2022.07.31
Drawn By	Figure No.
PK	5

Appendix D

Compaction Testing Results

Stantec

Compaction Testing Log

BCC Test	Test No.	Date	Elevation (ft)	Northing (ft)	Easting (ft)	Wet Density (pcf)	Moisture Content (%)	Dry Density (pcf)	Compaction (%)
Test Q7	**#133**	3-Jun	7229	1401098	3173424	124.4	10.9	112.1	90
Test Q8	**#134**	3-Jun	7226	1401173	3173414	131.7	7.7	122.3	92
Test Q9	**#135**	3-Jun	7226	1401210	3173404	133.2	11.2	119.8	90
Test Q10	**#136**	3-Jun	7226	1401258	3173384	122.6	5.7	116	94
Test Q11	**#137**	3-Jun	7226	1401345	3173377	134.9	10.2	122.4	90
Test Q12	**#138**	3-Jun	7224	1401459	3173358	122.1	3.4	118.1	96
Test Q13	**#139**	3-Jun	7226	1401697	3173319	123.3	7.6	114.6	92
Test Q14	**#140**	3-Jun	7230	1401864	3173264	128.2	8	118.7	92
Test Q15	**#141**	3-Jun	7229	1402021	3173229	129.3	8.4	119.3	92
Test Q16	**#142**	3-Jun	7235	1402147	3173156	138.8	7.4	129.2	93
Test R1	**#143**	6-Jun	7225	1400972	3173525	121.8	7.5	113.3	93
Test R2	**#144**	6-Jun	7227	1401119	3173455	128.5	7.5	119.5	92
Test R3	**#145**	6-Jun	7224	1401685	3173399	125.2	4.6	119.7	95
Test R4	**#146**	8-Jun	7231	1401094	3173403	119.1	7.1	111.2	93
Test R5	**#147**	8-Jun	7230	1401254	3173344	119.1	6.8	111.6	93
Test R6	**#148**	8-Jun	7231	1401377	3173303	118.5	4	113.9	96
Test R7	**#149**	8-Jun	7231	1401731	3173272	121.2	10.5	110.7	91
Test R8	**#150**	8-Jun	7233	1401776	3173263	125.5	3	121.2	96
Test R9	**#151**	8-Jun	7236	1401838	3173209	124	5.8	117.2	94
Test R10	**#152**	8-Jun	7237	1401879	3173169	114.9	2.9	111.7	97
Test R11	**#153**	8-Jun	7239	1402020	3173095	125.6	2.8	122.3	97
Test R12	**#154**	8-Jun	7245	1402173	3172001	113.6	3.2	110	96
Test R13	**#155**	8-Jun	7246	1402269	3173027	122.5	12.4	110.7	90
Test R14	**#156**	8-Jun	7253	1402382	3172989	122.9	9.2	112.6	91
Test D6	**#157**	8-Jun	7190	1401289	3173788	131.8	11.1	119.5	90
Test D7	**#158**	8-Jun	7190	1401378	3173769	126.6	10.9	114.2	90
Test D8	**#159**	8-Jun	7190	1401566	3173682	133.3	10.7	120.4	90
Test D9	**#160**	8-Jun	7190	1401637	3173662	123.4	11.1	111.1	90
Test D10	**#161**	8-Jun	7190	1401739	3173668	122.8	3	119.2	97
Test D11	**#162**	8-Jun	7190	1401814	3173649	122.2	10.6	110.5	90
Test R15	**#163**	9-Jun	7248	1402618	3173098	126.9	5.1	120.7	95
Test R16	**#164**	9-Jun	7252	1402574	3173014	129	5.2	122.6	95
Test R17	**#165**	9-Jun	7250	1402660	3173142	129.6	5.5	122.8	94
Test R18	**#166**	9-Jun	7251	1402701	3173163	123.6	4.4	118.4	95
Test R19	**#167**	9-Jun	7218	1401858	3173484	117.3	5.5	111.2	94
Test S1	**#168**	13-Jun	7229	1401017	3173503	120.2	7	112.3	93
Test S2	**#169**	13-Jun	7223	1401223	3173506	121.6	10.2	110.5	90

BCC Test	Test No.	Date	Elevation (ft)	Northing (ft)	Easting (ft)	Wet Density (pcf)	Moisture Content (%)	Dry Density (pcf)	Compaction (%)
Test S3	**#170**	13-Jun	7219	1401565	3173497	118	4.3	113.1	95
Test S4	**#171**	13-Jun	7230	1401640	3173335	121.9	10.2	110.6	90
Test S5	**#172**	15-Jun	7234	1402001	3173225	115.7	9.3	105.8	86
Test S5R	**#172R**	15-Jun	7234	1402001	3173225	131.5	4.6	125.7	100
Test S6	**#174**	15-Jun	7230	1401861	3173316	130.1	4.7	124.3	100
Test E7	**#175**	15-Jun	7194	1401321	3173771	125.2	7	117	95
Test E8	**#176**	15-Jun	7192	1401349	3173697	119.6	4.4	114.5	93
Test E9	**#177**	17-Jun	7191	1401338	3173669	123.8	4.4	118.6	96
Test E10	**#178**	17-Jun	7191	1401295	3173730	115.1	4.8	110.8	90
Test E11	**#179**	17-Jun	7191	1401460	3173658	115.4	4.2	110.7	90
Test T1	**#180**	22-Jun	7229	1400927	3173542	130.4	6.9	122	99
Test T2	**#181**	22-Jun	7230	1400848	3173555	115.1	3.6	111	90
Test T3	**#182**	22-Jun	7224	1401092	3173576	131.2	3.8	126.4	100
Test T4	**#183**	22-Jun	7225	1401253	3173502	129.8	4.6	124.1	100
Test T5	**#184**	22-Jun	7232	1401338	3173381	130.7	4.1	125.3	100
Test T6	**#185**	22-Jun	7220	1401473	3173514	136.9	4.8	130.6	100
Test F7	**#186**	22-Jun	7195	1401418	3173653	128.2	5.1	122	99
Test F8	**#187**	22-Jun	7195	1401480	3173626	123	7	115	93
Test F9	**#188**	22-Jun	7194	1401587	3173670	120.4	2.8	117.1	95
Test T7	**#189**	29-Jun	7228	1401818	3173367	147.7	10.8	136.8	100
Test T8	**#190**	29-Jun	7229	1401952	3173326	148.7	8	140.7	100
Test T9	**#191**	29-Jun	7230	1402110	3173308	150.3	10.9	139.3	100
Test T10	**#192**	29-Jun	7239	1402351	3173094	141.4	9.6	131.8	98
Test T11	**#193**	29-Jun	7242	1402419	3173059	128.2	10.3	117.9	95
Test F10	**#194**	29-Jun	7194	1401406	3173740	127	8.5	118.4	96
Test F11	**#195**	29-Jun	7194	1401352	3173747	121.8	9.3	112.4	91
Test F12	**#196**	29-Jun	7193	1401278	3173774	134.5	7.5	127.1	98

Notes:

1. Test #172 originally did not meet the project specifications; after moisture conditioning and recompacting, the retest, #172R, met the project specifications.

2. As of June 28, 2022, a total 876,000 yd3 had been placed and compacted. This requires 176 compaction tests, and 195 tests have been taken.

3. There is no test #173.

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LEGEND

- Permit/Affected Lands Boundary
- City Grading Permit Boundary
- Proposed Disturbance Limit
- Landslide Extent
- Buttress Fill Extent
- Compaction Test Location

N

0 150' 300'

Client/Project
CONTINENTAL MATERIALS CORP.
PIKEVIEW QUARRY SLOPE MONITORING

Project No.
2057288200

Title
COMPACTION TEST LOCATIONS

Revision	Date
#	2022.07.31
Drawn By	Figure No.
PK	6