

To: Jerald Schnabel From: Paul Kos  
Continental Materials Corp. Denver, CO 80222  
File: October 2021 Monitoring Summary Date: November 30, 2021

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**Reference: October 2021 Geotechnical Monitoring Summary Pikeview Quarry**

## 1.0 INTRODUCTION

Stantec Consulting Services Inc. (Stantec) has prepared this October 2021 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, pending 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 October 2021.

It is important to note that activities at the Pikeview Quarry are focused on preparation for reclamation construction. This includes coordinating with contractors, importing fill, preparing growth medium, preparing riprap, and site maintenance; no fill is being placed on the slopes. Continuous monitoring by the robotic survey system began in 2010 and has continued through the month of October 2021 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 October 2021 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 <sup>3</sup> (min.)



## 2.0 VISUAL INSPECTIONS

Inspections are completed daily by CMC 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.

When present, site operators inspect their work areas for signs of instability on a daily basis 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 October 2021. 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 October 22, 2021. 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.

- Growth Medium: Mulch and soil are being processed on the production floor to produce growth medium. (Photo 4)
- Healed Cracks: Older cracks and recent cracks are being monitored for changes. Currently the cracks are not growing in any of the areas on the slopes of the site.
- Crack Free: No cracking was observed on the native granite slopes above the extents of the disturbed area. 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 8)
- Previously Observed Cracks: Previously observed tension cracks remain on the production floor and at the crest of fill slopes. These cracks were observed following the period of heavy rain and are likely due to the recent heavy rain allowing consolidation of the material in this area. (Photo 2)
- Imported fill material and topsoil are being stockpiled in several areas on the production floor. (Photos 3-6)
- 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.
- The Pond below the Middle Peak remains partially filled and there are plans for a notch to be added to the pond's berm to keep the water level from exceeding a specific level.
- Prisms: Several prisms were passed along the walking route and appeared to be in their original position and operating normally. Control points and most of the monitoring points are permanently cemented into the ground while some of the monitoring points are cemented into 5-gal buckets to be portable as needed. (Photo 5)



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 four hours. There are currently 20 prisms; 3 prisms are control points located outside the slope movement area, 13 prisms are located on the slopes surrounding the landslide area, and 4 prisms are located at the toe of the landslide. As the slope is backfilled and graded, additional prisms will be installed. The existing 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. All alarms were determined to be caused by weather.

**Table 2 Alarm Summary**

Date(s)	Alarm	Cause/Actions taken	Issue Resolved
10/14/2021– 10/15/2021	All prisms could not be found on multiple scans	Frost. Alert occurred after work hours. Area inspected in morning before crews were cleared to work.	10/15/2021
10/26/2021	All prisms could not be found on multiple scans	Rain. Alert occurred after work hours. Area inspected in morning before crews were cleared to work.	10/27/2021
10/31/2021	All prisms could not be found on multiple scans	Fog. Alert occurred after work hours. Area inspected in morning before crews were cleared to work.	11/1/2021

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 17 of 20 prisms with recorded displacements limited to data scatter and not actual movements. Prisms P63 and TOE3 are located at the toe of the landslide, and these locations showed slope creep movements at slow velocities (approximately 0.001 feet per day or less). Prism NP66 is located above the landslide, and this prism also recorded slope creep movements at slow



velocity. This settlement is likely related to the increased moisture causing the landslide material to consolidate. 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
CP1	-0.001	-0.040	0.0117	0.0403	
CP2	-0.071	-0.028	-0.0034	0.4111	
CP3	0.284	-0.239	0.0020	0.3740	
NP1	0.300	-0.322	0.0078	0.4402	
NP2	0.046	-0.106	0.0182	0.1616	
NP66	0.488	-0.667	0.0544	0.9818	Slope creep movements
P1	0.348	-0.075	0.0044	0.3567	
P2	0.153	-0.050	-0.0064	0.2166	
P25	-0.033	0.004	0.0191	0.1752	
P32	-0.093	-0.121	0.0154	0.3093	
P33	-0.104	-0.071	-0.0134	0.2020	
P35	0.013	-0.221	-0.0024	0.4511	
P4	0.366	-0.156	-0.0075	0.4831	
P5	0.390	-0.173	-0.0041	0.6208	
P63	15.601	-6.417	0.0661	16.8694	Slope creep movements
P69	-0.022	-0.083	-0.0098	2.0198	
P70	0.344	-0.356	-0.0045	0.6074	
TOE1	0.142	0.004	-0.0049	0.1597	
TOE2	0.634	-0.674	0.0086	0.9676	
TOE3	2.081	-0.951	0.0876	2.4103	Slope creep movements

## 4.0 DRONE SURVEY

The site was flown for aerial imagery using an unmanned aircraft system (UAS or 'drone') on October 20, 2021. 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 September topography was also compared to the October topography to identify changes in the site topography. Comparison of the two surveys showed that approximately 4,560 yd<sup>3</sup> of fill had been imported and temporarily placed on the stockpile near the top of the ramp. Additionally, 10,960 yd<sup>3</sup> of growth medium were prepared as a balanced cut/fill near the Aztec screen plant. Much of the imported fill was topsoil, and it was added to the growth media pile. Approximately 39,700 yd<sup>3</sup> topsoil/growth medium has been imported or prepared. 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

No fill was permanently placed at the quarry in October. Once fill placement starts, the fill will be placed in one-foot lifts, moisture conditioned as necessary, and compacted. Compaction testing will commence at the rate of at least one test per 5,000 yd<sup>3</sup> placed.

Per CMC, imported material is being stockpiled onsite for placement at a later date. The material will be tested for compaction level and areas failing compaction testing will either be further compacted until the specification is met or removed and replaced in a compacted manner.

## 6.0 RECLAMATION PROGRESS

CMC is actively working towards reclaiming the Pikeview Quarry and has contracted with Stantec to provide EPCM services through completion. Listed below is a summary of the 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	December 2021
Phase 3 – Project Kick-off with successful Contractor	December 2021
Phase 4 – Contractor Mobilization to Site	December 2021
Phase 4 – Contractor Demobilize from Site	End 2022
Phase 5 – Final Revegetation season 2 Begins	2022 until acceptance



Progress of activities this month:

- Continued negotiations with preferred contractor
- Began processing riprap
- Importing fill material continued
- Importing topsoil from various sources
- Processing of Growth Medium for use as topsoil continued
- Geotechnical monitoring continued
- Removal of site debris continued. Materials, equipment, and debris onsite are being removed to prepare the site for the reclamation contractor.

Work planned for next month includes:

- Finalize negotiations with preferred contractor
- Project construction kick-off meeting
- Continue importing fill material
- Continue importing topsoil
- Continue geotechnical monitoring
- Continue processing of Growth Medium
- Continue processing of riprap
- Continue to remove site debris

## 7.0 CONCLUSIONS

None of the data collected in October 2021 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.

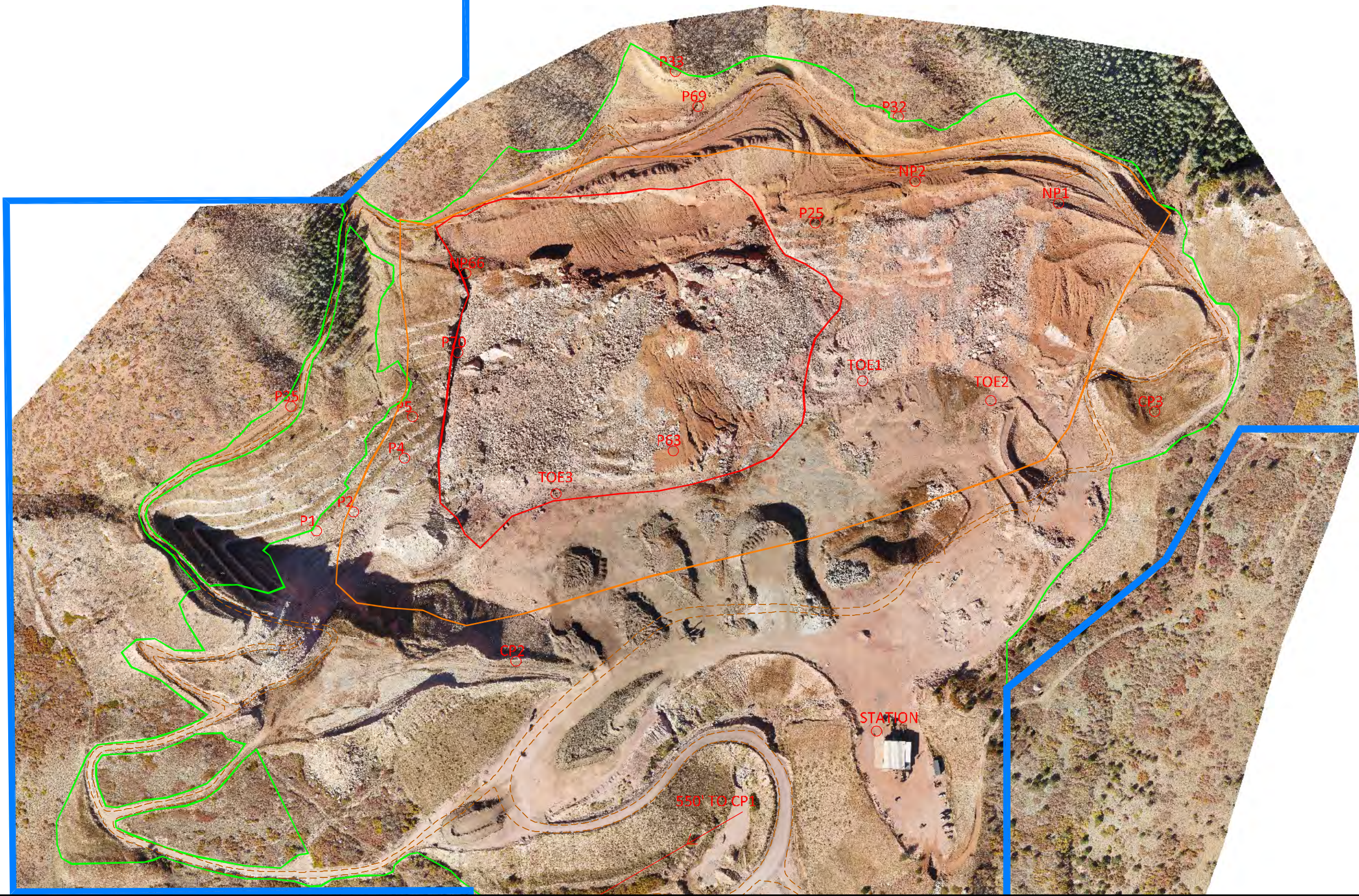
- Increased precipitation results in slight increases in settlement, cracking, and movements, which is consistent with the understanding of site conditions.
- Restricted access to the ungraded landslide slopes should continue.
- All monitoring should continue at current frequencies.
- All alarms shall continue to be taken seriously even if data errors are suspected.





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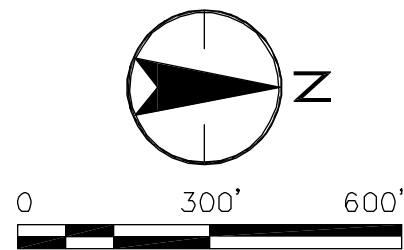
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LEGEND

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



Client/Project  
CONTINENTAL MATERIALS  
CORP.  
PIKEVIEW QUARRY SLOPE  
MONITORING

Project No.  
227419041

Title  
SITE MAP

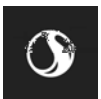
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# Appendix A

## Visual Inspections





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6. MATERIAL STOCKPILE



5. QUARRY SLOPES FROM THE NORTH

NOTE 1:  
NO CRACKS



4. STOCKPILES ON PRODUCTION FLOOR



3. QUARRY SLOPES FROM THE SOUTH



7. TOE OF SLOPE - UNCHANGED



8. CRACKS ON THE SOUTH END - UNCHANGED



2. CRACKING NEAR PRODUCTION FLOOR



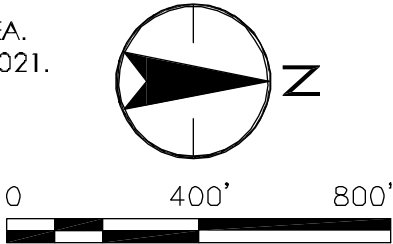
1. PIT ON THE PRODUCTION FLOOR

 **Stantec**

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

- NOTES
1. NO CRACKS OBSERVED IN THIS AREA.
  2. ALL PHOTOS TAKEN OCTOBER 22, 2021.



Client/Project  
**CONTINENTAL MATERIALS  
CORP.  
PIKEVIEW QUARRY SLOPE  
MONITORING**

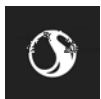
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Title OBSERVATIONS FROM OCTOBER INSPECTION	
Revision #	Date 2021.11.30
Drawn By PK	Figure No. 2



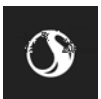
**Table A-1 Summary of Daily Inspections**

<b>Date</b>	<b>Crew Status</b>	<b>Notes</b>	<b>Inspection By</b>
Friday, October 1, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Saturday, October 2, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Sunday, October 3, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Monday, October 4, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Tuesday, October 5, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Wednesday, October 6, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Thursday, October 7, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Friday, October 8, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Saturday, October 9, 2021	No Work	No Inspection	NA
Sunday, October 10, 2021	No Work	No Inspection	NA
Monday, October 11, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Tuesday, October 12, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Wednesday, October 13, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Thursday, October 14, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Friday, October 15, 2021	Onsite	Cold temps and frost blocked prism readings. Day shift cleared to proceed.	Jerald Schnabel
Saturday, October 16, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Sunday, October 17, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Monday, October 18, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Tuesday, October 19, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Wednesday, October 20, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Thursday, October 21, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Friday, October 22, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Saturday, October 23, 2021	No Work	No Inspection	NA
Sunday, October 24, 2021	No Work	No Inspection	NA
Monday, October 25, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Tuesday, October 26, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Wednesday, October 27, 2021	Onsite	Heavy wind and rain blocked prism readings on 10/26. Day shift cleared to proceed.	Jerald Schnabel
Thursday, October 28, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Friday, October 29, 2021	Onsite	No Movement or change observed. Good to proceed	Jerald Schnabel
Saturday, October 30, 2021	No Work	No Inspection	NA
Sunday, October 31, 2021	No Work	No Inspection	NA



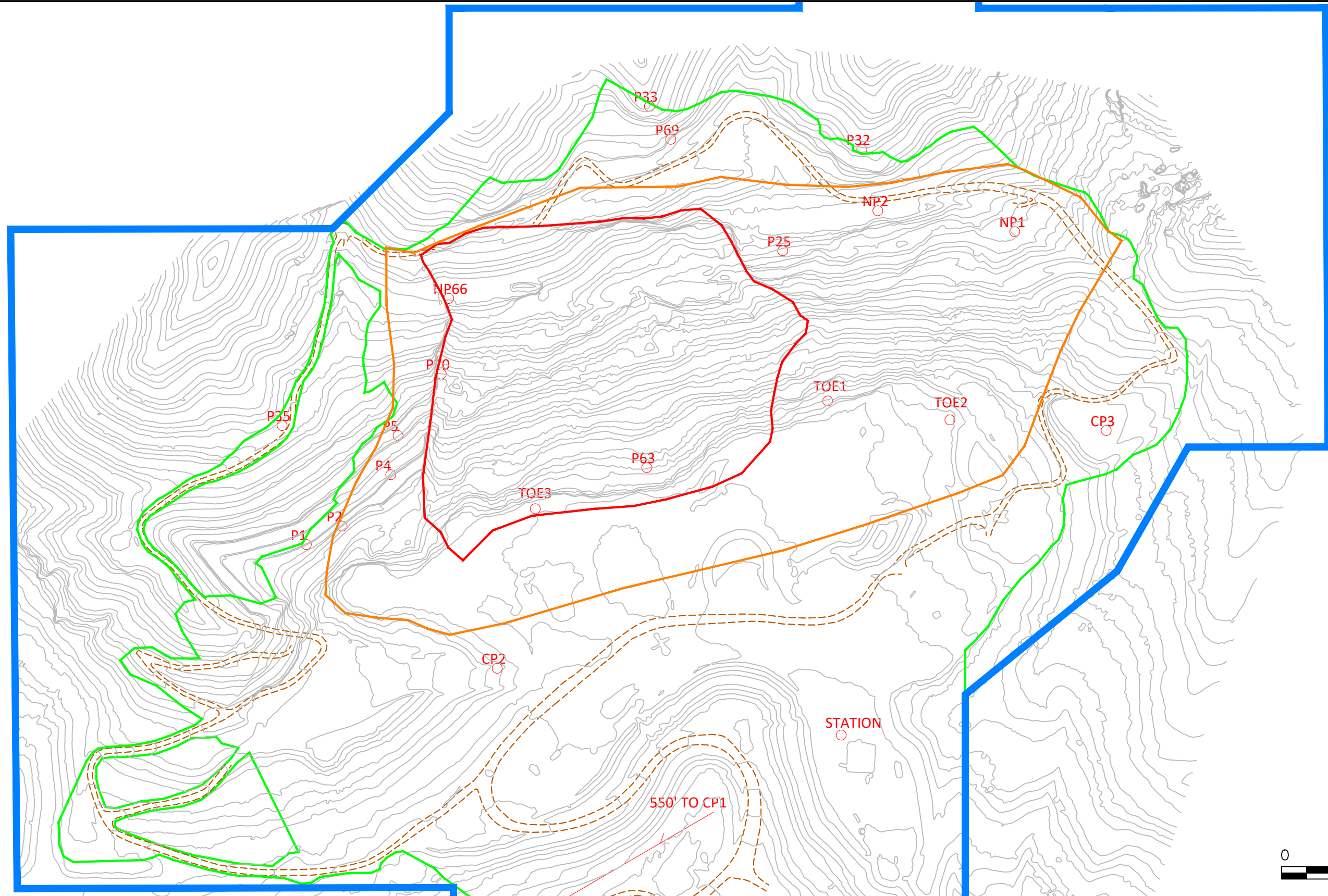
# Appendix B

Prism Survey





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#### LEGEND

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

- GRADING AND MOVEMENT OF STATION WILL BE EXTENDED AS LONG AS POSSIBLE.
- PRISMS WILL BE INSTALLED AS EACH BENCH IS FINISHED.
- ALL PRISMS WILL BE RETAINED AS LONG AS POSSIBLE.
- TOPOGRAPHY FROM OCTOBER 20, 2021 DRONE SURVEY.
- CONTOUR INTERVAL IS 10 FEET

#### Client/Project

CONTINENTAL MATERIALS  
CORP.  
PIKEVIEW QUARRY SLOPE  
MONITORING

Project No.  
227419041

#### Title

EXISTING PRISMS WITH  
CURRENT SURFACE

Revision  
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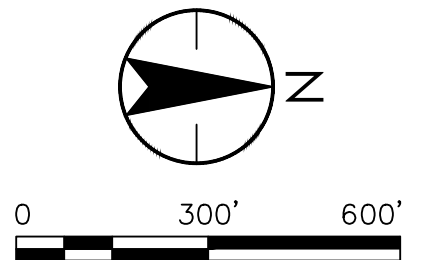
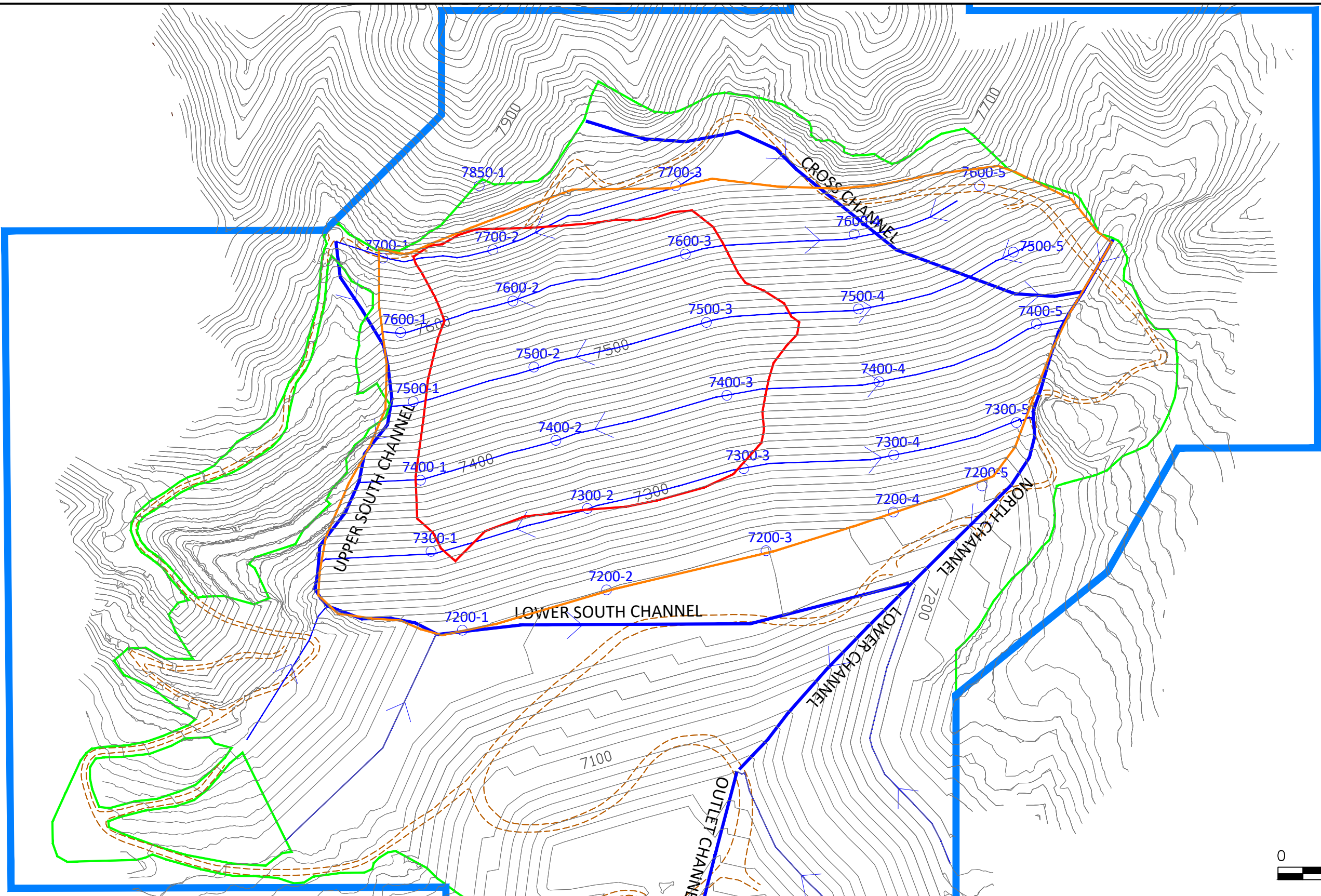
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Date  
2021.11.30

Figure No.  
3



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#### LEGEND

- Permit/Affected Lands 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.  
227419041

#### Title

PROPOSED PRISMS WITH  
RECLAMATION SURFACE

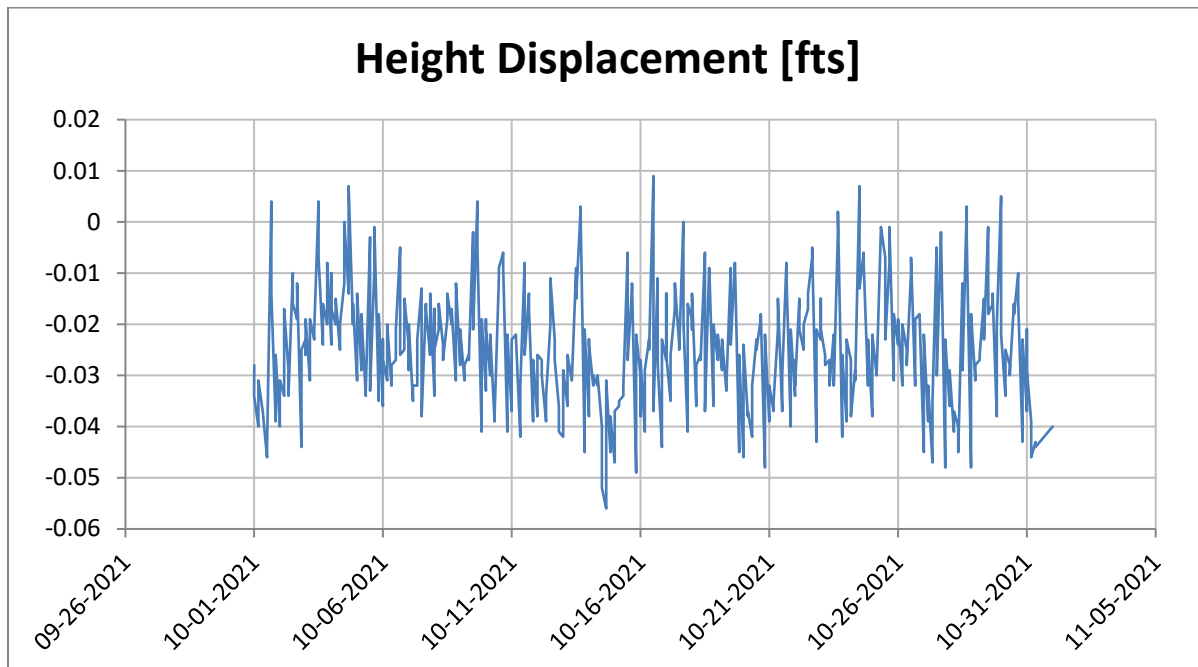
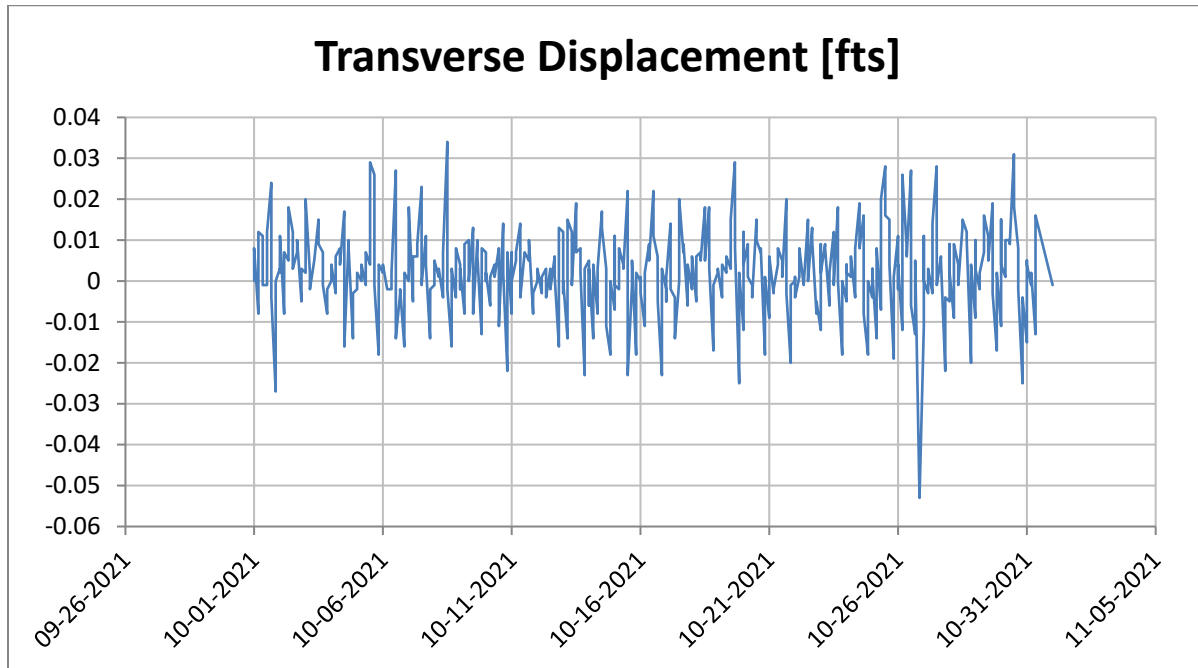
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Date  
2021.11.30

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## Prism CP1



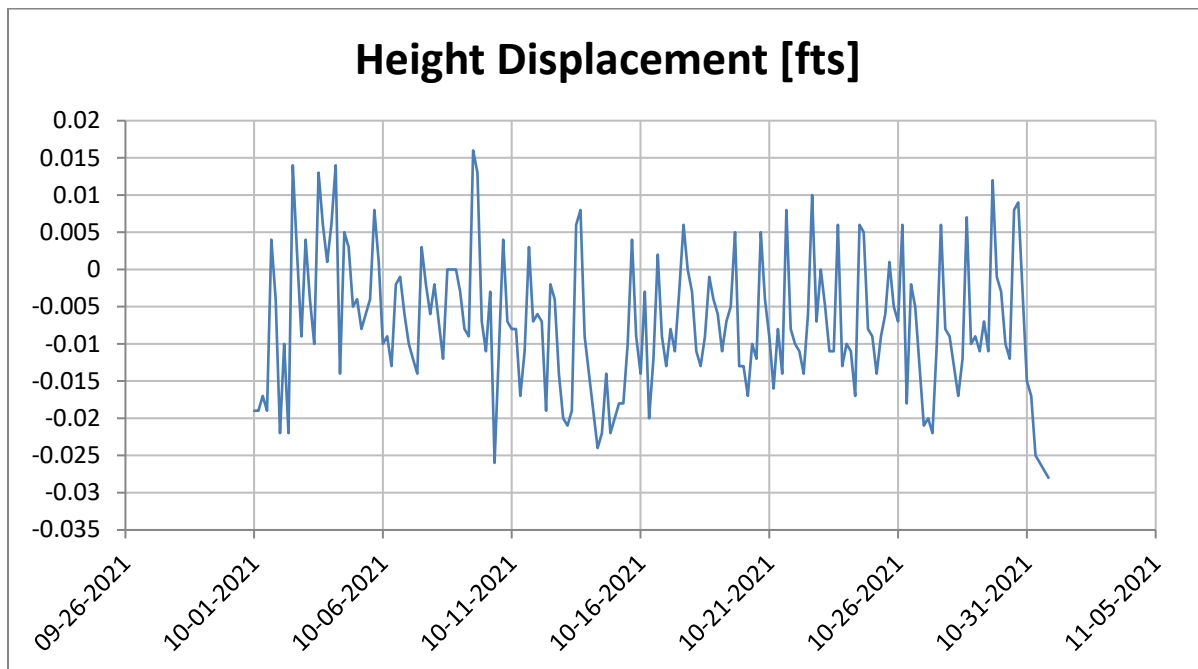
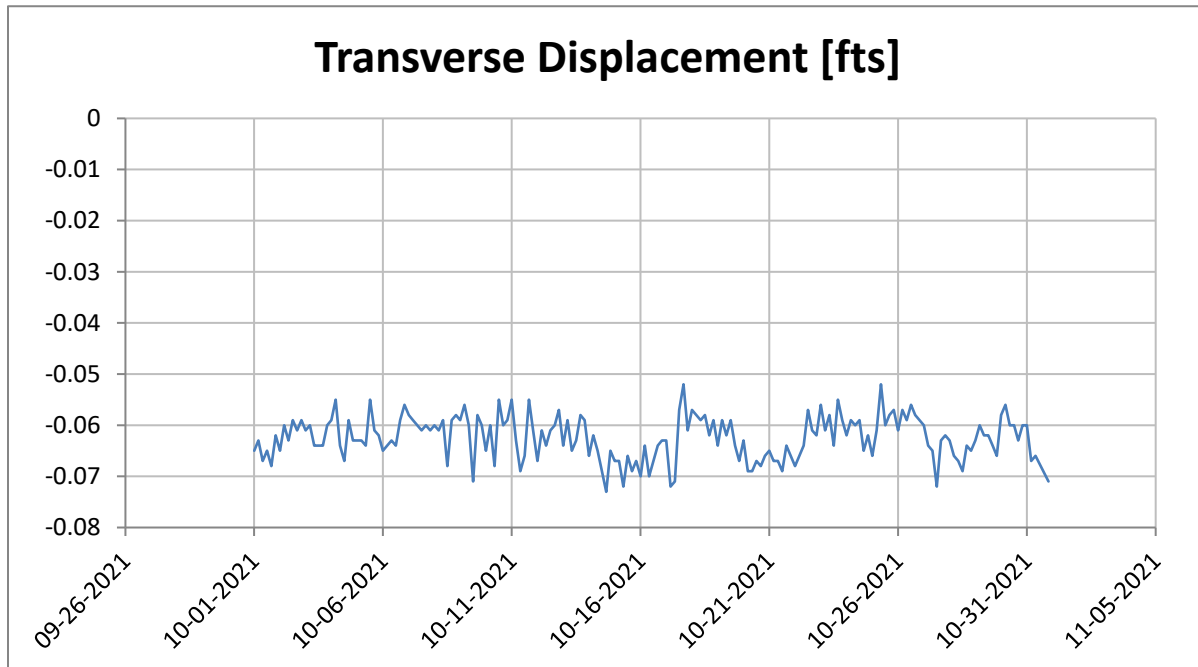
#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.



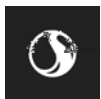


## Prism CP2

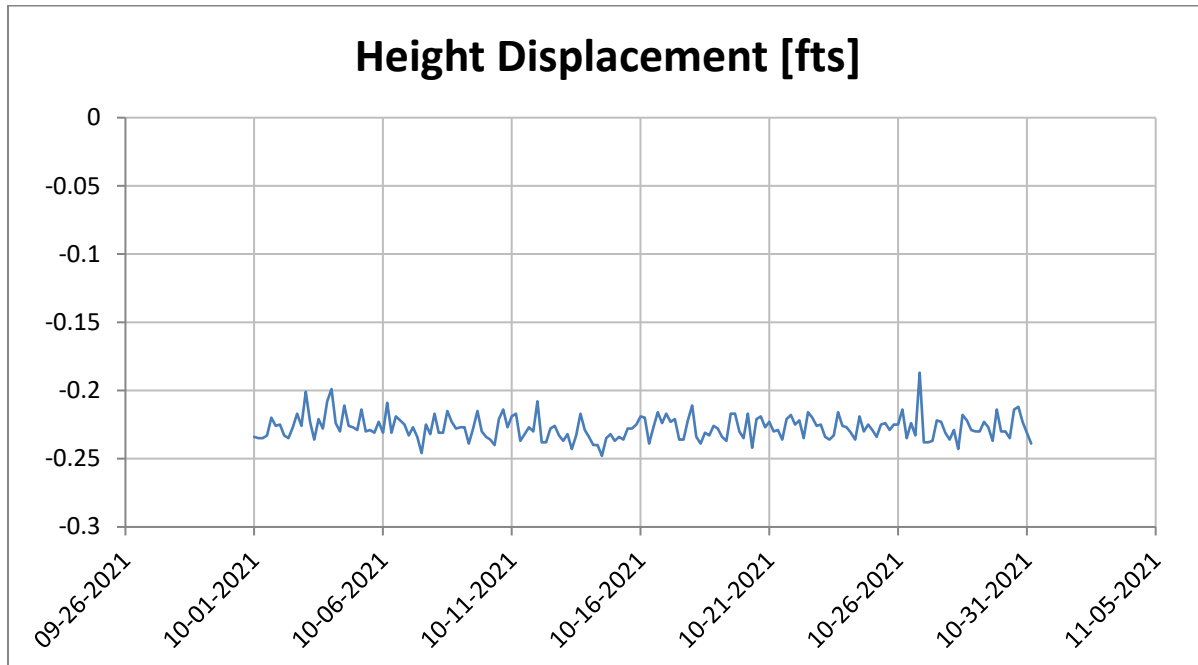
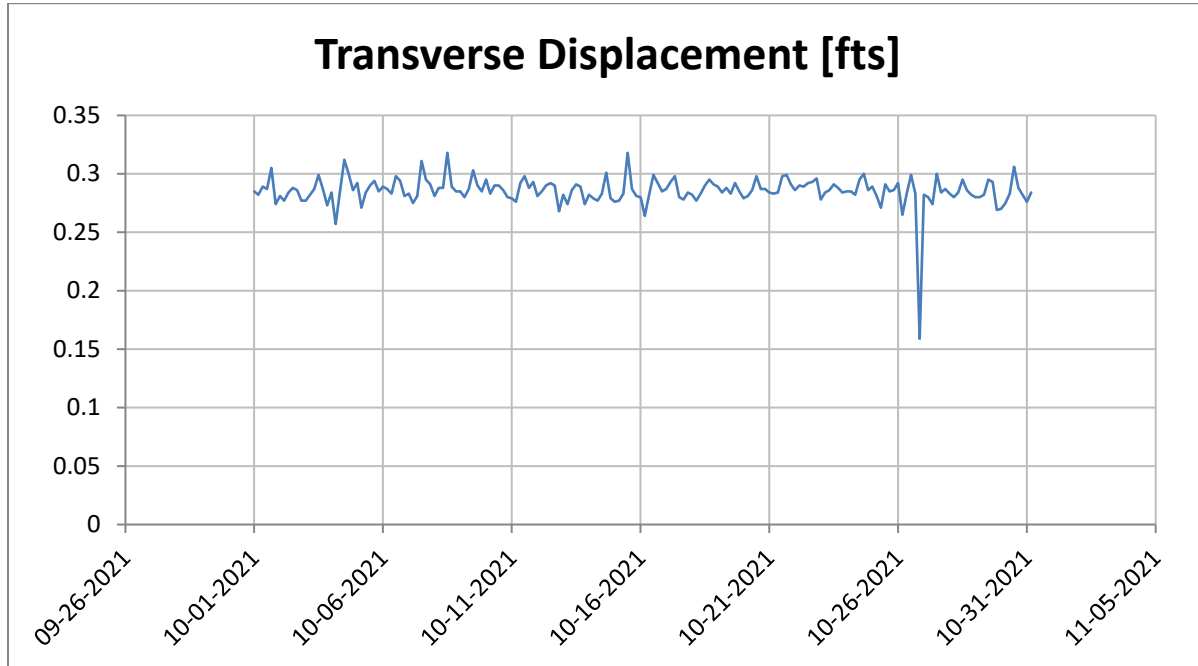


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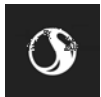


## Prism CP3

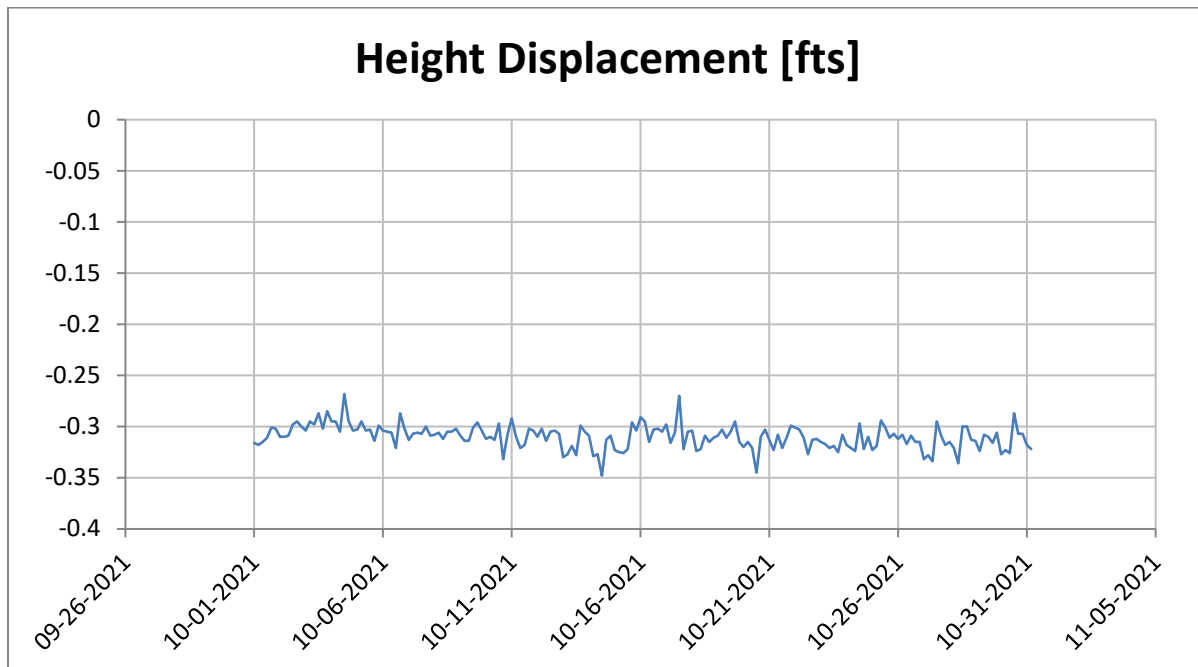
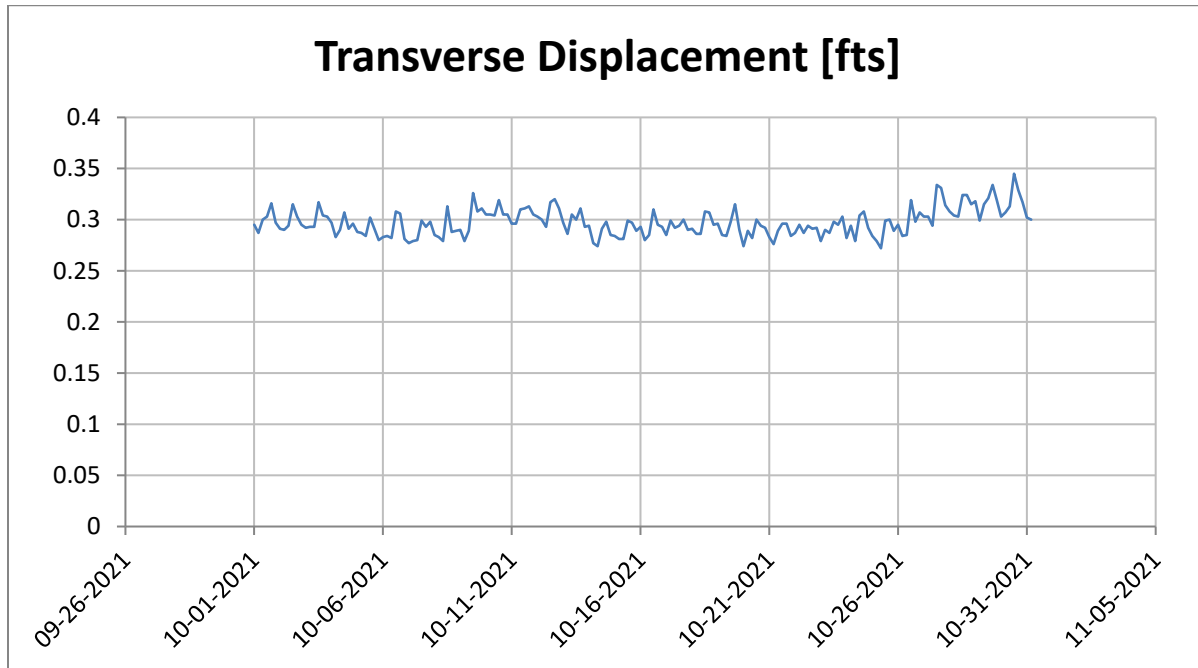


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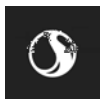


## Prism NP1



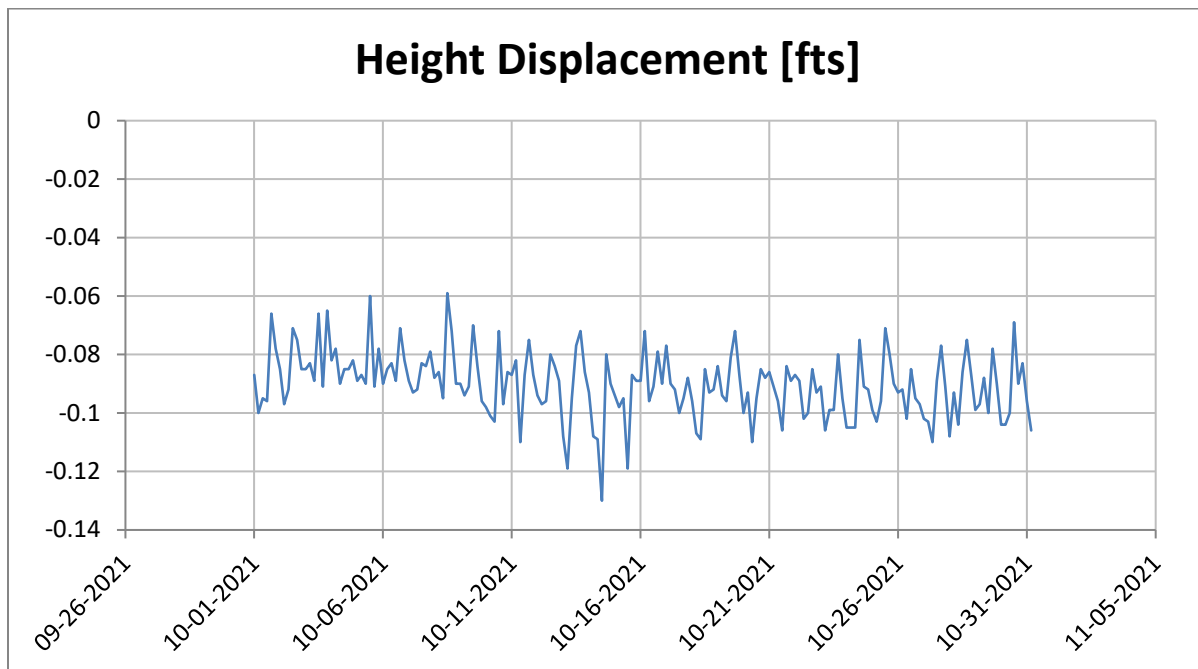
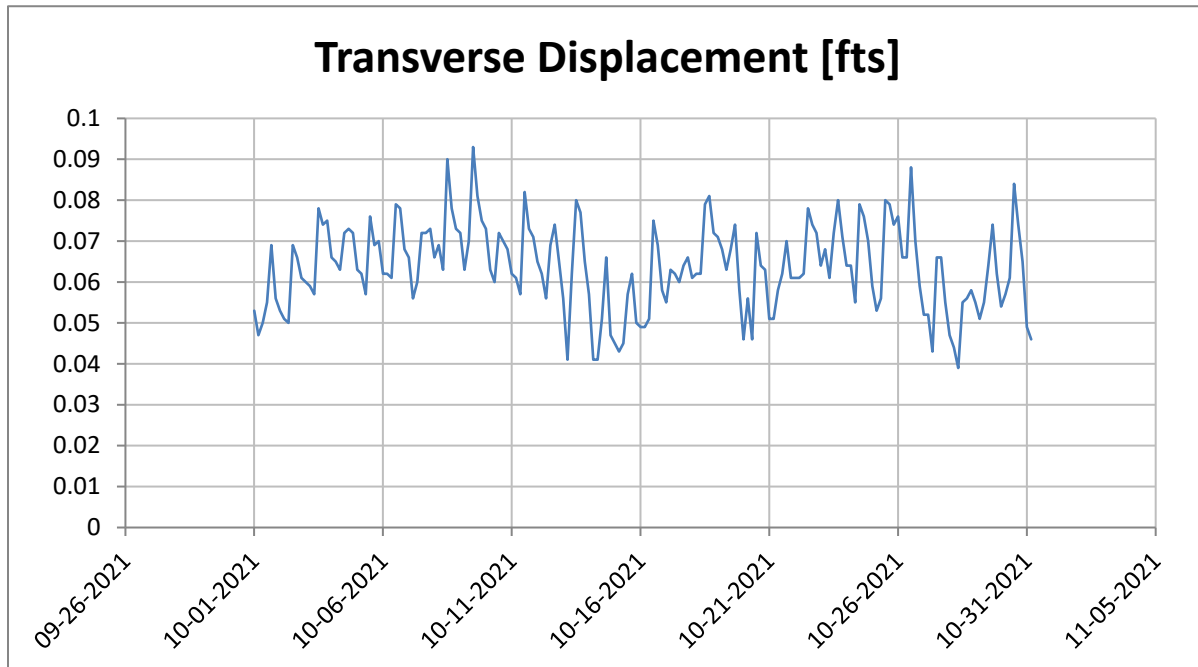
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1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  feet.
3. Transverse displacement is in the horizontal direction. Positive direction means closer to the robotic station.
4. Height displacement is in the vertical direction.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





## Prism NP2

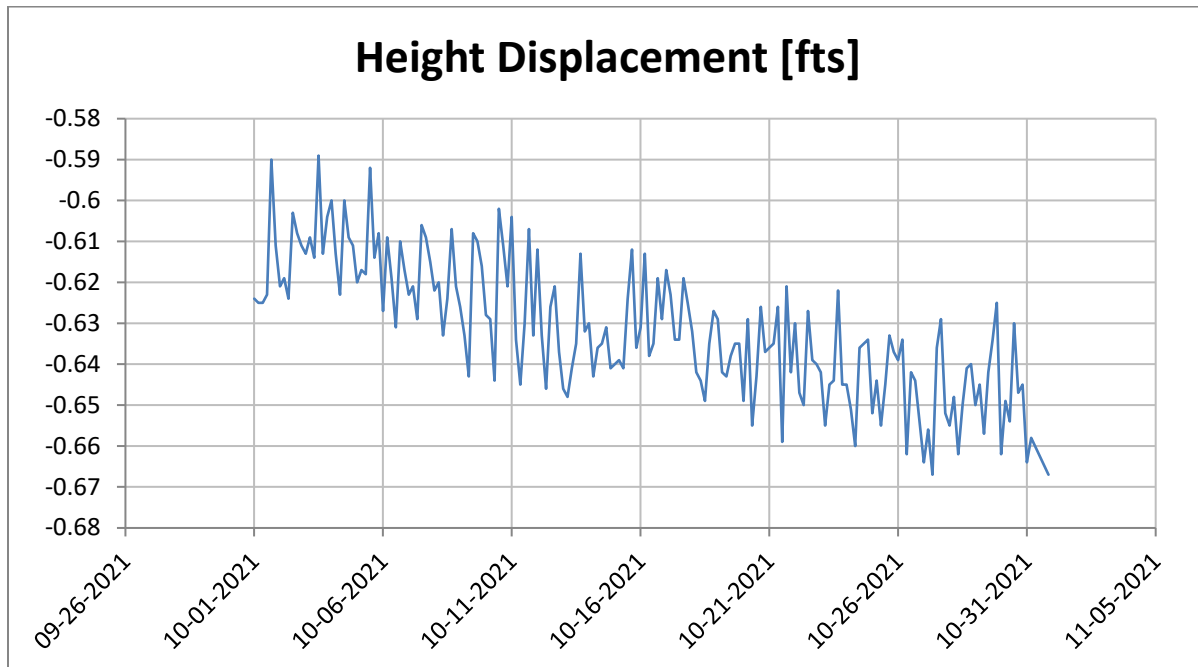
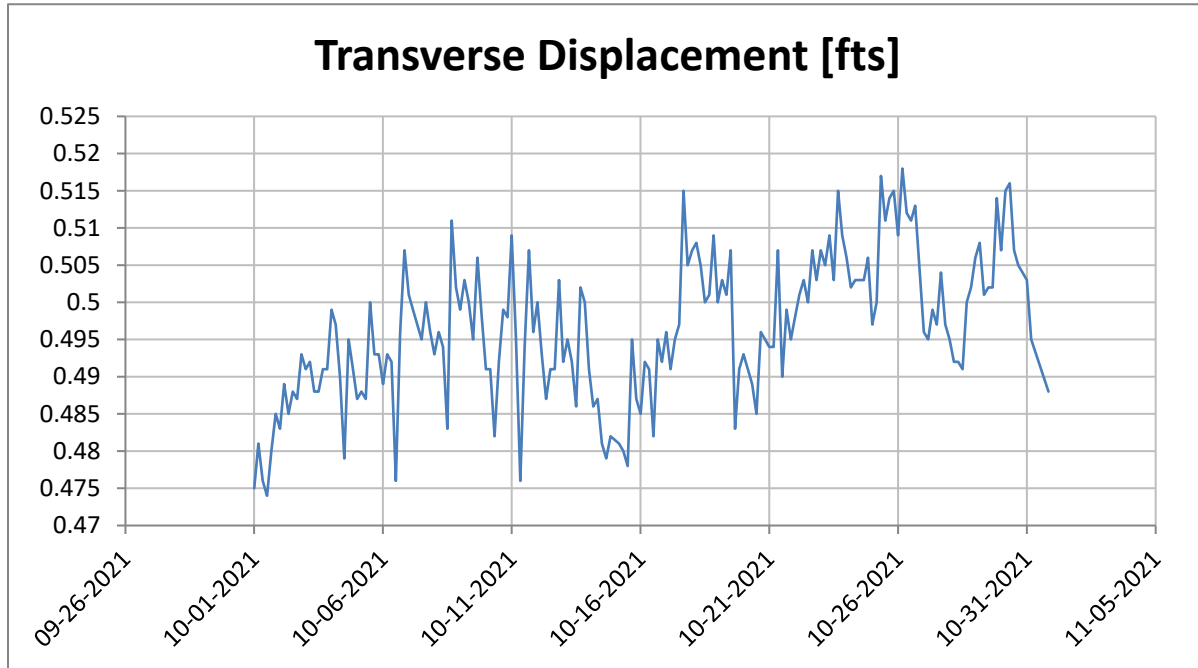


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

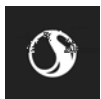


## Prism NP66

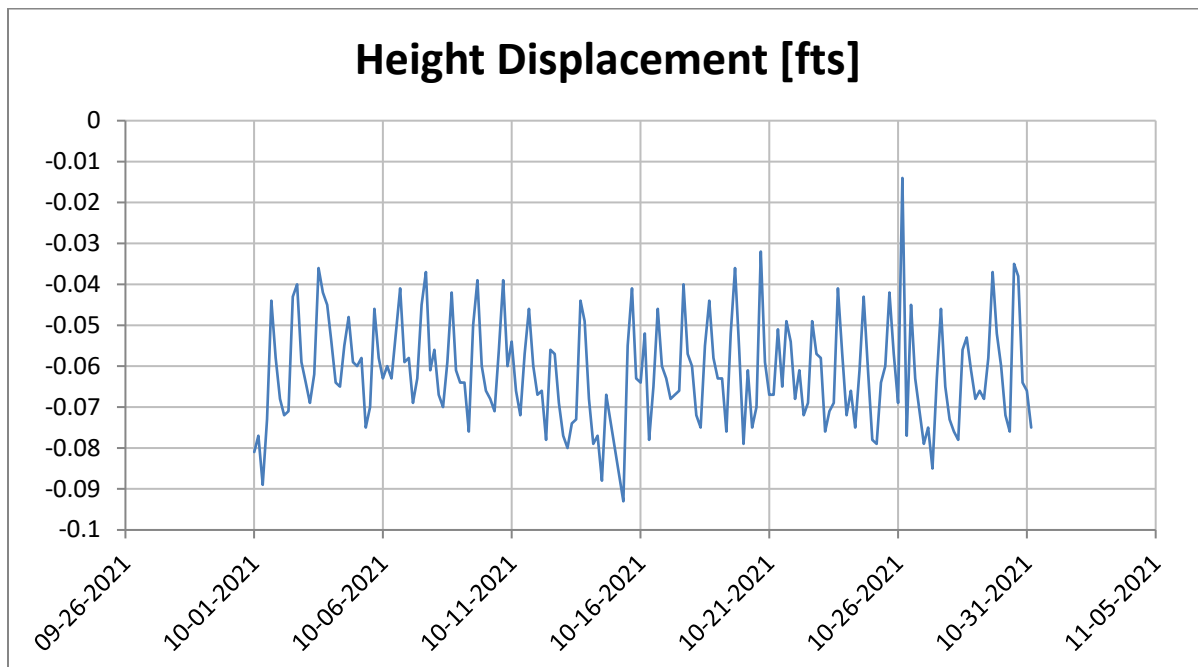
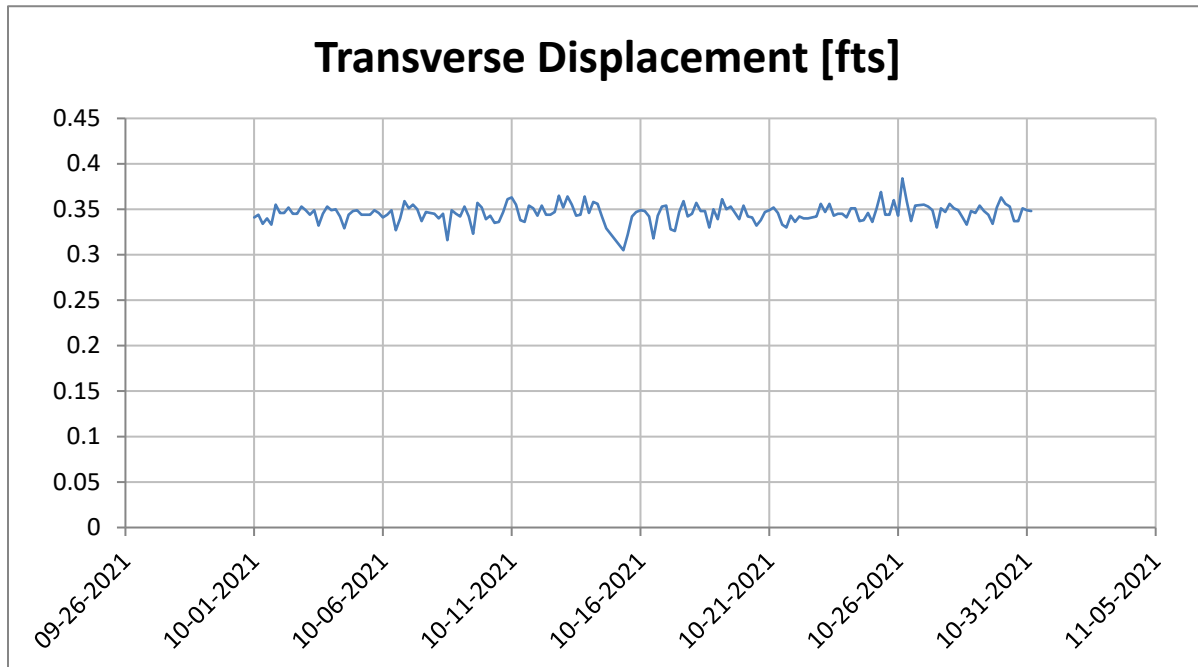


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

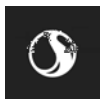


## Prism P1



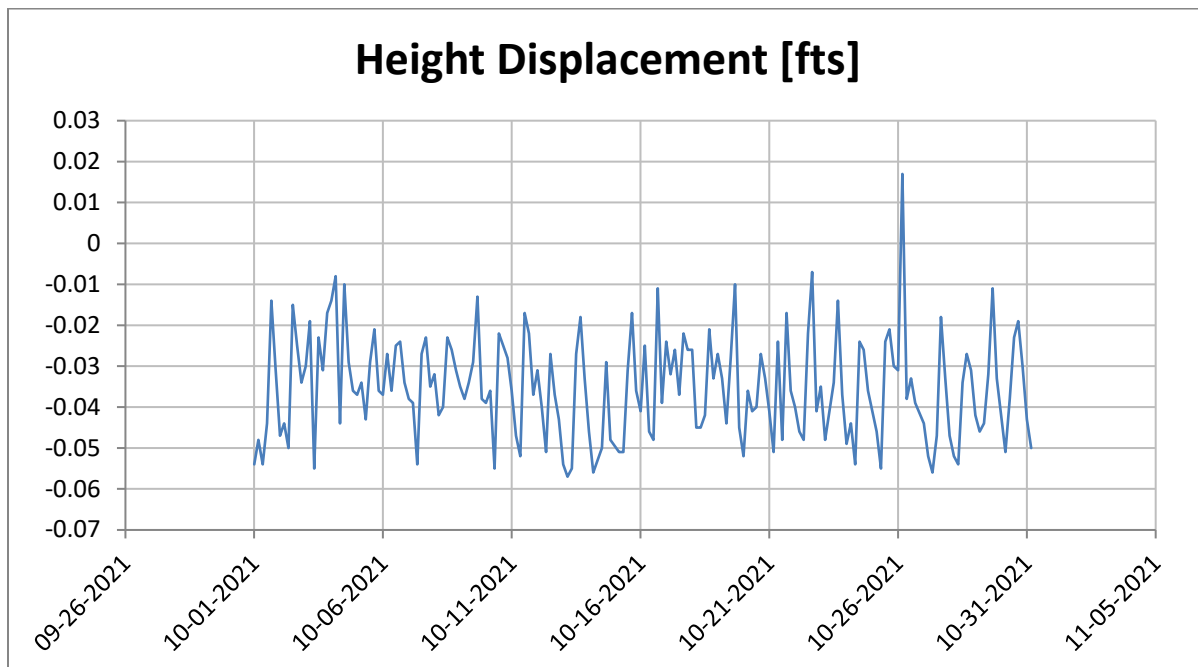
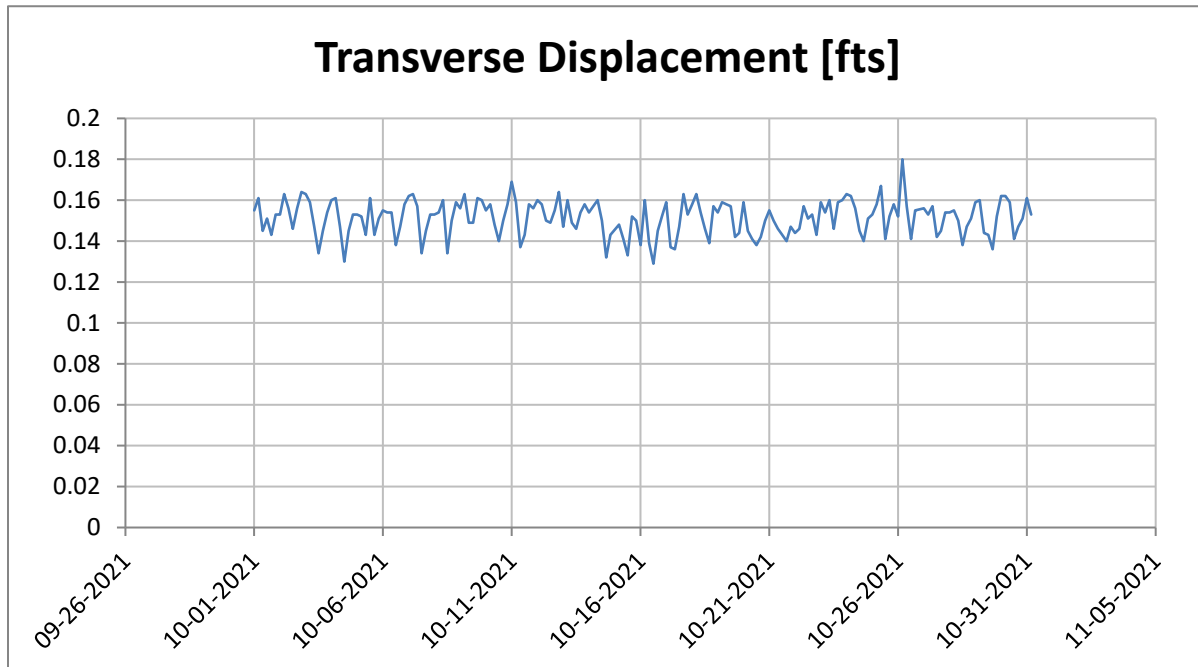
#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.



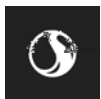


## Prism P2

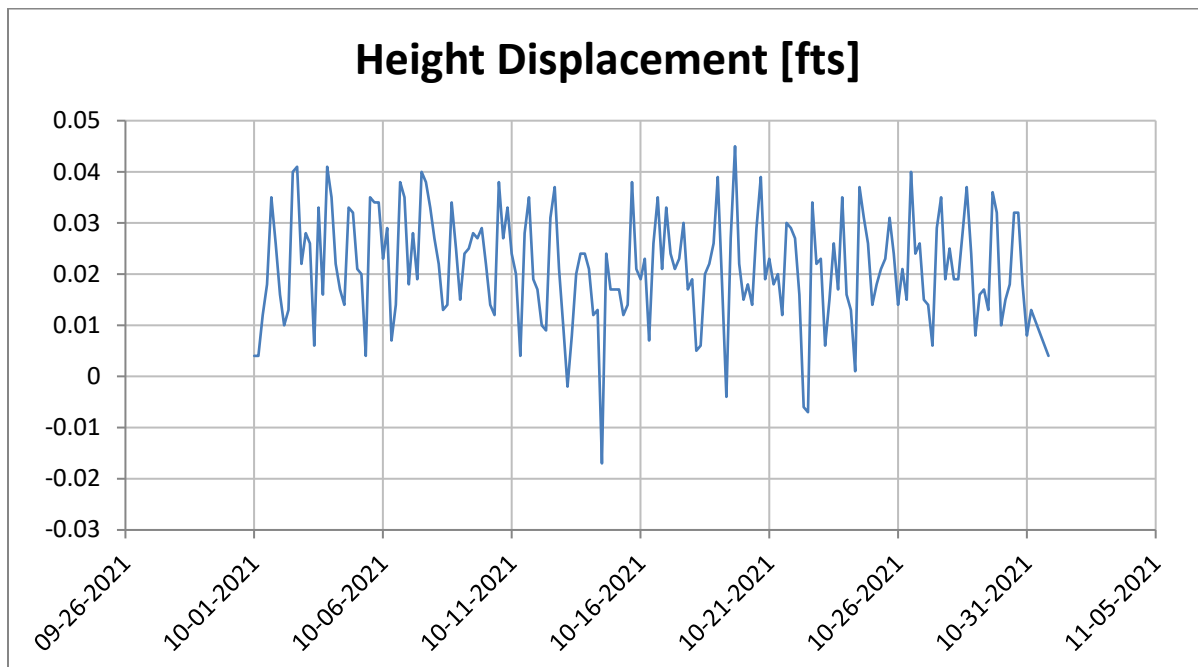
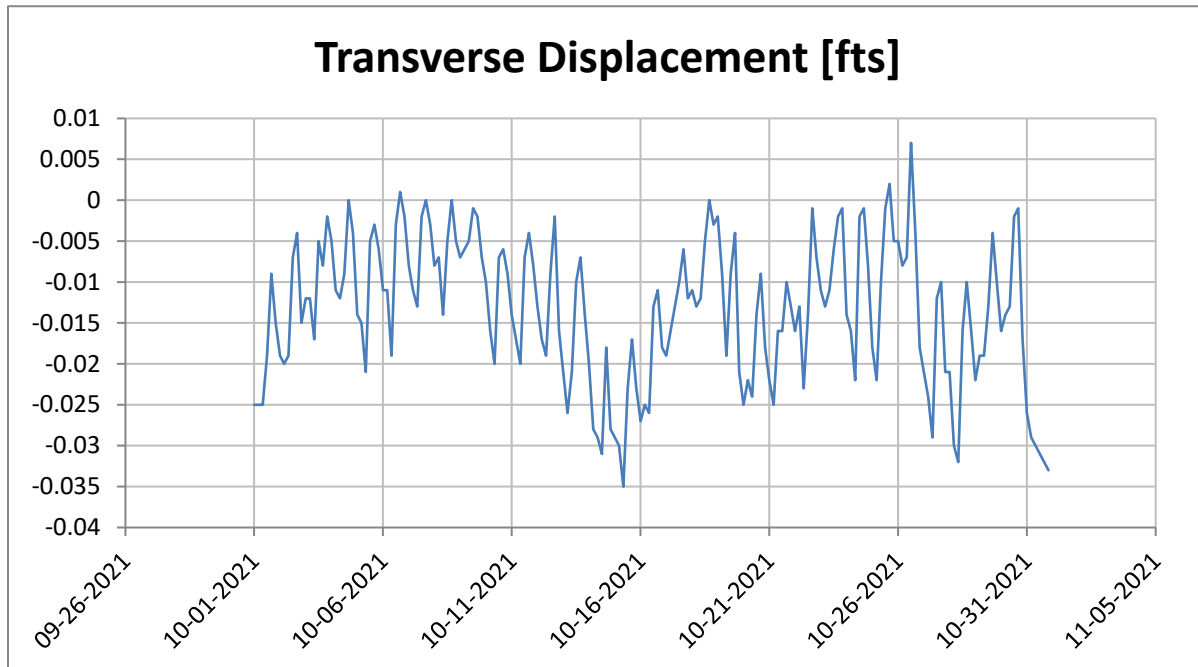


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

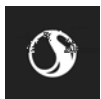


## Prism P25

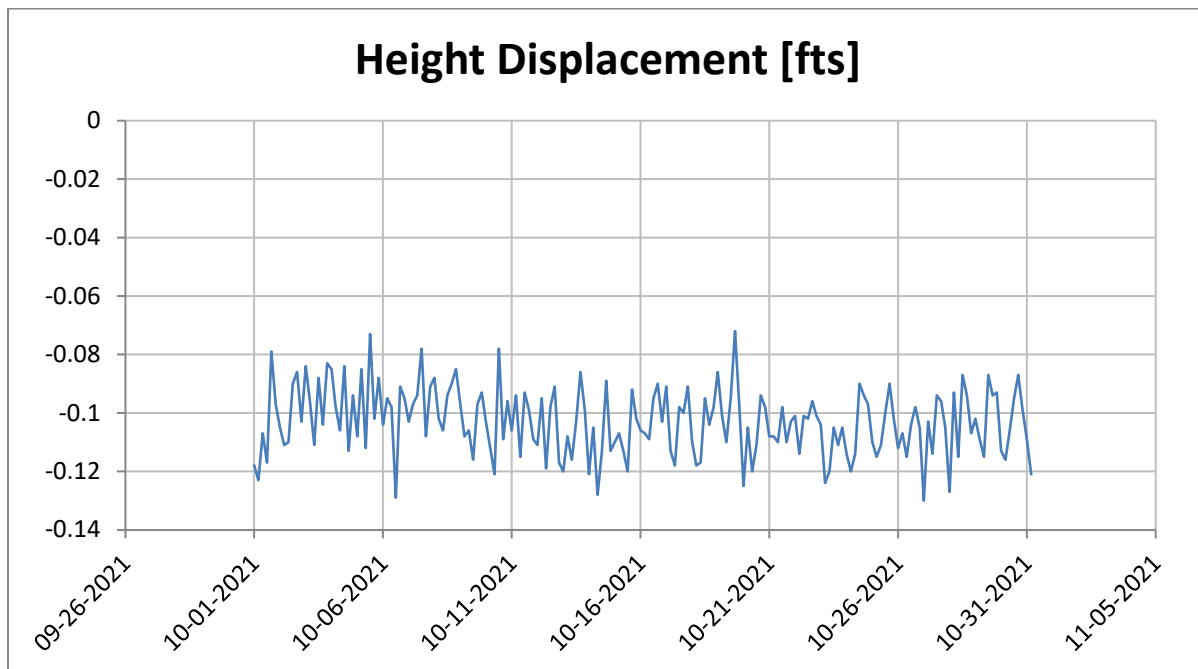
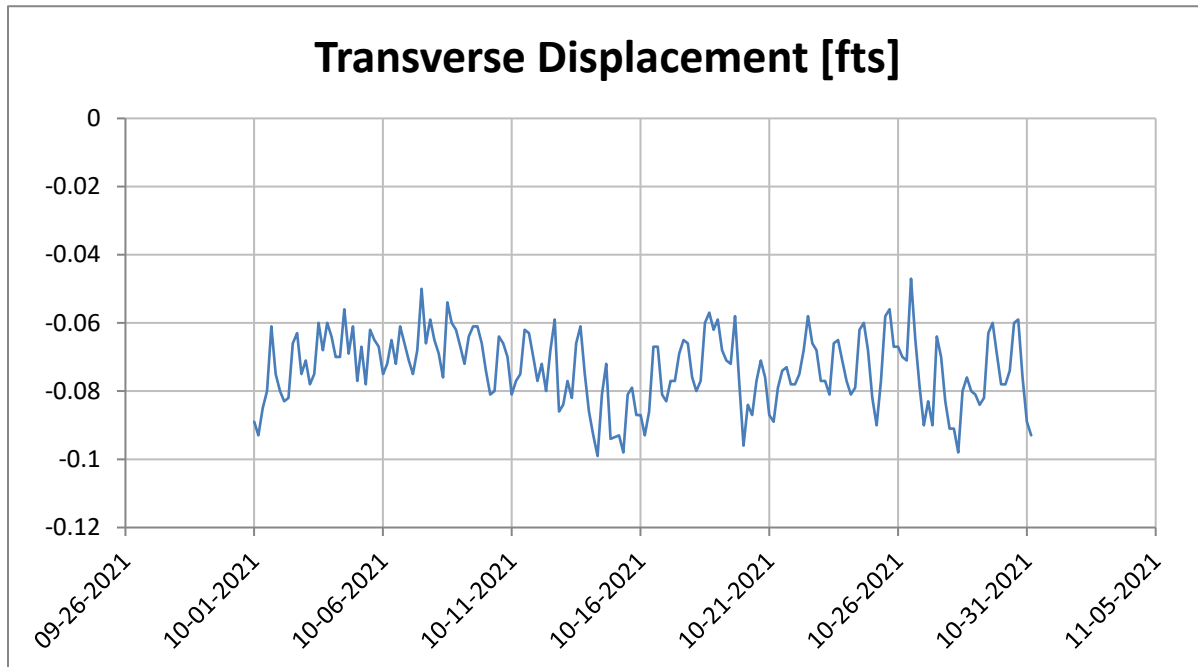


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

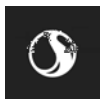


## Prism P32



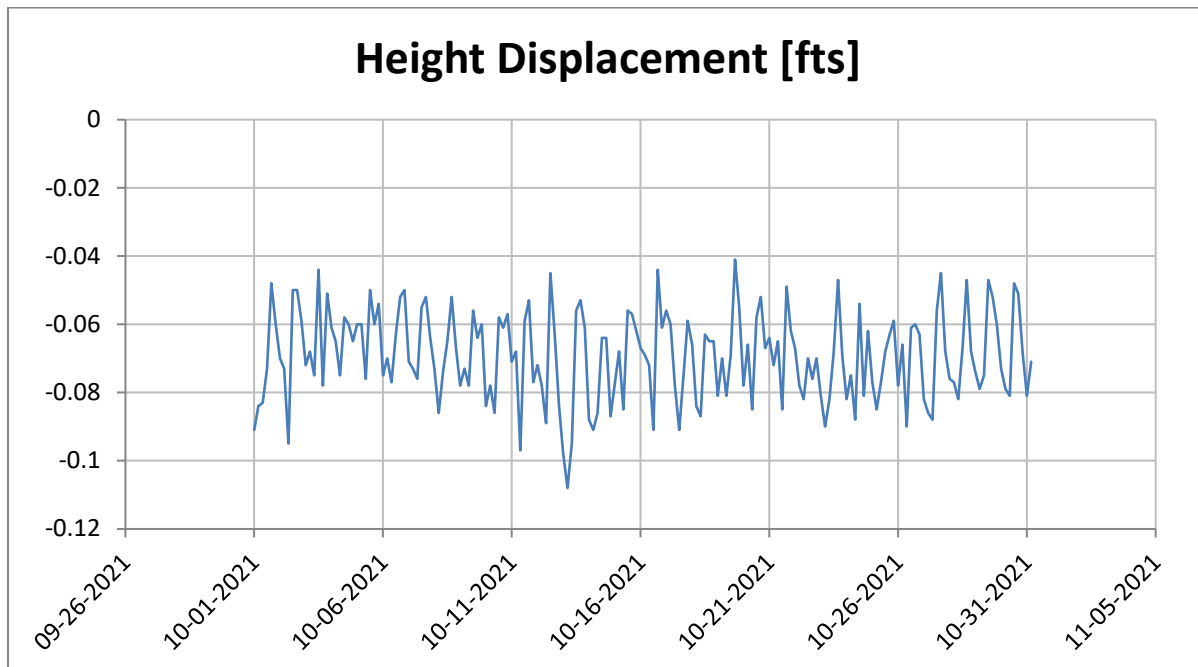
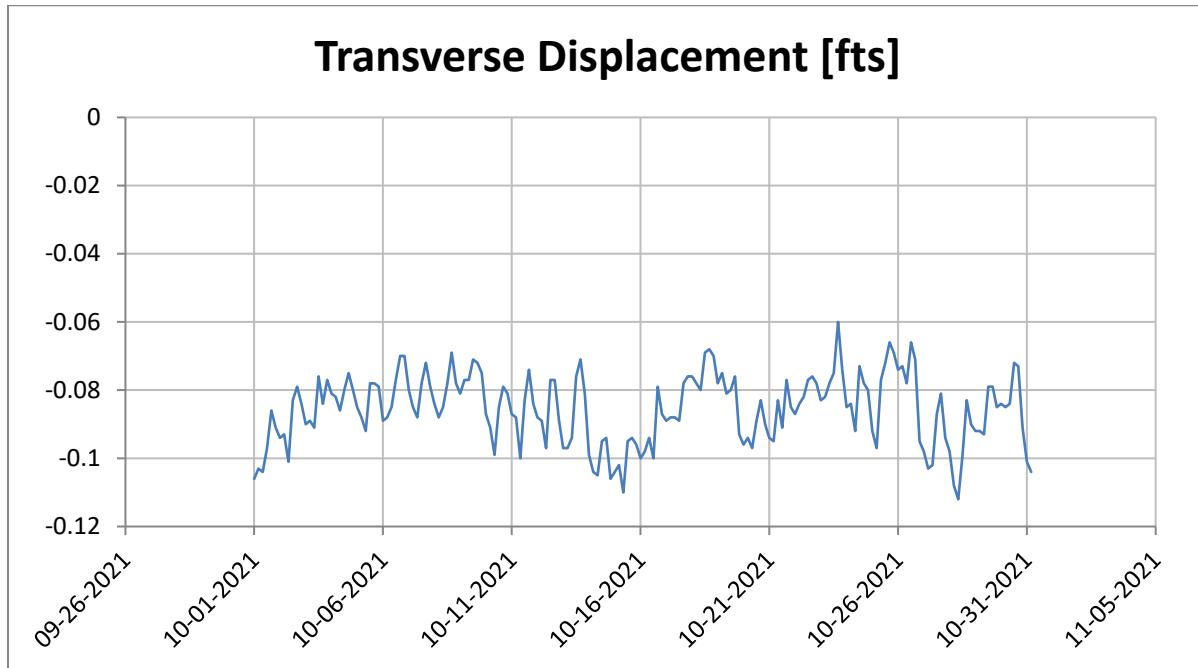
#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.



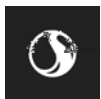


## Prism P33

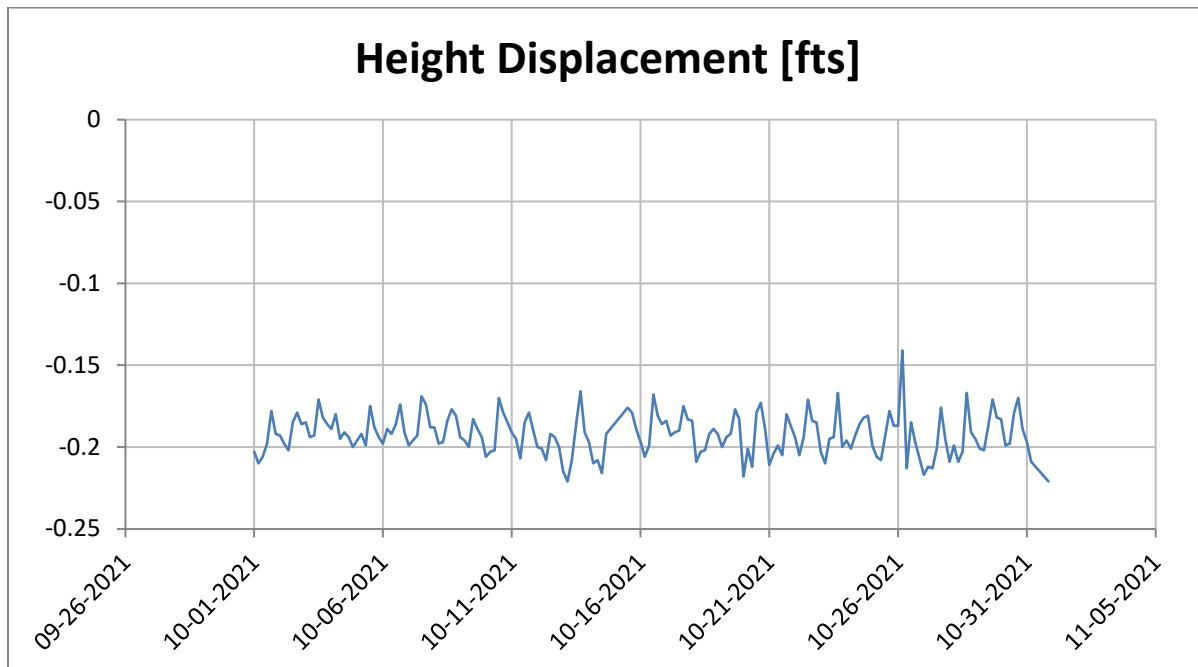
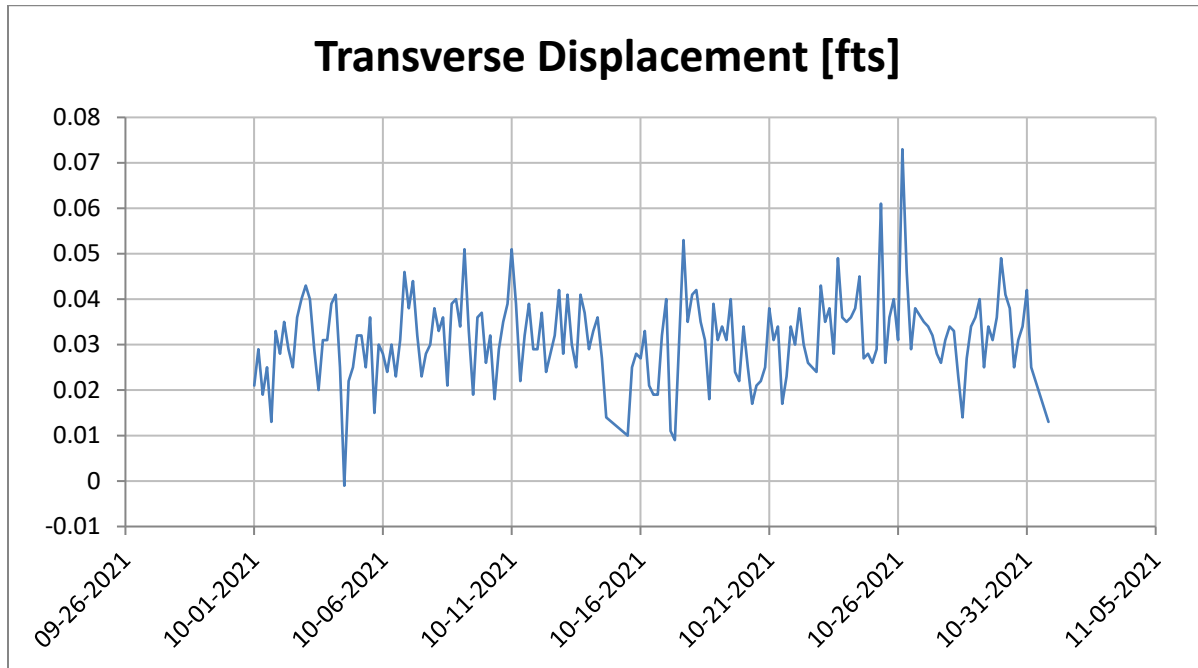


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

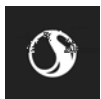


## Prism P35

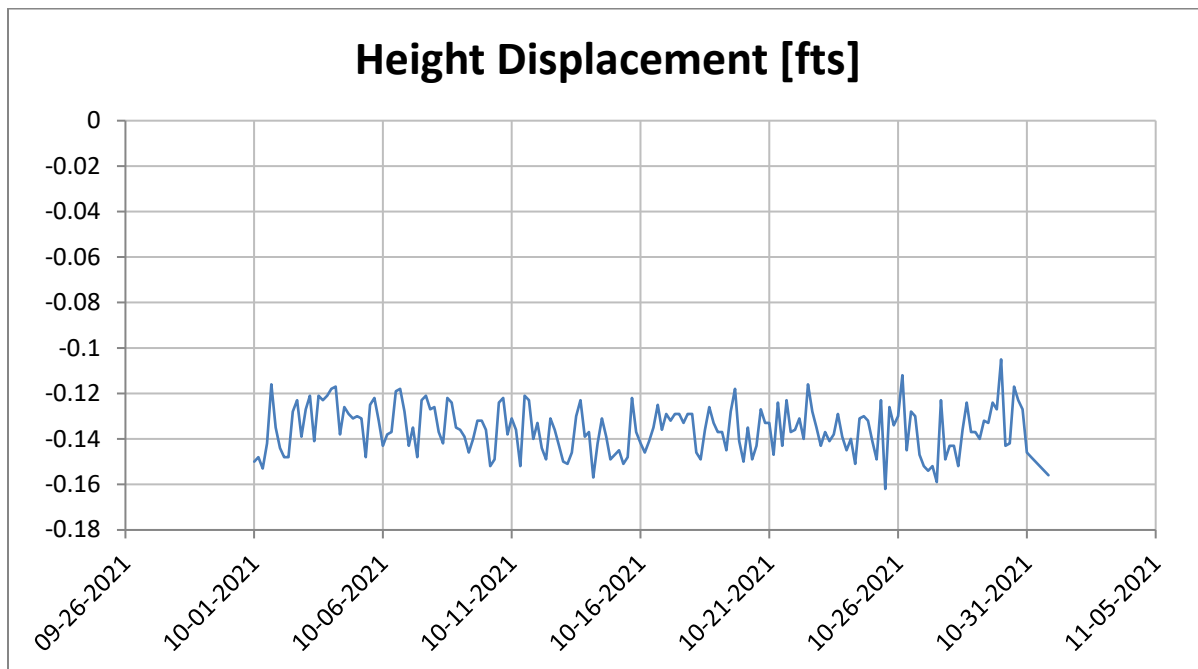
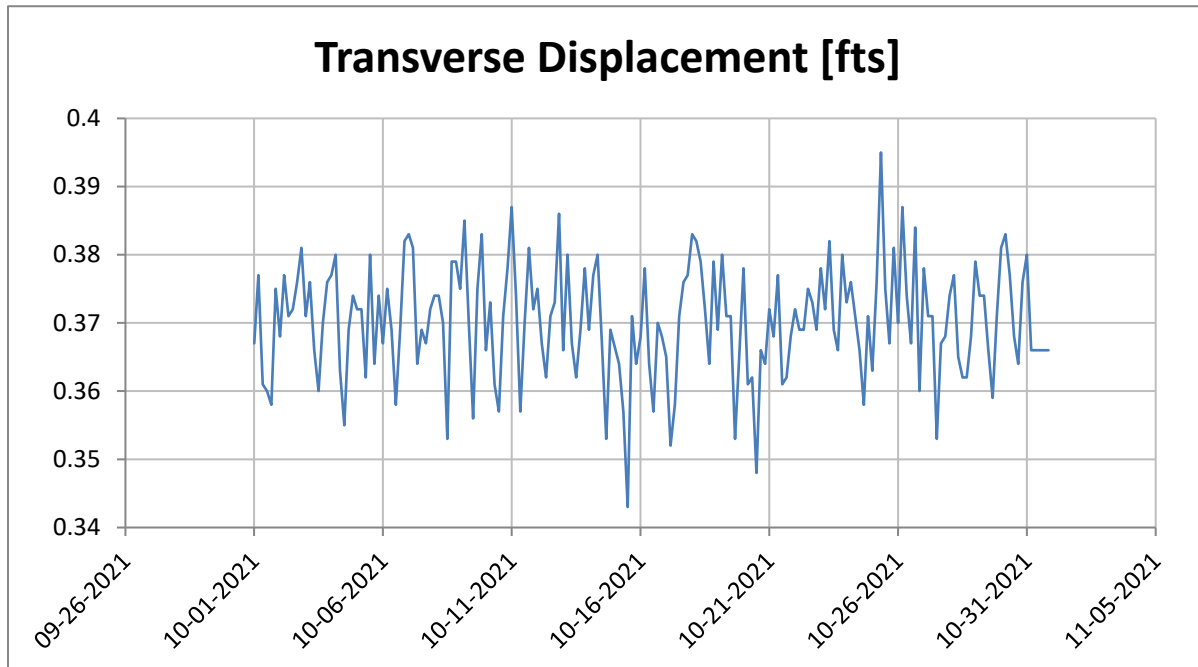


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

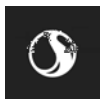


## Prism P4

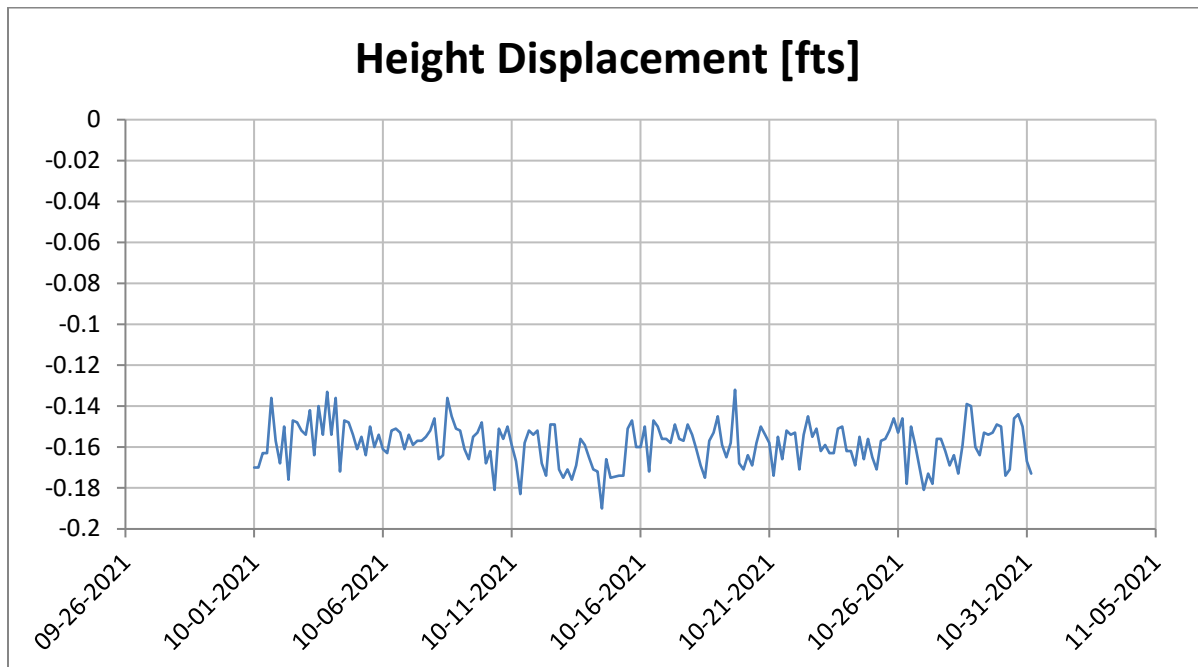
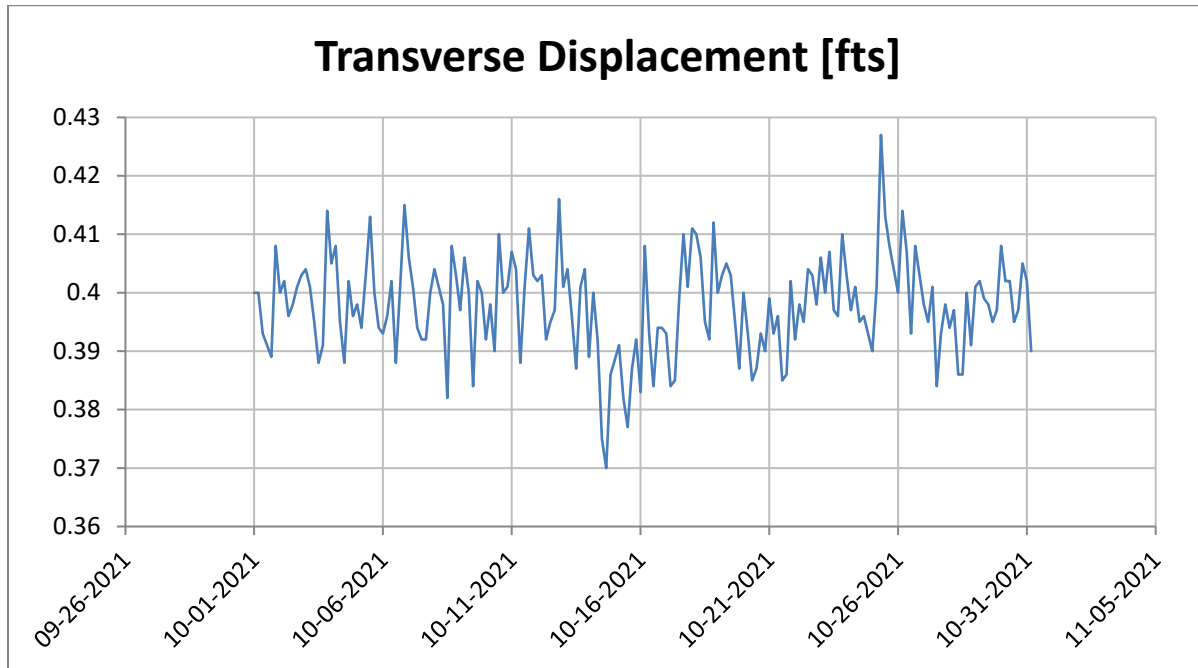


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

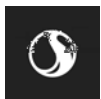


## Prism P5



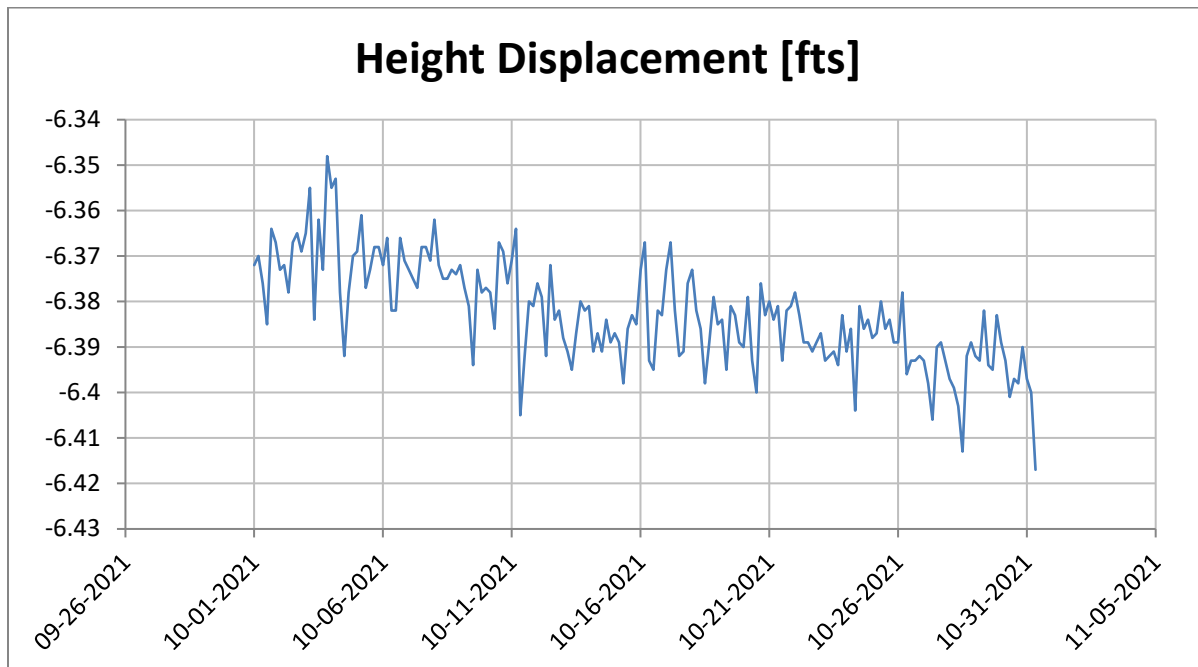
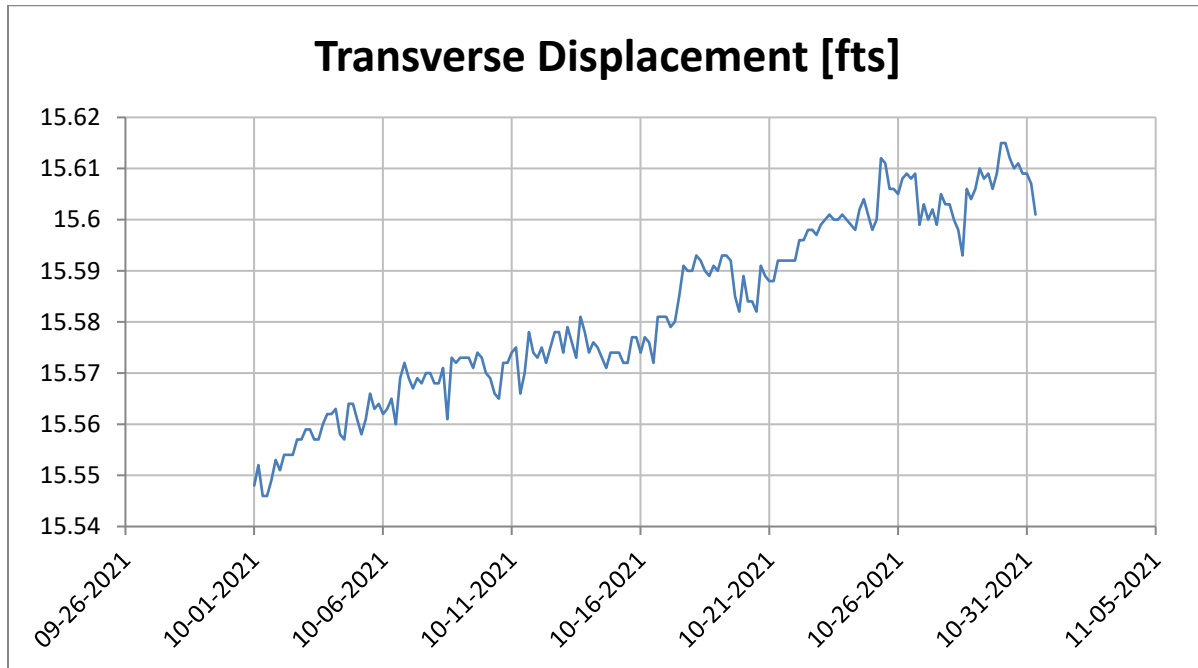
#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.



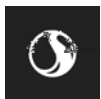


## Prism P63

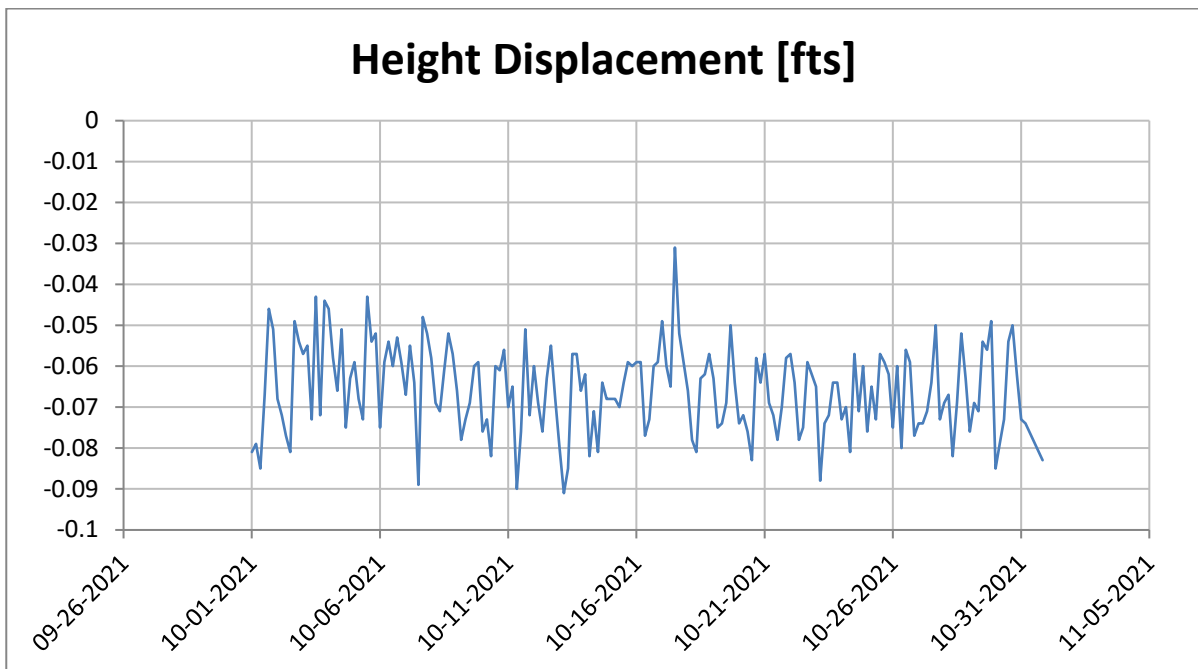
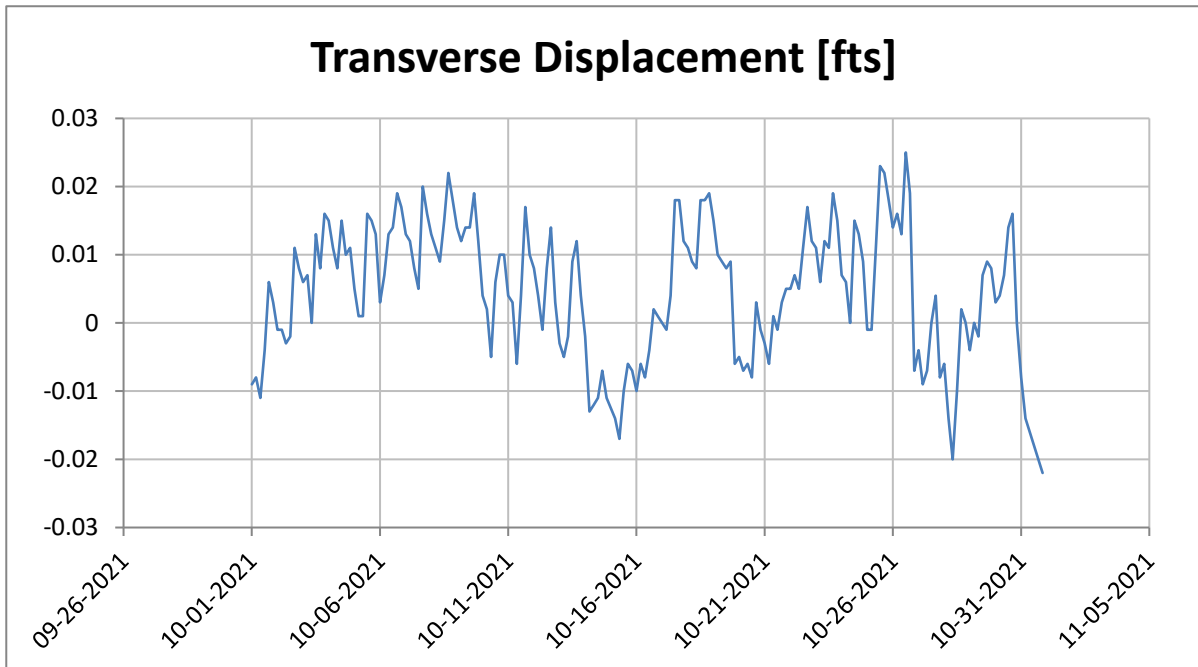


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.



## Prism P69

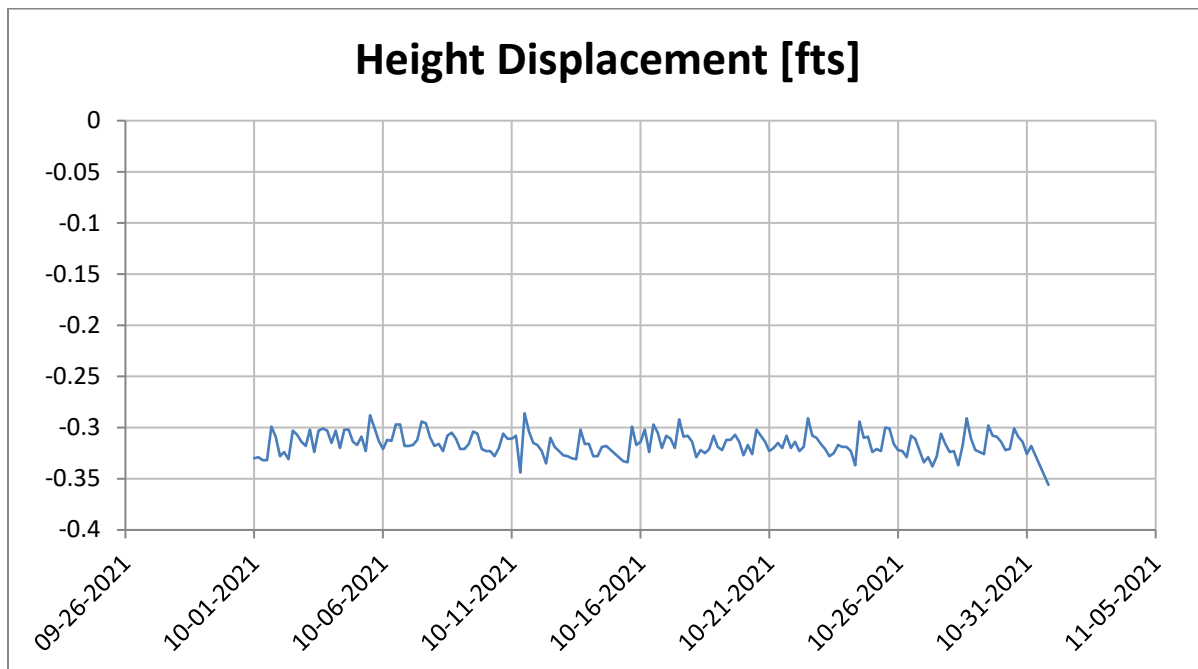
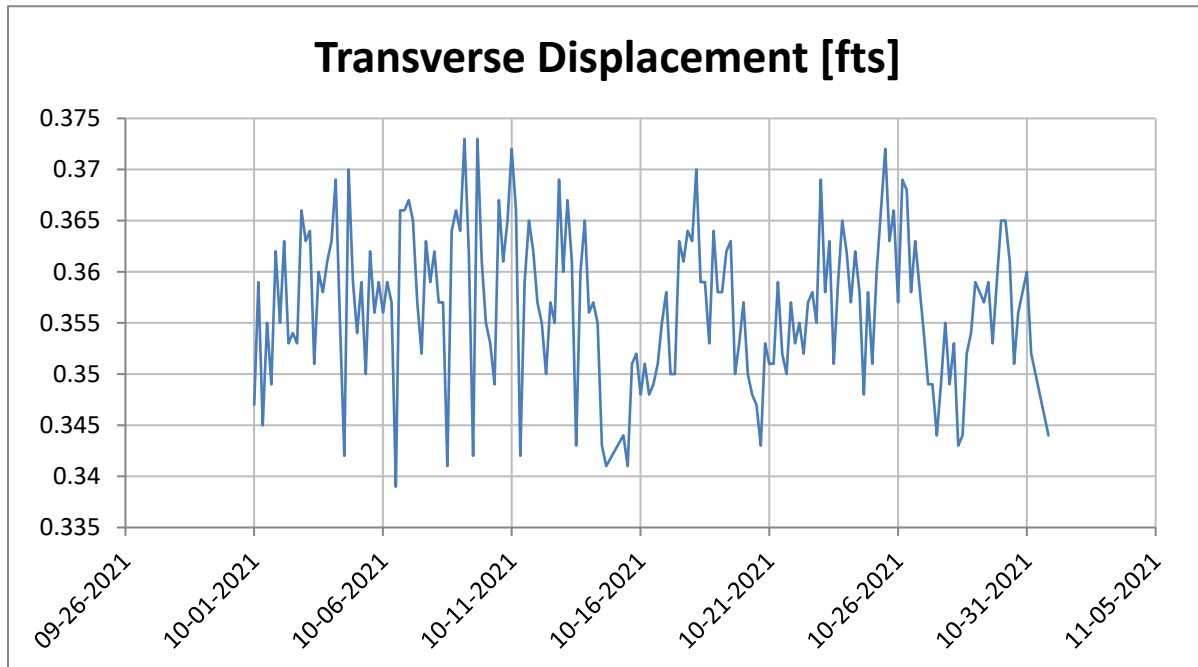


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

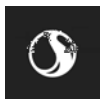


## Prism P70

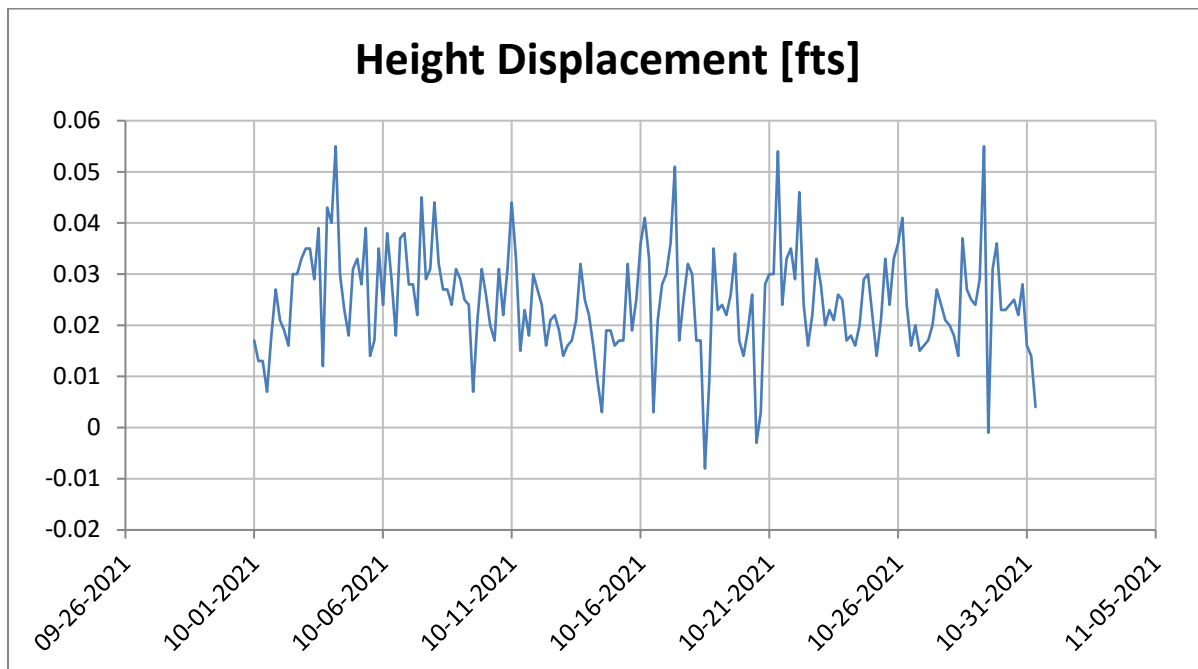
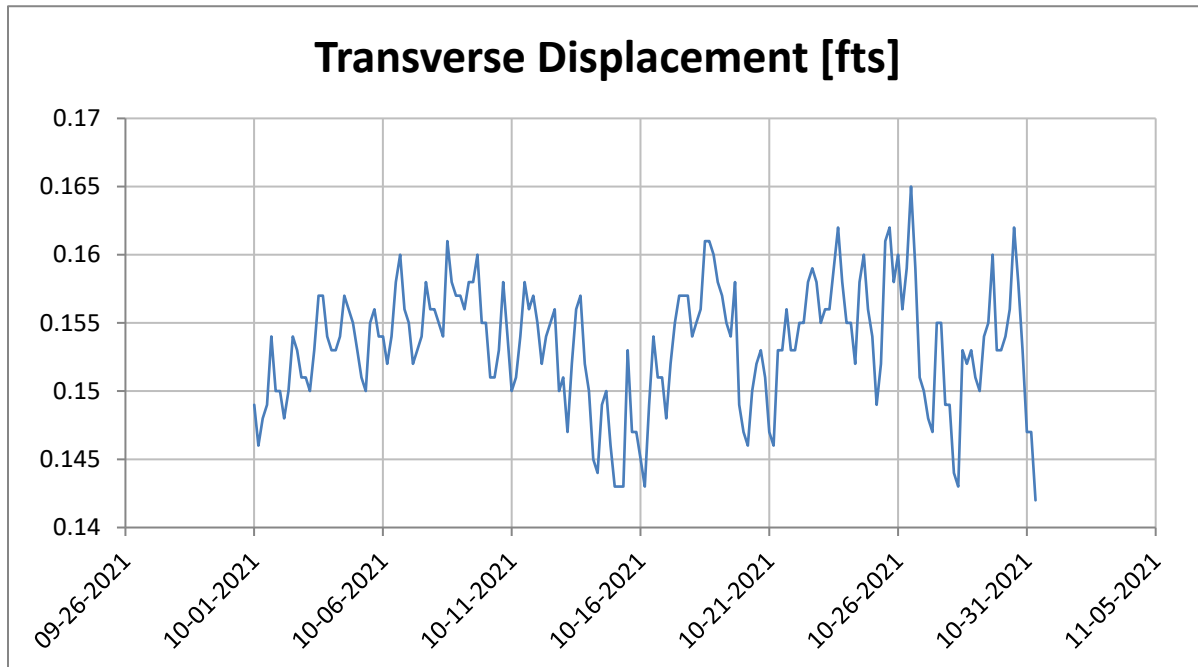


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

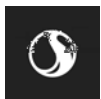


## Prism TOE1

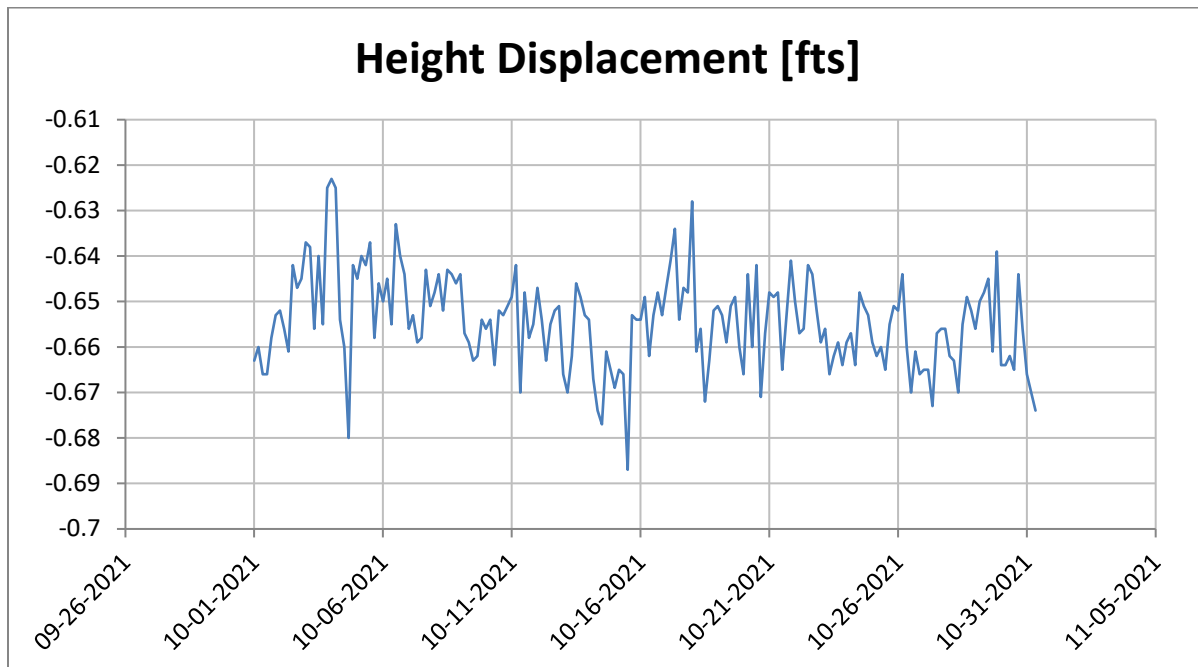
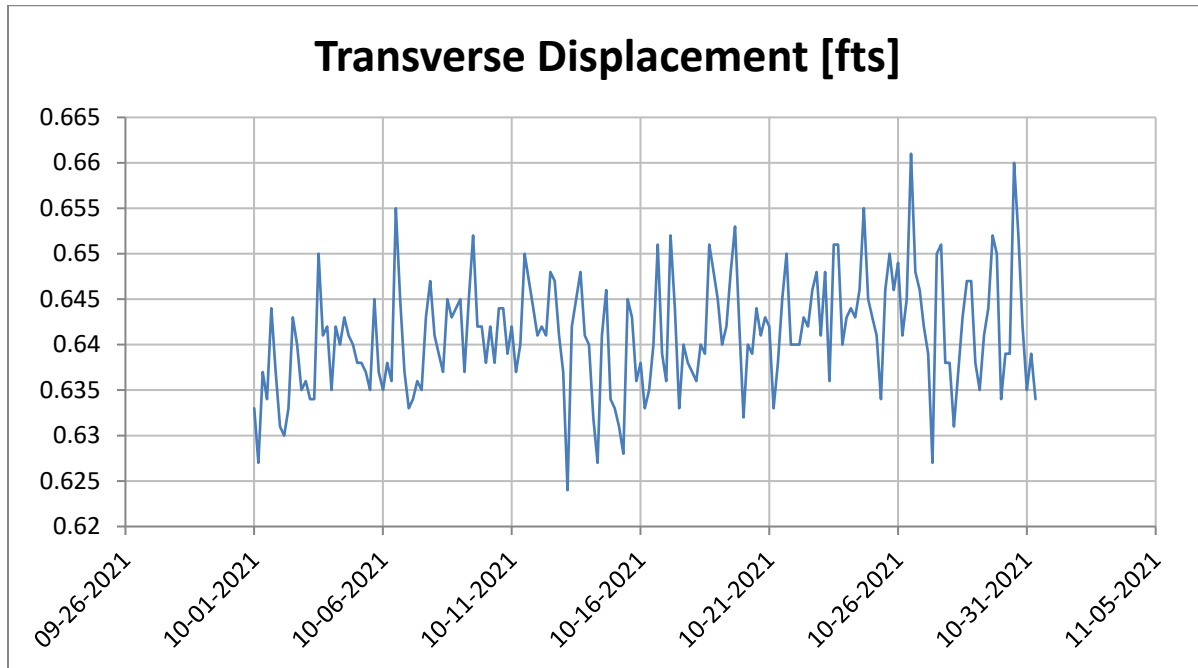


#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.

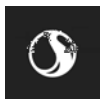


## Prism TOE2



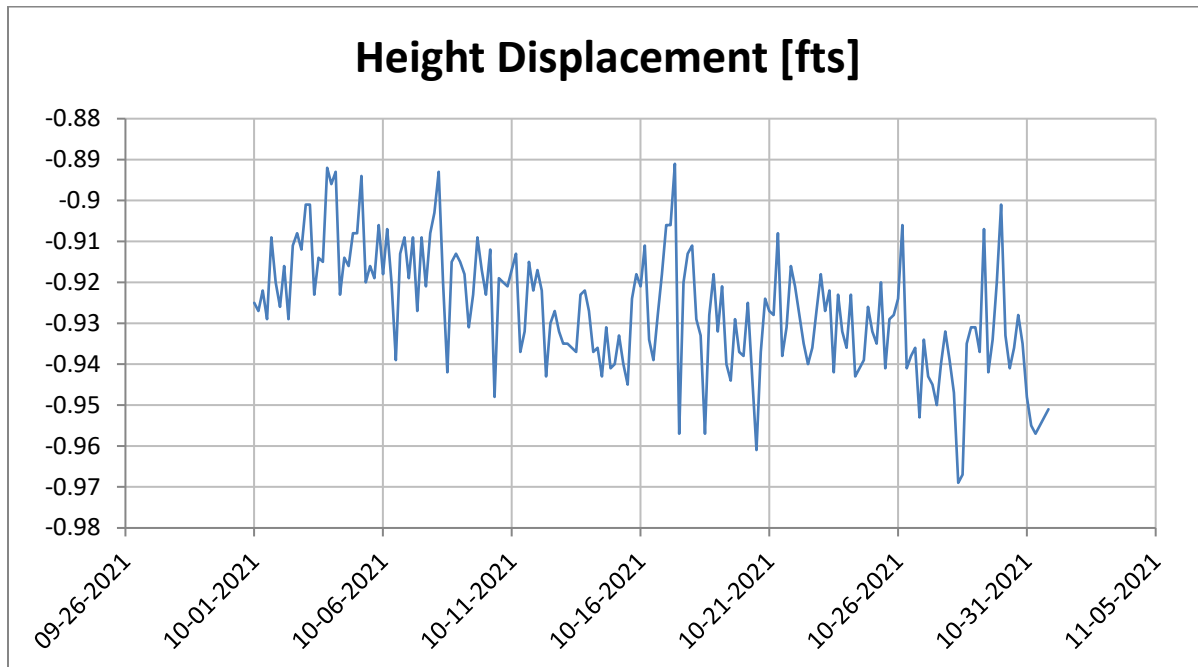
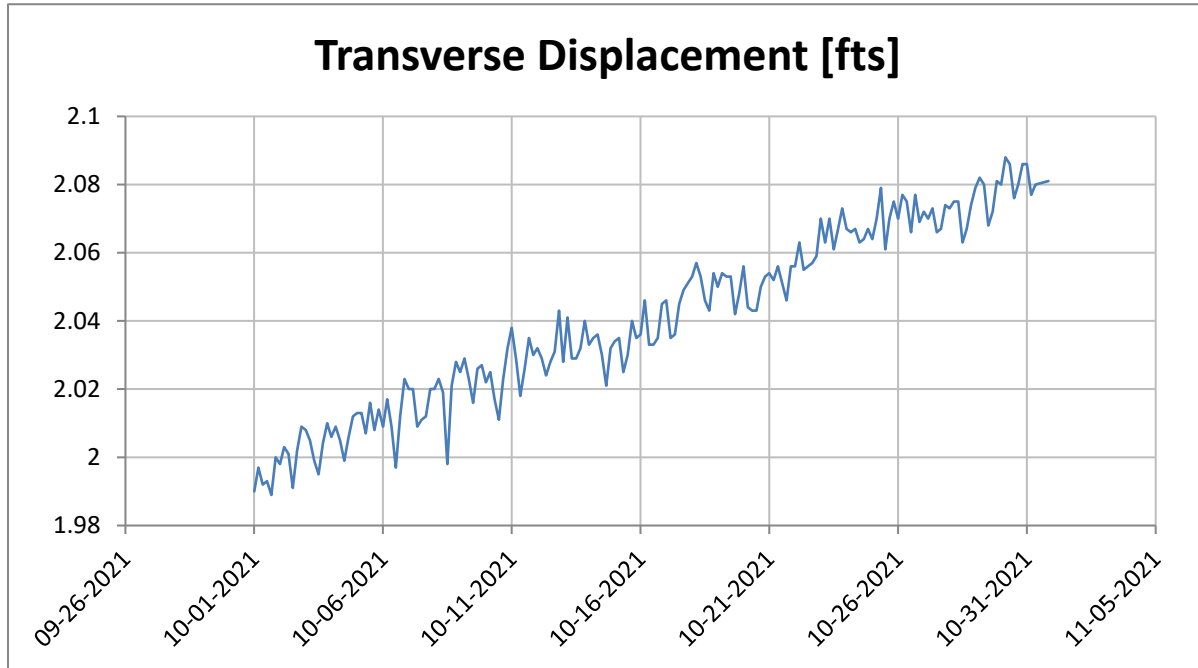
#### Notes:

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.



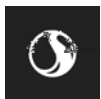


## Prism TOE3



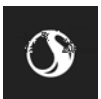
#### Notes:

1. Survey accuracy is  $\pm 0.016$  feet.
2. Alarm threshold is  $\pm 0.35$  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.



# Appendix C

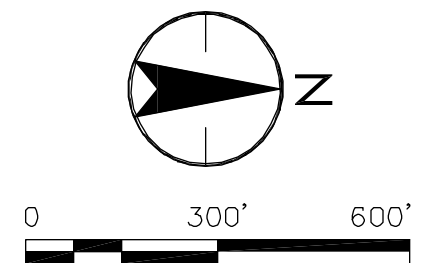
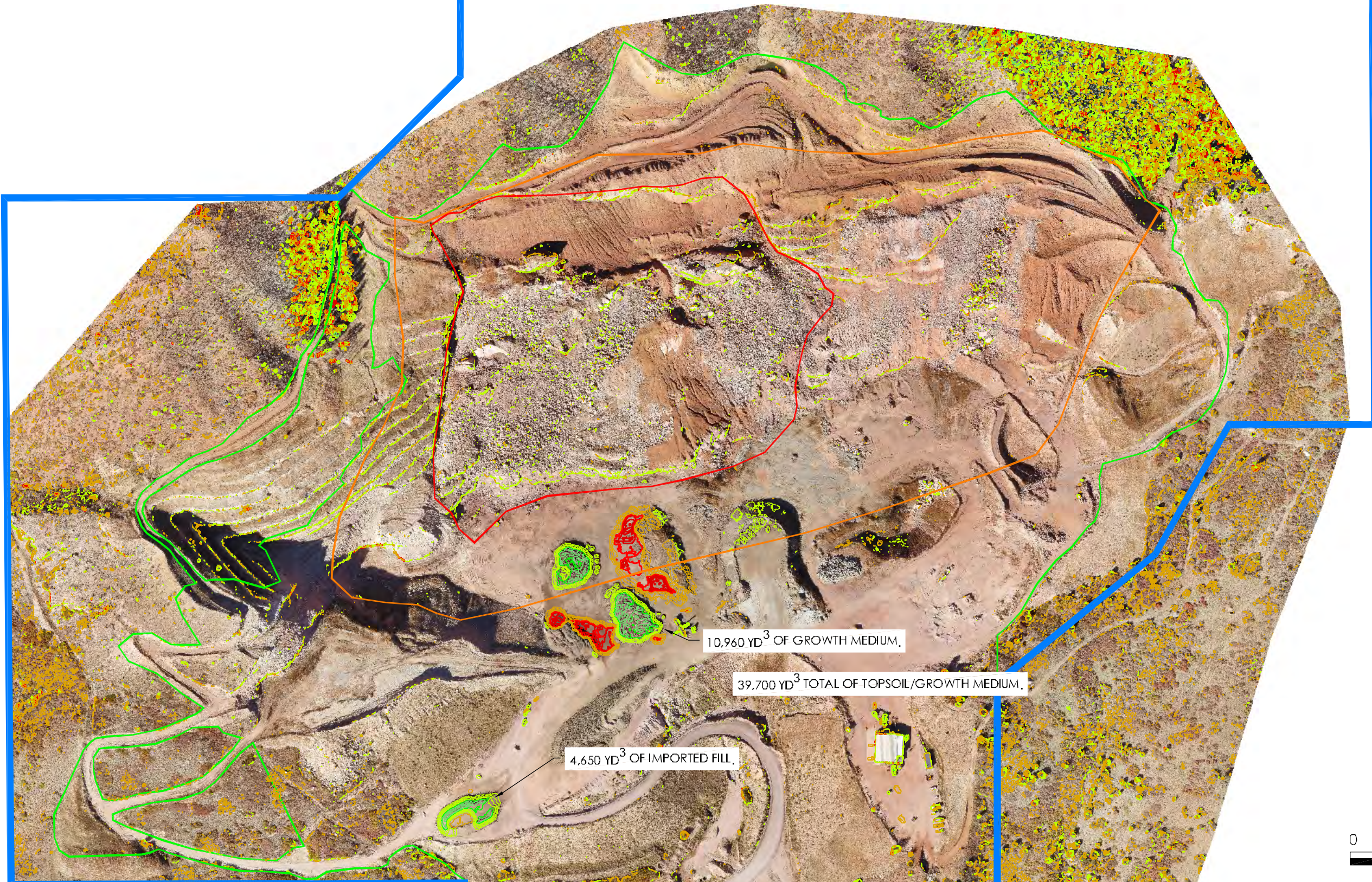
Drone Survey





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2021.11.29 1:31:17 PM



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
- 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 09/13/21 and 10/20/2021.

Client/Project  
**CONTINENTAL MATERIALS CORP.  
PIKEVIEW QUARRY SLOPE MONITORING**

Project No.  
227419041

Title  
**EXISTING PRISMS WITH CURRENT SURFACE**

Revision #	Date
	2021.11.30
Drawn By PK	Figure No. 5