W B E A

Wood Buffalo Environmental Association

Ambient Air Monitoring Station Site Documentation

Ells River

LAST UPDATED: MARCH 28, 2024

Table of Contents

General Site Information 4

Station 4

Location 4

Owner/Operator/Approval Holder 4

Site Description 4

Site Influences 5

Localized Sources (within 20 metres of station) 5

Roadway Influences 5

Major Point Sources 5

Station Equipment 6

Analytical Equipment 6

Meteorolgical Equipment 6

Support Equipment 6

Site photos 11

Station Photos 16

Tables and Figures

Figure 1 – Area Topographic map showing AMS 30 7
Figure 2 - Plan view sketch for AMS 30 site..... 8
Figure 3 – Aerial photo showing AMS 30 9
Figure 4 - Cross-sectional Elevation Drawing of AMS 30..... 10
Figure 5 – Environ Looking North 11
Figure 6 – Environ Looking East 12
Figure 7 – Environ looking South. 13
Figure 8 – Environ Looking West 14
Figure 9 – Meteorological Tower 15
Figure 10 – Photo showing the inlet and sample manifold 16
Figure 11 – Curb shot of the monitoring station 17
Figure 12 –Photo of front and back of instrument rack 18
Figure 13 – Windrose (Five Year) 19

General Site Information

Revision Date: March 28, 2024

Station

Station ID	AMS 30
Station name	Ells River
Date station established	2020

Location

Station street address	Located at about 300 m northwest of the Total Joslyn Camp.
Legal land description	12-04-096-11 W4
Latitude	57.241180
Longitude	-111.722081
Ground Elevation	299.9
UTM East	456424
UTM North	6344478
Nearest community	Fort Mackay
Community population	757

Owner/Operator/Approval Holder

Operating Agency	Wood Buffalo Environmental Association
Name of Approval Holder	Canadian Natural Resources Ltd.
Approval number	149968-01-00
Contact Name	Malathi Velmurugan
Address	2100, 855 – 2 Street SW Calgary, AB T2P 4J8
Phone number	(780) 714-4436
Email address	Malathi.Velmurugan@cnrl.com

Site Description

Land use by sector	0 – 90 degrees	Pond
	91 – 180 degrees	Forest / Highway
	181 – 270 degrees	Forest
	271 – 360 degrees	Forest
Site elevation (above sea level)	304	
Angle of elevation to nearby buildings	Greatest angle	12 degrees
	Building direction	East
Airflow restrictions	North	No
	East	No
	South	No
	West	No
Sample manifold	Type	All glass

	Inlet height above roof	1 metre
Wind Sensors	Type	Cup and vane
	Height above ground	10 metres
	Distance from station	7 metres

Site Influences

Localized Sources (within 20 metres of station)

Type	Distance (m)	Description
Cell tower compound	14	Compound that holds the equipment for the cell tower to function

Roadway Influences

Type	Traffic Volume	Distance (m)	Description
Paved road	Very low	50 M West	Old horizon highway
Paved road	High	250 M East	Horizon highway
Dirt road	Very low	100 M East	Dirt road around the pond

Major Point Sources

Facility Name	Source Type	Distance from site (km)	Compass direction from site
CNRL Horizon Oil Sands	Oil plant	10km	North
CNRL Horizon	Open mining	7km	North

Station Equipment

Equipment Owner: Canadian Natural Resources Ltd.

Analytical Equipment

Parameter	Make	Model	Serial Number	Date Instrument Installed	WBEA Data Start Date
Continuous					
SO_2	Thermo Scientific	43i	1008841397	2021	October, 2020
TRS	Thermo Scientific	43i-TLE	1410661331	2021	October, 2020
$NO/NO_x/NO_2$	Thermo Scientific	42i	0710321429	2021	October, 2020
$THC/CH_4/NMHC$	Thermo Scientific	55i	1181490018	2023	October, 2020
$PM_{2.5}$	Teledyne/API	T640	875	2021	October, 2020
Time-Integrated					
PM_{10} A	Thermo Environmental	2000i	2000I2 204961409	2021	-
PM_{10} B	Thermo Environmental	2000i	2000IW 206011510	2021	-
TSP	Thermo Environmental	2000i	2000IW 209632110	2023	-
VOC	Tisch Environmental	Te-123	1030	2021	-

Meteorolgical Equipment

Parameter	Make	Model	Serial Number	WMO Site Class	Date Sensor Installed	WBEA Data Start Date
AT/RH	Vaisala	HMP155	F5010003	3	2021	October, 2020
WS	Met One	010C-1	A3111	5	2021	October, 2020
WD	Met One	020C-1	J2732	5	2021	October, 2020
GR	Eppley Lab Inc.	8-48	38244	n/a	2021	October, 2020

Support Equipment

Name	Description	Make	Model	Serial Number
Datalogger	Datalogger	Campbell Scientific	CR3000	11040
Gas Dilution Calibrator	Dynamic dilution calibrator	Teledyne/API	T700	3061
Zero air generator	Zero Air Generator	Teledyne/API	T701H	358
Shelter / Building	Air monitoring portable	ITB	8 x 16 trailer	2N9MF73895
HVAC	Heating and air conditioning system. Wall mount unit	BARD	1 ton	NA

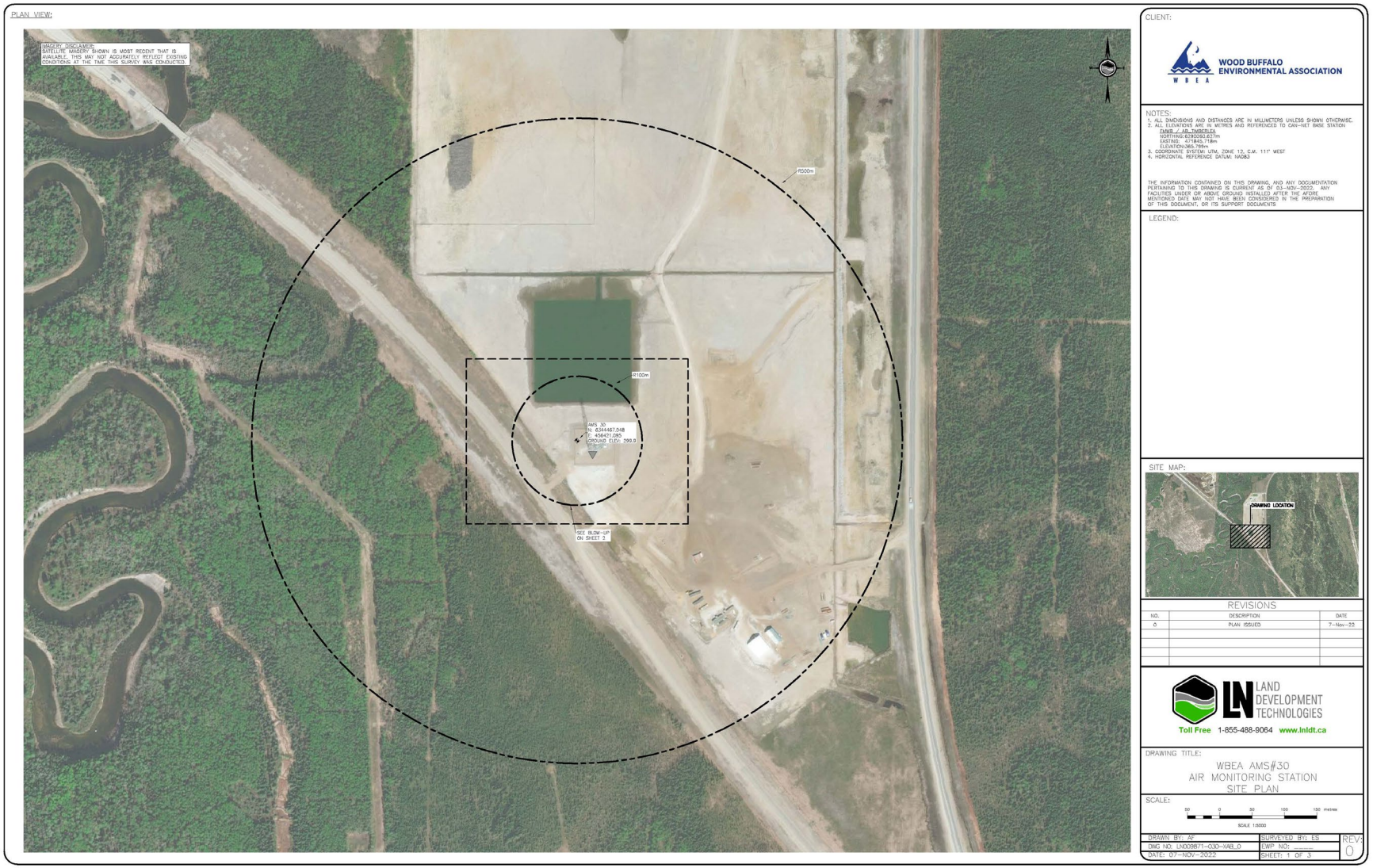
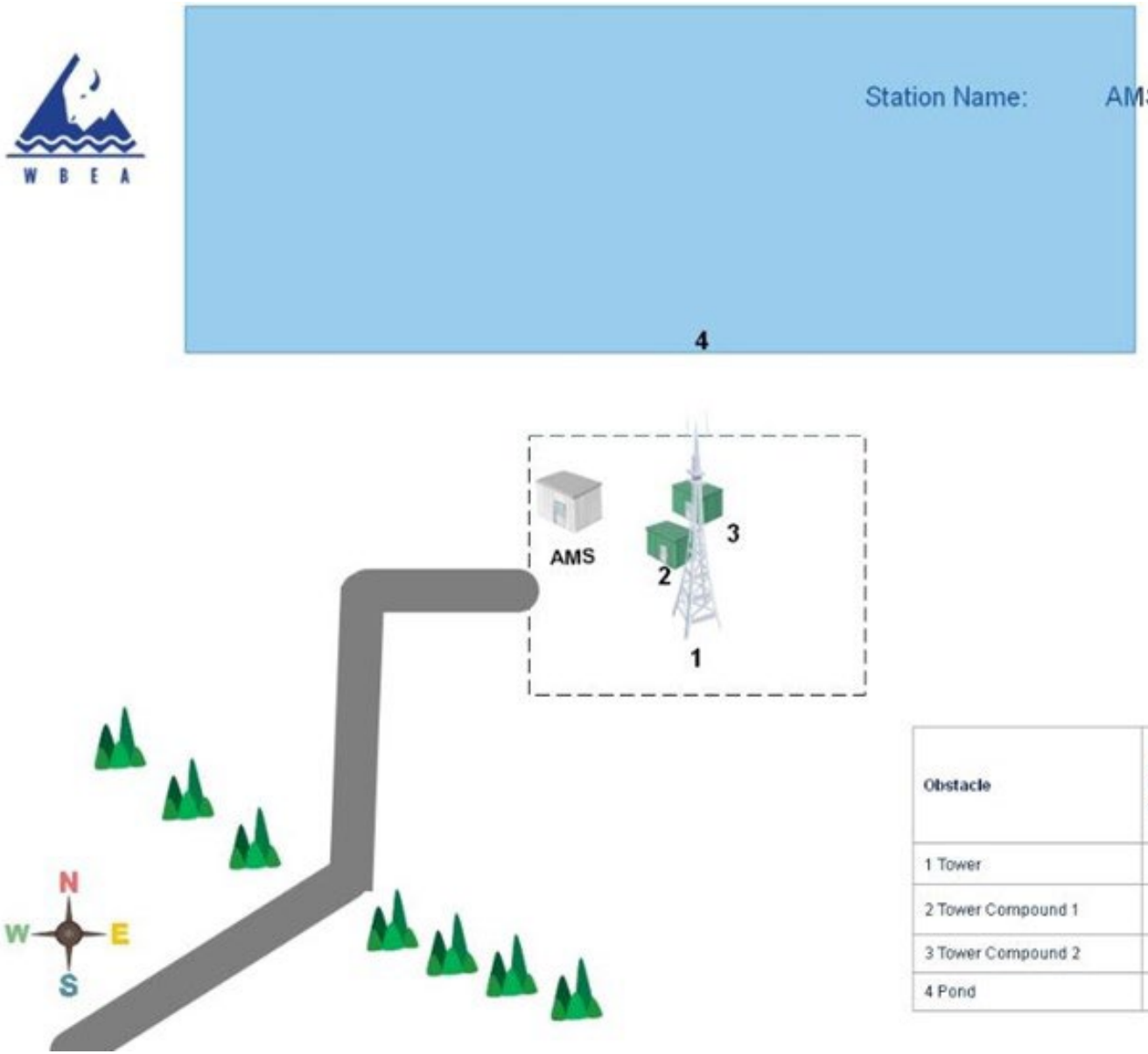


Figure 1 – Area Topographic map showing AMS 30



Obstacle	Distance from the station (m)	Height of the Obstacle (m)
1 Tower	27	100
2 Tower Compound 1	14	3
3 Tower Compound 2	26	5
4 Pond	25	0

Figure 2 – Plan view sketch for AMS 30 site

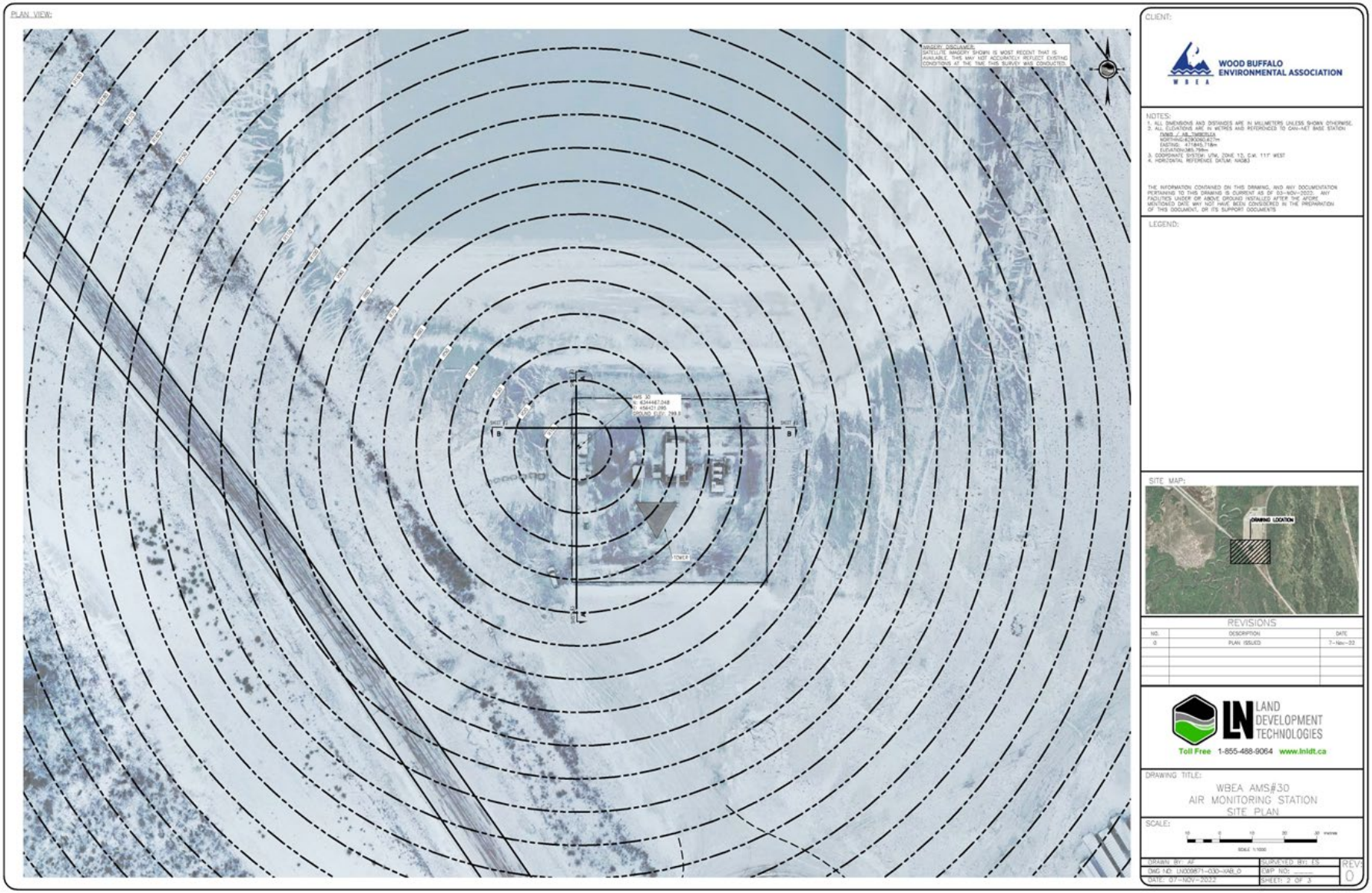


Figure 3 – Aerial photo showing AMS 30

Figure 4 – Cross-Sectional Elevation Drawing of AMS 30

Site photos

The following photos show the environment surrounding the monitoring station.

Figure 5 – Environ Looking North

Figure 6 – Environ Looking East

Figure 7 – Environ looking South.

Figure 8 – Environ Looking West

Figure 9 – Meteorological Tower

Station Photos

The following photos show the monitoring station and instrumentation.

Figure 10 – Photo showing the inlet and sample manifold

Figure 11 – Curb shot of the monitoring station

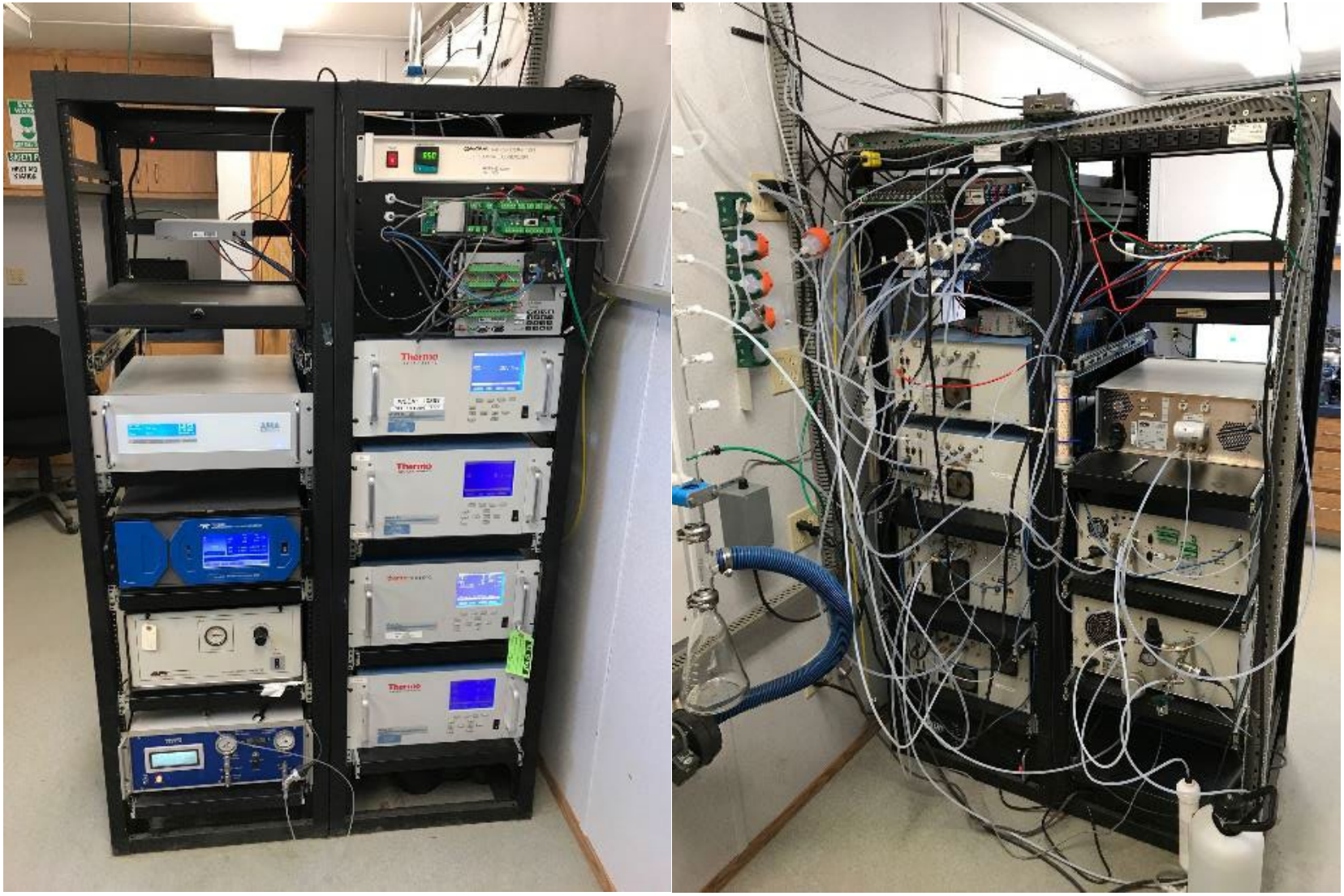


Figure 12 –Photo of front and back of instrument rack

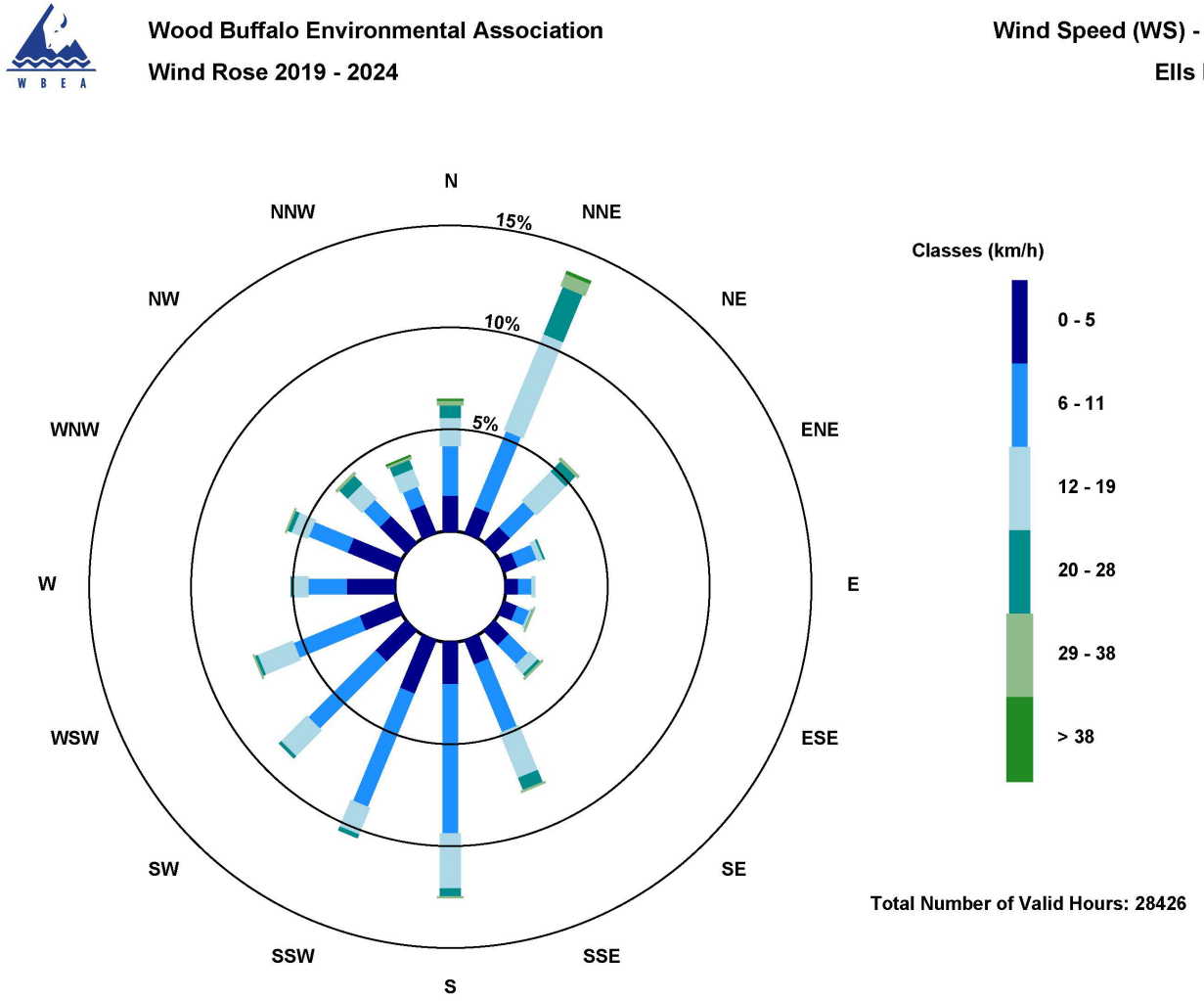


Figure 13 – Windrose (Five Year)