

P.O. Box 27 • Helena, Montana 59624
Tel: (406) 457-0407 • Fax: (406) 442-1296
www.bigskyacoustics.com

January 6, 2021

Mr. Ken Stoeber
TMC, Inc.
PO Box 69
Belgrade, MT 59714

**Re: Amendment #2 Morgan Family LLC Site
Noise Monitoring Report – December 18, 2020
BSA Project #20174**

Dear Ken:

Attached is the Noise Monitoring Report for the December 18, 2020 compliance monitoring for the Morgan Family LLC Site Amendment #2 operations. No noise level exceedances were measured during the Week 2 stripping and berm construction activities.

If you have any questions or comments, please do not hesitate to call (406) 457-0407 or email me at sean@bigskyacoustics.com.

Sincerely,

Sean Connolly, INCE Bd. Cert.
BIG SKY ACOUSTICS

cc: Pat Eller/Morrison-Maierle

Noise Monitoring Report Field Date: Friday, December 18, 2020

1.0 Noise Level Monitoring Methodology

Sean Connolly (INCE Bd. Cert.) of Big Sky Acoustics (BSA) conducted the measurements and field observations. The monitoring was conducted per the requirements listed in *Amendment #2 Morgan Family LLC Site, Environmental Noise Study – Revision 3, Appendix C-Noise Monitoring Plan* (BSA 2020). Measurements were completed according to the American National Standards Institute (ANSI) Standard S12.9-2013/Part 3 (R2018), *Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-term Measurements with an Observer Present* (ANSI 2018).

Equipment and Measurement Locations Property access was arranged by TMC. Noise level measurements were completed at the worst-case locations shown on the attached **Figure 1**, which represent the closest east and south residences to the current Amendment activities (excluding Receptor R5 occupied by a part-owner of TMC).

1. Measurement Location M1: (same location as 12/11/20 measurements)

- GPS coordinates: 45° 36' 44" N, -111° 11' 17" W
- BSA Larson Davis Type 1 Sound Level Meter (BSA LD#1)
- Roland R-07#1 to record continuous audio
- In yard west of residence R6, south of southeast end of Amendment south berm, 144 feet south of Zachariah Lane centerline.
- Closest residence to south berm construction activities.
- Mic on tripod approximately 8 feet above ground surface (ags), standard 3" windscreen, case locked and left unattended. Equipment checked by BSA at 0720 and 1320 hours on 12/18/20, all OK.
- Measurement period – 1740 hours on 12/17/20 to 1840 hours on 12/18/20
- Calibration – Prior to measurement: 114.0. After measurement: 113.7

2. Measurement Location M2_{Yr1-2}: (same location as 12/11/20 measurements)

- GPS coordinates: 45° 36' 57" N, -111° 10' 59" W
- BSA Larson Davis Type 1 Sound Level Meter (BSA LD#3)
- Roland R-07#2 to record continuous audio
- In field, midway between residences R2 and R4, east of Amendment east berm, approximately 367 feet west of Grey Wolf Trail centerline.
- Closest residences to Year 1 stripping area, east berm construction and truck hauling.
- Mic on tripod approximately 6 feet ags, standard 3" windscreen, case locked and left unattended. Equipment checked by BSA at 0749 and 1332 hours on 12/18/20, all OK.
- Measurement period – 1715 hours on 12/17/20 to 1806 hours on 12/18/20
- Calibration – Prior to measurement: 114.0, After measurement: 114.0

3. Weather Station: (same location as 12/11/20 measurements)

- BSA Kestrel 5500 Weather Station
- Approximately 33 feet south of Measurement Location M2_{Yr1-2}, in field mid-way between residences R2 and R4.
- Mounted on tripod approximately 7 feet ags.

Weather See the weather station graph and downloaded weather data in **Attachment 1**. Temperature ranged from 30 to 38 degrees for entire measurement period with no precipitation. The weather station located at Location M2_{Yr1-2} did not report wind speed for part of the measurement period, so local data was downloaded from the National Weather Service site. Wind gusts were recorded above 11 mph between 1500 and 1700 hours on December 18th, and the corresponding measurement data was removed by BSA during the corresponding periods due to the wind gusts.

Frequency Per the Noise Monitoring Plan (BSA 2020), worst-case 24-hour noise measurements during the Amendment activities are required **weekly** (one week = 5 work days) during Stripping and Berm Construction. Period for this monitoring is:

- Year 1, Week 2: Tuesday December 15, 2020 to Monday January 4, 2021 (with no onsite activities between December 19th and January 3rd)

Background Per Section 7.3.3(c) of ANSI S12.9-2013/Part 3 (ANSI 2018), BSA measured the background L_{eq} between 0600-0700 hours (before construction activities), during one 30-minute (minimum) mid-day break, and between 1700-1800 hours (after construction activities), to determine the ambient sound environment without the influence of TMC's equipment and operations. The measured $L_{eq}(h)$ data were corrected for background sound representative of the time of day, including traffic. The corrected $L_{eq}(h)$ data for each hour during Amendment activities were used to calculate the overall L_{eq} and L_{dn} values due to the Amendment activities for comparison to the appropriate Permissible Noise Levels (**Section 3**).

Adjustments Measurement intervals corrupted by transient noises not associated with Amendment activities, such as aircraft flyovers, excessively barking dogs, residential activities, wind in excess of 11 mph, heavy precipitation, etc., and natural sounds (i.e., birds, insects, leaves rustling, etc. within 1,600 to 10,000 Hertz) were removed by BSA, and the $L_{eq}(h)$ of the corrupted hour was recalculated according to ANSI S12.9-2013/Part 3 (ANSI 2018) (**Section 3**).

The background $L_{eq}(h)$ data was adjusted by BSA by subtracting a 3 dBA uncertainty factor from the measured values according to Section 7.3.3(c) of ANSI S12.9-2013/Part 3 (ANSI 2018). If the $L_{eq}(h)$ minus the background value is less than 3 dBA, then a 99 dBA correction was applied. The uncertainty factor was used since the measurements are intended to determine compliance.

If tonal noises were detected due to the Amendment activities (i.e., heard during the fieldwork and/or on the recorded data), BSA added 5 dB penalty to the measured L_{eq} according to Table 2 of ANSI S12.9/Part 4 (ANSI 2020). If applicable, the penalty was applied to the measured $L_{eq}(h)$

value before correcting for background, according to Annex B of ANSI S12.9/Part 3 (ANSI 2018) (Section 3).

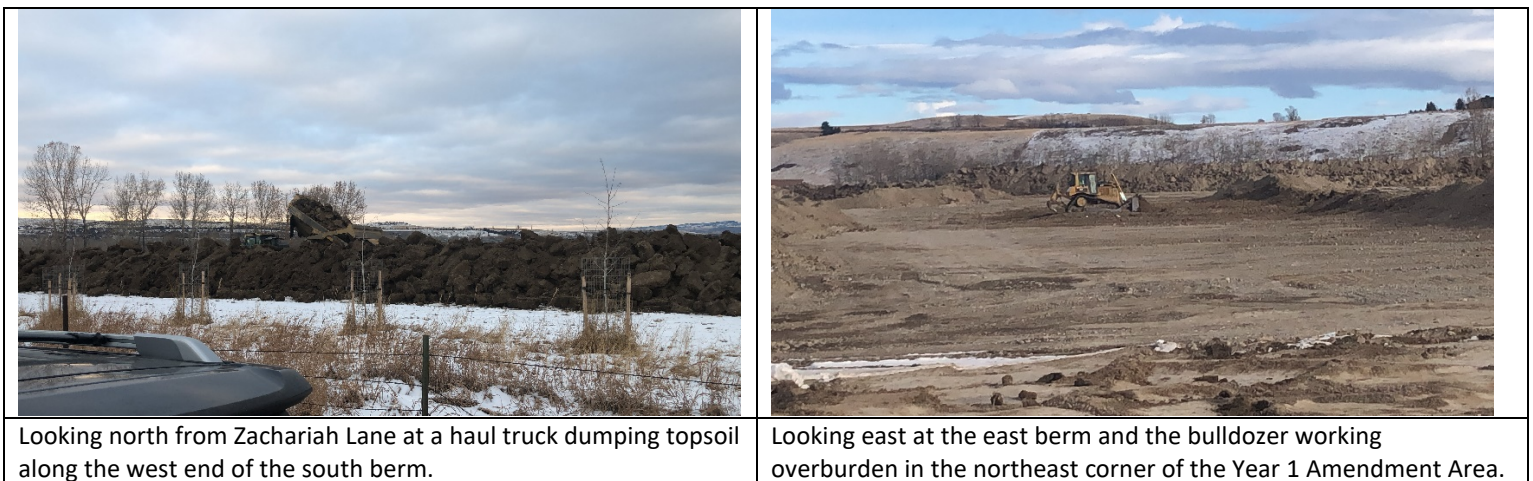
2.0 Field Observations

Onsite TMC was stripping the Year 1 area (**Figure 1**), and concurrently constructing the northeast and southwest berm sections along the Amendment boundaries. On December 18th, the east berm was generally 12 feet ags, and the south berm was approximately 12 feet ags on the east end, and 6 to 8 feet ags on the west end at the end of the day. These Week 2 Stripping and Berm Construction activities began on Tuesday, December 15, 2020, occurring weekdays from 0700 to 1700 hours. At night, the construction equipment was stored in the existing Morgan Pit. No additional TMC equipment (e.g., crusher, loaders, conveyors, etc.) were located or operated onsite.

On December 18th, the operations began at 0700 hours, all construction activities ceased for 30 minutes for lunch (1310 to 1340 hours), and the operations ceased at 1700 hours. The TMC equipment operating during the measurements included two haul trucks, two excavators and one bulldozer. All five pieces of equipment operated simultaneously and were equipped with broadband backup alarms.

In the morning, one excavator was stripping and loading topsoil into the two haul trucks in the northeast corner of the Year 1 Amendment Area, and the haul trucks transported the material to the west end of the south berm. The bulldozer was working the west end of the south berm, and the other excavator was working the east end of the south berm. In the afternoon, the haul trucks transported the excavator-loaded material to the north end of the east berm, the other excavator worked the middle section of the south berm, and the bulldozer worked overburden in the northeast corner of the Year 1 Amendment Area. The onsite operations are documented in the following photos.

Onsite Operations – December 18, 2020



Onsite Operations – December 18, 2020



From the northeast end of the Year 1 Amendment Area, looking southeast at the east and south berms, and the excavator stripping and loading the haul truck.

Monitoring Locations

- 1. Measurement Location M1:** BSA's sound level meter was located in the yard west of residence R6, and 144 feet south of Zachariah Lane centerline (**Figure 1**), at the same location as on December 11th. In the morning, the excavator was working the southeast corner of the south berm, just east of residence R6 driveway, and moved west throughout the day along the south berm. The excavator engine was the constant TMC noise source during the measurement period. The other TMC equipment was occasionally audible, and no TMC equipment exhibited tonal noise. However, diesel-powered equipment (an excavator, roller, dozer, fuel truck and two dump trucks), constructing a subdivision located at the south end of Grey Wolf Trail, were equipped with regular backup alarms that were audible (faint) and recorded. Other noise sources recorded at Measurement Location M1 included traffic on Zachariah Lane and US 191, aircraft, birds and resident voices. From Measurement Location M1, the south berm blocked the viewshed into the Amendment Area on December 18, 2020. The following photos document the south berm and the subdivision construction activities to the southeast.



Looking west-northwest from the residence R6 north fence along Zachariah Lane at the south berm.



Looking southeast at the subdivision construction activities located at the south end of Grey Wolf Trail.

2. **Measurement Location M2_{Yr1-2}:** BSA's sound level and weather meters were located in the field, midway between residences R2 and R4, east of Amendment Area and east berm, and approximately 367 feet west of Grey Wolf Trail centerline (**Figure 1**), at the same location as on December 11th. Neighboring construction was occurring during the measurement period at residence R3, located east of R2 and northeast of R4 (**Figure 1**). Dominant noise sources included construction at R3 and US 191 traffic. Other noise sources included aircraft, dog barks (at R2), occasional TMC equipment (very faint), and six pieces of diesel-powered heavy equipment and backup alarms at the construction site located at the south end of Grey Wolf Trail. Measurement Location M2_{Yr1-2} is documented on December 18, 2020 in the following photos.

Measurement Location M2_{Yr1-2} – December 18, 2020



Looking west from Measurement Location M2_{Yr1-2} at the east TMC Amendment boundary and berm.



Measurement Location M2_{Yr1-2} and weather station looking south at residence R4.



Measurement Location M2_{Yr1-2} and weather station looking north at residence R2.



Looking east from Measurement Location M2_{Yr1-2} at residence R3 and construction.

3.0 Measurement Results

Permissible Noise Levels shall not be exceeded by the current Amendment activities at 12 residences and the cemetery are shown on **Figure 1**, which excludes the owner/operator residences (Receptors R5 and R14). The Amendment activities that were occurring on December 18, 2020 are highlighted in **Table 1**, and include Year 1 Berm Construction and Concurrent Stripping.

Table 1: Permissible Noise Levels

Amendment Year	Amendment Activity	Hours	Permissible Noise Level at Receptor	Guideline or Standard Notes (Tables 3-1, 3-2 & 3-3)	Reference
Years 1 – 4	Loading and Offsite Hauling only	0600 – 0700 Weekdays (acoustical nighttime hour)	$L_{eq}(1h)$ 45 dBA	Nighttime, outside at open bedroom window, to avoid sleep disturbance at residence	WHO 1999
Year 1 only	Year 1 Berm Construction and Concurrent Stripping	0700 – 1800 Weekdays	$L_{eq}(8h)$ 80 dBA	At adjacent residential land use	FTA 2018
			L_{dn} 60 dBA	Marginally compatible occurrence during construction of noise attenuation berms at residential outdoor living area	ANSI 2017
Years 2 – 4	Stripping	0700 – 1800 Weekdays	$L_{eq}(11h)$ 50 dBA	At residential outdoor living area, to avoid moderate annoyance	WHO 1999
Year 1 Phase 1	Mining (without Crushing/Processing)				
Year 1 Phase 2 & Years 2 – 4	All Operations ¹				
Years 1 – 4	All Operations ¹	0700 – 1800 Weekdays	L_{dn} 55 dBA	Compatible occurrence to protect public health and welfare in residential areas and other places where quiet is a basis for use	ANSI 2017
Years 1 – 4	Loading, Hauling and/or Maintenance only	0700 to 1700 Saturdays	$L_{eq}(10h)$ 50 dBA	At residential outdoor living area, to avoid moderate annoyance	WHO 1999

Note:

¹ All Operations = Mining + Crushing + Processing + Loading + Hauling + Maintenance with all equipment operating (worst-case conditions).

Measurement Location M1: BSA evaluated and adjusted the data per TMC's Noise Monitoring Plan (BSA 2020), summarized in **Section 1**. Transient sounds removed from the data set included vehicle passbys on Zachariah Lane, BSA checking the sound level meter and locking the case, aircraft flyovers, wind, other area constructions activities, and residents talking.

The $L_{eq}(h)$ data was corrected for background sound (based on time of day), resulting in the Amendment activity noise levels. BSA used the corrected $L_{eq}(h)$ data to calculate the overall L_{eq} and L_{dn} data due to the Amendment activities during the operating hours (0700 to 1310 hours and 1340 to 1700 hours). The resulting overall L_{eq} 52.1 dBA and L_{dn} 48.1 dBA data results are less

than the permissible noise levels of $L_{eq}(8h)$ 80 dBA and L_{dn} 60 dBA, listed in **Table 1**. The Measurement Location M1 data results are summarized in **Table 2**.

**Table 2: Measurement Location M1
Data Summary – December 18, 2020**

Start Time (hours)	Measured $L_{eq}(h)$	$L_{eq}(h)$ after Transient Data Deleted	Adjustments ¹	Adjusted $L_{eq}(h)$	$L_{eq}(h)$ minus Background	Background Correction per ANSI 2018	Corrected $L_{eq}(h)$
0600	50.5	50.3	-3	47.3			
0700	52.0	51.1	0	51.1	3.8	3.0	48.1
0800	55.3	54.1	0	54.1	6.8	1.3	52.8
0900	56.8	55.1	0	55.1	7.8	1.0	54.1
1000	56.5	55.2	0	55.2	7.9	1.0	54.2
1100	55.0	53.9	0	53.9	8.6	0.7	53.2
1200	53.8	53.0	0	53.0	7.8	1.0	52.0
1/2hr of 1300	51.3	51.9	0	51.9	6.7	1.3	50.6
1/2hr of 1300	51.3	48.2	-3	45.2			
1400	53.3	52.3	0	52.3	7.0	1.0	51.3
1500	51.9	50.5	0	50.5	5.3	1.7	48.8
1600	51.0	50.4	0	50.4	5.2	1.7	48.7
1700	48.8	48.2	-3	45.2			
Overall L_{eq}:	54.4	53.3					52.1
Calculated L_{dn}:	53.5 (24-hrs)	49.3 (9.5 hrs)					48.1 (9.5 hrs)

Note:

1 3 dBA uncertainty factor subtracted from background $L_{eq}(h)$ (**Section 1**).

Measurement Location M2_{Yr1-2}: BSA evaluated and adjusted the data per TMC's Noise Monitoring Plan (BSA 2020), summarized in **Section 1**. Transient sounds removed from the data set included BSA checking the sound level meter and locking the case, aircraft flyovers, wind, other area constructions activities, and dog barks.

The $L_{eq}(h)$ data was corrected for background sound (based on time of day), resulting in the Amendment activity noise levels. BSA used the corrected $L_{eq}(h)$ data to calculate the overall L_{eq} and L_{dn} data due to the Amendment activities during the operating hours (0700 to 1310 hours and 1340 to 1700 hours). The resulting overall L_{eq} 45.2 dBA and L_{dn} 41.2 dBA data results are much less than the permissible noise levels of $L_{eq}(8h)$ 80 dBA and L_{dn} 60 dBA, listed in **Table 1**. The Measurement Location M1 data results are summarized in **Table 3** on the next page.

**Table 3: Measurement Location M2_{Yr1-2}
Data Summary – December 18, 2020**

Start Time (hours)	Measured L _{eq} (h)	L _{eq} (h) after Transient Data Deleted	Adjustments ^a	Adjusted L _{eq} (h)	L _{eq} (h) minus Background	Background Correction per ANSI 2018	Corrected L _{eq} (h)
0600	47.4	47.4	-3	44.4			
0700	49.4	49.0	0	49.0	4.7	2.2	46.8
0800	51.2	51.0	0	51.0	6.6	1.3	49.7
0900	50.8	48.2	0	48.2	3.9	3.0	45.2
1000	48.1	45.9	0	45.9	4.3	2.2	43.7
1100	42.5	42.3	0	42.3	0.6	99.0 ^b	-56.7
1200	44.6	44.1	0	44.1	2.5	99.0 ^b	-54.9
1/2hr of 1300	46.2	45.8	0	45.8	4.2	2.2	43.6
1/2hr of 1300	46.2	44.6	-3	41.6			
1400	47.1	46.0	0	46.0	4.3	2.2	43.8
1500	47.4	46.8	0	46.8	4.1	2.2	44.6
1600	47.9	47.7	0	47.7	5.1	1.7	46.0
1700	45.8	45.6	-3	42.6			
Overall L_{eq}:	48.4	47.5					45.2
Calculated L_{dn}:	49.3 (24-hrs)	43.5 (9.5 hrs)					41.2 (9.5 hrs)

Note:

- ^a 3 dBA uncertainty factor subtracted from background L_{eq}(h) (Section 1)
^b 99 dBA correction applied (Section 1)

References

American National Standards Institute (ANSI). 2020. *Quantities and Procedures for Description and Measurement of Environmental Sound – Part 4: Noise Assessment and Prediction of Long-Term Community Response*. ANSI/ASA S12.9-2005/Part 4 (R2020).

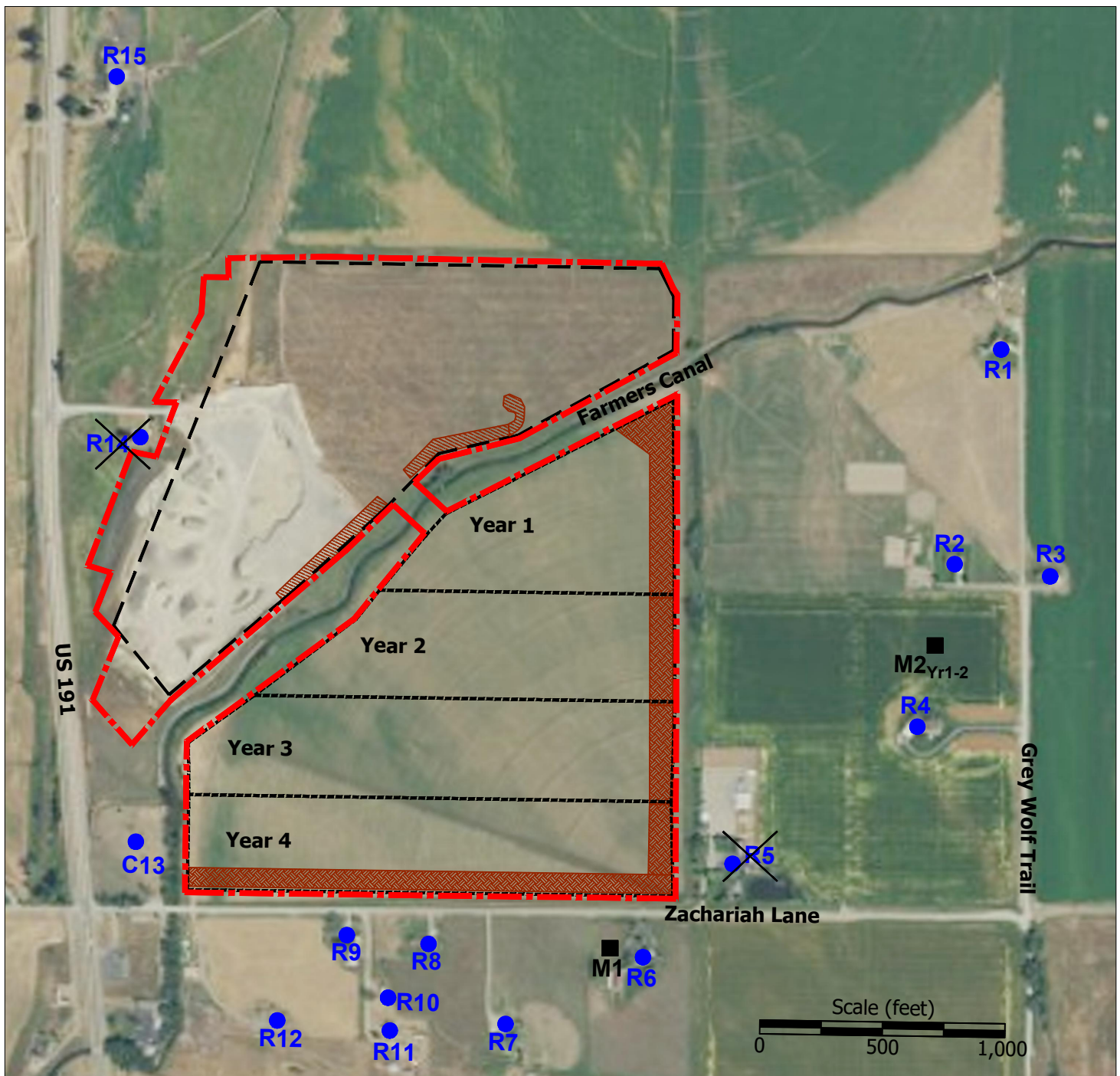
American National Standards Institute (ANSI). 2018. *Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-term Measurements with an Observer Present*. ANSI/ASA S12.9-2013/Part 3 (R2018).

American National Standards Institute (ANSI). 2017. *Quantities and Procedures for Description and Measurement of Environmental Sound – Part 5: Sound Level Descriptors for Determination of Compatible Land Use*. ANSI/ASA S12.9-2007 (R2017).

Big Sky Acoustics (BSA). 2020. Amendment #2 Morgan Family LLC Site Environmental Noise Study – Revision 3. October 21.

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. FTA Report No. 0123. September.

World Health Organization (WHO). 1999. Guidelines for Community Noise.



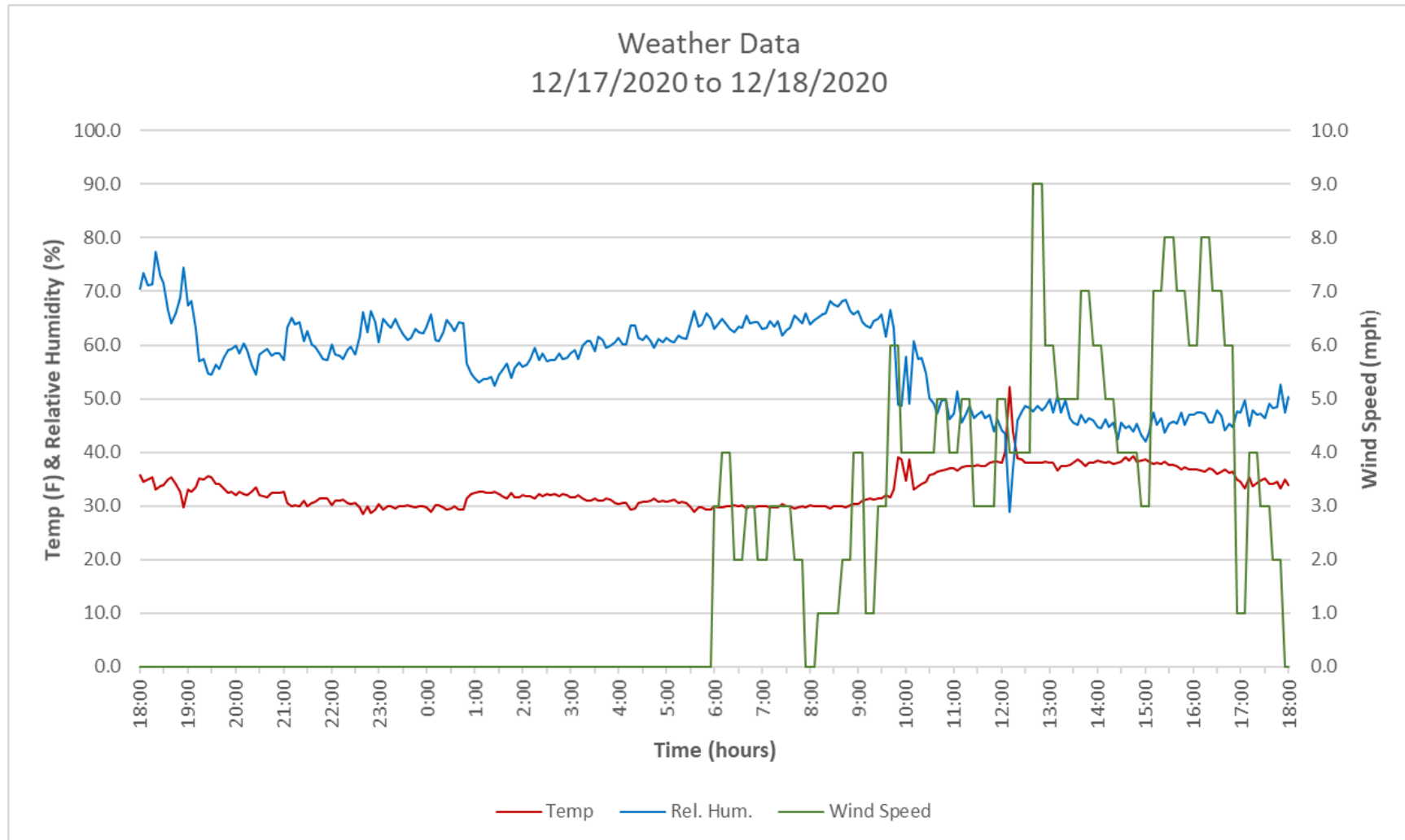
- - - Boundaries
- - - Existing Morgan pit
- - - Amendment Area (by year)
- ▨ Existing berm
- Receptor location
- Noise monitoring location
- ▨ Future berm 12 ft above existing grade
- X Owner/operator residence

FIGURE 1

Big Sky Acoustics

Amendment Area
Noise Monitoring Locations: 12/18/20
TMC Morgan Family LLC Amendment

ATTACHMENT 1



Weather Conditions For:

EW6366 Bozeman, MT. [E6366](#) (APRSWXNET/CWOP)

Elev: 5470 ft.; Lat/Lon: 45.57333/-111.10050

Current Time: Dec 23 4:03 pm MST

[Get Yearly Precip Total \(non QA/QC'd data\)](#)[Get Water Year Precip Total \(non QA/QC'd data\)](#)

← swipe

Temperature, Dew Point & Humidity

Click and drag in the plot area to zoom in

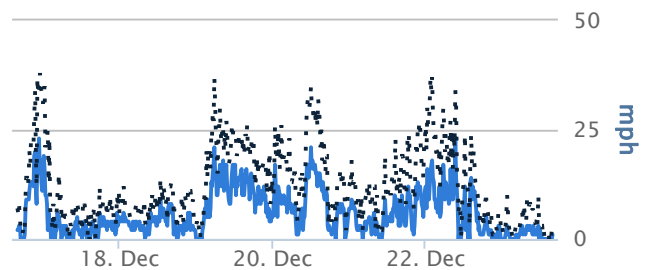


(Click to hide)

— Temperature — Dewpoint — Rel Humidity

Wind Speed & Gust

Click and drag in the plot area to zoom in



(Click to hide)

— Speed ··· Gust

Date (MST)	Temp (F)	Dew Point (F)	Relative Humidity (%)	Wind Chill (F)	Wind Direction	Wind Speed (MPH)	Station Pressure (inches)	Sea Level Pressure (mb)	Altimeter Setting (inches)	24 Hour Precip (inches)	Precip Since Mid. (inches)
23 Dec 3:45 pm	21	6	53		SE	1	25.00	1043.3	30.58	0.00	0.00
23 Dec 3:31 pm	22	6	50			CALM	25.00	1042.9	30.58	0.00	0.00
23 Dec 3:15 pm	24	6	46			CALM	24.99	1041.6	30.57	0.00	0.00
23 Dec 3:00 pm	26	7	44			CALM	24.97	1040.1	30.55	0.00	0.00
23 Dec 2:45 pm	24	6	45			CALM	24.97	1041.0	30.55	0.00	0.00
23 Dec 2:30 pm	25	6	45			CALM	24.97	1040.5	30.55	0.00	0.00
23 Dec 2:16 pm	27	6	40			CALM	24.96	1039.3	30.54	0.00	0.00
23 Dec 2:00 pm	27	5	39			CALM	24.96	1039.0	30.53	0.00	0.00
23 Dec 1:46 pm	32	6	33			CALM	24.96	1037.2	30.54	0.00	0.00
23 Dec 1:30 pm	29	6	37			CALM	24.97	1038.8	30.55	0.00	0.00
23 Dec 1:15 pm	28	7	41			CALM	24.98	1039.6	30.56	0.00	0.00
23 Dec 1:00 pm	25	6	44			CALM	24.98	1040.9	30.56	0.00	0.00
23 Dec 12:45 pm	25	5	43			CALM	24.98	1040.9	30.56	0.00	0.00
23 Dec 12:30 pm	24	6	46			CALM	24.99	1041.6	30.57	0.00	0.00
23 Dec 11:46 am	24	5	43		SE	2G3	25.00	1042.0	30.58	0.00	0.00
23 Dec 11:32 am	23	6	48			CALM	25.00	1042.4	30.58	0.00	0.00
23 Dec 11:17 am	24	6	45	20	SE	3G10	25.00	1042.0	30.58	0.00	0.00
23 Dec 11:01 am	24	8	50		SE	1G3	25.01	1042.3	30.59	0.00	0.00
23 Dec 10:46 am	22	8	54		SE	1G4	25.01	1043.2	30.59	0.00	0.00
23 Dec 10:32 am	21	8	57		SE	1G3	25.01	1043.7	30.59	0.00	0.00
23 Dec 10:16 am	21	8	56		SE	2G4	25.00	1043.3	30.58	0.00	0.00
23 Dec 10:01 am	20	7	58		SE	1G4	25.00	1043.8	30.58	0.00	0.00

18 Dec 9:30 pm	36	19	50	31 S	6G11	24.61	1020.9	30.11	0.00	0.00
18 Dec 9:15 pm	36	19	50	34 SE	3G8	24.61	1020.9	30.11	0.00	0.00
18 Dec 9:00 pm	35	19	51	SSE	2G8	24.61	1021.3	30.11	0.00	0.00
18 Dec 8:46 pm	36	19	51	SSW	2G9	24.61	1020.9	30.11	0.00	0.00
18 Dec 8:30 pm	35	19	51	32 S	4G10	24.62	1021.7	30.12	0.00	0.00
18 Dec 8:15 pm	34	18	51	30 S	4G7	24.63	1022.4	30.13	0.00	0.00
18 Dec 8:00 pm	33	18	53	SSE	1G4	24.63	1022.8	30.13	0.00	0.00
18 Dec 7:45 pm	34	18	51	32 SSW	3G8	24.64	1022.8	30.14	0.00	0.00
18 Dec 7:30 pm	34	18	51	32 SSE	3G10	24.64	1022.8	30.14	0.00	0.00
18 Dec 7:15 pm	33	18	53	SE	2G5	24.64	1023.2	30.14	0.00	0.00
18 Dec 6:45 pm	33	18	54	30 SSE	3G6	24.65	1023.9	30.16	0.00	0.00
18 Dec 6:30 pm	33	19	57	SSE	1G5	24.65	1023.9	30.16	0.00	0.00
18 Dec 6:15 pm	33	19	57		CALM	24.65	1023.9	30.16	0.00	0.00
18 Dec 6:00 pm	33	19	56		CALM	24.65	1023.9	30.16	0.00	0.00
18 Dec 5:45 pm	33	18	55	S	2G5	24.65	1023.9	30.16	0.00	0.00
18 Dec 5:30 pm	32	18	57	29 S	3G7	24.66	1024.6	30.17	0.00	0.00
18 Dec 5:15 pm	32	18	56	28 SSE	4G7	24.65	1024.3	30.16	0.00	0.00
18 Dec 5:00 pm	33	18	54	SSE	1G5	24.65	1023.9	30.16	0.00	0.00
18 Dec 4:45 pm	34	18	53	29 SW	6G11	24.66	1023.8	30.17	0.00	0.00
18 Dec 4:30 pm	35	19	53	29 WSW	7G11	24.65	1023.0	30.16	0.00	0.00
18 Dec 4:15 pm	35	20	54	28 WSW	8G13	24.65	1023.0	30.16	0.00	0.00
18 Dec 4:00 pm	36	20	52	31 SW	6G12	24.65	1022.6	30.16	0.00	0.00
18 Dec 3:45 pm	35	20	54	29 SW	7G12	24.65	1023.0	30.16	0.00	0.00
18 Dec 3:30 pm	36	20	52	30 SW	8G12	24.65	1022.3	30.15	0.00	0.00
18 Dec 3:15 pm	36	21	54	30 WSW	7G11	24.65	1022.3	30.15	0.00	0.00
18 Dec 3:00 pm	36	20	53	34 SW	3G4	24.65	1022.6	30.16	0.00	0.00
18 Dec 2:45 pm	36	19	51	33 WSW	4G9	24.64	1021.9	30.14	0.00	0.00
18 Dec 2:30 pm	36	20	52	33 SW	4G8	24.65	1022.3	30.15	0.00	0.00
18 Dec 2:15 pm	36	20	52	32 WSW	5G10	24.65	1022.3	30.15	0.00	0.00
18 Dec 2:00 pm	37	20	51	32 SW	6G11	24.65	1021.9	30.15	0.00	0.00
18 Dec 1:45 pm	37	19	48	32 WSW	7G12	24.65	1022.2	30.16	0.00	0.00
18 Dec 1:31 pm	37	20	50	33 WSW	5G8	24.65	1021.9	30.15	0.00	0.00
18 Dec 1:17 pm	36	19	50	32 SW	5G11	24.65	1022.3	30.15	0.00	0.00
18 Dec 1:02 pm	37	20	51	32 WSW	6G10	24.65	1021.9	30.15	0.00	0.00
18 Dec 12:49 pm	36	19	51	29 SW	9G14	24.65	1022.6	30.16	0.00	0.00
18 Dec 12:31 pm	34	19	54	30 WSW	4G7	24.65	1023.4	30.16	0.00	0.00
18 Dec 12:17 pm	35	19	52	32 WSW	4G9	24.65	1023.0	30.16	0.00	0.00
18 Dec 12:01 pm	35	18	50	31 WSW	5G8	24.65	1023.0	30.16	0.00	0.00
18 Dec 11:46 am	36	20	52	34 WSW	3G7	24.65	1022.6	30.16	0.01	0.00
18 Dec 11:31 am	35	19	53	33 W	3G10	24.65	1023.0	30.16	0.01	0.00
18 Dec 11:16 am	36	19	50	32 WSW	5G10	24.65	1022.3	30.15	0.01	0.00
18 Dec 11:01 am	35	18	50	32 WSW	4G7	24.65	1022.7	30.15	0.01	0.00
18 Dec 10:46 am	35	19	51	31 WSW	5G8	24.65	1022.7	30.15	0.01	0.00
18 Dec 10:31 am	35	19	52	32 SW	4G7	24.65	1022.7	30.15	0.01	0.00
18 Dec 10:16 am	35	17	48	32 SSW	4G10	24.65	1022.7	30.15	0.01	0.00
18 Dec 10:00 am	34	17	50	30 SW	4G7	24.64	1022.8	30.14	0.01	0.00
18 Dec 9:46 am	34	18	51	29 SW	6G9	24.64	1022.8	30.14	0.01	0.00
18 Dec 9:30 am	33	18	53	30 SSE	3G7	24.64	1023.2	30.14	0.01	0.00
18 Dec 9:16 am	31	17	57	S	1G4	24.64	1024.0	30.14	0.01	0.00
18 Dec 9:00 am	31	18	59	27 SW	4G7	24.63	1023.7	30.13	0.01	0.00
18 Dec 8:46 am	31	17	57	SSE	2G4	24.63	1023.7	30.13	0.01	0.00
18 Dec 8:30 am	31	17	56	S	1G3	24.62	1023.3	30.12	0.01	0.00
18 Dec 8:15 am	31	17	56	S	1G3	24.62	1023.3	30.12	0.01	0.00

18 Dec 8:00 am	31	17	56		CALM	24.63	1023.7	30.13	0.01	0.00
18 Dec 7:45 am	31	17	57	S	2G9	24.63	1023.7	30.13	0.01	0.00
18 Dec 7:30 am	31	18	58	28 S	3G6	24.63	1023.7	30.13	0.01	0.00
18 Dec 7:15 am	31	19	60	28 SSW	3G6	24.63	1023.7	30.13	0.01	0.00
18 Dec 7:00 am	30	18	62	S	2G5	24.62	1023.7	30.12	0.01	0.00
18 Dec 6:45 am	30	18	61	27 S	3G7	24.63	1024.1	30.13	0.01	0.00
18 Dec 6:30 am	30	18	62	S	2G6	24.62	1023.7	30.12	0.01	0.00
18 Dec 6:15 am	30	18	62	26 SSW	4G7	24.61	1023.4	30.11	0.01	0.00
18 Dec 6:01 am	30	18	62	27 S	3G7	24.61	1023.4	30.11	0.01	0.00
18 Dec 5:45 am	30	18	62	27 S	3G6	24.61	1023.4	30.11	0.01	0.00
18 Dec 5:30 am	30	18	62	27 S	3G6	24.60	1023.1	30.10	0.01	0.00
18 Dec 5:15 am	30	18	62	26 SSW	4G8	24.60	1022.7	30.09	0.01	0.00
18 Dec 5:00 am	30	19	64	26 S	4G7	24.60	1022.7	30.09	0.01	0.00
18 Dec 4:45 am	30	19	64	S	2G6	24.60	1022.7	30.09	0.01	0.00
18 Dec 4:30 am	30	19	64	27 S	3G6	24.59	1022.4	30.08	0.01	0.00
18 Dec 4:15 am	30	20	65	26 SSW	4G6	24.58	1022.0	30.07	0.01	0.00
18 Dec 4:00 am	29	19	66	S	2G6	24.58	1022.5	30.07	0.01	0.00
18 Dec 3:45 am	29	19	66	SSW	2G6	24.58	1022.5	30.07	0.01	0.00
18 Dec 3:30 am	30	20	66	27 SSW	3G6	24.59	1022.4	30.08	0.01	0.00
18 Dec 3:17 am	30	20	66	27 SSW	3G5	24.58	1022.0	30.07	0.01	0.00
18 Dec 3:01 am	30	19	64	27 S	3G6	24.57	1021.7	30.06	0.01	0.00
18 Dec 2:49 am	30	19	64	26 SSW	4G7	24.56	1021.4	30.05	0.01	0.00
18 Dec 2:32 am	30	19	63	26 SSW	4G7	24.56	1021.0	30.04	0.01	0.00
18 Dec 2:17 am	30	19	63	26 SSW	4G7	24.55	1020.7	30.03	0.01	0.00
18 Dec 2:03 am	30	19	64	26 SSW	4G7	24.54	1020.4	30.02	0.01	0.00
18 Dec 1:46 am	30	18	61	25 SSW	5G7	24.53	1020.0	30.01	0.01	0.00
18 Dec 1:31 am	31	18	59	27 SW	4G10	24.52	1019.3	30.00	0.01	0.00
18 Dec 1:16 am	31	18	58	25 SW	6G12	24.52	1019.3	30.00	0.01	0.00
18 Dec 1:01 am	31	18	58	27 SSW	4G7	24.51	1018.9	29.99	0.01	0.00
18 Dec 12:45 am	31	17	57	26 SSW	5G8	24.51	1018.6	29.98	0.01	0.00
18 Dec 12:30 am	31	17	57	27 SSW	4G9	24.50	1018.2	29.97	0.01	0.00
18 Dec 12:16 am	31	17	57	27 S	4G7	24.49	1017.9	29.96	0.01	0.00
18 Dec 12:00 am	32	18	56	28 SSW	4G6	24.49	1017.5	29.96	0.01	0.00
17 Dec 11:46 pm	32	18	56	27 SSW	5G11	24.48	1017.1	29.95	0.01	0.01
17 Dec 11:30 pm	31	18	58	28 SSW	3G7	24.47	1017.2	29.94	0.01	0.01
17 Dec 11:15 pm	31	18	58	25 SW	6G10	24.47	1016.9	29.93	0.01	0.01
17 Dec 11:00 pm	31	19	61	S	2G5	24.47	1016.9	29.93	0.01	0.01
17 Dec 10:45 pm	31	19	62	S	1G3	24.45	1016.2	29.91	0.01	0.01
17 Dec 10:30 pm	31	19	62	SSW	2G4	24.45	1016.2	29.91	0.01	0.01
17 Dec 10:15 pm	31	19	62	SSW	2G4	24.44	1015.9	29.90	0.01	0.01
17 Dec 10:00 pm	32	20	61	28 WSW	4G7	24.43	1015.1	29.89	0.01	0.01
17 Dec 9:45 pm	32	20	60	WSW	2G8	24.42	1014.8	29.88	0.01	0.01
17 Dec 9:16 pm	32	21	63	28 SSW	4G6	24.41	1014.1	29.86	0.01	0.01
17 Dec 9:01 pm	32	21	63	29 SSW	3G10	24.40	1013.7	29.85	0.01	0.01
17 Dec 8:46 pm	31	20	64	28 S	3G6	24.40	1014.2	29.85	0.01	0.01
17 Dec 8:32 pm	31	20	64	28 S	3G7	24.40	1014.2	29.85	0.01	0.01
17 Dec 8:16 pm	31	21	66	27 SW	4G7	24.38	1013.5	29.83	0.01	0.01
17 Dec 8:04 pm	31	21	66	SW	2G5	24.38	1013.5	29.83	0.01	0.01
17 Dec 7:46 pm	32	22	67	28 SW	4G8	24.37	1012.4	29.81	0.01	0.01
17 Dec 7:32 pm	33	23	67	29 SW	4G8	24.36	1011.6	29.80	0.01	0.01
17 Dec 7:16 pm	33	22	65	30 SW	3G8	24.35	1011.3	29.79	0.01	0.01
17 Dec 7:01 pm	33	22	65	28 SSW	5G9	24.34	1011.0	29.78	0.01	0.01
17 Dec 6:47 pm	34	23	65	29 SSW	5G8	24.33	1009.9	29.76	0.01	0.01

17 Dec 6:31 pm	35	25	66	33 S	3G6	24.32	1009.1	29.75	0.01	0.01
17 Dec 6:16 pm	34	24	67	30 SSW	4G7	24.32	1009.5	29.75	0.01	0.01
17 Dec 6:02 pm	35	25	67	33 SSW	3G7	24.31	1008.8	29.74	0.01	0.01
17 Dec 5:46 pm	35	26	70	30 SW	6G12	24.31	1008.8	29.74	0.01	0.01
17 Dec 5:31 pm	33	26	77	SSW	2G5	24.31	1009.6	29.74	0.01	0.01
17 Dec 5:16 pm	35	27	72		CALM	24.31	1008.8	29.74	0.01	0.01
17 Dec 5:01 pm	35	26	71	SSW	2G6	24.30	1008.4	29.73	0.01	0.01
17 Dec 4:46 pm	35	26	71	33 S	3G5	24.30	1008.4	29.73	0.01	0.01
17 Dec 4:31 pm	35	27	72		CALM	24.30	1008.4	29.73	0.01	0.01
17 Dec 4:16 pm	35	26	71		CALM	24.29	1008.1	29.72	0.01	0.01
17 Dec 4:01 pm	35	26	70	33 E	3G7	24.29	1008.1	29.72	0.01	0.01
17 Dec 3:47 pm	35	26	69	33 ENE	3G6	24.29	1007.8	29.71	0.01	0.01
17 Dec 3:31 pm	35	25	68	32 NE	4G6	24.28	1007.4	29.70	0.01	0.01
17 Dec 3:16 pm	35	25	68	33 E	3G4	24.27	1007.1	29.69	0.01	0.01
17 Dec 3:01 pm	36	27	69	E	2G6	24.26	1006.3	29.68	0.01	0.01
17 Dec 2:46 pm	36	27	69		CALM	24.26	1006.3	29.68	0.02	0.01
17 Dec 2:30 pm	37	28	70		CALM	24.25	1005.6	29.67	0.02	0.01
17 Dec 2:16 pm	38	26	63	SSE	2G6	24.25	1005.2	29.67	0.02	0.01
17 Dec 2:00 pm	38	27	64		CALM	24.25	1004.9	29.66	0.02	0.01
17 Dec 1:46 pm	38	28	66		CALM	24.25	1004.9	29.66	0.02	0.01
17 Dec 1:31 pm	39	27	63	37 ENE	3G5	24.25	1004.5	29.66	0.02	0.01
17 Dec 1:15 pm	41	25	53	SSW	1G7	24.25	1003.7	29.66	0.02	0.01
17 Dec 1:01 pm	40	25	55	SW	2G8	24.25	1004.1	29.66	0.02	0.01
17 Dec 12:45 pm	40	25	55	37 SSW	4G7	24.25	1004.4	29.67	0.02	0.01
17 Dec 12:32 pm	39	25	57	37 SE	3G8	24.25	1004.8	29.67	0.02	0.01
17 Dec 12:15 pm	38	27	64		CALM	24.26	1005.5	29.68	0.02	0.01
17 Dec 12:01 pm	38	26	62	ENE	2G4	24.27	1005.9	29.69	0.02	0.01
17 Dec 11:45 am	37	26	64	ESE	1	24.28	1006.6	29.70	0.02	0.01
17 Dec 11:30 am	39	27	62	ESE	1G6	24.28	1005.8	29.70	0.02	0.01
17 Dec 11:16 am	40	25	55	SSE	2G6	24.28	1005.4	29.70	0.02	0.01
17 Dec 11:00 am	39	25	57	SSE	2G7	24.29	1006.1	29.71	0.01	0.00
17 Dec 10:45 am	39	25	57	35 S	5G8	24.29	1006.5	29.72	0.01	0.00
17 Dec 10:30 am	38	24	58	36 SSW	3G6	24.29	1006.6	29.71	0.01	0.00
17 Dec 10:15 am	39	25	58	36 SW	4G7	24.29	1006.5	29.72	0.01	0.00
17 Dec 10:00 am	39	25	57	37 S	3G8	24.29	1006.5	29.72	0.01	0.00
17 Dec 9:45 am	38	24	58	SE	2G7	24.29	1006.9	29.72	0.01	0.00
17 Dec 9:30 am	37	24	60		CALM	24.29	1007.3	29.72	0.01	0.00
17 Dec 9:15 am	36	25	64	SE	2G7	24.30	1008.0	29.73	0.01	0.00
17 Dec 9:00 am	34	23	65		CALM	24.31	1009.2	29.74	0.01	0.00
17 Dec 8:45 am	33	23	66	E	1G3	24.31	1009.6	29.74	0.01	0.00
17 Dec 8:30 am	33	23	68		CALM	24.31	1009.6	29.74	0.01	0.00
17 Dec 8:15 am	32	22	67		CALM	24.30	1009.7	29.73	0.01	0.00
17 Dec 8:00 am	32	22	66		CALM	24.29	1009.3	29.72	0.01	0.00
17 Dec 7:45 am	32	21	65		CALM	24.29	1009.3	29.72	0.01	0.00
17 Dec 7:32 am	34	23	64		CALM	24.30	1008.8	29.73	0.01	0.00
17 Dec 7:16 am	34	23	64	32 ENE	3G5	24.31	1009.2	29.74	0.01	0.00
17 Dec 7:01 am	34	23	64	ENE	2G5	24.31	1009.2	29.74	0.01	0.00
17 Dec 6:47 am	35	23	62	33 ESE	3G6	24.31	1008.8	29.74	0.01	0.00
17 Dec 6:31 am	37	24	60	SSE	1G7	24.32	1008.3	29.75	0.01	0.00
17 Dec 6:17 am	37	25	61	35 SSE	3G7	24.31	1008.0	29.74	0.01	0.00
17 Dec 6:02 am	35	24	64	ENE	1G4	24.31	1008.8	29.74	0.01	0.00
17 Dec 5:47 am	36	24	61		CALM	24.32	1008.7	29.75	0.01	0.00
17 Dec 5:31 am	37	23	58	35 WSW	3G10	24.31	1008.0	29.74	0.01	0.00

17 Dec 5:16 am	39	24	55	37 SW	3G8	24.30	1006.8	29.73	0.01	0.00
17 Dec 5:02 am	39	24	54	35 SSW	5G15	24.30	1006.8	29.73	0.01	0.00
17 Dec 4:47 am	38	24	56	34 SSE	5G12	24.30	1007.2	29.73	0.01	0.00
17 Dec 4:32 am	37	24	59	32 ENE	6G10	24.31	1008.0	29.74	0.01	0.00
17 Dec 4:16 am	37	24	59	NE	2G6	24.31	1008.0	29.74	0.01	0.00
17 Dec 4:01 am	36	23	60	SSW	2G4	24.32	1008.7	29.75	0.01	0.00
17 Dec 3:46 am	37	24	59		CALM	24.33	1008.6	29.76	0.01	0.00
17 Dec 3:30 am	37	23	58	SSW	1G3	24.33	1008.6	29.76	0.01	0.00
17 Dec 3:15 am	36	23	59	33 NNE	4G8	24.33	1009.4	29.77	0.01	0.00
17 Dec 3:01 am	35	22	58	WSW	1	24.34	1010.1	29.78	0.01	0.00
17 Dec 2:47 am	35	21	57		CALM	24.34	1010.1	29.78	0.01	0.00
17 Dec 2:30 am	35	22	58		CALM	24.33	1009.8	29.77	0.01	0.00
17 Dec 2:15 am	35	21	57	32 W	4G7	24.34	1010.1	29.78	0.01	0.00
17 Dec 2:01 am	36	21	54	WSW	2G23	24.35	1010.1	29.79	0.01	0.00
17 Dec 1:45 am	36	20	53	31 SE	6G13	24.36	1010.4	29.80	0.01	0.00
17 Dec 1:30 am	36	20	52	SE	2G25	24.36	1010.4	29.80	0.01	0.00
17 Dec 1:15 am	36	20	52	30 SW	8G23	24.35	1010.1	29.79	0.01	0.00
17 Dec 1:00 am	35	19	52	27 SSE	10G23	24.37	1011.2	29.81	0.01	0.00
17 Dec 12:45 am	35	19	51	27 SE	10G21	24.37	1011.2	29.81	0.01	0.00
17 Dec 12:30 am	35	18	50	25 SSE	16G35	24.38	1011.5	29.82	0.01	0.00
17 Dec 12:15 am	35	18	50	24 SE	19G33	24.38	1011.8	29.83	0.01	0.00
17 Dec 12:00 am	35	18	49	25 SE	16G31	24.40	1012.5	29.85	0.01	0.00
16 Dec 11:45 pm	35	17	48	27 S	11G33	24.40	1012.5	29.85	0.01	0.01
16 Dec 11:30 pm	36	18	47	27 SSE	13G34	24.41	1012.4	29.86	0.01	0.01
16 Dec 11:15 pm	36	17	45	26 ESE	18G35	24.42	1012.8	29.87	0.01	0.01
16 Dec 11:02 pm	36	16	44	27 SE	15G38	24.42	1013.1	29.88	0.01	0.01
16 Dec 10:46 pm	34	15	46	22 ESE	23G33	24.43	1014.3	29.89	0.01	0.01
16 Dec 10:31 pm	34	16	47	23 SE	18G33	24.44	1014.6	29.90	0.01	0.01
16 Dec 10:16 pm	35	16	45	24 ESE	20G37	24.46	1014.9	29.92	0.01	0.01
16 Dec 10:01 pm	35	15	44	28 SSE	8G12	24.47	1015.2	29.93	0.01	0.01
16 Dec 9:48 pm	35	15	44	27 SE	11G18	24.47	1015.6	29.94	0.01	0.01
16 Dec 9:32 pm	34	15	46	23 ESE	20G34	24.47	1016.0	29.94	0.01	0.01
16 Dec 9:15 pm	34	15	46	23 SE	19G28	24.48	1016.3	29.95	0.01	0.01
16 Dec 9:02 pm	35	15	43	27 ESE	12G22	24.49	1016.2	29.96	0.01	0.01
16 Dec 8:46 pm	35	16	45	26 ESE	13G22	24.50	1016.6	29.97	0.01	0.01
16 Dec 8:16 pm	35	17	47	26 ESE	13G23	24.51	1016.9	29.98	0.01	0.01
16 Dec 8:01 pm	35	16	46	26 SE	13G17	24.51	1016.9	29.98	0.01	0.01
16 Dec 7:45 pm	35	17	47	27 SE	11G20	24.52	1017.6	30.00	0.01	0.01
16 Dec 7:31 pm	34	16	47	27 SE	9G15	24.52	1018.0	30.00	0.01	0.01
16 Dec 7:16 pm	35	16	46	28 ESE	9G12	24.52	1017.6	30.00	0.01	0.01
16 Dec 7:01 pm	35	17	47	28 SE	9G14	24.53	1017.9	30.01	0.01	0.01
16 Dec 6:45 pm	35	18	49	28 SE	9G14	24.53	1017.9	30.01	0.01	0.01
16 Dec 6:31 pm	33	17	52	27 SE	7G10	24.54	1019.1	30.02	0.01	0.01
16 Dec 6:16 pm	31	17	56	SE	1G3	24.55	1020.3	30.03	0.01	0.01
16 Dec 6:01 pm	30	17	58		CALM	24.55	1020.7	30.03	0.01	0.01
16 Dec 5:46 pm	30	17	58		CALM	24.56	1021.0	30.04	0.01	0.01
16 Dec 5:31 pm	30	17	59		CALM	24.56	1021.0	30.04	0.01	0.01
16 Dec 5:15 pm	31	18	58		CALM	24.56	1020.6	30.04	0.01	0.01
16 Dec 5:00 pm	32	18	56		CALM	24.56	1020.5	30.05	0.01	0.01
16 Dec 4:46 pm	32	19	58	29 SE	3G5	24.56	1020.5	30.05	0.01	0.01
16 Dec 4:30 pm	32	18	57	29 SSE	3G8	24.56	1020.5	30.05	0.01	0.01
16 Dec 4:15 pm	34	17	50	SE	2G6	24.56	1019.7	30.05	0.01	0.01
16 Dec 4:00 pm	34	19	54	S	2G7	24.56	1019.7	30.05	0.01	0.01