

# Lake 4, West Lake and A-Frame Dam Rehabilitation

## Weekly Construction Update Report

1/13/2020 to 1/17/2020

**Date:** 1/24/2020

**Location:** Boulder County Open Space west of Hygiene, CO

**Project Owners:** Boulder County and St. Vrain & Left Hand Water Conservancy District

### Construction Contractors:

Kirkland Construction (Prime Contractor)

Lobato Construction (Sub-contractor)

### Design Engineers:

Lake 4 - Engineering Analytics (EA)

West Lake and A-Frame - Applegate Group (AG);

Lake 4 Outlet Pipeline - Deere & Ault (DA)

**Weather & Site Conditions:** Dry, cold mornings and mild afternoons

**Update by:** Obadiah Broughton, Boulder County



1/14: West Lake outlet tower foundation concrete.

## Work in Progress/Completed

1. Lake 4 upstream embankment (Lake 3 embankment) excavation of sub-grade foundation and clay-core trench continued. Clay core installation started on Jan. 15<sup>th</sup>. 1000 tons of filter sand and 123 loads of clay were delivered to the Lake 3 embankment site.
2. Lake 4 downstream embankment/dam – Tower 1 and 2 foundations were formed, tied and poured. Concrete pour occurred on Jan. 17.
3. Lake 4 dam spillway grading started on Jan. 14. Slurry wall was identified by EA.
4. The West Lake dam outlet tower foundation concrete pour occurred on Jan. 14; fusing of 20" HDPE outlet pipe started; and the final foundation prep occurred so that outlet pipe form work can start next week.
5. Approx. 65 tons of 3/8 gravel and 3 loads of clay were delivered to the West Lake embankment.
6. Prep for the A-frame Lake outlet box culvert installation continued with more clearing and grubbing; cutoff walls, wing walls and box culvert were staked; and the subgrade for the cutoff walls was prepared.
7. Clearing and grubbing began on the southwest side of A-Frame Lake downstream of the West Lake embankment.
8. Continued dewatering operations to remove nuisance water in Lake 4, Lake 4 and West Lake and to drawdown the water levels in A-Frame Lake to facilitate the work.

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### Upcoming Work *(One week look ahead. Week of 1/20/2020 to 1/24/2020)*

1. West Lake dam - form and rebar the outlet tower and outlet pipe encasement pour concrete in the lower 6" of the outlet pipe foundation.
2. West Lake dam - continued excavation of embankment and new outlet siphon foundation.
3. West Lake dam - continued clearing and grubbing on the southwest side of A-Frame Lake down stream of the West Lake embankment.
4. Lake 4 upstream embankment (Lake 3 embankment) - continued excavation of subgrade on northside and southside of embankment. Place clay core and filter sand in completed excavations.
5. Lake 4 downstream embankment/dam - finalize sub-grade and foundation for outlet pipe between Towers 1 and 2; begin to form and rebar the Lake 4 dam outlet towers
6. Continue the Lake 4 dam spillway sub-grade excavation.
7. A-Frame - Close 61<sup>st</sup> street to thru traffic and begin excavation of outlet structure box culvert subgrade w/in road ROW and east of road; clear and grub and excavate for subgrade prep west of road.
8. A-Frame - form, rebar and pour cutoff wall foundations to except the box culverts
9. Continued dewatering operations to remove nuisance water from project site.

### Additional Notes

1. Weekly construction process meeting was held at the jobsite trailer on Jan. 21<sup>th</sup>
2. To facilitate the A-Frame Lake outlet structure and Lake 4 pipeline outlet pipe work, N. 61<sup>st</sup> and 63<sup>rd</sup> streets will be temporarily closed for up to two months starting on Monday Jan. 20<sup>th</sup>
3. Project website for updates and information:  
<https://www.bouldercounty.org/open-space/management/lake-4-west-lake-a-frame-pond/>



1/14: Fusing 20" HDPE outlet pipe for West Lake



1/14: Cleaned and exposed bedrock in the sub-grade foundation just prior to placement of clay in the core of Lake 3 embankment repair

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1/15: Lake 4 upstream dam (Lake 3 embankment) - bedrock foundation Inspection



1/16: Lake 4 upstream dam (Lake 3 embankment) - first layer of clay core installation in-process



1/16: Lake 4 downstream dam – Tower 1 foundation formwork and rebar installation in-process



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1/17: Lake 4 downstream dam – Tower 2 foundation concrete pour

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1/14: West Lake dam outlet tower foundation concrete pour - PVC waterstop added to cold joint for tower walls.



1/16: Slurry Wall identified with-in excavation limits of Lake 4 Spillway



1/16: Lake 4 spillway subgrade preparation



4

1/16 : Lake 4 spillway subgrade preparation



Longmont, CO  
41 °F Cloudy

Recent Cities  
Longmont, CO (weather/us/co/longmont/40.19,-105.18)

40.17 °N, 105.16 °W

# Longmont, CO Weather History

 **42° VANCE BRAND STATION** ([/WEATHER/US/CO/LONGMONT/KLMO?CM\\_VEN=LOCALWX\\_PWSDASH](/WEATHER/US/CO/LONGMONT/KLMO?CM_VEN=LOCALWX_PWSDASH)) | [CHANGE](#) 

[HISTORY](/HISTORY/DAILY/US/CO/LONGMONT/KLMO) (</HISTORY/DAILY/US/CO/LONGMONT/KLMO>)

- [TODAY](/WEATHER/US/CO/LONGMONT/KLMO) (</WEATHER/US/CO/LONGMONT/KLMO>)
- [HOURLY](/HOURLY/US/CO/LONGMONT/KLMO) (</HOURLY/US/CO/LONGMONT/KLMO>)
- [10-DAY](/FORECAST/US/CO/LONGMONT/KLMO) (</FORECAST/US/CO/LONGMONT/KLMO>)
- [CALENDAR](/CALENDAR/US/CO/LONGMONT/KLMO) (</CALENDAR/US/CO/LONGMONT/KLMO>)
- [HISTORY](/HISTORY/DAILY/US/CO/LONGMONT/KLMO) (</HISTORY/DAILY/US/CO/LONGMONT/KLMO>)
- [WUNDERMAP](/WUNDERMAP?LAT=40.17&LON=-105.16) (</WUNDERMAP?LAT=40.17&LON=-105.16>)

[Daily](#) **[Weekly](#)** [Monthly](#)

[\(/history/daily/us/co/longmont/klmo/date/2020-01-13\)](/history/daily/us/co/longmont/klmo/date/2020-01-13) [\(/history/weekly/us/co/longmont/klmo/date/2020-01-13\)](/history/weekly/us/co/longmont/klmo/date/2020-01-13) [\(/history/monthly/us/co/longmont/klmo/date/2020-01\)](/history/monthly/us/co/longmont/klmo/date/2020-01)

[1-13](#) **[1-13](#)** [1](#)

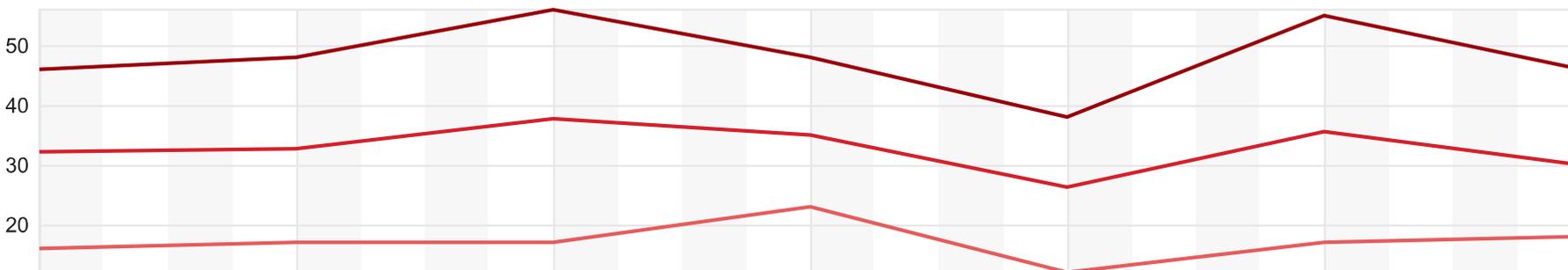
January

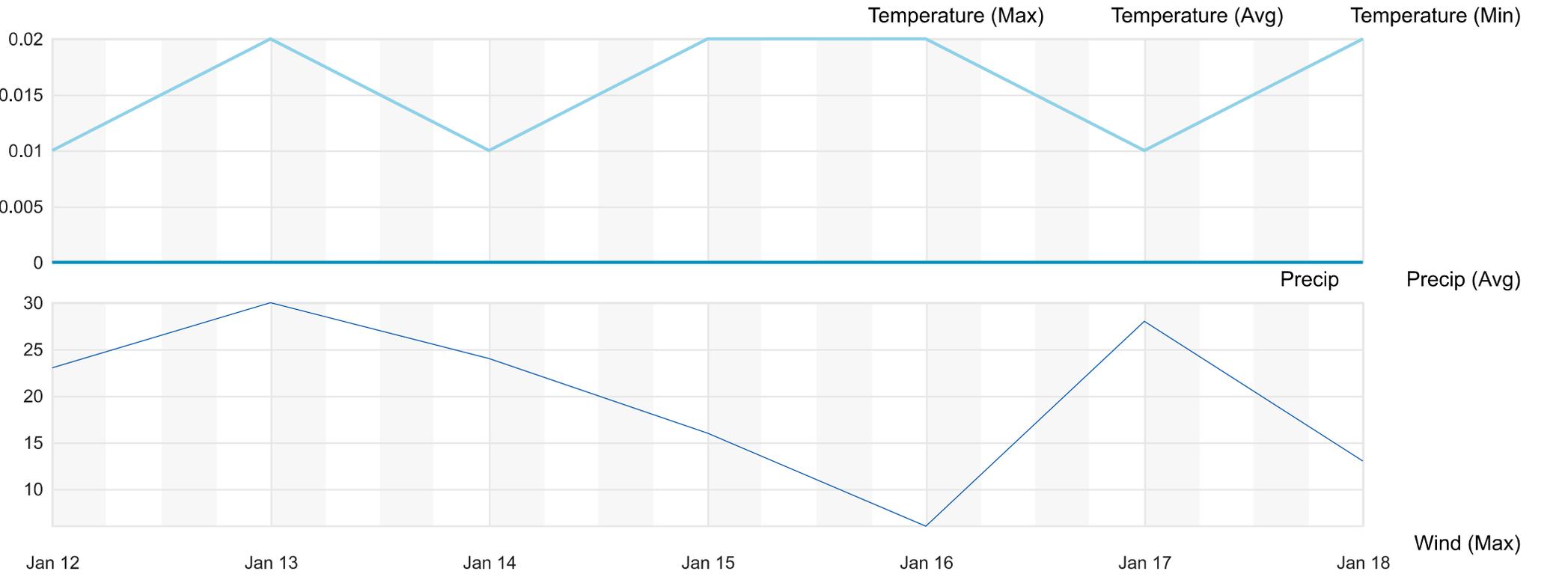
13

2020

[View](#)

Jan 12      Jan 13      Jan 14      Jan 15      Jan 16      Jan 17      Jan 18





# Summary

Temperature (° F)	Max	Average	Min	▲
Max Temperature	56	48.14	38	
Avg Temperature	37.71	32.77	26.28	
Min Temperature	23	17.14	12	
Dew Point (° F)	Max	Average	Min	▲
Dew Point	26	10.73	-2	
Precipitation (Inches)	Max	Average	Min	Sum ▲

<b>Temperature (° F)</b>	Max	Average	Min	▲
Precipitation	0.00	0.00	0.00	0.00
Snowdepth	0.00	0.00	0.00	0.00
<b>Wind</b>	Max	Average	Min	▲
Wind	30	5.31	0	
Gust Wind	40	3.78	0	
<b>Sea Level Pressure</b>	Max	Average	Min	▲
Sea Level Pressure	25.23	24.86	0	

# Daily Observations

Time	Temperature (° F)			Dew Point (° F)			Humidity (%)			Wind Speed (mph)			Pressure (Hg)			Precipitation (in)
Jan	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Total
12	46	32.2	16	16	7.0	0	74	39.9	15	23	7.7	0	24.8	24.8	24.7	0.00
13	48	32.7	17	23	10.1	5	69	41.0	20	30	5.2	0	24.9	24.8	24.7	0.00
14	56	37.7	17	22	11.6	5	71	39.0	13	24	6.5	0	24.9	24.4	0.0	0.00
15	48	35.0	23	21	13.6	8	76	44.7	22	16	5.8	0	25.2	25.1	24.8	0.00
16	38	26.3	12	18	12.1	6	76	57.1	34	6	1.4	0	25.2	25.1	24.9	0.00
17	55	35.6	17	26	13.0	-1	78	45.0	21	28	6.4	0	25.0	24.8	24.6	0.00
18	46	30.0	18	13	7.8	-2	67	42.1	22	13	4.1	0	25.2	25.1	25.0	0.00