

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

## Weekly Construction Update Report

**Date:** 1/27/2020

1/20/2020 to 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

### Work in Progress/Completed

1. Lake 4 upstream embankment (Lake 3 embankment) - excavation of sub-grade foundation and clay-core trench continued on north and south ends of embankment repair. Clay core installation continued and filter sand installation begin in completed excavations.
2. Lake 4 downstream embankment/dam – sub-grade and foundation preparation for outlet pipe between Towers 1 and 2 began; formwork and rebar for the Lake 4 dam outlet towers started. Spoiled excavated material unsuitable for embankment fill into the sediment disposal area within West Lake.
3. Lake 4 dam spillway – continued sub-grade excavation.
4. Clough and True Ditch – ditch reconstruction began with filling of head-cut and embankment with material from the Lake 3 embankment excavation/cut as well as material from the Lake 4 flood deposited sediment area.
5. West Lake dam – West Lake outlet pipe concrete encasement pour occurred with a pour of the lower 6” of the encasement on 1/24. Started formwork and rebar installation for the outlet tower walls.
6. West Lake dam - continued excavation of embankment and new outlet siphon foundation.
7. West Lake dam - continued clearing and grubbing on the southwest side of A-Frame Lake down stream of the West Lake embankment.
8. A-Frame - 61<sup>st</sup> street was closed to thru traffic on 1/20. Excavation of embankment and outlet structure box culvert subgrade within the road ROW and east of road began.
9. A-Frame – Concrete pour occurred on 1/21 for cutoff wall footer/foundations which will accept the outlet box culverts.
10. 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.



1/21: Lake 4 upstream dam (Lake 3 embankment) looking south – sub-grade excavation and placement of filter sand and clay core

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### Upcoming Work *(One week look ahead. Week of 1/27/2020 to 1/31/2020)*

1. West Lake dam – continue formwork and rebar installation for the outlet tower.
2. Lake 4 upstream embankment/dam (Lake 3 embankment) - continued excavation of subgrade on northside of embankment. Continued placing clay core and zoned embankment fill in completed excavations. Fill upstream embankment with spoils and Lake 4 flood deposited sediment.
3. Lake 4 downstream embankment/dam - finalize sub-grade and foundation for outlet pipe between Towers 1 and 2; install formwork and rebar in the outlet towers; begin placing clay core and zoned embankment fills
4. Lake 4 dam spillway – finalize sub-grade excavation and begin placement riprap and bedding
5. Clough and True Ditch – continue reconstruction ditch embankment.
6. A-Frame - finalize subgrade and foundation for outlet box culverts.
7. A-Frame – deliver and set outlet box culverts. Begin backfill around culverts
8. Embankment fill material processing with flood deposited sediment at plant in Lake 4 bottom recommenced
9. Continue 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. N. 61<sup>st</sup> and 63<sup>rd</sup> streets between SH 66 and Hygiene Rd. will be temporarily closed to thru traffic for up to two months starting as of Jan. 20.
3. Material hauling/deliveries: West Lake- 30 Loads of clay were hauled & delivered. Riprap deliveries to Lake 4 start the week of Jan 27.
4. Project website for updates and information:  
<https://www.bouldercounty.org/open-space/management/lake-4-west-lake-a-frame-pond/>



1/21: Lake 4 upstream dam (Lake 3 embankment) - placement of filter sand and clay core in foundation



1/21: Lake 4 upstream dam (Lake 3 embankment) - Quality Assurance testing the filter sand within the dam after compaction

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1/23: Lake 4 upstream dam (Lake 3 embankment) - Zoned material placement



1/23: Clough and True Ditch reconstruction



1/23: Clough and True Ditch reconstruction – fill from Lake 4 flood sediment



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1/23: Hauling Lake 4 flood sediment from Lake bottom to Clough and True Ditch reconstruction

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1/14: West Lake dam outlet tower foundation concrete pour - PVC water-stop 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  
33 °F Mostly Cloudy

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

40.17 °N, 105.16 °W

# Longmont, CO Weather History

**33° VANCE BRAND STATION** ([/WEATHER/US/CO/LONGMONT/KLMO?CM\\_VEN=LOCALWX\\_PWSDASH](#)) | [CHANGE](#)

[HISTORY](#) ([/HISTORY/DAILY/US/CO/LONGMONT/KLMO](#))

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

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

([/history/daily/us/co/longmont/klmo/date/2020-01-20](#)) ([/history/weekly/us/co/longmont/klmo/date/2020-01-20](#)) ([/history/monthly/us/co/longmont/klmo/date/2020-01-20](#))

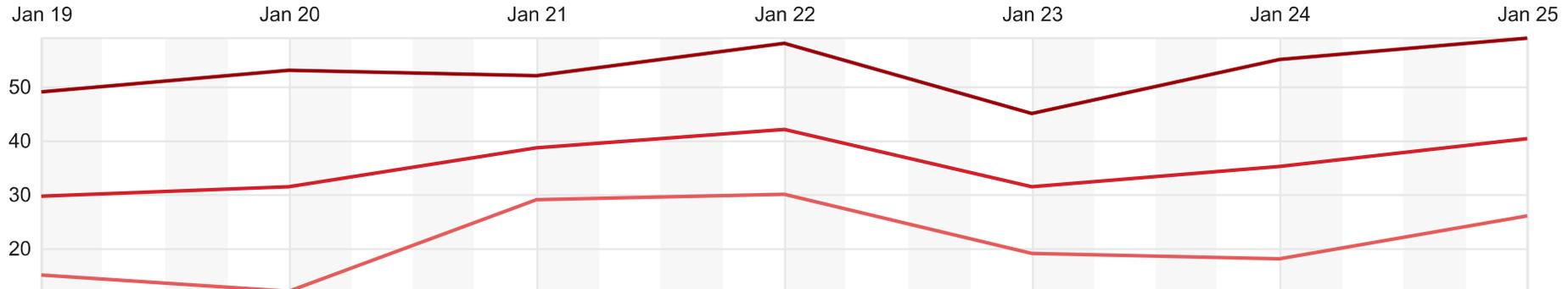
[1-20](#) **1-20** [1](#)

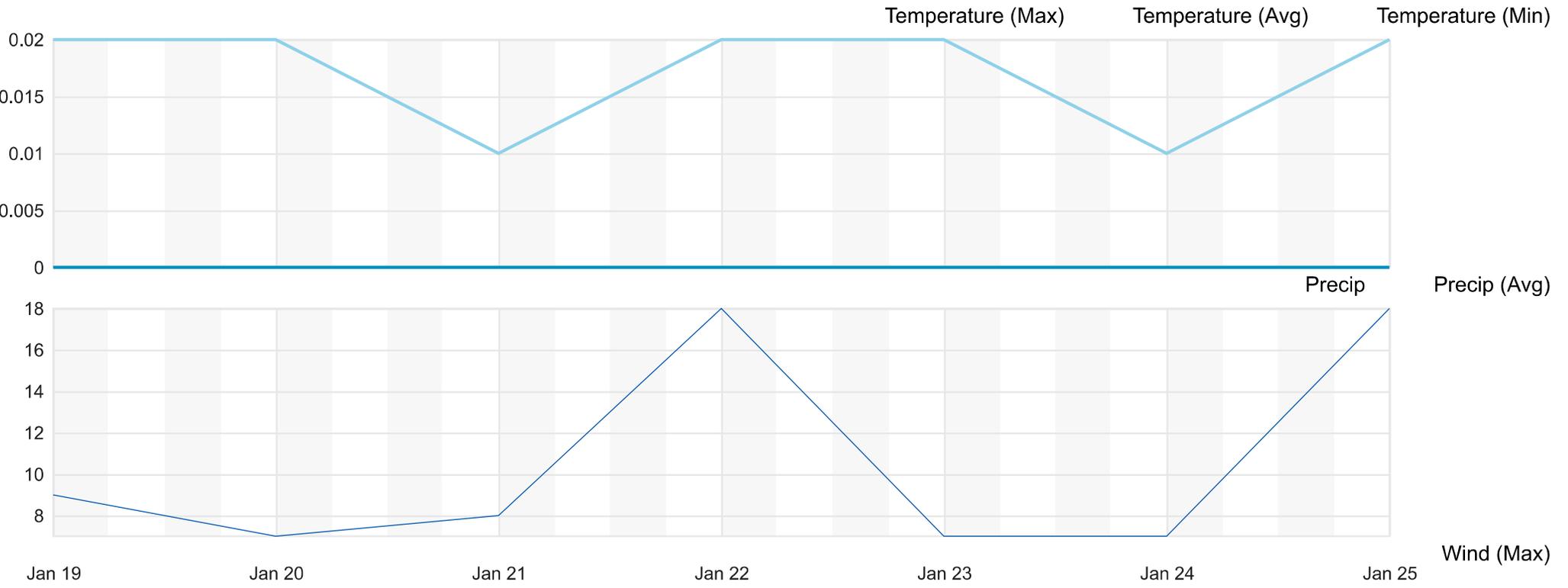
January

20

2020

[View](#)





# Summary

Temperature (° F)	Max	Average	Min	▲
Max Temperature	59	53	45	
Avg Temperature	42.04	35.51	29.63	
Min Temperature	30	21.29	12	
Dew Point (° F)	Max	Average	Min	▲
Dew Point	26	15.06	4	
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	18	2.46	0	
Gust Wind	28	0.43	0	
<b>Sea Level Pressure</b>	Max	Average	Min	▲
Sea Level Pressure	25.31	24.99	24.75	

# 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
19	49	29.6	15	20	11.7	6	77	52.3	23	9	2.2	0	25.3	25.3	25.2	0.00
20	53	31.4	12	16	8.9	4	74	45.5	14	7	1.5	0	25.3	25.2	25.1	0.00
21	52	38.6	29	22	17.8	14	60	45.0	24	8	1.8	0	25.0	24.9	24.8	0.00
22	58	42.0	30	24	17.4	6	70	41.6	15	18	4.3	0	25.0	24.8	24.8	0.00
23	45	31.4	19	19	13.2	9	68	49.6	27	7	2.4	0	25.1	25.0	25.0	0.00
24	55	35.2	18	23	18.0	12	78	53.5	25	7	1.6	0	25.0	24.9	24.9	0.00
25	59	40.3	26	26	18.5	11	75	46.1	19	18	3.4	0	25.0	24.9	24.9	0.00